

Using Data Analytics to Target Specific Health Care Solutions

Actuaries Club of the Southwest

June 11, 2010



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Applying Data Analytics

Discussion Agenda for June 11

- ↳ **Focusing the Value of Analytics**
 - **Employer Applications of Analytics**
 - Financial management
 - Health outcomes management
- ↳ **Setting Targets for Health Outcomes**
 - Using Client Specific Data
 - Applying Normative Data to Evaluate Outcomes
- ↳ **Case Study**



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Applying Data Analytics

Delivering the Value of Data Analytics - What Should Employers Focus On?

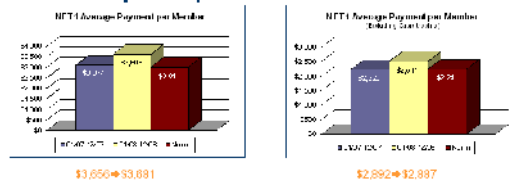
- ↳ **Level 1** Understanding “what happened?”
 - *Financial metrics*
- ↳ **Level 2** Understanding “why did it happen?”
 - *Diagnosis/Condition metrics*
- ↳ **Level 3** Understanding “what can I do about it?”
 - *Health Status and Outcomes metrics*

Applying Data Analytics

Employer XYZ - Financial reports provide a limited understanding of overall cost drivers

XYZ Payment Trend

The plan experienced a 17.3% increase in trend, which was driven by multiple components

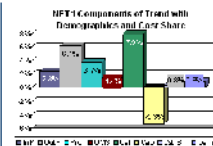


- The total payments increased 11.2% from \$5.0M in Period 1 to \$5.5M in Period 2.
- Excluding catastrophic claims (>\$50K), the average payment per member increased 13.1%.
- Non-catastrophic payments increased 24.4% from \$2.3M in Period 1 to \$2.9M in Period 2.
- Inpatient, outpatient, professional, other medical services, catastrophic, cost share and demographics were all positive trend drivers.
- Capitation was the only negative trend driver.

Trend component analysis is essential

- Demographics
- Catastrophic
- Benefit changes
- Utilization
- Price changes

... but it doesn't provide a full answer



Applying Data Analytics

Employer XYZ - Financial reports provide a limited understanding of overall cost drivers

Combined Medical Plan Performance Summary

Medical Plan Performance Summary - All Practices Combined					
Category	2017 Actual	2016 Actual	Change	% Change	Home
Medical Spend	\$10,250,000	\$9,250,000	\$1,000,000	10.8%	
Average Per Member Per Month	\$260	\$250	\$10	4.0%	
Average Days of Illness	18.5	18.0	0.5	2.8%	
Medical Spend by Line	\$8,800,000	\$7,900,000	\$900,000	11.4%	
Medical Premium	\$6,500,000	\$5,800,000	\$700,000	12.1%	
Medical Claims	\$2,300,000	\$2,100,000	\$200,000	9.5%	
Medical Spend by Component	\$10,250,000	\$9,250,000	\$1,000,000	10.8%	
Medical Premium	\$6,500,000	\$5,800,000	\$700,000	12.1%	
Medical Claims	\$2,300,000	\$2,100,000	\$200,000	9.5%	
Medical Spend by Practice	\$10,250,000	\$9,250,000	\$1,000,000	10.8%	
Practice A	\$3,500,000	\$3,200,000	\$300,000	9.4%	
Practice B	\$3,800,000	\$3,500,000	\$300,000	8.6%	
Practice C	\$2,950,000	\$2,550,000	\$400,000	15.7%	
Medical Spend by Age Group	\$10,250,000	\$9,250,000	\$1,000,000	10.8%	
0-17	\$1,200,000	\$1,100,000	\$100,000	9.1%	
18-24	\$1,800,000	\$1,700,000	\$100,000	5.9%	
25-34	\$2,500,000	\$2,300,000	\$200,000	8.7%	
35-44	\$3,200,000	\$2,900,000	\$300,000	10.3%	
45-54	\$4,000,000	\$3,600,000	\$400,000	11.1%	
55-64	\$4,800,000	\$4,300,000	\$500,000	11.6%	
65+	\$5,600,000	\$5,100,000	\$500,000	9.8%	

Descriptive statistics of health cost components track overall results.

- Paid amount PEPM
- IP days/cost
- ER visits/cost
- OP encounters/cost

... but don't provide insight into **why** the results occurred



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Using data analytics to measure health plan performance and outcomes

- Move past average measures based on the full group
 - Underlying healthcare conditions/costs are too diverse
 - Most important measures will be condition or group specific
- Must incorporate health risk/health status measures
- Need to integrate normative measures
 - Statistical credibility of condition specific measures
- Focus on the “why” and the “so what” issues
- Track results on continual basis
 - Quarterly vs. annual comparisons



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Health Status and Outcome (Predictive) Measures

↳ Health Risk Index

- Measures relative severity of illness
- Example – a diabetic with multiple co morbidities vs. diabetes only

↳ Care Gap Index

- Measures compliance with medical standards
- Condition specific measures
- Incorporates impact of high cost/urgent treatment



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Applying Data Analytics

Using Normative Health Risk and Care Gap Data to Establish Performance Targets

↳ Data study based on Verisk Health (formerly D2Hawkeye) Risk Index/Care Gap Index measures

↳ Study Objectives

- Evaluate the link between age, health risk status, medical compliance and the cost of healthcare coverage
- Estimate potential savings from improving overall treatment compliance
- Identify the potential impact for health management programs as part of a corporate strategy to manage health costs

↳ Basis of the study

- Total 5.5 million lives (employed participants and family members)
- In total, over \$ 19 billion of paid claims
- Participants from wide cross section of employers and geographic regions
- Study covered a 2 year period from July 2006 through June 2008

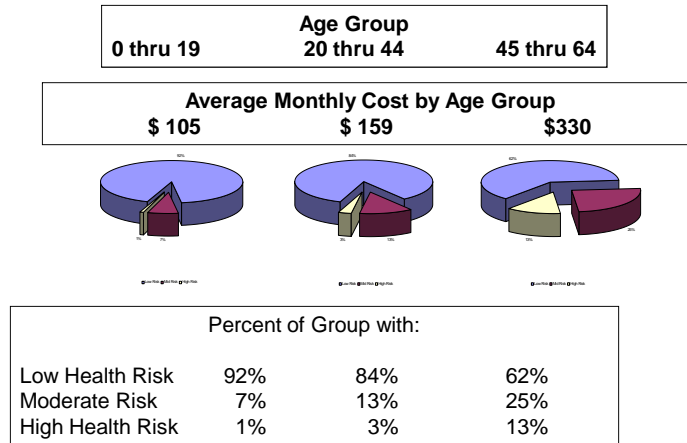


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The Cost of Health Care Rises as the Age of the Population Rises...



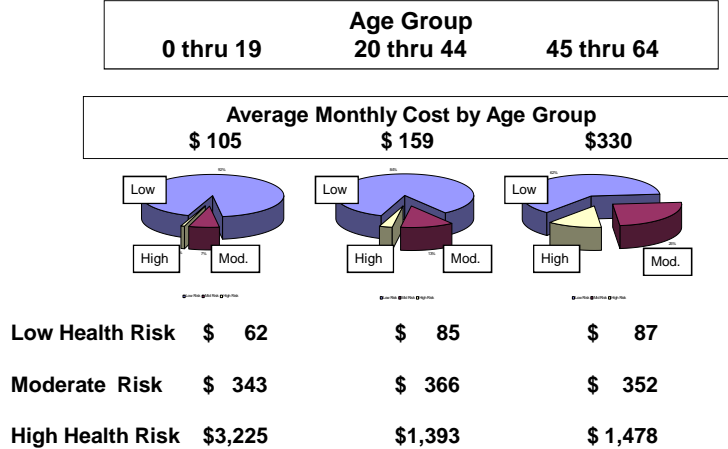
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... as Costs Reflect the Increase in the Number of Individuals with Elevated Health Risk ...



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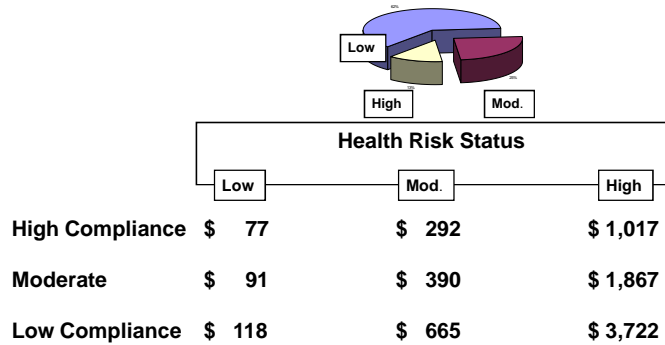
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... But Gaps in Care (Non Compliance with Medical Treatment Standards) are a Significant Impact on Costs

Impact of Gaps in Care (Non Compliance) for Individuals Ages 45 thru 64
Average Cost \$ 330 per Month



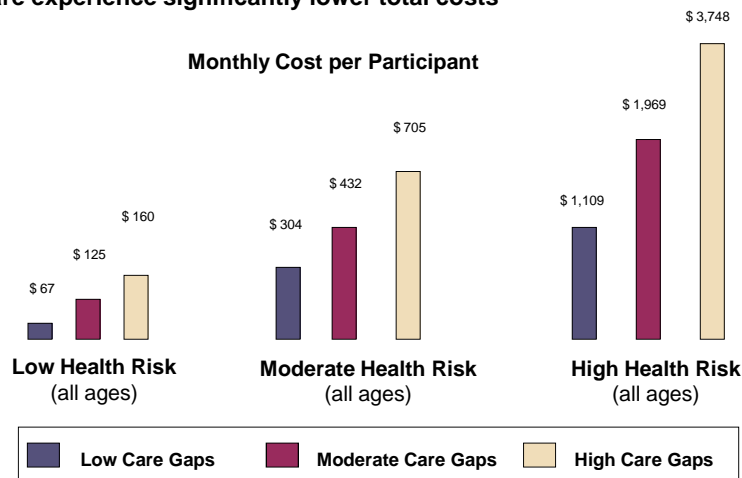
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Across every level of health risk, at every age participants with low gaps in care experience significantly lower total costs



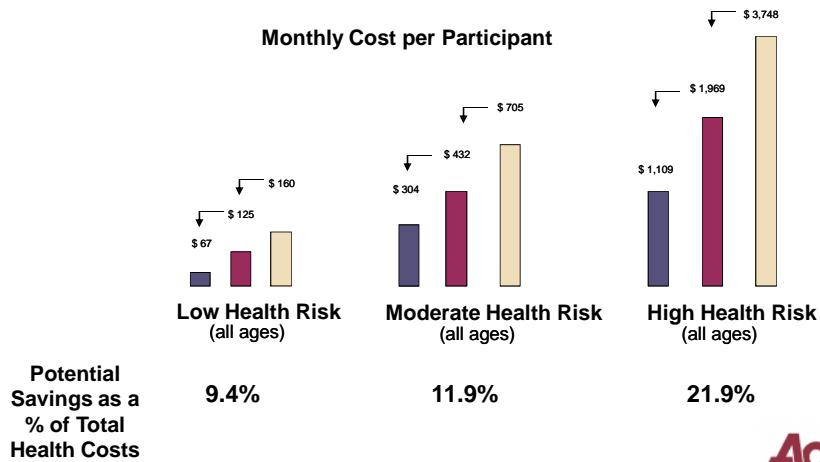
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Health care costs could be reduced significantly if even moderate reductions in overall care gaps can be achieved



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Applying Data Analytics

Applying data analytics to evaluate health/disease management programs

Employer XYZ

- 6,000+ employees; 13,000+ total members
- Multiple health plan options
- Single carrier; full range of DM, UM, CM programs
- Cost per employee \$7,200 (Year 1); \$7,100 (Year 2)
 - Chronic conditions account for approximately 30% of costs

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Applying Data Analytics

Problems with carrier disease management data reports:

- Condition specificity
- Definition of member conditions for DM programs
- Outcome measures
- Unclear savings calculations

Gaps in Care Highlights:

- Well Informed evaluated **9,000+ Employer XYZ members** for gaps in care.
 - **2,500+ members** were identified with a condition.
 - **72%** of those members identified were non-compliant.
- **Care Pattern** had the highest prevalence with a gap rate of **25%**.
- The top **5 gap conditions** were:
 - **Hypertension, Hyperlipidemia, Breast Cancer Screenings, Diabetes and Sinusitis.**

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Applying Data Analytics

Employer XYZ – Using data analytics to measure the effectiveness of health management/wellness programs

XYZ Disease Management

Condition	Members Enrolled	Disease Prevalence		Est. Medical Cost Savings	Est. Medical ROI
		Actual	Norm		
Asthma	28	1.5%	0.35%	\$27,502	1.1
Diabetes	27	0.4%	2.35%	\$20,355	0.5
Coronary	2	0.3%	0.45%	\$2,115	0.2
Hypertension	124	1.1%	2.1%	\$9,419	0.2
Depression	22	0.4%	2.1%	\$7,314	0.2
Targeted Conditions*	116	1.3%	10.1%	\$1,000,000	\$1,000,000
Weight Control/Calories	182	2.5%	13.3%	\$1,000,000	\$1,000,000
Active Total:	366	0.9%	42.6%	\$143,167	0.3

- Estimated medical savings were based on program costs of **\$182K** for the base programs. These savings do not include productivity savings from lost work days which are estimated at **\$73K** for the base programs.
- **23 members** opted out of the programs (Asthma=1, Diabetes=2, Targeted Conditions=3; Weight=7). There were **35 graduates** (Asthma=13, Low Back=9, Depression=2, Targeted Conditions=1).
- *Targeted Conditions include: Acid Related Disorders, Atrial Fibrillation, Fibromyalgia, Hepatitis C, Inflammatory Bowel Disease, Irritable Bowel Syndrome, Osteoporosis, Osteoarthritis, Pressure Ulcers and Urinary Incontinence.
- Account data through **December 2008**.

Employer XYZ study focus:

How do we know if the DM programs are effective?

Test two conditions

- Diabetes
- Asthma

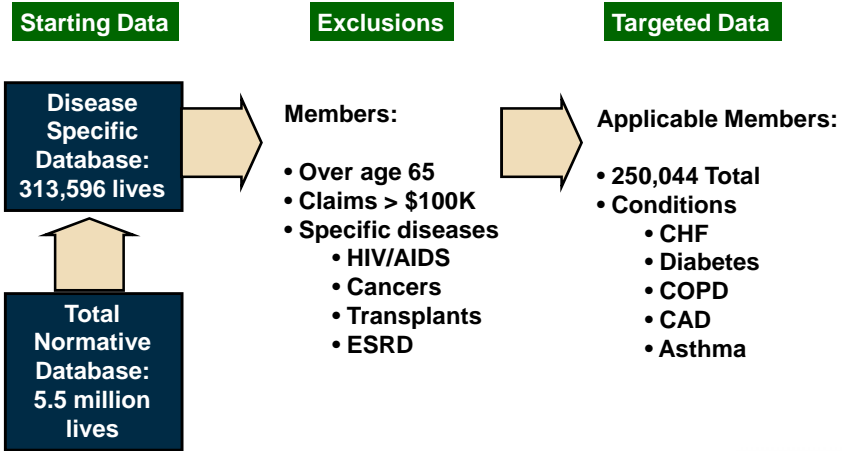
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Applying Data Analytics

Applying normative data to Employer XYZ's specific DM programs



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Applying Data Analytics

Applying normative data to Employer XYZ's specific DM programs

- Evaluating DM performance measures – Diabetic members

	Health Risk Status		
	Low	Mod.	High
Risk Index			
• Average	8.5	18.5	31.1
• High compliance	8.6	18.3	29.8
• Low compliance	8.2	18.9	34.9
Cost PMPM			
• Average	\$248	\$577	\$1,212
• High compliance	\$222	\$465	\$ 975
• Low compliance	\$312	\$840	\$1,906

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Applying Data Analytics

Applying normative data to Employer XYZ's specific DM programs

- Evaluating DM performance measures – Diabetic members

	Health Risk Status		
	Low	Mod.	High
Office Visits/1,000			
• Average	4,444	6,638	10,497
• High compliance	4,410	6,271	9,838
• Low compliance	4,528	7,503	12,424
Emergency Room Encounters/1,000			
• Average	214	352	719
• High compliance	142	193	427
• Low compliance	390	726	1,573
IP Admits/1,000			
• Average	50	105	291
• High compliance	21	32	118
• Low compliance	120	277	797

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Applying Data Analytics

Applying normative data to Employer XYZ's specific DM programs

- Evaluating DM performance measures – Asthmatic members

	Health Risk Status		
	Low	Mod.	High
Risk Index			
• Average	5.0	13.4	25.2
• High compliance	4.9	13.3	24.2
• Low compliance	5.6	13.9	28.8
Cost PMPM			
• Average	\$163	\$438	\$ 976
• High compliance	\$140	\$380	\$ 817
• Low compliance	\$270	\$665	\$1,562

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Applying Data Analytics

Applying normative data to Employer XYZ's specific DM programs

- Evaluating DM performance measures – Asthmatic members

	Health Risk Status		
	Low	Mod.	High
Office Visits/1,000			
Average	4,668	7,488	11,117
High compliance	4,728	7,384	10,512
Low compliance	4,384	7,899	13,360
Emergency Room Encounters/1,000			
Average	407	593	972
High compliance	245	378	642
Low compliance	1,162	1,447	2,195
IP Admits/1,000			
Average	60	111	221
High compliance	28	51	109
Low compliance	209	348	638

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Applying Data Analytics

Developing useful performance metrics for tracking DM outcomes

- ↳ Define condition specific groups for outcome tracking
 - Eliminate outliers
 - Multiple condition hierarchy
- ↳ Define DM participation status
- ↳ Track multiple outcome measures
 - Both key utilization metrics and cost PMPM
 - Risk/severity and care gap measures

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Applying Data Analytics

Gaining the value from analytics

- ↳ Setting measurable targets / timeframes
- ↳ Financial linkage
- ↳ Contractual requirements
 - Defined baseline costs
 - Savings reconciliation methodology
 - Amount of gain sharing/performance risk

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