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2.05 Predictive Modeling

P4P and Physician Engagement

Pay for Performance Summit
February 7, 2006

Quest Diagnostics

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Agenda

- Three Key Healthcare Trends
- About “Predictive Modeling”
- About “Reporting”
- Business and Clinical Outcomes

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Healthcare Costs…

National Health Spending
in Billions

Note: Selected rather than continuous years of data are shown prior to 2000. Years 2004 forward are CMS projections.
Source: Centers for Medicare and Medicaid Services (CMS), Office of the Actuary.

Health Care Costs 101
SPENDING LEVELS

Health spending reached $1.7 trillion in 2003 — about 4.3 times the amount spent on national defense.

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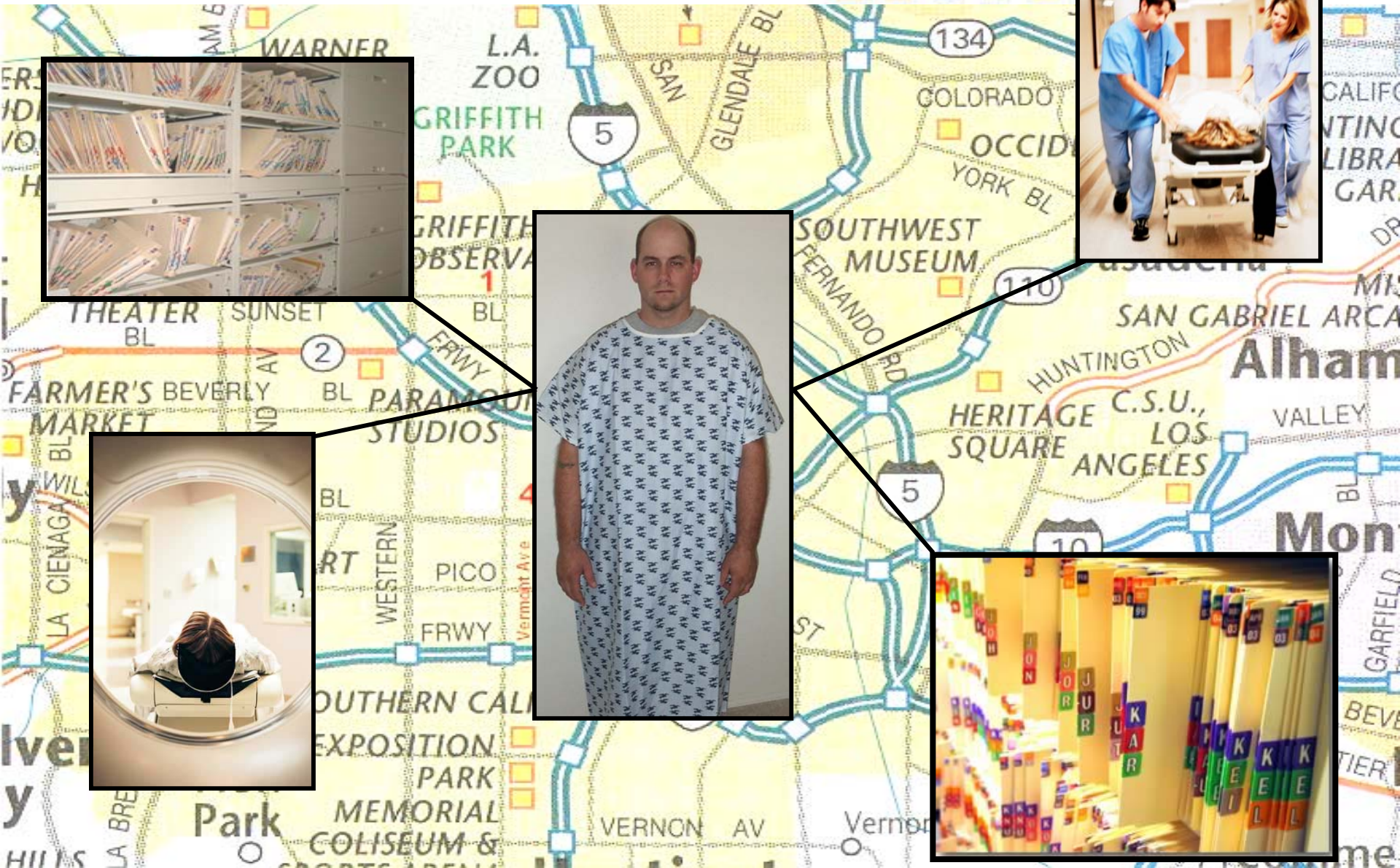
Fragmented Information



Quality 'Gaps' in Care

"Our results indicate that, on average, Americans receive about half of recommended care processes." - McGlynn, et.al, NEJM; June 26, 2003

"Poor quality care leads to 65.5M avoidable sick days and $1.8B in Excess Medical costs each year…"

- State of Healthcare Quality: 2004*

* Source: www.NCQA.org/communications/somc/sohc2004.pdf

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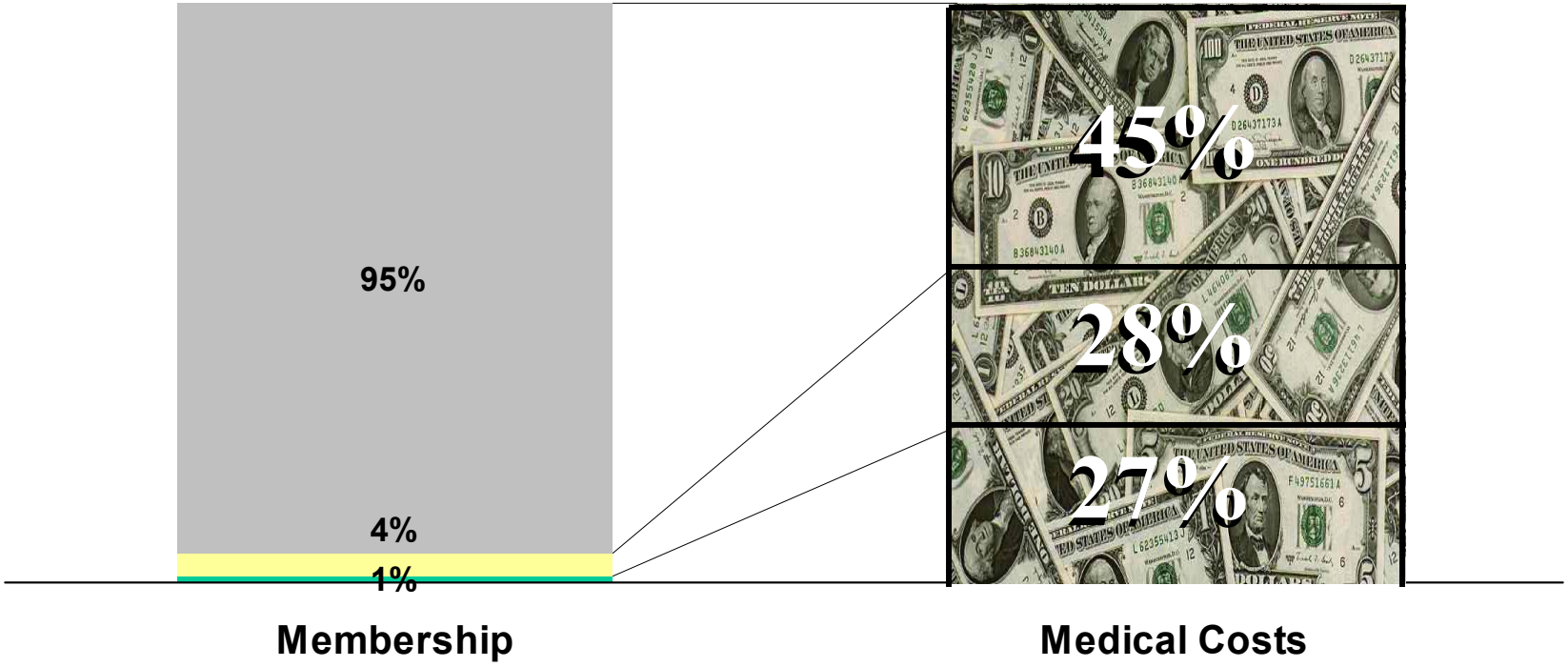
Challenge: Chronic Disease

- Chronic Disease – 50-75% of US health care spend
- Chronic Diseases – 125mm Americans with at least 1 chronic disease, 45mm with >2 chronic conditions
- Patients with chronic medical conditions account for:
  - *76% of inpatient admissions*
  - *88% of prescription drug use*
  - *96% of home care visits*
  - *72% of physician visits*

Source: Chronic Conditions: Making the Case for Ongoing Care; December 2002; Partnership for Solutions, Johns Hopkins University, for The Robert Wood Johnson Foundation

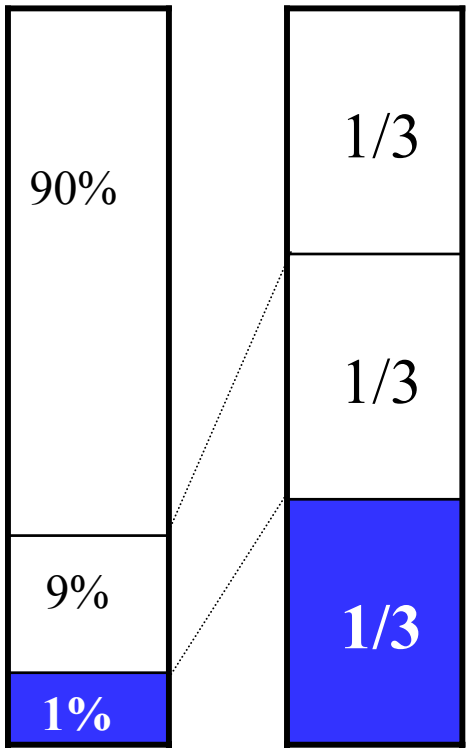
Opportunity: Chronic Disease

Population Contribution to Total Health Care Costs



Source: AC Monheit, "Persistence in Health Expenditures in the Short Run: Prevalence and Consequences," Medical Care 41, supplement 7 (2003): III53–III64.

Role for Medical Management



Covered Population	Total Drug Spend	Avg. Annual Cost/Case	Participants	Distribution Channels	Emerging Management
90%	1/3	$1,200	Acute Low-Grade Chronic Healthy	Retail	Demand Management
9%	1/3	$6,600	Prevalent chronic (Asthma, Diabetes) Procedures (Childbirth,Surgery)	Retail and Mail Order	Disease Management
1%	**1/3**	**$71,600**	**Rare chronic (Hemophilia, Hepatitis C, MS, RSV, Growth Hormone)**	**Specialty Pharmacy**	**Case Management**

Source: JP Morgan Industry Update, "Specialty Pharmacy: Conduit of Growth for Biotechnology," March 14, 2003.

Success Formula "Musts"

1) Aggregate records of health care services
2) Measure effectiveness of care:
   - Benchmark the process of care against medical evidence-based metrics
   - Benchmark the outcome of care against what is valued
3) Establish valid economic correlates to the care
   - Use case-severity adjusted measures
4) Use data mining and statistical analysis to predict which individuals will most benefit from proactive delivery of services
5) Convey timely and accurate reporting to physicians
6) Align financial incentives of stakeholders

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Objectives

1. Understand uses of predictive modeling as an applied science in health care delivery
2. Cite how predictive modeling can advance disease management
3. Review how predictive modeling can be can be applied to pay for performance programs
4. Cite specific steps for implementation

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Predictive Modeling: Definition

- The process of using predictive analytics to identify a set of variables that can be combined and used to forecast probabilities of an event with an acceptable level of reliability.
- Steps in creating a predictive model:
  1) Data is collected
  2) A statistical model is formulated
  3) Predictions are made
  4) Model is validated (or revised) as additional data becomes available.

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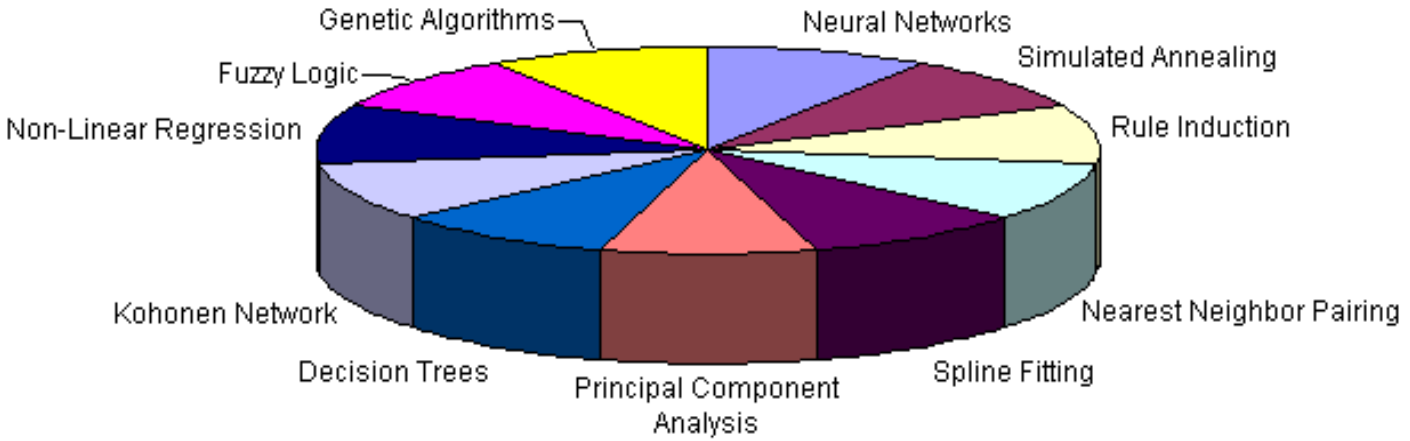
Modeling Process

- **Identify segments & select best drivers/variables**
  - Segments: Diseases, Enrollment Groups, Users, Benefit Class, Product Line
    Via Classification Methods
  - Best Variables via: Decision Networks, Nearest Neighbor Pairing….,
- **Select model for optimum training of each segment**
  - Linear & Nonlinear / Regression, Neural Networks….,



- **Apply model on out-of-sample set for validation**
  - Sensitivity/specificity, R2
  - Content experts evaluate results by reviewing variables across risk categories
- **Each Client's Population is evaluated against population parameters to determine Universal Model to deploy & whether optimization of model is required**

Creating a Predictive Model

Raw Data

- **Medical Claims**
- Rx Claims
- Member Eligibility
- Optional Data
  - Lab results
  - HRA
  - UM/Auth

Transformed Variables

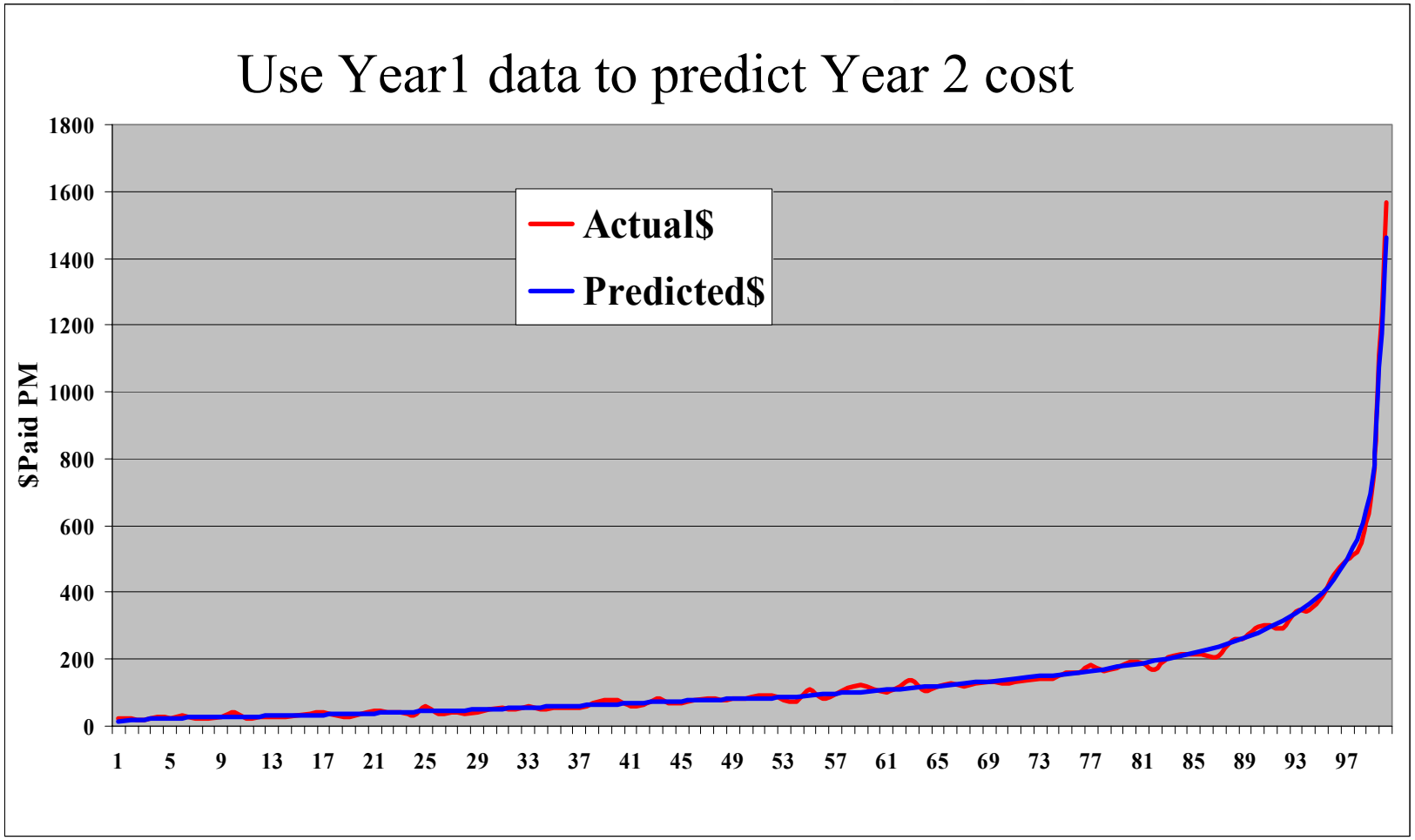
- Episodes of care – *Symmetry* ETG
- Drug Groupings - *First Databank*
- MEDai clinical groupings
- Service timing/frequency Inpt/ER/Phys
- Patient characteristics
- Evidence Based Risk Markers

Output - Risk

- Forecasted Costs for each member
- Risk Score 1-5
- Relative Risk Index

MITCH ENGINE

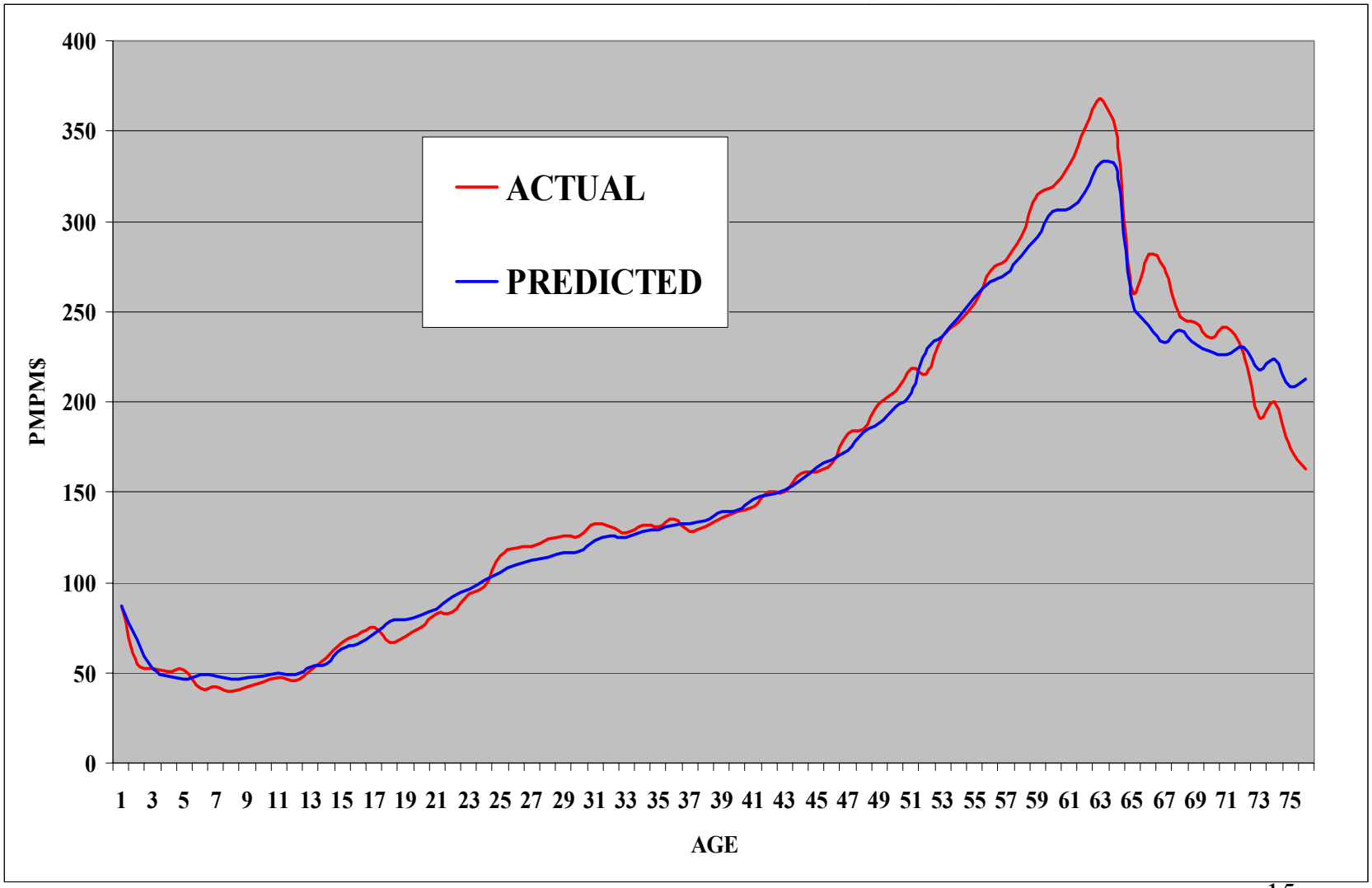
Validation Set
$ Paid PM Predicted vs. Actual



Each data point represents a single group of members within a range of predicted paid amount from the lowest predicted group to the highest predicted group (100 groups each with 1100+ members)

Validation Set by Age Grouping

$ Paid PM Predicted vs. Actual



Engage Physicians

Providers need:

- Incentives – Pay For Performance
- Single point of access
  - Complete patient history
  - Member / Risk / Impact Profile
  - Access to Evidence based guidelines & references
  - Identify “gaps” in care for all patients
  - Stratification of prospective risk for all patients
  - Identify where to spend resource
- No disruption of day to day work flow

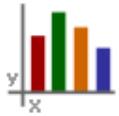
Physician Guideline Reporting Module

Select a Patient
Last Name:

My Patient List
Patient Summaries and Guideline Compliance

Disease Registry
Physician Guideline Compliance

Diagnosis Profile
Physician Diagnosis Summary



Utilization Profile
Physician and Population Utilization Comparison

Detailed Physician Profile
Detailed Physician Profile with links to Pharmacy Reports

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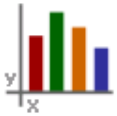

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Disease Registry

Patient List | Diagnosis Profile | Utilization Profile

Physician Demographics (based on all patients for the current physician)			
Physician Name	UHXM-THLX, SNME	**# Patients**	283
Physician ID	030774	**Avg Total Cost**	$2,358
		Avg Forecasted Cost	$3,372

Disease Registry

Guideline Condition	# Members w/Condition	# Non-Compliant Members	Average % Compliance	# Members in Care Management	% Members in Care Management
COPD	1	1	25%	0	0%
CAD	5	5	52%	2	40%
Depression	9	8	11.1%	0	0%
CHF	3	0	100%	3	100%
Diabetes	32	29	60.7%	6	18.8%
CVA	3	2	70%	3	100%
Asthma	10	9	30%	0	0%
Hyperlipidemia	60	29	64.4%	4	6.7%
Preventative Care	280	114	60%	12	4.3%

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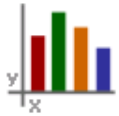
Physician Guideline Reporting Module

Select a Patient
Last Name: Q

My Patient List
Patient Summaries and Guideline Compliance

Disease Registry
Physician Guideline Compliance

Diagnosis Profile
Physician Diagnosis Summary



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Done Internet

Patient List with a last name like 'Q'

Disease Registry | Diagnosis Profile | Utilization Profile

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Physician ID	030774	**Avg Total Cost**	$2,358
		Avg Forecasted Cost	$3,372

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Patient List — **Guideline Compliance Information**

Patient Name	DOB	Primary Disease	Total Cost	Forecast... Cost	Risk Index	Diabe...	CAD	CHF	CVA/...	Preve...	Hyper...	Asthma	COPD	Depre...
QXHW, LT...	05/...	Hematology...	$ 175,052	$ 113,865	40.28					50 %				
QNUTHMT,...	10/...	Pulmonary ...	$ 148,125	$ 106,275	37.59	83 %	60 %			75 %				100 %
QNLTM, LT...	06/...	Gastrointes...	$ 575,970	$ 90,398	31.98	50 %				50 %				100 %
QHVGTQW...	11/...	Renal Failur...	$ 75,369	$ 87,318	30.89	29 %	60 %	86 %		20 %	0 %			
QHVGTQW...	11/...	Breast neo...	$ 98,340	$ 79,812	28.23					50 %				
QHBXQT, ...	04/...	Pulmonary ...	$ 70,898	$ 58,202	20.59					0 %		33 %		
QNUXQSR...	01/...	Pulmonary ...	$ 71,124	$ 57,818	20.45		50 %			25 %	0 %			
QTYJE, TM...	04/...	Pulmonary ...	$ 60,327	$ 54,915	19.43					20 %				
QAHRX, Q...	07/...	Infectious ...	$ 59,025	$ 54,183	19.17	17 %		20 %		25 %				
QTSKHYY,...	01/...	Cardiovasc...	$ 93,518	$ 50,681	17.93	83 %	80 %			75 %				
QGNWXM, ...	07/...	Pulmonary ...	$ 41,358	$ 50,160	17.74					25 %				
QNUHMRN...	08/...	Leukemia	$ 45,002	$ 45,457	16.08		60 %			100 %	33 %			
QNUHMRN...	01/...	Cardiovasc...	$ 113,579	$ 43,526	15.4		25 %			50 %	33 %			
QNRXM, Q...	01/...	Prostate ne...	$ 47,798	$ 43,054	15.23	40 %				50 %				100 %
QHVJR, IX...	07/...	Renal Failur...	$ 35,493	$ 39,197	13.87					50 %	100 %			

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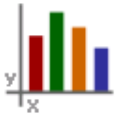

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Done Internet

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		Avg Forecasted Cost	$3,372

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Patient List — **Guideline Compliance Information**

Patient Name	DOB	Primary Disease	Total Cost	Forecast... Cost	Risk Index	Diabe...	CAD	CHF	CVA/...	Preve...	Hyper...	Asthma	COPD	Depre...
XRSXBXR, ...	06/...	Infectious ...	$ 134,744	$ 104,474	36.96	14 %		100 %	75 %	60 %				
RTMWXQR...	01/...	Renal Failur...	$ 25,238	$ 45,623	16.14		60 %	100 %	100 %	60 %				
TWTLR, TK...	01/...	Myocardial ...	$ 31,564	$ 45,066	15.94	29 %	43 %			100 %	33 %			
LHKKXQ, ...	09/...	Congestive...	$ 25,168	$ 23,096	8.17			100 %		25 %				
CHKKHTLR...	02/...	Breast neo...	$ 25,261	$ 21,345	7.55	20 %				80 %				
SGXQHKA...	01/...	Hematology...	$ 17,954	$ 21,114	7.47	33 %				100 %	100 %			
YXPAHXQ...	03/...	Renal Failur...	$ 12,629	$ 18,735	6.63	67 %				25 %	33 %			
UTQMXR-R...	08/...	Genitourina...	$ 15,759	$ 17,472	6.18	14 %				75 %				
LAQQXKK,...	10/...	AIDS	$ 21,886	$ 17,131	6.06					25 %	100 %			
RLHSG, UT...	08/...	Fracture	$ 12,454	$ 14,132	5	83 %				40 %	100 %			
YXQZARN...	04/...	Gastrointes...	$ 12,951	$ 12,337	4.36					40 %				
RSXOGXM...	05/...	Dermatology	$ 14,111	$ 9,830	3.48	17 %				25 %	100 %			
TRUAQE, ...	12/...	Fracture	$ 9,714	$ 9,275	3.28	67 %	80 %			25 %	100 %			
MNSSTZX, ...	05/...	Breast neo...	$ 9,492	$ 8,822	3.12					20 %				
SGXQHKA...	02/...	Degenerati...	$ 3,981	$ 8,754	3.1					40 %				

My Patient List

Disease Registry | Diagnosis Profile | Utilization Profile

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RTMWXQR...	01/...	Renal Failur...	$ 25,238	$ 45,623	16.14		60 %	100 %	100 %	60 %				
TWTLR, TK...	01/...	Myocardial ...	$ 31,564	$ 45,066	15.94	29 %	43 %			100 %	33 %			
LHKKXQ, ...	09/...	Congestive...	$ 25,168	$ 23,096	8.17			100 %		25 %				
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LAQQXKK,...	10/...	AIDS	$ 21,886	$ 17,131	6.06					25 %	100 %			
RLHSG, UT...	08/...	Fracture	$ 12,454	$ 14,132	5	83 %				40 %	100 %			
YXQZARN...	04/...	Gastrointes...	$ 12,951	$ 12,337	4.36					40 %				
RSXOGXM...	05/...	Dermatology	$ 14,111	$ 9,830	3.48	17 %				25 %	100 %			
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MNSSTZX, ...	05/...	Breast neo...	$ 9,492	$ 8,822	3.12					20 %				
SGXQHKA...	02/...	Degenerati...	$ 3,981	$ 8,754	3.1					40 %				

SELECT

Patient Profile

View Detailed Patient Profile

Patient Demographics

Patient Name	XRSXBXR, TKXHWT V	**Total Cost**	$134,744
Address	123 MAIN STREET ANYTOWN, ST 12345-6789	**Forecasted Cost**	$104,474
		Risk Index	36.96
Age	54	**RX Detail?**	Yes
Gender	F		

Patient Diagnosis

Primary Condition	Infectious Disease
Co-Morbidities	Renal Failure, Chronic & Nephrosis, Hematology & Oncology, Skin inflammation, Conduction disorder, Cardiovascular Surgery

Care History

Visit Type	Date of Service	Primary Diagnosis	Procedure Description	Provider Name
ER Visit	03/05/2004	SEPTICEMIA NEC		TBXMSAQT GNROHSTK TM...
Inpatient Stay	03/05/2004	SEPTICEMIA NEC		TBXMSAQT GNROHSTK TM...
Outpatient	01/29/2004	MULT MYELM W/O REMISSION		LXLNQHTK QXZHNMTK GN...
Professional	03/30/2004	CHRONIC RENAL FAILURE	OFFICE/OUTPATIENT VISIT, ESTA...	UHXM-THLX, SNME

Maintenance Drug Compliance

Drug Name	Last Fill Date	% Compliance	Next Fill Date
GLUCOTROL XL	11/15/2003	63.8%	12/16/2003
ZOLOFT	11/22/2003	76%	12/23/2003
AVALIDE	11/15/2003	99.3%	12/16/2003
GLUCOPHAGE XR	11/15/2003	90.2%	12/16/2003

Laboratory Clinical Opportunities

Lab Test Name	First Test - Abnormal?	First Test - Date	First Test - Result	Last Test - Abnormal?	Last Test - Date	Last Test - Result

Guideline Compliance

Guideline Group	Description	Compliant
Preventative Care	Females age 50 and older: Mammogram.	NO
	Individuals age 50 and older: Fecal occult blood, sigmoidoscopy or col...	NO
	Tobacco avoidance	Yes
	Individuals age 2-64 with underlying chronic medical conditions: Influe...	Yes
	Individuals age 50 to under 65: Influenza vaccine.	Yes
Diabetes	Eye exam.	NO
	HBA1C testing.	NO
	Microalbuminuria.	NO
	ACE inhibitors.	NO
	LDL-C lab testing.	NO
	Hypertension comorbidity: ACE, ARB, beta-blocker or diuretic	Yes
	All of the following: Eye exam, LDL-C, HBA1C and microalbuminuria tes...	NO
CVA	Non-Hemorrhagic: warfarin or platelet aggregation inhibitor.	Yes
	Lipid profile or component testing (total cholesterol, LDL-C, HDL-C, tri...	NO
	Hypertension comorbidity: with ACE, ARB, diuretic, alpha- or beta-bloc...	Yes
	Protime test within 30 days prior or 30 days after the most recent pre...	Yes
CHF	Hypertension comorbidity: beta-blocker, ACE, ARB, diuretic or digoxin ,...	Yes
	Hypertension comorbidity: echocardiogram, age >= 18.	Yes
	Age >=18: ACE, ARB, or beta-blocker.	Yes
	Age >= 18: ACE, ARB, diuretic, beta-blocker or digoxin.	Yes
	Age >= 18 & Hypertension comorbidity: ACE, ARB or beta-blocker .	Yes

Member Profile

Risk Profile | Impact Profile | Lab Profile

Word | Excel | Show Details

Member Information

Member ID	865846963-01	**Total Cost**	$134,744
Member Name	XRSXBXR, TKXHWT V	**Forecasted Cost**	$104,474
Group Name	RXTUNTQW LTQHMX	**Forecasted IP LOS**	20.24
Age	54	**Forecasted ER Visits**	1.98
Gender	F	**Forecasted Rx Cost**	$11,737
Months Enrolled	12	**Forecasted Risk Index**	36.96
Active (Y/N)	Y	**Impact Score**	Acute=99.95/Chronic=0
Rx Benefits(Y/N)	Y	**Care Mgmt Program**	Renal
Address	123 MAIN STREET ANYTOWN, ST 12345-6789	**Phone Number(s)**	(home) 1112223333

Diagnosis Groups

Show Details

Top Diagnosis Group Drug Professional Inpatient Outpatient Case Mgmt

Diagnosis Category	Rx	Mgmt	Facility	Ancillary	Total Diagnosis Cost
Cardiovascular Medical	$ 0	$ 209	$ 0	$ 0	$ 209
Cardiovascular Surgery	$ 0	$ 325	$ 69	$ 321	$ 2,700
Central Nervous System	$ 0	$ 1,288	$ 0	$ 611	$ 1,899
Cerebrovascular Accident	$ 24	$ 148	$ 0	$ 32	$ 204
Conduction disorder	$ 0	$ 2,178	$ 0	$ 1,155	$ 3,569
Congestive Heart Failure	$ 0	$ 195	$ 0	$ 21	$ 216
Diabetes	$ 73	$ 874	$ 0	$ 34	$ 981
Gastrointestinal Medicine	$ 91	$ 0	$ 0	$ 0	$ 91
Hematology & Oncology	$ 1,175	$ 560	$ 12,034	$ 8,426	$ 22,195

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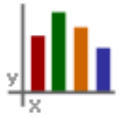

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Physician and Population Utilization Comparison

Detailed Physician Profile
Detailed Physician Profile with links to Pharmacy Reports

Done Internet

Diagnosis Profile

Patient List | Disease Registry | Utilization Profile

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Diagnosis Profile

Diagnosis	# Members	% Prevalence	Avg Forecasted Index	Avg Forecasted Cost	Population % Prevalence	Population Avg Forecasted Index	Population Avg Forecasted Cost
AIDS	2	0.7 %	3.38	$ 9,549	0.3 %	3.92	$ 11,073
Arthritis, tendonitis	25	8.8 %	1.01	$ 2,852	8.6 %	1.37	$ 3,859
Asthma	10	3.5 %	0.92	$ 2,595	3.9 %	1.32	$ 3,718
Bone & Connective Tissue Neoplasm	2	0.7 %	3.71	$ 10,476	0.2 %	3.46	$ 9,785
Breast neoplasm	13	4.6 %	2.46	$ 6,965	1.9 %	2.27	$ 6,423
Bronchitis	5	1.8 %	1.10	$ 3,126	4.4 %	1.19	$ 3,366
Burns, Skin Trauma	1	0.4 %	0.58	$ 1,645	0.1 %	1.12	$ 3,155
Cardiovascular Medical	15	5.3 %	5.19	$ 14,662	5.5 %	2.28	$ 6,456
Cardiovascular Surgery	1	0.4 %	36.96	$ 104,474	0.1 %	6.88	$ 19,449
Cataracts	5	1.8 %	1.82	$ 5,159	0.7 %	2.5	$ 7,057
Central Nervous System	18	6.4 %	3.28	$ 9,283	4.1 %	2.02	$ 5,700
Cerebrovascular Accident	3	1.1 %	18.08	$ 51,097	0.5 %	3.92	$ 11,075
Chronic Obstructive Pulmonary Disease	1	0.4 %	2.80	$ 7,911	1.2 %	2.81	$ 7,955
Conduction disorder	5	1.8 %	13.93	$ 39,371	0.8 %	2.62	$ 7,411
Congenital Heart Disease	2	0.7 %	4.14	$ 11,704	0.3 %	2.7	$ 7,644

Risk Navigator Clinical - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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Help | Logout

Demo Hospital System - 07/01/2003 - 06/30/2004

Home High Risk Members Movers Guideline Gaps Custom Filters Physicians Employers Batch Reports

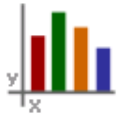
Physician Guideline Reporting Module

Select a Patient
Last Name:

My Patient List
Patient Summaries and Guideline Compliance

Disease Registry
Physician Guideline Compliance

Diagnosis Profile
Physician Diagnosis Summary



Utilization Profile
Physician and Population Utilization Comparison

Detailed Physician Profile
Detailed Physician Profile with links to Pharmacy Reports

Done Internet

Utilization Profile

Patient List | Disease Registry | Diagnosis Profile

Physician Demographics (based on all patients for the current physician)			
Physician Name	UHXM-THLX, SNME	**# Patients**	283
Physician ID	030774	**Avg Total Cost**	$2,358
		Avg Forecasted Cost	$3,372

Utilization Profile		Population Profile	
Admits/1000	64.4	**Admits/1000**	67.1
Days/1000	329.4	**Days/1000**	273.7
OP ER Visits/1000	109.8	**OP ER Visits/1000**	158.5
RX/1000	9144.8	**RX/1000**	6963.1
Avg Total Inpatient Cost	$10,407	**Avg Total Paid**	$1,649
Avg Professional Cost	$1,172	**Avg Forecasted Cost**	$2,321

Physician Profile

TC Rx Profile | Injectibles Rx Profile | Maintenance Rx Profile | Word | Excel

General Information

Name	UHXM-THLX, SNME	# Members	283
ID	030774	Avg Age	42
TIN		Avg Total Paid	$2,358
Type	FAMILY PRACTICE / P	Avg Forecasted Cost	$3,372
PCP Group Practice		Population Risk Index	1.19

Risk Profile

Group Risk Index	1.45	Chronic Impact	77
Avg Forecasted IP LOS	0.43	Acute Impact	256
Avg Forecasted ER Visits	0.16	Mover Members	8 %
Avg Forecasted RX Cost	$521	High Risk Members	15 %
#/% Members In Care Mgmt	12 / 4.2 %	Members in the Top	10 % Risk Submit

Click here to find out how these reports are built.

Utilization Profile

Admits/1000	64.4
Days/1000	329.4
OP ER Visits/1000	109.8
RX/1000	9144.8
Avg Total Inpatient Cost	$10,407
Avg Professional Cost	$1,172

Population Profile

Admits/1000	67.1
Days/1000	273.7
OP ER Visits/1000	158.5
RX/1000	6963.1
Avg Total Paid	$1,649
Avg Forecasted Cost	$2,321

Guideline Compliance Profile

Guideline Condition	# Members w/Condition	# Non-Compliant Members	Average % Compliance	# Members in Care Management	% Members in Care Management

Guideline Compliance Profile

Guideline Condition	# Members w/Condition	# Non-Compliant Members	Average % Compliance	# Members in Care Management	% Members in Care Management
COPD	1	1	25%	0	0%
CAD	5	5	52%	2	40%
Depression	9	8	11.1%	0	0%
CVA	3	2	70%	3	100%
CHF	3	0	100%	3	100%
Diabetes	32	29	60.7%	6	18.8%
Asthma	10	9	30%	0	0%
Hyperlipidemia	60	29	64.4%	4	6.7%
Preventative Care	280	114	60%	12	4.3%

Severity Profile

Diagnosis	# Members	% Prevalence	Avg Forecasted Index	Avg Forecasted Cost	Population % Prevalence	Population Avg Forecasted Index	Population Avg Forecasted Cost
AIDS	2	0.7 %	3.38	$ 9,549	0.3 %	3.92	$ 11,073
Arthritis, tendonitis	25	8.8 %	1.01	$ 2,852	8.6 %	1.37	$ 3,859
Asthma	10	3.5 %	0.92	$ 2,595	3.9 %	1.32	$ 3,718
Bone & Connective Tissue Neoplasm	2	0.7 %	3.71	$ 10,476	0.2 %	3.46	$ 9,785
Breast neoplasm	13	4.6 %	2.46	$ 6,965	1.9 %	2.27	$ 6,423
Bronchitis	5	1.8 %	1.10	$ 3,126	4.4 %	1.19	$ 3,366
Burns, Skin Trauma	1	0.4 %	0.58	$ 1,645	0.1 %	1.12	$ 3,155
Cardiovascular Medical	15	5.3 %	5.19	$ 14,662	5.5 %	2.28	$ 6,456
Cardiovascular Surgery	1	0.4 %	36.96	$ 104,474	0.1 %	6.88	$ 19,449
Cataracts	5	1.8 %	1.82	$ 5,159	0.7 %	2.5	$ 7,057

What Does this Capability Mean for You?

- Physicians can focus on the proactive delivery of services that will have a predictable impact on quality and cost
- No disruption to existing workflow
- An EMR or e-Prescribing software is not required to be in place
- Revolutionizes physician access to information: View of ALL the care services irrespective of provider
- Better coordination of care between Health Plan and entire provider network as well as between providers
- IPAs “at risk” are able to:
  - Improve financial performance under the ‘cap’ *in real time*
  - Validate actuarial fairness of their capitation agreements

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Predictive Modeling & P4P

- Predictive modeling can be thought of as the "entry level" HIT system that can be adopted by any practicing physician with computer in the office
- Reporting is evidence based, transparent
- Enables P4P to connect the "process of care" to the "clinical impact on outcomes"
- Ability to align incentives fairly and equitably irrespective of the condition or severity of illness

Quest Diagnostics

P4P Programs: Future Predictions

Predictive modeling will be used to administer "high-impact" P4P:

- Multi-payer reporting
  - Ability to address a physician's entire practice
- Simultaneous, multi-cohort disease management with unified criteria (payer, QIO, CMS)
- Automated P4P, QIO & CMS reporting of outcomes
- Substantial financial incentives tied to "Quality"
- Automated "dash-board" reporting in real time
- Can be used to administer a more sophisticated physician payment system which reimburses for proactive care in both FFS and capitated plans

Care360 A MedPlus Solution

Caveats

Today

- Seldom involves more than one payer in a practice
- Enables multiple conditions to be tracked and managed simultaneously and “at scale”
- Can be solely “payer driven”

Near Term

- Needs to involve reporting from all payers
- Need for payer coordination of the clinical goals in collaboration with physicians
- Recommend collaborative approach with physicians and/or IPA governance and consideration of positions of organizations such as American College of Physicians and others

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A MedPlus Solution

Summary

Medical claims, pharmacy utilization and clinical laboratory information, can serve as valuable 'inputs' into a predictive modeling engine to automate reporting which will:

- Identify patients most likely to require medical services over the prospective benefit period
- Segregate of those with "impactable" risk
- Determine the most effective clinical course of action to mitigate acuity and cost of illness
- Support fair and equitable management of P4P initiatives "at scale"

Quest Diagnostics

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Thank you….

Contacts:

Patrick Tellez, MD, MPH, MSHA
Vice President, Medical Affairs
MedPlus, *a Quest Diagnostics Company*
4690 Parkway Dr.
Mason, OH 45040
513.229.5500
ptellez@medplus.com

Rebecca Hellmann
Payer Services
MedPlus, *a Quest Diagnostics Company*
4690 Parkway Dr.
Mason, OH 45040
513.229.5500
rhellmann@medplus.com

Further Reading:

1) Predictive modeling: www.medai.com
2) P4P Program Design:
   a) "Linking Physician Payments to Quality Care" American College of Physicians Position Paper 2005; www.acponline.org/hpp/link_pay.pdf
   b) American Assn. Family Practice: http://www.aafp.org/x30307.xml