Utah All Payer Claims Database

Meaningful Data Securely Managed Serving Many

Public Policy - Public Health - Healthcare Consumers - Business - Research

Merging Case Mix and Episodes of Care through Effective Risk Adjustment

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Utah All Payer Claims Database (APCD)

What the Utah APD Can and Is Doing

- Medically, what happened? **(By individual claim or procedure and/or by episode of care (EOC))**

- To whom did it happen? – Longitudinal and cross sectional

- When and where did it happen? - 2007 to yesterday

- How much did it cost?

- Who paid for what (including healthcare consumer out of pocket costs)?

- Which costs were not covered? (including denied claims)

- What other influences impact outcome (disease burden, co-morbidities, demographics, environmental issues, access to specialists, etc.)?

- What impact does preventive care or lack there of, have on outcome?

- Were relevant standards of care met?

- How do healthcare consumers migrate between commercial plans; between commercial and public plans?

Utah All Payer Claims Database (APCD)
Current APCD Figures

➜ **Utah health plans in production:**

- **Production: 4 plans (~70% of the commercial market)**

➜ **Unique Utah lives: 2.1 million**

➜ **Healthcare Dollars Represented in the APCD: ~$9 billion**

➜ **Date range: January 1, 2007 – 2009**

➜ **March 2011 ~ 90-95% of commercial claims represented and Partial Medicaid: ~$24 billion**

  ➜ **Production, Testing and Setup: 14 plans (including Medicaid)**

➜ **Date range: January 1, 2007 – Yesterday**

Demonstration of Pay for Performance and/or Bundled Payment Schema

Consider the perspectives and interests of:

o Payers
o Patients
o Providers

Got to have the data – a lot of it – before you can get buy in!

Consider the perspectives and interests of:

o **Payers**
o **Patients**
o **Providers**

42 Year old Diabetic:

1. Fit, physically active, eats well, monitors his glucose, routine check ups

1. Not fit, sedentary, does not eat well, not consistent in monitoring his glucose, and is frequently seen in the ER, being treated for a variety of diabetes related conditions

Ability to risk adjust on a more aggregate level (the individual, practice) rather than the population

Merging Case Mix and Episodes of Care Through Effective Risk Adjustment

o **Multiple Payers**
o **Diversity of Payers**
o **Real Costs (billed, paid)**
o **Diversity of Patients & Demographics**
o **Validated Clinical Risk Groups (CRGs)**
o **Validated Severity Risk Adjustments**
o **Burden of Illness (BOI)**
o **Episode of Care (EOC) Analysis**
o **A Lot of Representative Data**

Merging Case Mix and Episodes of Care through Effective Risk Adjustment

- Episode of Care (EOC) is a complete course of care from the initial diagnosis through treatment and follow-up.

- Burden of illness (BOI) is a measure of how sick an individual or sub-population is - represents a measure of healthcare resource consumption (past and future) adjusted by age and sex

- The BOI have been verified by 3M Health Information Systems and CareAdvantage independently as well as Society of Actuaries sponsored analyses.

Clinical Risk Groups (3M HIS)

- Clinical Risk Groups (CRGs) represent a clinical model in which each individual is assigned to a single mutually exclusive *risk group.* CRGs relate to the historical clinical and demographic characteristics of the individual and projects the amount and type of healthcare resources the individual will consume in the future.

- Since the CRGs are clinically based, they create a language that links clinical and financial aspects of care.

- CRGs were developed through a process that combined extensive clinical input with evaluation and verification from historical data.

- The CRGs were developed to include explicit ***severity of illness*** subclasses. These describe the extent and progression of an individual's condition.

- List of references available upon request.

Clinical Risk Groups & Severity Subclasses

**Everybody can be placed into a blue box**

	Status	0	1	2	3	4	5	6
1	Healthy (Routine & Preventive Care)							
2	One or More Significant Acute Diseases							
3	One Minor Chronic Disease							
4	Multiple Minor Chronic Diseases							
5	One Significant Chronic Disease							
6	Two Significant Chronic Diseases							
7	Three or More Significant Chronic Diseases							
8	Complicated Malignancies							
9	Catastrophic Conditions							

Variation in Diabetes EOC Costs – by CRG and Severity
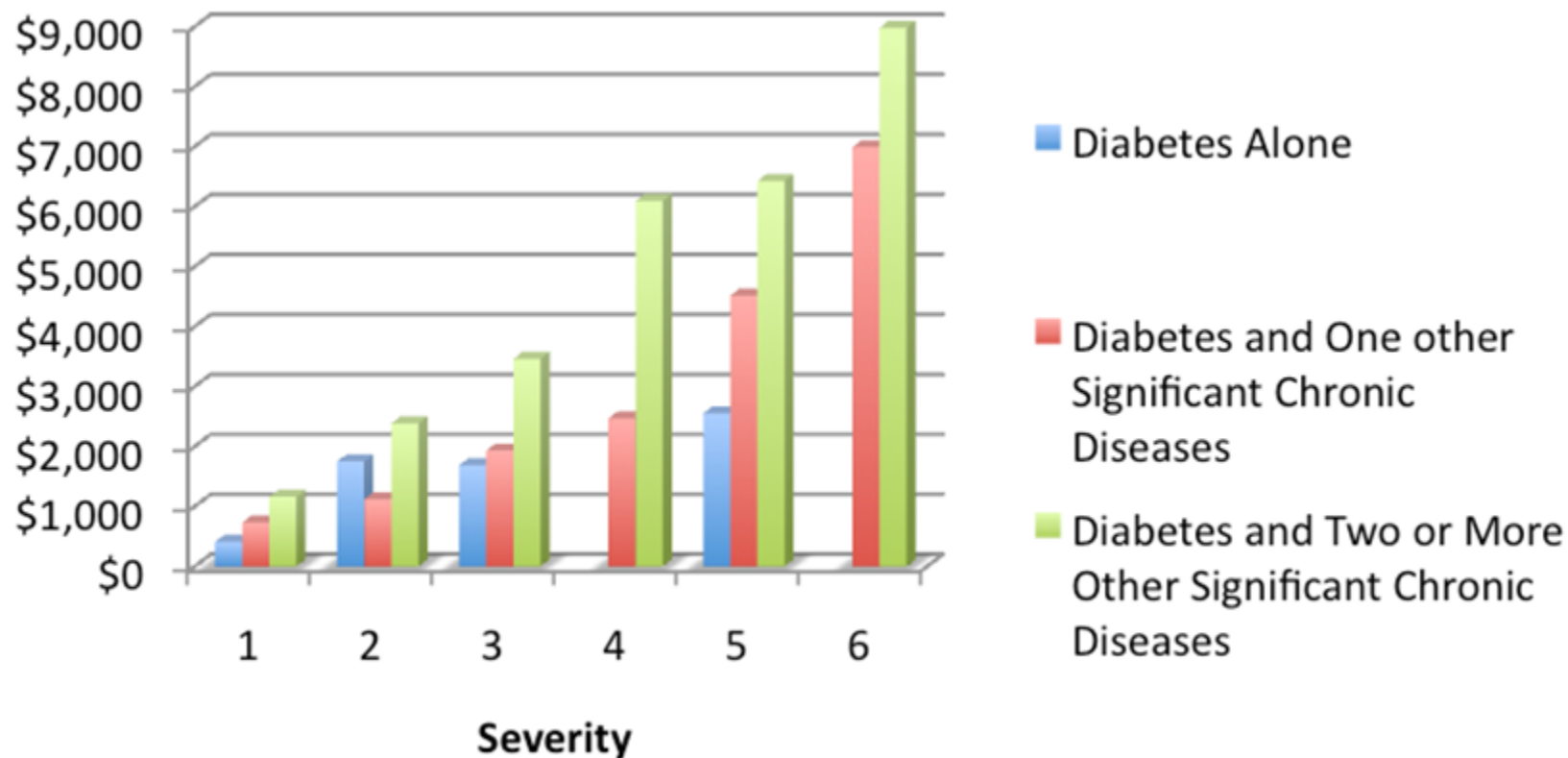
* Cost for just the diabetes portion of care (pilot data) – medical and pharmaceutical (does not include co-payments)

ER Visits – Per 1,000 Diabetes EOCs
(where diabetes was the primary diagnosis)
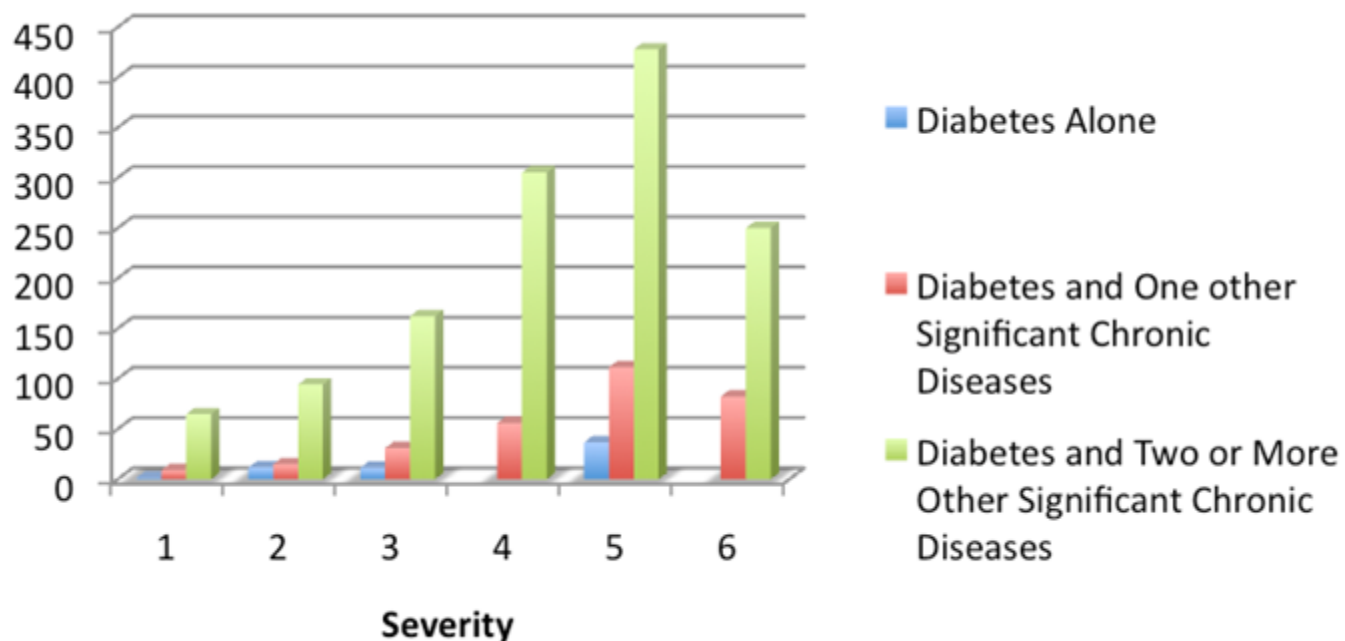
Severity	1	2	3	4	5	6
Diabetes Alone	5%	9%	12%		16%	
Diabetes and One other Significant Chronic Diseases	7%	10%	16%	20%	28%	26%
Diabetes and Two or More Other Significant Chronic Diseases	13%	20%	29%	46%	59%	33%

IP Stays – Per 1,000 Diabetes EOCs
(where diabetes was the admitting diagnosis)
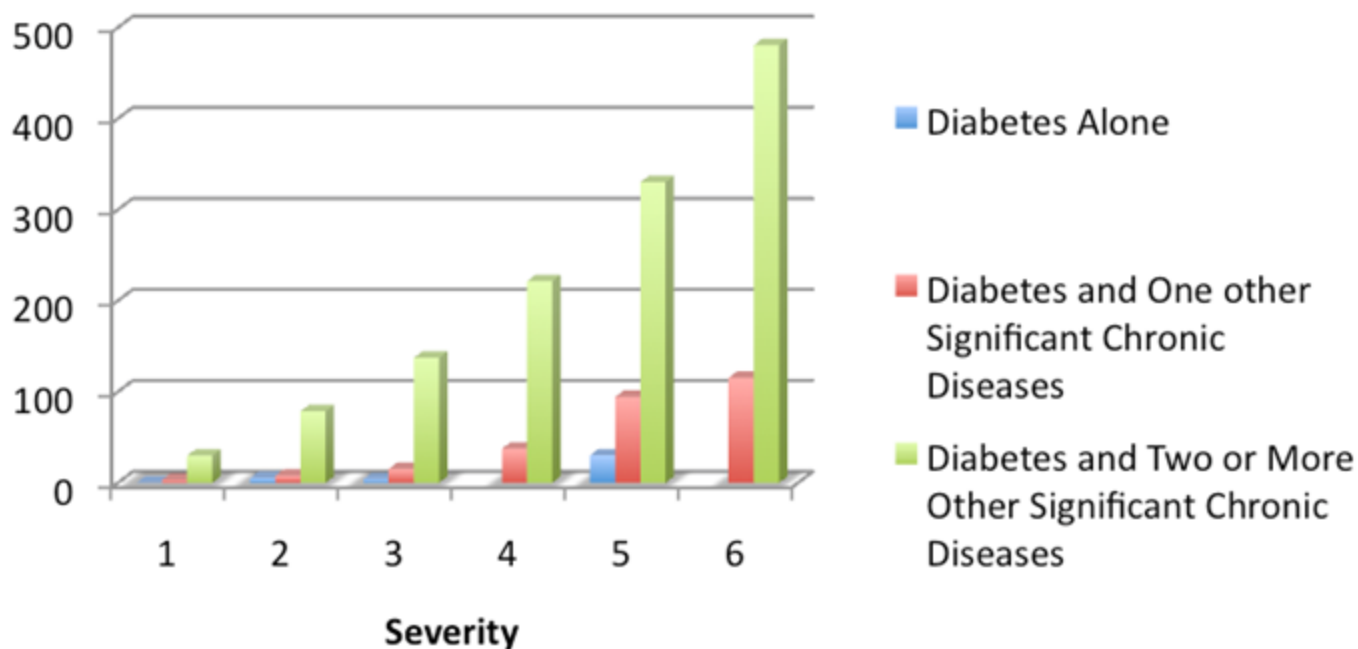
Severity	1	2	3	4	5	6
Diabetes Alone	1%	4%	4%		13%	
Diabetes and One other Significant Chronic Diseases	3%	5%	8%	13%	24%	36%
Diabetes and Two or More Other Significant Chronic Diseases	6%	17%	25%	33%	46%	63%

Diabetes

	Status	0	1	2	3	4	5	6
1	Healthy (Routine & Preventive Care)							
2	One or More Significant Acute Diseases							
3	One Minor Chronic Disease							
4	Multiple Minor Chronic Diseases							
5	One Significant Chronic Disease		2,469 1.19 $413.04 $200.71	3,004 2.85 $1,796.41 $1,208.93	399 6.23 $1,611.19 $993.56		65 11.87 $1,698.58 $954.27	
6	Two Significant Chronic Diseases		5,232 3.18 $738.33 $1,199.51	2,332 5.94 $1,166.49 $1,694.12	1,674 8.65 $1,849.67 $1,918.83	1,000 12.83 $2,676.39 $2,367.63	450 18.72 $3,528.56 $2,971.76	25 22.93 $10,708.80 $1,624.39
7	Three or More Significant Chronic Diseases		488 5.81 $1,162.75 $1,795.63	294 10.08 $2,543.77 $1,987.92	474 17.37 $3,673.16 $2,904.38	122 21.72 $6,139.63 $3,849.10	74 32.62 $6,777.25 $3,339.96	15 35.88 $6,620.00 $2,877.69
8	Complicated Malignancies			48 15.16 $1,172.17 $1,551.20	88 27.30 $1,984.40 $1,618.31	81 47.04 $4,935.37 $1,354.12	30 57.34 $6,950.64 $1,797.16	
9	Catastrophic Conditions		6 4.31 $1,728.91 $595.23	42 11.58 $2,017.44 $1,844.61	26 27.38 $5,112.89 $2,472.49	20 28.75 $22,632.54 $1,414.22	38 46.68 $9,901.68 $1,573.31	31 63.79 $12,043.71 $2,453.36

Outliers? (rows 8–9)

*   Cost for just the diabetes portion of care – medical and pharmaceutical (does not include co-payments)

Number of Episodes Evaluated
Burdon Of Illness
EOC Cost (Medical)*
EOC Cost (Rx) *

Asthma

Status	0	1	2	3	4	5	6
1 Healthy (Routine & Preventive Care)							
2 One or More Significant Acute Diseases							
3 One Minor Chronic Disease							
4 Multiple Minor Chronic Diseases							
5 One Significant Chronic Disease		3271 1.09 $589.47 $99.26	2288 2.71 $795.23 $200.15	234 5.30 $1,538.16 $248.11	3 11.44 $20,862.15 $530.73		
6 Two Significant Chronic Diseases		2463 3.19 $1,415.51 $212.33	636 6.04 $1,238.57 $221.18	284 8.77 $1,565.19 $254.37	148 13.22 $1,974.54 $382.56	39 19.86 $2,301.04 $371.51	11 24.80 $2,775.87 $152.29
7 Three or More Significant Chronic Diseases		27 5.81 $2,714.70 $280.26	22 10.08 $2,297.02 $299.76	49 17.37 $1,644.45 $433.33	10 21.72 $3,028.20 $368.68	5 32.62 $29,342.27 $311.15	
8 Complicated Malignancies		4 6.42	21 15.16	13 27.30	10 47.04	2 57.34	
9 Catastrophic Conditions		4 4.31	8 11.58	20 27.38	7 28.75	1 46.68	3 63.79

Outliers? (rows 8 and 9)

* Cost for just the asthma portion of care – medical and pharmaceutical (does not include co-payments)

Number of Episodes Evaluated
Burdon Of Illness
EOC Cost (Medical)*
EOC Cost (Rx) *

Diabetes EOCs – Sex

| Severity		1				2				3			
CRG Status	Sex	Num of Episodes	Avg BOI	Avg Paid	Avg Paid Rx	Num of Episodes	Avg BOI	Avg Paid	Avg Paid Rx	Num of Episodes	Avg BOI	Avg Paid	Avg Paid Rx
5 One Significant Chronic Disease (Diabetes)	F	977	1.26	$487.32	$159.08	1351	3.09	$1,946.76	$1,067.51	167	6.49	$1,913.85	$779.22
	M	1492	1.15	$364.40	$227.97	1653	2.65	$1,673.53	$1,324.50	232	6.05	$1,393.34	$1,147.85
6 Two Significant Chronic Diseases	F	2329	3.22	$840.89	$1,140.54	1091	5.99	$1,163.59	$1,699.95	876	8.64	$1,544.62	$1,739.32
	M	2903	3.15	$656.06	$1,246.82	1241	5.89	$1,169.04	$1,689.00	798	8.67	$2,184.54	$2,115.88

* Cost for just the diabetes portion of care – medical and pharmaceutical (does not include co-payments)

Asthma – Age and Sex

Severity			1				2				3			
5 One Significant Chronic Disease (Asthma)	Sex	Age Range	Num of Episodes	Avg BOI	Avg Paid	Avg Paid Rx	Num of Episodes	Avg BOI	Avg Paid	Avg Paid Rx	Num of Episodes	Avg BOI	Avg Paid	Avg Paid Rx
	F	Birth-04	156	0.92	$773.50	$101.08	95	2.23	$1,446.94	$379.15	31	4.82	$1,197.29	$177.33
		05-09	255	0.91	$427.27	$119.02	144	2.23	$781.21	$316.44	24	4.82	$2,154.69	$340.71
		10-17	288	1.10	$628.37	$100.70	195	2.68	$478.11	$138.68	5	5.80	$1,262.33	$616.39
		18-24	167	1.22	$724.39	$47.53	117	2.98	$880.19	$132.15	7	6.45	$1,055.20	$111.05
		25-44	317	1.46	$819.40	$74.73	357	3.60	$791.20	$138.40	12	7.62	$1,078.40	$28.90
		45-54	191	1.34	$445.06	$100.40	97	3.26	$1,469.61	$236.37	7	7.06	$2,635.47	$72.30
		55-64	119	1.23	$623.80	$97.06	46	3.01	$1,101.64	$193.37	1	6.52	$581.78	$107.06
		65-110+	18	0.63	$343.50	$119.03	8	1.54	$198.65	$128.76	1	3.33	$154.90	$-

* Cost for just the Asthma portion of care – medical and pharmaceutical (does not include co-payments)

Diabetes
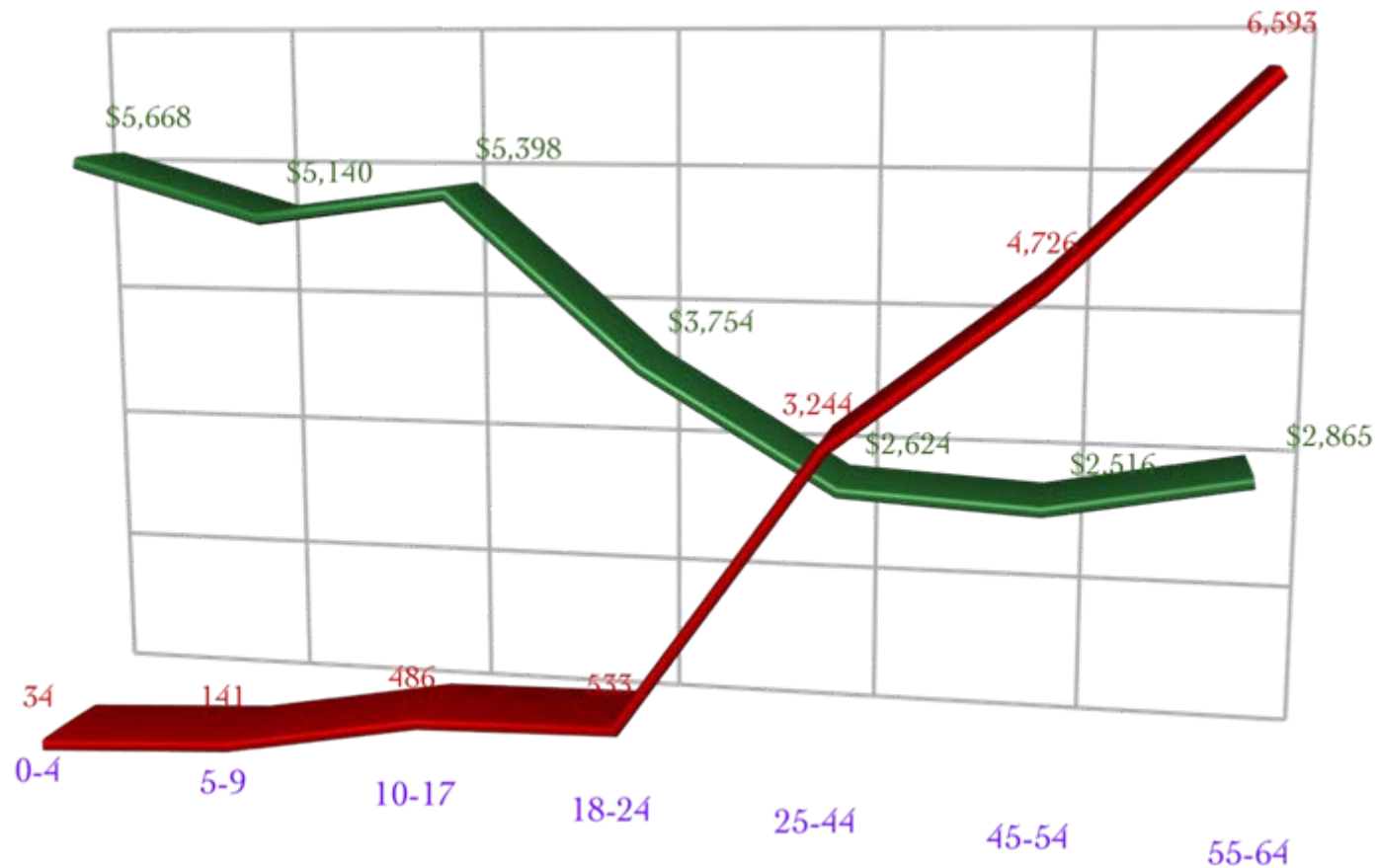
People diagnosed with diabetes at significantly greater rates with age. Initially diagnosed at a less severe level (resulting in many less expensive cases)

Healthy (Including Routine & Preventive Care)

Status	0	1	2	3	4	5	6
1 Healthy (Routine & Preventive Care)	35,880 0.13 $136,759,063	132,974 0.00 $0	18,779 3.24 $39,785,445		5,844 1.18 $4,718,895	37,442 0.54 $40,253,865	
2 One or More Significant Acute Diseases							
3 One Minor Chronic Disease							
4 Multiple Minor Chronic Diseases							
5 One Significant Chronic Disease							
6 Two Significant Chronic Diseases							
7 Three or More Significant Chronic Diseases							
8 Complicated Malignancies							
9 Catastrophic Conditions							

Number of Enrollees
Burdon Of Illness
Total Costs – Medical

Performance and Payment Reform?
Moving Forward:

Provide DATA to stakeholders on a granular level – be able to precisely describe and define the patient/practice

1 Explore influence of outliers
2 Further validation of EOC and CRG algorithms
3 Run multiple regressions
4 Identify and <u>standardize</u> relevant variables by condition:

- Sex
- Age
- Provider Taxonomy
- Geographic Location
- Economies of Scale (e.g. payer size)
- Facility type
- Etc.

5 Review and formulate adjustment and review processes. Develop methodology for confidence intervals. (ability to fine tune)

6 Create algorithm driven matrixes for each of the above where historical patient data are available & where patient data are not available.

7 Methodology for 'new arrivals' (age, sex, H&P)

8 Review by Payers, Providers, Patients

9 Pilot

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