

# Utah Health Status Update: Using Clinical Risk Groups to Analyze the Utah All Payer Claims Data

June 2016

The Utah All Payer Claims Database (APCD) collects medical, pharmacy, and dental claims data from private and government payers, including Medicaid and some Medicare Advantage, Medicare Supplemental, Medicare Part D, and federal employee health plans. There are a total of 37 APCD data suppliers, representing roughly 80% of the Utah population.

The Office of Health Care Statistics uses the 3M Clinical Risk Group (CRG) software to assign each person in the Utah APCD into a clinically-meaningful category using diagnoses, procedures, and prescriptions from medical and pharmacy claims. The assignment methodology is hierarchical. That is, in the case of multiple conditions, CRG assignment is based on the conditions deemed to be the most significant.

## KEY FINDINGS

- CRGs used by the Utah APCD analyses are clinically-meaningful categories using diagnoses, procedures, and prescriptions from medical and pharmacy claims.
- CRGs enable users to make risk-adjusted comparisons of people with specific health conditions and tabulate the relative burden a given condition has on a healthcare system, a community, or a payor in terms of utilization and expenditures.
- People assigned to the healthy and non-users CRG group make up 58% of the APCD-covered population but account for about 9% of total healthcare costs.
- Diabetes, hypertension, and other chronic disease make up 8 out of the 10 largest CRGs.
- Identification of the clinical risk groups that place higher burden on the health system may assist health systems, payors, policymakers, and communities to narrow places to look for improvement without compromising healthcare.

APCDs are comprehensive, longitudinal, multi-payer datasets capable of providing unprecedented research and policy opportunities for improving the healthcare delivery system.<sup>1</sup> The CRG data are included in the Patient-centric Limited Data Set released by the Utah Office of Health Care Statistics. Interested users can contact OHCS at <http://health.utah.gov/hda>.

CRGs allow authorized APCD data users to make risk-adjusted comparisons of people with specific health conditions and tabulate the relative burden a given condition has on a healthcare system, a community, or a payor in terms of utilization and expenditures.

Table 1 shows the top 10 CRGs by percentage of the APCD-covered population. Notable findings include:

- The top 10 largest CRGs by total count comprise about 74% of the APCD-covered population and more than 25% of total healthcare costs.
- People assigned to the “healthy and non-users” CRG groups make up 58% of the APCD-covered population but account for about 9% of total healthcare costs.
- More than 61,000 Utahns had multiple minor Primary Chronic Diseases (PCD)<sup>2</sup> which cost more than \$325 million in healthcare.

Table 2 shows the prevalence and cost by the aggregated CRG categories. These aggregates are created by rolling up CRGs like those shown in Table 1 into disease categories. The notable findings are:

- About 90% of the healthcare costs recorded in the APCD are accrued by about 42% of the people represented in the database.
- The total cost for 727,710 Utahns (30.2% of the APCD population) to care for their minor, moderate, or dominant chronic diseases was \$5.6 billion (66.7% of the total cost) in 2014.

## Top 10 Clinical Risk Groups (CRGs)

Table 1. Top 10 CRGs by percentage of the Utah APCD-covered population and associated cost, 2014

Clinical Risk Group (CRG)	APCD Population Count	Percentage of APCD Population	APCD Total Cost	Percentage of APCD Total Cost
Healthy and non-users	1,403,185	58.3%	\$750,871,875	9.0%
Hypertension	88,796	3.7%	\$238,638,745	2.9%
Multiple minor primary chronic diseases (PCDs)	61,811	2.6%	\$325,788,386	3.9%
Malignancy diagnosis without other significant illness	38,720	1.6%	\$61,389,082	0.7%
Diabetes and hypertension	32,778	1.4%	\$180,201,132	2.2%
Depression	31,865	1.3%	\$73,173,294	0.9%
One significant acute illness excluding ear, nose, and throat (ENT)	30,977	1.3%	\$65,016,800	0.8%
Two other moderate chronic diseases	30,513	1.3%	\$331,850,627	4.0%
Chronic thyroid disease	25,487	1.1%	\$50,110,900	0.6%
Diabetes	24,368	1.0%	\$130,786,347	1.6%
Total	1,768,500	73.6%	\$2,207,827,188	26.6%

Identification of the clinical risk groups that place higher burden on the health system may assist health systems, payors, policymakers, and communities to narrow places to look for improvement without compromising healthcare. An example using diabetes is listed below, where the effect of comorbidities on risk level is shown.

Table 3 shows the frequency and cost of diabetes-related CRGs. Two of these CRGs were in the top 10 most common (see Table 1). The notable findings are:

- The two lowest risk diabetes-related CRGs account for a majority of diabetes-related persons (54.4%) but represent a much smaller portion of the total cost (26.2%).
- Patients undergoing dialysis with diabetes make up less than 1% of diabetes-related CRGs but almost 5% of diabetes-related cost.
- The average cost per person for the highest risk diabetes-related CRG is 13.3 times the cost of a diabetic without comorbidities and 6.3 times the average diabetes-related CRG.

1. Paradis, Rebecca; Barolini, Erin *All Payer Claims Databases: Unlocking the Potential*, A NEHI Issue Brief, November 4, 2014.

2. A PCD is the most significant chronic disease under active treatment for each Major Diagnostic Categories (MDC). There are 37 mutually exclusive MDCs which correspond to a single organ system or disease etiology. Every ICD-9 and ICD-10 diagnosis code is mapped to an MDC, such as MDC 4 - Respiratory System or MDC 5 - Circulatory System.

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**UDOH ANNOUNCEMENT:**

The Bureau of Health Promotion is working on a pilot to receive clinical data from electronic health records, focusing first on data related to hypertension and diabetes. This pilot will help public health determine how to best procure and use clinical data to improve population and individual health outcomes. Lessons learned from the pilot will inform public health strategy for using clinical data to better understand the burden of chronic disease across the state..

**Aggregated Clinical Risk Groups (ACRGs)**

Table 2. Aggregated CRGs by percentage of the Utah APCD-covered population and total cost, 2014

Aggregated Clinical Risk Groups (CRGs)	APCD Population Count	Percentage of APCD Population	APCD Total Cost	Percentage of APCD Total Cost
Healthy and non-users	1,403,185	58.3%	\$750,871,875	9.0%
Moderate chronic disease	284,736	11.8%	\$1,874,260,015	22.4%
Minor chronic disease	245,517	10.2%	\$895,741,368	10.7%
Significant acute illnesses	217,169	9.0%	\$666,965,621	8.0%
Dominant chronic disease	197,457	8.2%	\$2,808,732,272	33.6%
Pregnancy/delivery	43,397	1.8%	\$493,829,301	5.9%
Malignancies and catastrophic conditions	16,051	0.7%	\$873,741,765	10.4%
Unable to group	441	0.0%	\$662,098	0.0%
<b>Total</b>	<b>2,407,953</b>	<b>100.0%</b>	<b>\$8,364,804,315</b>	<b>100.0%</b>

**Diabetes-related Clinical Risk Groups (CRGs)**

Table 3. Population and total cost of CRGs associated with diabetes, Utah, 2014

Clinical Risk Group (CRG)	Persons	Percentage of Diabetes Population	Total Cost	Percentage of Diabetes-related Cost	Cost per Person
Diabetes and other moderate chronic disease	16,911	16.11%	\$221,732,245	18.65%	\$13,112
Diabetes and hypertension	32,778	31.22%	\$180,201,132	15.16%	\$5,498
Diabetes	24,368	23.21%	\$130,786,347	11.00%	\$5,367
Diabetes and other dominant chronic disease	5,375	5.12%	\$104,292,246	8.77%	\$19,403
Diabetes, hypertension, and other dominant chronic disease	4,912	4.68%	\$84,888,851	7.14%	\$17,282
Chronic renal failure, diabetes, and other dominant chronic disease	1,819	1.73%	\$57,246,090	4.82%	\$31,471
Dialysis with diabetes	787	0.75%	\$56,247,574	4.73%	\$71,471
Diabetes and asthma	3,697	3.52%	\$52,810,662	4.44%	\$14,285
Diabetes and 2 or more other dominant chronic diseases	1,369	1.30%	\$46,648,549	3.92%	\$34,075
Congestive heart failure and diabetes	2,079	1.98%	\$38,935,631	3.28%	\$18,728
Diabetes and advanced coronary artery disease	1,965	1.87%	\$37,764,364	3.18%	\$19,219
Diabetes and other chronic disease level 2	3,917	3.73%	\$35,836,533	3.01%	\$9,149
Congestive heart failure, diabetes, and other dominant chronic disease	1,005	0.96%	\$32,586,905	2.74%	\$32,425
Diabetes, advanced coronary artery disease, and other dominant chronic disease	898	0.86%	\$27,758,027	2.34%	\$30,911
Diabetes, COPD, and other dominant chronic disease	661	0.63%	\$19,390,791	1.63%	\$29,336
Congestive heart failure, diabetes, and chronic obstructive pulmonary disease (COPD)	612	0.58%	\$18,470,586	1.55%	\$30,181
Diabetes, cerebrovascular disease, and other dominant chronic disease	306	0.29%	\$12,916,113	1.09%	\$42,210
Cerebrovascular disease and diabetes	437	0.42%	\$9,500,113	0.80%	\$21,739
COPD and diabetes	610	0.58%	\$7,814,606	0.66%	\$12,811
Congestive heart failure, diabetes, and cerebrovascular disease	196	0.19%	\$7,331,554	0.62%	\$37,406
Diabetes, cerebrovascular disease, and hypertension	301	0.29%	\$5,617,026	0.47%	\$18,661
<b>Total</b>	<b>105,003</b>	<b>100.00%</b>	<b>1,188,775,945</b>	<b>100.00%</b>	<b>\$11,321</b>

## Breaking News, June 2016

### Youth Suicide

The rate of suicide deaths among Utah youth ages 10-17 has nearly tripled since 2007, and in 2014, suicide was the leading cause of death for Utah youth in this age group.<sup>1</sup> Non-fatal suicide attempts have also increased; during a five-year period, the rate of emergency department visits for self-inflicted injuries among 10- to 17-year-olds increased from 13.6 to 26.0 per 10,000 population, and the rate of hospitalizations increased from 4.0 to 5.6 per 10,000 population.<sup>2</sup> Survey data of Utah students in grades 8, 10, and 12, shows a significant increase in suicide ideation statewide compared to two years prior, from 14.1% in 2013 to 16.6% in 2015.<sup>3</sup> There was also a significant increase in the percent of students who reported they had attempted suicide in the past 12 months, from 6.2% in 2013 to 7.6% in 2015.<sup>3</sup>

Youth suicide prevention efforts currently underway in Utah are primarily school-based. These include mandatory teacher training, as well as state-allocated funding for school-based suicide prevention programs, such as Signs of Suicide or Hope Squads. The Hope Squad program has partnered with QPR (Question, Persuade, Refer) to provide gatekeeper training for peers and school staff. State suicide prevention specialists hope to soon pilot two additional programs: Dialectical Behavioral Therapy (DBT) in Schools, and The Good Behavior Game, both of which show promise not only for suicide prevention, but a host of other positive outcomes. Beyond the school setting, the Utah Division of Substance Abuse and Mental Health is working to improve care for youth identified as being at-risk of suicide by implementing policies and protocols outlined by the Zero Suicide Initiative as well as providing opportunities for clinician training in suicide-specific treatment models.

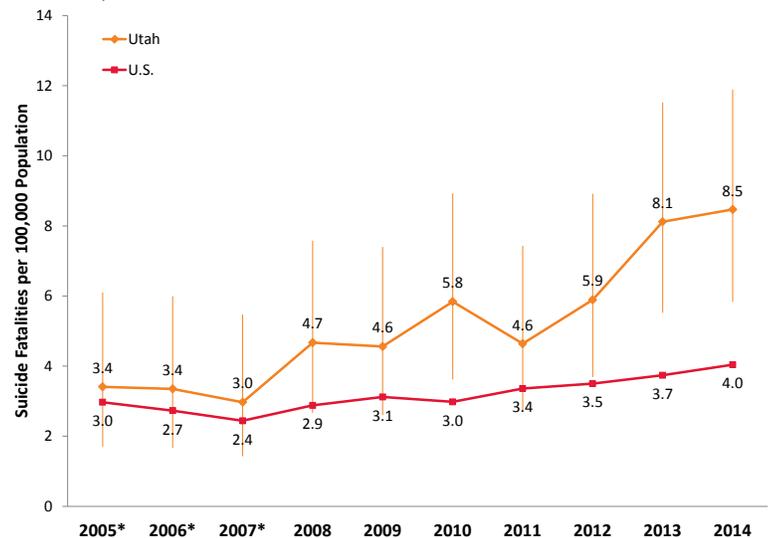
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1. Utah Death Certificate Database, Office of Vital Records and Statistics, Utah Department of Health: 2005–2014 data queried via Utah's Indicator-Based Information System for Public Health (IBIS-PH). Accessed May 20, 2016.

2. Utah Inpatient Hospital Discharge Data, Office of Health Care Statistics; Utah Emergency Department Encounter Database, Bureau of Emergency Medical Services, Utah Department of Health; 2005–2014 data queried via Utah's Indicator-Based System for Public Health (IBIS-PH). Accessed May 20, 2016.

3. 2013 and 2015 Prevention Needs Assessment survey, Utah Department of Health.

### Suicide Fatalities per 100,000 Population Ages 10–17, Utah and U.S., 2005–2014



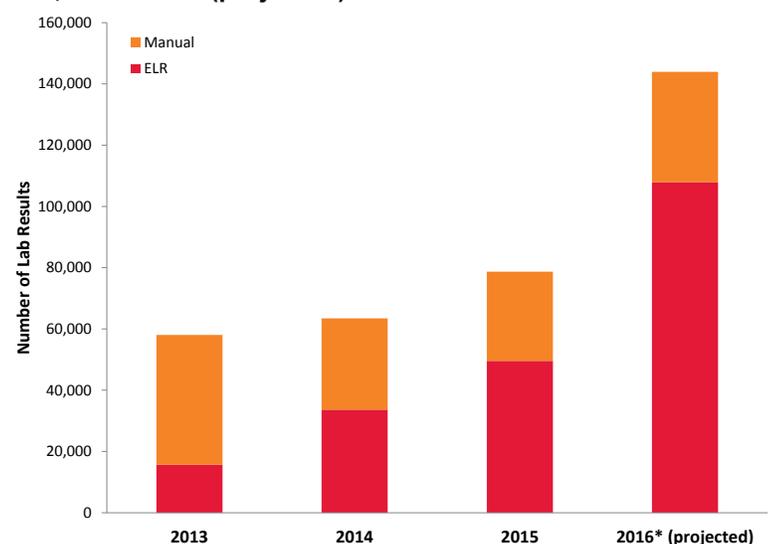
\*Interpret with caution; Utah rates for indicated years are based on small rates and do not meet UDOH data reliability standards  
Source: Utah Death Certificate Database

## Community Health Indicators Spotlight, June 2016

### Impact of Electronic Laboratory Reporting

Communicable disease reporting has traditionally relied on a manual process where clinicians, hospitals, and laboratories submit paper-based reports to public health, and data entry technicians hand key the reports into Utah's communicable disease surveillance system (UT-NEDSS). In 2013, the Epidemiology Informatics Team (EIT) implemented an electronic laboratory reporting (ELR) system capable of receiving communicable disease laboratory results, processing them through a number of robust and complicated algorithms, and automatically populating UT-NEDSS. When ELR first began, only two laboratories were reporting electronically. By the end of 2016, it is expected to have more than 20 laboratories and hospitals reporting electronically; with a goal of 75% of all laboratory reports entered via ELR.

### Total Volume of Reportable Disease Lab Results by Year, Utah, 2013–2016 (projected)



# Monthly Health Indicators Report

(Data Through April 2016)

Monthly Report of Notifiable Diseases, April 2016	Current Month # Cases	Current Month # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
Campylobacteriosis ( <i>Campylobacter</i> )	21	31	103	112	0.9
Shiga toxin-producing <i>Escherichia coli</i> ( <i>E. coli</i> )	3	4	12	12	1.0
Hepatitis A (infectious hepatitis)	0	1	3	2	1.3
Hepatitis B, acute infections (serum hepatitis)	0	0	0	3	0.0
Influenza*	Weekly updates at <a href="http://health.utah.gov/epi/diseases/influenza">http://health.utah.gov/epi/diseases/influenza</a>				
Meningococcal Disease	1	1	2	2	0.8
Pertussis (Whooping Cough)	6	102	57	332	0.2
Salmonellosis ( <i>Salmonella</i> )	34	32	121	92	1.3
Shigellosis ( <i>Shigella</i> )	5	4	26	11	2.3
Varicella (Chickenpox)	10	28	99	123	0.8
Quarterly Report of Notifiable Diseases, 1st Qtr 2016	Current Quarter # Cases	Current Quarter # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
HIV/AIDS†	32	30	32	30	1.1
Chlamydia	2,412	1,981	2,412	1,981	1.2
Gonorrhea	513	197	513	197	2.6
Syphilis	11	11	11	11	1.0
Tuberculosis	5	8	5	8	0.7
Medicaid Expenditures (in Millions) for the Month of April 2016	Current Month	Expected/Budgeted for Month	Fiscal YTD	Budgeted Fiscal YTD	Variance - over (under) budget
Capitated Mental Health	\$ 16.6	\$ 15.2	\$ 142.7	\$ 142.8	\$ (0.0)
Inpatient Hospital	\$ 16.5	\$ 15.9	\$ 99.8	\$ 100.8	\$ (1.0)
Outpatient Hospital	\$ 3.8	\$ 4.4	\$ 35.1	\$ 36.5	\$ (1.5)
Long Term Care	\$ 15.7	\$ 15.4	\$ 158.2	\$ 159.0	\$ (0.8)
Pharmacy	\$ 12.8	\$ 13.8	\$ 91.3	\$ 92.3	\$ (1.0)
Physician/Osteo Services	\$ 4.5	\$ 4.8	\$ 35.5	\$ 41.0	\$ (5.5)
<b>TOTAL MEDICAID</b>	<b>\$ 233.7</b>	<b>\$ 234.4</b>	<b>\$ 2,047.3</b>	<b>\$ 2,050.6</b>	<b>\$ (3.3)</b>

Program Enrollment for the Month of April 2016	Current Month	Previous Month	% Change‡ From Previous Month	1 Year Ago	% Change‡ From 1 Year Ago
Medicaid	294,796	295,003	-0.1%	286,090	+3.0%
PCN (Primary Care Network)	18,036	18,602	-3.0%	15,708	+14.8%
CHIP (Children's Health Ins. Plan)	17,886	17,686	+1.1%	16,412	+9.0%
Health Care System Measures	Annual Visits			Annual Charges	
	Number of Events	Rate per 100 Population	% Change‡ From Previous Year	Total Charges in Millions	% Change‡ From Previous Year
Overall Hospitalizations (2014)	281,302	8.9%	-0.8%	\$ 7,281.6	+11.8%
Non-maternity Hospitalizations (2014)	177,881	5.5%	-1.1%	\$ 6,200.8	+11.6%
Emergency Department Encounters (2014)	710,266	22.9%	+2.6%	\$ 1,760.5	+13.2%
Outpatient Surgery (2013)	404,303	13.1%	+7.3%	\$ 2,167.9	+11.5%
Annual Community Health Measures	Current Data Year	Number Affected	Percent/Rate	% Change‡ From Previous Year	State Rank§ (1 is best)
Obesity (Adults 18+)	2014	524,000	25.7%	+6.5%	8 (2014)
Cigarette Smoking (Adults 18+)	2014	197,800	9.7%	-6.1%	1 (2014)
Influenza Immunization (Adults 65+)	2014	171,300	58.0%	+1.0%	36 (2014)
Health Insurance Coverage (Uninsured)	2014	303,100	10.3%	-11.2%	n/a
Motor Vehicle Traffic Crash Injury Deaths	2014	234	8.0 / 100,000	+20.2%	17 (2014)
Poisoning Deaths	2014	641	21.8 / 100,000	+0.4%	45 (2014)
Suicide Deaths	2014	555	18.9 / 100,000	-4.0%	41 (2014)
Diabetes Prevalence (Adults 18+)	2014	144,800	7.1%	-0.1%	8 (2014)
Poor Mental Health (Adults 18+)	2014	324,200	15.9%	-3.0%	19 (2014)
Coronary Heart Disease Deaths	2014	1,574	53.5 / 100,000	+2.5%	3 (2014)
All Cancer Deaths	2014	3,033	103.1 / 100,000	+1.0%	1 (2014)
Stroke Deaths	2014	854	29.0 / 100,000	+1.4%	31 (2014)
Births to Adolescents (Ages 15-17)	2014	537	7.9 / 1,000	-8.8%	12 (2014)
Early Prenatal Care	2014	39,005	76.2%	-0.2%	n/a
Infant Mortality	2014	251	4.9 / 1,000	-4.7%	13 (2013)
Childhood Immunization (4:3:1:3:3:1)	2014	36,700	74.6%	n/a#	24 (2014)

\* Influenza-like illness activity is minimal in Utah. As of May 7, 2016, 1,178 influenza-associated hospitalizations have been reported to the UDOH since the start of the influenza season on October 4, 2015. More information can be found at <http://health.utah.gov/epi/diseases/influenza/surveillance/index.html>.

† Diagnosed HIV infections, regardless of AIDS diagnosis.

‡ Relative percent change. Percent change could be due to random variation.

§ State rank based on age-adjusted rates where applicable.

# In 2014, NIS analysis for the complete 4:3:1:3:3:1 series was updated to provide a more accurate assessment of Haemophilus influenzae type B vaccination. Due to this change, the 2014 results for 4:3:1:3:3:1 coverage are not comparable to prior years.

Notes: Data for notifiable diseases are preliminary and subject to change upon the completion of ongoing disease investigations. Active surveillance for West Nile Virus will start in June for the 2016 season.