In order to quantify the underlying social and economic conditions affecting communities and populations, the Utah Department of Health (UDOH) developed the Health Improvement Index (HII). The HII is grounded on methods used by Singh for the Area Deprivation Index (ADI).[1] The HII is a weighted composite measure of social determinants of health[2] indicators from the Utah Behavioral Risk Factor Surveillance System (BRFSS)[3] by geographic area. Those indicators are:

1. Population aged ≥25 years with <9 years of education (percentage)
2. Population aged ≥25 years with at least a high school diploma (percentage)
3. Median family income (in dollars)
4. Income disparity
5. Owner-occupied housing units, (percentage; home ownership rate)
6. Civilian labor force population aged ≥16 years unemployed (percentage; unemployment rate)
7. Families below poverty level (percentage)
8. Population below 150% of the poverty threshold (percentage)
9. Single-parent households with children aged <18 years (percentage)

The geographic areas are the newly reassessed Utah Small Areas.[4] These areas refer to a set of geographic areas in Utah with population sizes ranging from approximately 8,000 to 86,000 persons. The Utah Small Areas are based on ZIP Codes, local health district and county boundaries, demographic similarities, and input from local community representatives. Data from 2015–2017 were used to construct the HII. The composite measure was computed for each small area and standardized to a mean of 100 and a standard deviation of 20.
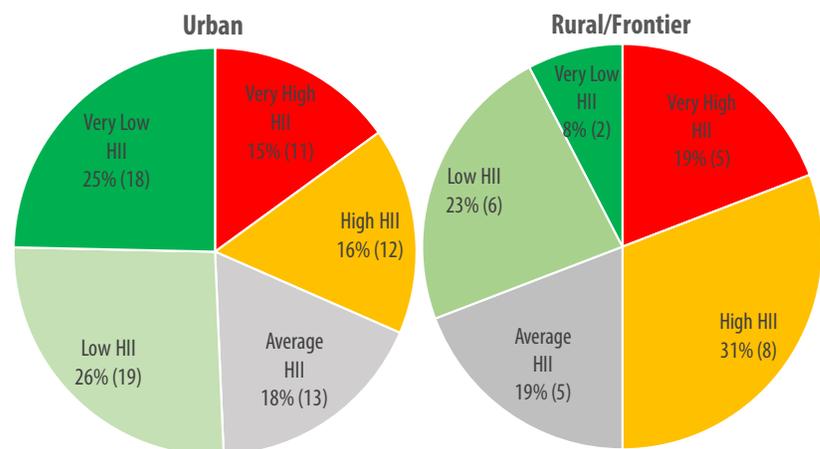
Classification

The HII ranges from 72 to 161. The 99 small areas are classified in five HII groups:

1. Very low HII (20 areas)
2. Low HII (25 areas)
3. Average HII (18 areas)
4. High HII (20 areas)
5. Very high HII (16 areas)

The higher the index, the more improvement in the social determinants of health the area needs. A greater percentage of rural/frontier small areas are classified as high or very high (Figure 1).

Distribution of Urban and Rural Utah Small Areas by HII Group

Figure 1. A greater percentage of rural/frontier small areas are classified as high or very high HII.

Urban

Very Low HII 25% (18)
Very High HII 15% (11)
High HII 16% (12)
Average HII 18% (13)
Low HII 26% (19)

Rural/Frontier

Very Low HII 8% (2)
Low HII 23% (6)
Very High HII 19% (5)
High HII 31% (8)
Average HII 19% (5)

Source: Utah Department of Health

KEY FINDINGS

- The Utah Health Improvement Index was developed as a way to quantify the underlying social and economic conditions affecting the health of communities in Utah.

- The majority of racial/ethnic minorities live in high or very high HII areas.

- Tobacco use, diabetes, insufficient physical activity, and food insecurity are all highest in high and very high HII areas.

- There is also a strong association between no healthcare coverage and the HII.

Associations

Although race and ethnicity were not included as indicators in the construction of the HII, the majority of racial/ethnic minorities live in high or very high improvement areas (Figure 2).

The association between HII and health risk factors and health outcomes is strong. Tobacco use, diabetes, insufficient physical activity, and food insecurity are all highest in high and very high HII areas. There is also a strong association between no healthcare coverage and the HII (Figure 3).

Applications

The HII measures social determinants of health by geographic area. In order to improve the health of the people living in the high or very high HII areas, interventions to improve the social determinants of health are needed. In combination with health indicators, the HII can be used as a benchmark to identify health disparities[5] by geography; as a criteria for planning, implementing, and evaluating interventions; and as a tool to integrate public health with community-development strategies that influence the determinants of health (e.g., housing, safety, education, transportation, access to healthcare, civic engagement, etc.). Staff at the UDOH are using the HII to set up priorities and produce data reports to inform stakeholders.

More information about the HII can be found at https://health.utah.gov/disparities/data/ohd/UtahHII.pdf.

1. Singh, GK. Area deprivation and widening inequalitites in US mortality, 1969–1998. American Journal of Public Health. 2003; 93(7):1137–1143.

2. The range of personal, social, economic and environmental factors that influence the health status of individuals and populations (Healthy People 2020).

3. More information about Utah BRFSS can be found at http://health.utah.gov/opha/OPHA_BRFSS.htm.

4. More information about Utah Small Areas can be found at https://ibis.health.utah.gov/pdf/resource/UtahSmallAreaInfo.pdf.

5. Health disparities are differences in health outcomes closely linked to economic, socio-cultural, and environmental/geographic disadvantage (Healthy People 2020).

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## Percentage of Racial/Ethnic Minorities by HII Area

Figure 2. One-third of the people living in the very high improvement areas were racial/ethnic minorities compared to 21.5% of the general population. The percentage of racial/ethnic minorities declines as HII score declines.

Very High HII	High HII	Average HII	Low HII	Very Low HII
33.2	21.1	17.1	15.5	9.8
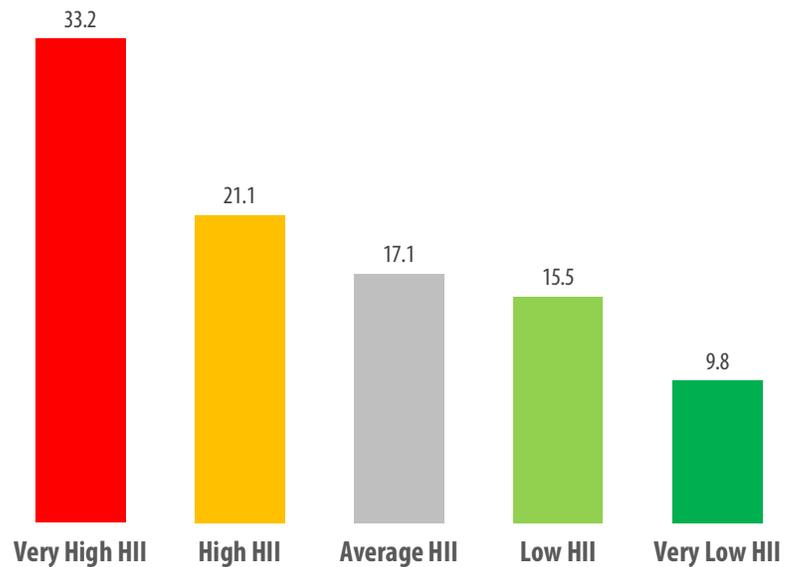
Source: Utah Department of Health

No Healthcare Coverage by HII

Figure 3. More than 18% of the people living in the very high HII area were uninsured. Less than 6% of the very low HII group were uninsured.

Very High HII	High HII	Average HII	Low HII	Very Low HII
18.2	13.1	11.6	8.8	5.8
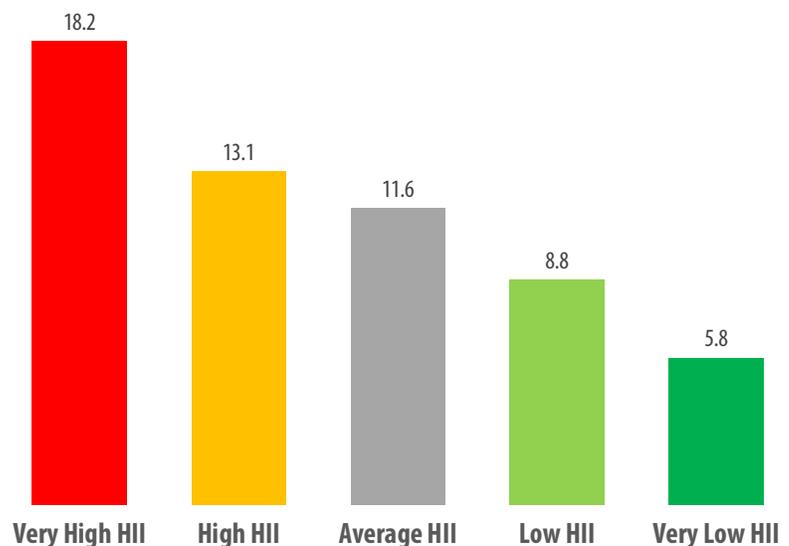
Source: Utah Department of Health; Utah Behavioral Risk Factor Surveillance System

UDOH ANNOUNCEMENT:

Intermountain Healthcare, University of Utah Healthcare, and the Utah Department of Health (UDOH) have received joint funding to evaluate the PCORnet (Patient Centered Outcome Research Network) database model for comprehensive hypertension (HTN) monitoring. The impact of this collaboration will benefit the PCORnet network as well as HTN monitoring and quality improvement efforts in Utah. For more information about PCORnet, visit https://pcornet.org/.

Antihypertensives

Using the Utah All-Payer Claims Database (APCD), staff with the Utah Department of Health Office of Health Care Statistics (OHCS) examined how consistently commercially-insured patients across the state filled their antihypertension prescriptions in 2017. Staff focused on two major categories of hypertension medications—renin angiotensin system antagonists (RASA) and beta blockers (BB)—and used a measure called "proportion days covered" or PDC. Each measure counts the number of patients who filled at least two prescriptions in the category (denominator) and also counts the number of patients who filled prescriptions covering at least 80% of the days since their first prescription in the category (numerator). Table 1 displays PDC results by county for RASA and BB. The "+/-" column indicates if an interval estimate falls above or below the statewide interval estimate.

Table 1. **Percentage of Patients Aged 18+ Who Met the PDC Threshold of 80% by Medication, Utah, 2017**

County	Beta Blockers (BB)			Renin Angiotensin System Antagonists (RASA)			County	Beta Blockers (BB)			Renin Angiotensin System Antagonists (RASA)		
	Rate	Interval	+/-	Rate	Interval	+/-		Rate	Interval	+/-	Rate	Interval	+/-
Beaver	69.0%	(62.4%, 75.0%)		71.3%	(66.4%, 75.9%)	-	Piute	81.3%	(71.4%, 88.9%)		80.3%	(73.0%, 86.3%)	
Box Elder	78.1%	(76.0%, 80.0%)	+	79.4%	(78.1%, 80.6%)	+	Rich	70.9%	(58.1%, 81.6%)		79.1%	(71.8%, 85.3%)	
Cache	75.4%	(73.6%, 77.1%)	+	79.1%	(78.0%, 80.2%)	+	Salt Lake	71.7%	(71.1%, 72.3%)	-	76.4%	(76.1%, 76.8%)	
Carbon	71.8%	(68.3%, 75.0%)		76.9%	(74.5%, 79.1%)		San Juan	63.8%	(57.2%, 70.1%)	-	74.3%	(70.3%, 78.0%)	
Daggett	84.4%	(69.1%, 93.8%)		84.8%	(74.8%, 91.9%)		Sanpete	69.3%	(65.6%, 72.7%)		74.5%	(72.0%, 76.8%)	
Davis	74.8%	(73.8%, 75.8%)	+	78.1%	(77.5%, 78.7%)	+	Sevier	69.6%	(66.2%, 72.9%)		76.6%	(74.4%, 78.8%)	
Duchesne	73.8%	(70.1%, 77.3%)		79.1%	(76.7%, 81.4%)		Summit	72.9%	(69.8%, 75.8%)		77.0%	(75.1%, 78.7%)	
Emery	76.8%	(71.6%, 81.4%)		75.3%	(71.6%, 78.7%)		Tooele	74.3%	(72.1%, 76.5%)		77.2%	(75.9%, 78.4%)	
Garfield	77.6%	(71.0%, 83.4%)		79.5%	(75.5%, 83.0%)		Uintah	76.4%	(73.5%, 79.0%)	+	78.9%	(77.0%, 80.7%)	
Grand	73.0%	(67.5%, 77.9%)		76.6%	(73.0%, 80.0%)		Utah	69.9%	(69.0%, 70.8%)	-	74.1%	(73.5%, 74.7%)	-
Iron	70.8%	(68.0%, 73.4%)		74.5%	(72.5%, 76.4%)	-	Wasatch	74.9%	(71.2%, 78.3%)		79.2%	(77.1%, 81.2%)	+
Juab	73.5%	(68.3%, 78.3%)		74.2%	(70.7%, 77.4%)		Washington	72.8%	(71.6%, 74.0%)		75.5%	(74.6%, 76.4%)	-
Kane	75.7%	(70.4%, 80.5%)		71.5%	(67.3%, 75.4%)	-	Wayne	67.1%	(56.3%, 76.7%)		71.5%	(64.8%, 77.5%)	
Millard	78.9%	(74.4%, 82.9%)	+	78.0%	(74.9%, 80.8%)		Weber	76.0%	(75.0%, 77.0%)	+	79.6%	(79.0%, 80.2%)	+
Morgan	78.3%	(73.0%, 83.0%)		79.8%	(76.5%, 82.7%)		**Statewide**	**72.8%**	**(72.5%, 73.2%)**		**76.8%**	**(76.6%, 77.0%)**	

+ above statewide rate
- below statewide rate
Source: Utah All-Payer Claims Database; accessed May 2019.

Creating a Legacy of Health

In 2018, Governor Gary R. Herbert tasked state agencies with tackling a significant "Legacy" project. The Utah Department of Health Legacy Project focuses on improving health outcomes related to uncontrolled hypertension. Hypertension, a prolonged blood pressure reading that exceeds 140/90, increases risk for heart disease, stroke, dementia, and kidney failure. Nearly one in four adults (24.5%) in Utah have hypertension, and less than 65% have their hypertension under control.

The UDOH Hypertension Legacy Project has three focus areas. First, to increase clinic participation in Million Hearts Optimizing Care, a set of evidence-based strategies aimed at improving hypertension diagnosis and care in the clinical setting. Second, improve tracking of health outcomes and cost measures through the creation of a statewide hypertension monitoring system. Third, learning about value-based purchasing (VBP) models and work with healthcare systems to apply VBP models that limit the growth of costs and improve hypertension outcomes.

Through efforts like the Hypertension Legacy Project, clinical partners and the public health community are recognizing the value of partnering together to address common health goals. The growth of clinic participation in Million Hearts exemplifies this: the effort launched in 2016 with 16 clinics, this year there are 133 (Figure 1).

Figure 1. **Number of Utah Clinics Participating in Million Hearts Program, 2016–2019**
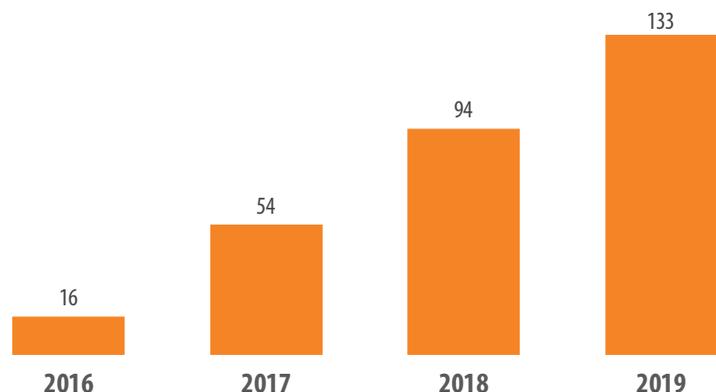
Source: Utah Department of Health Healthy Living Through Environment Policy and Improved Clinical Care Program Data

Monthly Health Indicators Report
(Data Through April 2019)

Monthly Report of Notifiable Diseases, April 2019	Current Month # Cases	Current Month # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
Campylobacteriosis (*Campylobacter*)	36	35	144	131	1.1
Shiga toxin-producing *Escherichia coli* (*E. coli*)	8	8	31	19	1.7
Hepatitis A (infectious hepatitis)	1	4	7	22	0.3
Hepatitis B, acute infections (serum hepatitis)	2	1	7	3	2.2
Influenza*	Weekly updates at http://health.utah.gov/epi/diseases/influenza				
Meningococcal Disease	0	0	1	1	1.3
Pertussis (Whooping Cough)	7	63	69	210	0.3
Salmonellosis (*Salmonella*)	23	31	79	110	0.7
Shigellosis (*Shigella*)	6	3	15	15	1.0
Varicella (Chickenpox)	12	22	55	93	0.6

Quarterly Report of Notifiable Diseases, 1st Qtr 2019	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†	22	32	22	32	0.7
Chlamydia	2,750	2,411	2,750	2,411	1.1
Gonorrhea	656	486	656	486	1.4
Syphilis	86	63	86	63	1.4
Tuberculosis	6	6	6	6	0.9

Medicaid Expenditures (in Millions) for the Month of April 2019	Current Month	Expected/Budgeted for Month	Fiscal YTD	Budgeted Fiscal YTD	Variance - over/(under) budget
Mental Health Services	$ 6.2	$ 6.3	$ 130.9	$ 132.5	$ (1.6)
Inpatient Hospital Services	14.9	14.7	189.0	190.6	(1.7)
Outpatient Hospital Services	3.2	3.5	34.8	35.8	(1.0)
Nursing Home Services	16.3	16.4	216.3	217.6	(1.3)
Pharmacy Services	9.3	9.4	109.2	110.5	(1.2)
Physician/Osteo Services‡	4.3	4.6	53.1	53.7	(0.5)
Medicaid Expansion Services	13.7	14.4	89.4	91.7	(2.3)
TOTAL MEDICAID	209.9	210.5	2,329.0	2,330.3	(1.3)

Program Enrollment for the Month of April 2019	Current Month	Previous Month	% Change§ From Previous Month	1 Year Ago	% Change§ From 1 Year Ago
Medicaid	285,819	264,954	+7.9%	278,017	+2.8%
PCN (Primary Care Network)‖	-	16,062	-100.0%	15,145	-100.0%
CHIP (Children's Health Ins. Plan)	17,788	17,595	+1.1%	19,487	-8.7%

Health Care System Measures# (Year)	Annual Visits			Annual Charges	
	Number of Events	Visits per 1,000 Utahns	% Change§ From Previous Year	Total Charges in Millions	% Change§ From Previous Year
Overall Hospitalizations (2017)	288,787	86.3	+2.9%	$ 9,046.2	+4.5%
Non-maternity Hospitalizations (2017)	190,185	55.4	+1.9%	$ 7,809.6	+5.0%
Emergency Department Encounters** (2017)	736,146	224.0	+7.4%	$ 2,436.0	+6.5%
Outpatient Surgery (2017)	513,707	156.1	+5.1%	$ 3,595.0	+12.0%

Annual Community Health Measures	Current Data Year	Number Affected	Percent/Rate	% Change§ From Previous Year	State Rank†† (1 is best)
Obesity (Adults 18+)	2017	548,100	25.2%	-0.4%	7 (2017)
Cigarette Smoking (Adults 18+)	2017	193,600	8.9%	+1.1%	1 (2017)
Influenza Immunization (Adults 65+)	2017	187,900	56.0%	+2.0%	40 (2017)
Health Insurance Coverage (Uninsured)	2017	304,000	9.8%	+12.6%	n/a
Motor Vehicle Traffic Crash Injury Deaths	2017	280	9.0 / 100,000	+6.9%	14 (2017)
Poisoning Deaths	2017	714	23.0 / 100,000	-0.3%	29 (2017)
Suicide Deaths	2017	663	21.4 / 100,000	+6.3%	46 (2017)
Diabetes Prevalence (Adults 18+)	2017	154,400	7.1%	-1.4%	6 (2017)
Poor Mental Health (Adults 18+)	2017	395,900	18.2%	+7.1%	22 (2017)
Coronary Heart Disease Deaths	2017	1,692	54.5 / 100,000	+1.8%	5 (2017)
All Cancer Deaths	2017	3,160	101.9 / 100,000	-0.4%	1 (2017)
Stroke Deaths	2017	888	28.6 / 100,000	-6.0%	21 (2017)
Births to Adolescents (Ages 15-17)	2017	420	5.8 / 1,000	-7.6%	13 (2017)
Early Prenatal Care	2017	37,395	77.0%	+2.3%	n/a
Infant Mortality	2017	282	5.8 / 1,000	+7.0%	15 (2016)
Childhood Immunization (4:3:1:3:3:1)	2017	35,600	70.2%	-4.6%	46 (2017)

* Influenza activity decreased in April 2019 and we are now seeing low season severity. 1,770 influenza-associated hospitalizations have been confirmed from September 30, 2018 to April 30, 2019. More information and weekly reports can be found at http://health.utah.gov/epi/diseases/influenza/surveillance/2018-2019/Utah_Weekly_Influenza_Report.html.
† Diagnosed HIV infections, regardless of AIDS diagnosis.

‡ Medicaid payments reported under Physician/Osteo Services does not include enhanced physician payments.
§ Relative percent change. Percent change could be due to random variation.
‖ In April of 2019, the PCN group moved over to the new Medicaid Expansion program.
Health Care System Measures should not be compared to previous years; a different method was used to determine year of service.
** Treat and release only.
†† State rank based on age-adjusted rates where applicable.
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 2019 season.