4. Doctor-diagnosed Diabetes

Measure Definition: *"Have you ever been told by a doctor that you have diabetes?"* ***[Yes, excluding females told only during pregnancy or people told they have pre-diabetes or borderline diabetes]***

Why is diabetes important to public health?

Diabetes is a serious disease that can have devastating consequences. Each year in the U.S., between 12,000 and 24,000 people with diabetes become blind, more than 42,800 develop kidney failure, and about 82,000 experience leg, foot, or toe amputations. Nerve damage brought on by diabetes can create severe pain and impaired sensation in hands and feet. Most notably, diabetes increases the risk of heart disease and stroke by two to four times. Diabetes is one of the most costly of all chronic diseases. Nationally, more than one in every ten health care dollars (10.6%), about $92 billion a year, is spent on direct health care costs for people with diabetes.[8]

Additionally, indirect costs, such as lost productivity, disability, and premature mortality, bring the total estimated costs to $132 billion a year.[8]

Many interventions, while shown to be effective at the state level, may have little influence in some communities. Examining prevalence of diabetes by small area is a first step toward identifying and addressing the needs that may be unique to a specific geographical area.

Risk factors for diabetes

There are two primary types of diabetes: (1) type 1 diabetes, an autoimmune disease that develops when the pancreas fails to produce insulin, and (2) type 2, which results from an inability of the body to use insulin, too little insulin production, or a combination of both. The risk factors for type 1 diabetes are not well understood, but family history appears to be a predominant risk factor.

Type 2 diabetes, on the other hand, appears to be closely linked to lifestyle. In particular, overweight and obesity are the predominant modifiable risk factors for diabetes. The Diabetes Prevention Program (DPP), a clinical trial of more than 3,000 adults at high risk for type 2 diabetes, clearly demonstrated that even moderate weight loss achieved through diet and exercise can delay or prevent diabetes onset. There is some evidence that increasing physical activity, even without weight loss, may have an effect on preventing type 2 diabetes by increasing a person's sensitivity to insulin.[9] Family history also appears to play a role in the risk of type 2 diabetes, although to a lesser extent than it does for type 1 diabetes.

Type 2 diabetes is a condition for which demographics appears to have a strong impact. Prevalence of type 2 diabetes is higher among middle-aged and elderly populations, members of certain racial/ethnic minority groups, and low income populations.

Diabetes in Utah

Approximately 82,324 Utah adults have been diagnosed with diabetes, representing (for 2003) 5.0% of the adult population. Rates are shown by health district and small areas within each health district (Table 4). In some instances, the population for a health district is small enough to be considered a small area on its own. Crude rates are used to show the true prevalence of a condition in a population. Crude rates of diabetes ranged

Utah Objective: Same as HP2010 objective.
HP2010 Objective (related) 5-3: Reduce the overall rate of diabetes that is clinically diagnosed to 25 overall cases per 1,000 population (age-adjusted to U.S. 2000 standard population).

Diabetes in Utah (continued)

from a low of 1.7% for the Avenues to a high of 9.8% for South Salt Lake. Because diabetes is so closely linked to age, age-adjusted rates are commonly used to compare prevalence rates across populations. Age-adjusted rates are artificial rates that are calculated as though the age compositions for each area are identical. The standard population used for age adjustment is the 2000 U.S. population.

After adjusting for the differences in age compositions, five small areas were observed to have a lower-than-state prevalence. The lower age-adjusted rate was seen in the Avenues at 1.5%, followed by Roy/Hooper at 2.7%, Northeast Sandy at 2.8%, Foothill/U of U at 2.8%, and Summit County at 3.1%.

A number of small areas had prevalence rates that were higher than the state rate. The highest age-adjusted prevalence was seen for Pleasant Grove/Lindon with a rate that approaches double that for the state at 10.5%. This small area was followed closely by Downtown Ogden, with 10.2%; West Jordan North, Cedar City, West Valley West, Woods Cross/North SL, and Other Cache/Rich County also had rates that were higher than the state rate. Higher-than-state rates were also noted for two local health districts: Tooele County and Utah County.

As the population of Utah becomes increasingly diversified, it is important to recognize the considerable community variations that may affect the prevalence of chronic conditions. For example, the high prevalence of diabetes in the Downtown Ogden area likely reflects the high percentage of minority members living in this community. Downtown Ogden has the highest concentration of Black persons (3.2%) of all small areas, and one of the highest concentrations of Hispanic/Latino population (29.4%). The higher-than-state concentration of Hispanic/Latino population in West Jordan North (11.0%) and the high concentration of Pacific Islander persons in West Valley West (2.4%) may help to account for some of the higher prevalence in these areas. West Jordan North also had the highest rate of obesity of all small areas (30.5%), and the third highest prevalence of diabetes.

An important note is that rates of diabetes, particularly in those populations with limited access to health care, are likely to be underestimated. Approximately 28% of people with diabetes have not been diagnosed. Therefore, the rates in some small areas may be substantially higher than depicted in this report.[10]

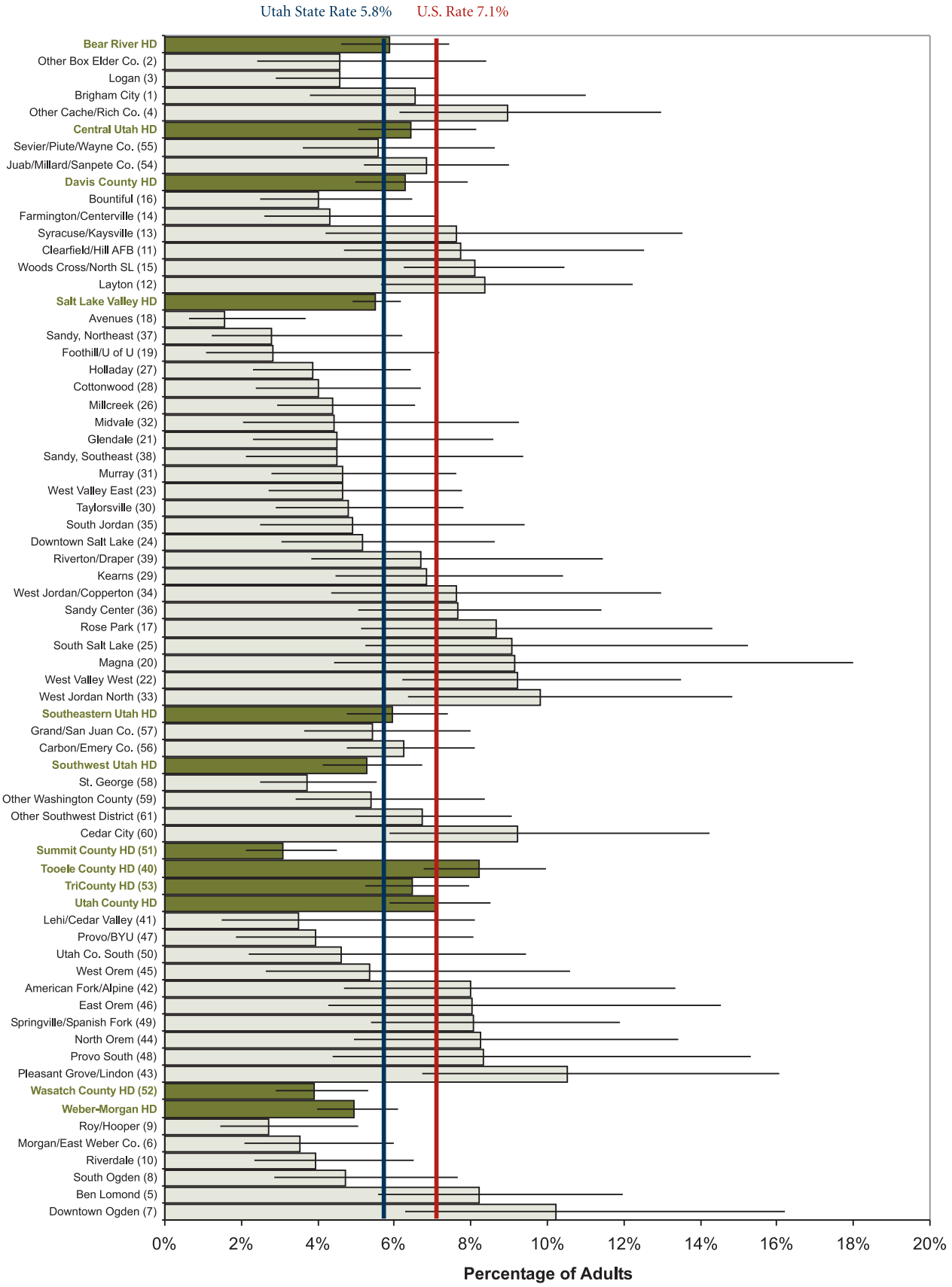
Prevention/Resources

The Utah Diabetes Prevention and Control Program (DPCP), Bureau of Health Promotion at the Utah Department of Health recognizes the importance of promoting resources and building capacity at the community level. The program provides information on diabetes awareness and management to health care providers and to the general public. Self-care manuals in eleven languages are available through the program and may be downloaded from its website, http://health.utah.gov/diabetes. The site also offers a number of links with resources for clinicians and provides links to patient assistance programs.

The DPCP certifies diabetes education programs, a good proportion providing services in rural areas where no other programs are available. The DPCP also sponsors monthly telehealth programs for health care professionals, covering such topics as foot care, insulin use, and aggressive treatment. The DPCP uses the media extensively to promote awareness of the risk factors and warning signs of diabetes. Those interested in obtaining more information on diabetes control may call the Health Resource Line, 1-800-222-2542.

4. Doctor-diagnosed Diabetes

Figure 4.1: Percentage of Adults Who Reported Doctor-diagnosed Diabetes by Local Health District and Small Area, Utah Adults Aged 18+, 2001–2005 (Age-adjusted)



4. Doctor-diagnosed Diabetes

Table 4: Dr. Dx Diabetes by Health District, Small Area, Utah, and U.S., 2001-2005

State Rank*	State, Health District, or Small Area	2003 Population 18+	Number of Adults With Dr. Dx Diabetes	Crude Rate	Age-adjusted Rate	95% Confidence Interval Lower	95% Confidence Interval Upper
	U.S.	217,803,051	15,725,380	7.2%	7.1%	7.0%	7.2%
	State of Utah	1,657,454	82,375	5.0%	5.8%	5.4%	6.2%
	Bear River HD	98,027	4,990	5.1%	5.9%	4.6%	7.4%
35	Brigham City (1)	14,566	954	6.6%	6.5%	3.8%	11.0%
21	Logan (3)	45,904	1,189	2.6%	4.6%	2.9%	7.2%
20	Other Box Elder Co. (2)	14,636	688	4.7%	4.6%	2.4%	8.4%
54	Other Cache/Rich Co. (4)	22,921	2,012	8.8%	9.0%	6.1%	13.0%
	Central Utah HD	47,558	2,972	6.3%	6.4%	5.1%	8.1%
39	Juab/Millard/Sanpete Co. (54)	31,637	2,072	6.6%	6.9%	5.2%	9.0%
32	Sevier/Piute/Wayne Co. (55)	15,921	907	5.7%	5.6%	3.6%	8.6%
	Davis County HD	175,027	9,171	5.2%	6.3%	5.0%	7.9%
14	Bountiful (16)	33,318	1,646	4.9%	4.0%	2.5%	6.5%
43	Clearfield/Hill AFB (11)	37,329	2,128	5.7%	7.7%	4.7%	12.5%
15	Farmington/Centerville (14)	19,034	773	4.1%	4.3%	2.6%	7.1%
52	Layton (12)	46,815	2,856	6.1%	8.4%	5.6%	12.2%
41	Syracuse/Kaysville (13)	24,542	1,517	6.2%	7.6%	4.2%	13.5%
47	Woods Cross/North SL (15)	13,989	442	3.2%	8.1%	6.3%	10.5%
	Salt Lake Valley HD	658,810	31,293	4.8%	5.5%	4.9%	6.2%
1	Avenues (18)	18,959	320	1.7%	1.5%	0.6%	3.7%
13	Cottonwood (28)	33,297	1,578	4.7%	4.0%	2.4%	6.7%
28	Downtown Salt Lake (24)	42,808	1,704	4.0%	5.2%	3.0%	8.6%
4	Foothill/U of U (19)	17,778	418	2.4%	2.8%	1.1%	7.2%
18	Glendale (21)	18,642	913	4.9%	4.5%	2.3%	8.6%
9	Holladay (27)	35,956	1,773	4.9%	3.9%	2.3%	6.4%
38	Kearns (29)	42,995	2,348	5.5%	6.9%	4.5%	10.4%
56	Magna (20)	15,623	789	5.1%	9.1%	4.4%	18.0%
17	Midvale (32)	21,672	802	3.7%	4.4%	2.1%	9.3%
16	Millcreek (26)	44,008	2,016	4.6%	4.4%	2.9%	6.6%
23	Murray (31)	24,072	1,064	4.4%	4.6%	2.8%	7.6%
36	Riverton/Draper (39)	41,391	1,519	3.7%	6.7%	3.8%	11.5%
53	Rose Park (17)	22,639	1,422	6.3%	8.7%	5.1%	14.3%
42	Sandy Center (36)	36,106	2,018	5.6%	7.7%	5.1%	11.4%
3	Sandy, Northeast (37)	18,245	483	2.7%	2.8%	1.2%	6.2%
19	Sandy, Southeast (38)	20,781	584	2.8%	4.5%	2.1%	9.4%
27	South Jordan (35)	20,931	588	2.8%	4.9%	2.5%	9.4%
55	South Salt Lake (25)	18,456	1,811	9.8%	9.1%	5.2%	15.2%
26	Taylorsville (30)	27,372	1,196	4.4%	4.8%	2.9%	7.8%
59	West Jordan North (33)	30,391	1,684	5.5%	9.8%	6.4%	14.9%
40	West Jordan/Copperton (34)	26,360	1,392	5.3%	7.6%	4.3%	13.0%
24	West Valley East (23)	35,527	1,542	4.3%	4.6%	2.7%	7.8%
57	West Valley West (22)	44,794	3,449	7.7%	9.2%	6.2%	13.5%
	Southeastern Utah HD	36,828	2,202	6.0%	5.9%	4.8%	7.4%
33	Carbon/Emery Co. (56)	21,451	1,349	6.3%	6.2%	4.8%	8.1%
31	Grand/San Juan Co. (57)	15,377	829	5.4%	5.4%	3.7%	8.0%
	Southwest Utah HD	116,150	6,202	5.3%	5.3%	4.1%	6.7%
58	Cedar City (60)	22,401	1,261	5.6%	9.2%	5.9%	14.2%
37	Other Southwest District (61)	15,384	1,008	6.6%	6.7%	5.0%	9.1%
30	Other Washington County (59)	32,503	1,807	5.6%	5.4%	3.4%	8.4%
8	St. George (58)	45,862	1,899	4.1%	3.7%	2.5%	5.6%
5	**Summit County HD (51)**	24,525	564	2.3%	3.1%	2.1%	4.5%
48	**Tooele County HD (40)**	32,458	2,298	7.1%	8.2%	6.8%	10.0%
34	**TriCounty HD (53)**	28,023	1,813	6.5%	6.5%	5.2%	8.0%
	Utah County HD	278,832	13,691	4.9%	7.1%	5.9%	8.5%
44	American Fork/Alpine (42)	26,819	1,896	7.1%	8.0%	4.7%	13.4%
45	East Orem (46)	14,955	1,053	7.0%	8.0%	4.3%	14.5%
6	Lehi/Cedar Valley (41)	18,752	411	2.2%	3.5%	1.5%	8.1%
50	North Orem (44)	25,965	1,690	6.5%	8.2%	5.0%	13.4%
61	Pleasant Grove/Lindon (43)	24,636	1,877	7.6%	10.5%	6.7%	16.1%
12	Provo/BYU (47)	39,401	985	2.5%	3.9%	1.9%	8.1%
51	Provo South (48)	48,138	1,218	2.5%	8.3%	4.4%	15.3%
46	Springville/Spanish Fork (49)	41,036	2,602	6.3%	8.1%	5.4%	11.9%
22	Utah Co. South (50)	17,363	599	3.5%	4.6%	2.2%	9.4%
29	West Orem (45)	21,774	945	4.3%	5.4%	2.6%	10.6%
10	**Wasatch County HD (52)**	12,514	443	3.5%	3.9%	2.9%	5.3%
	Weber-Morgan HD	148,702	6,781	4.6%	5.0%	4.1%	6.2%
49	Ben Lomond (5)	33,215	2,186	6.6%	8.2%	5.6%	12.0%
60	Downtown Ogden (7)	21,684	1,926	8.9%	10.2%	6.3%	16.2%
7	Morgan/East Weber Co. (6)	24,131	818	3.4%	3.5%	2.1%	6.0%
11	Riverdale (10)	15,522	582	3.8%	3.9%	2.3%	6.5%
2	Roy/Hooper (9)	27,898	617	2.2%	2.7%	1.5%	5.1%
25	South Ogden (8)	26,255	1,160	4.4%	4.7%	2.9%	7.7%

*State rank is by 61 small areas for age-adjusted rate; 1 is always the lowest rate in the state and 61 is always the highest rate in the state.

Figure 4.2: Dr. Dx Diabetes by Small Area, Utah Adults Aged 18+, 2001–2005 (Age-adjusted)

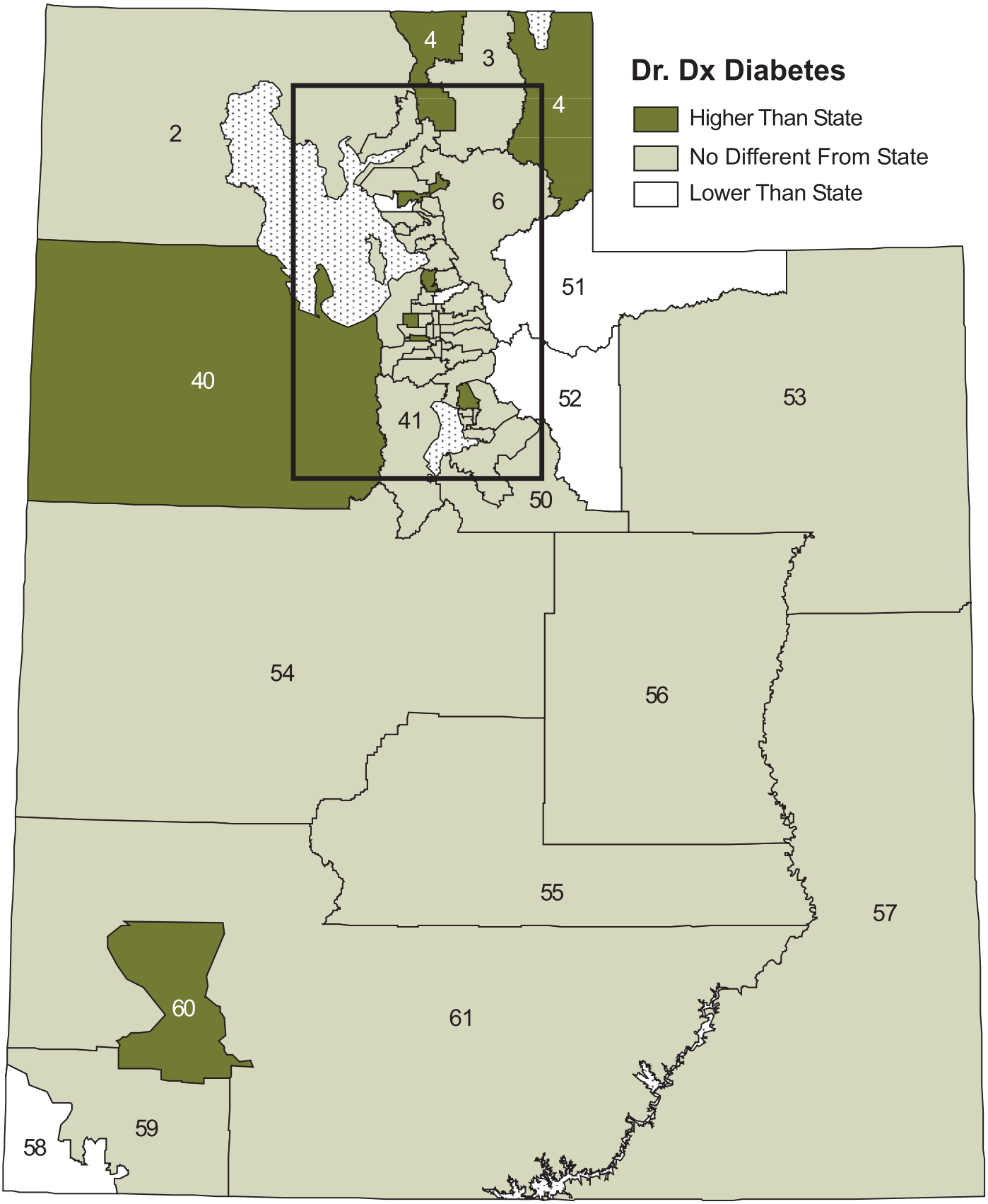
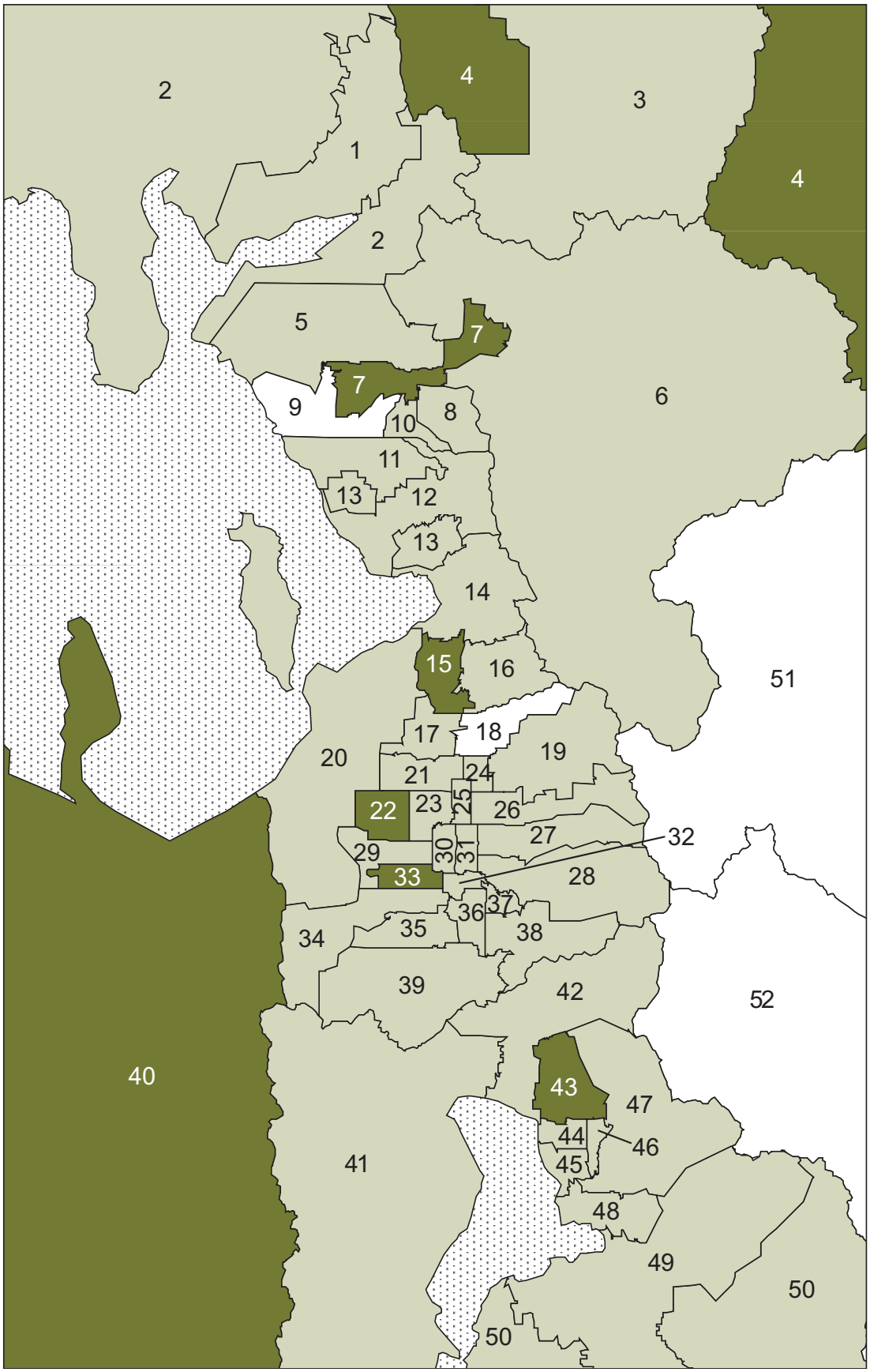



Figure 4.3: Dr. Dx Diabetes by Small Area, Wasatch Front Adults Aged 18+, 2001–2005 (Age-adjusted)