Community Health Status:
Selected Measures of Health Status by Small Area in Utah

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Dr. Shah began this report while workin in the Bureau of Surveillance and Analysis. We appreciate his willingness to continue work on it after joining the Office of Health Data Analysis (HDA) and the support of HDA in completing this report.

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INTRODUCTION

Public health has increasingly emphasized local or community health assessment and planning. Small area analysis is a tool that can help inform community health planning by providing public health information that is specific for each community or small area. This report provides data on a variety of health status and demographic measures for small areas in Utah.

Sixty-one small areas with an average 1997 population size of 33,500 persons (range 15,000 to 62,500 persons) were identified. Areas varied widely in surface area, with the smallest area consisting of a few square miles in an urban county, and the largest area encompassing four large frontier counties. The largest urban health district, Salt Lake City/County Health District, included 23 small areas. Sometimes ZIP codes or counties were used individually, at other times contiguous areas were combined. Population size, political boundaries of cities and towns, and economic similarity were the chief criteria used to combine the areas. A list of areas and how the small areas were defined (ZIP codes and county combinations that were used to create each area) is found in the table on page one. A detailed description of the methodology used to designate small area boundaries may be found in the Technical Appendix on page 99.

The report begins with an overview of the locations of the 61 small areas. The table on page one contains definitions of area boundaries and selected demographic information for each area. Following that table are five maps that display the small area boundaries at different levels of detail for Utah (the entire state, the Wasatch Front, and Salt Lake, Utah, and Davis and Weber Counties).

The report then provides maps that depict health and demographic measures by small area. For each health measure, four maps are presented. The first two maps present information on the values of the measure (e.g., death rates); one map is a view of Utah and the other of the Wasatch Front. The next two maps (also views of Utah and the Wasatch Front) indicate which small areas had values on the measure that were higher or lower than the overall state value. An area was considered different from the state if the 95% confidence interval for the measure in the area did not include the state rate. Following the maps are reference tables that provide information on the health measures for each small area, along with the corresponding 95% confidence intervals.

Two small areas (#35, South Jordan and #46, East Orem) contain zip codes that were created recently (1993 and 1996, respectively). For measures that rely on combining data over multiple years, the estimates for those areas will be based on smaller populations (e.g., a population over one year instead of five). Because of the smaller population base, the precision of the estimates for areas #35 and #46 will not be as good as it would have otherwise been. In addition to lack of precision in the estimates, it is likely that use of new ZIP codes does not begin uniformly on the date the ZIP code change was initiated. It is very possible that some events that took place in areas #35 and #46 after creation of the new ZIP codes were improperly coded as having taken place in areas #39 (Riverton) and #45 (West Orem), respectively, the areas that include the former ZIP codes. Reported rates calculated for areas #35 and #46 should be interpreted with caution. A discussion of calculation of rates for these areas may be found in the Technical Appendix.

We hope that this report will provide useful measures of community health in Utah, but we recognize that it is a first step. We welcome comments about our selection of health status measures, and our small

area designations. In addition, we hope this report provides some of the groundwork for others who wish to present information at the community level, and that others will consider using these area designations. We welcome inquiries about the methods used. Finally, we hope that the reporting and use of small area information will promote improved collection of geographic data and adoption of uniform standards for such data. That collection and those standards should apply not only to health data, but also to demographic, survey, economic, social welfare, and other data that could be used to improve our understanding of Utah communities and the people who make up those communities.

Part 1: Small Area Definitions

Small Area Boundary Designations and Selected Demographic Measures

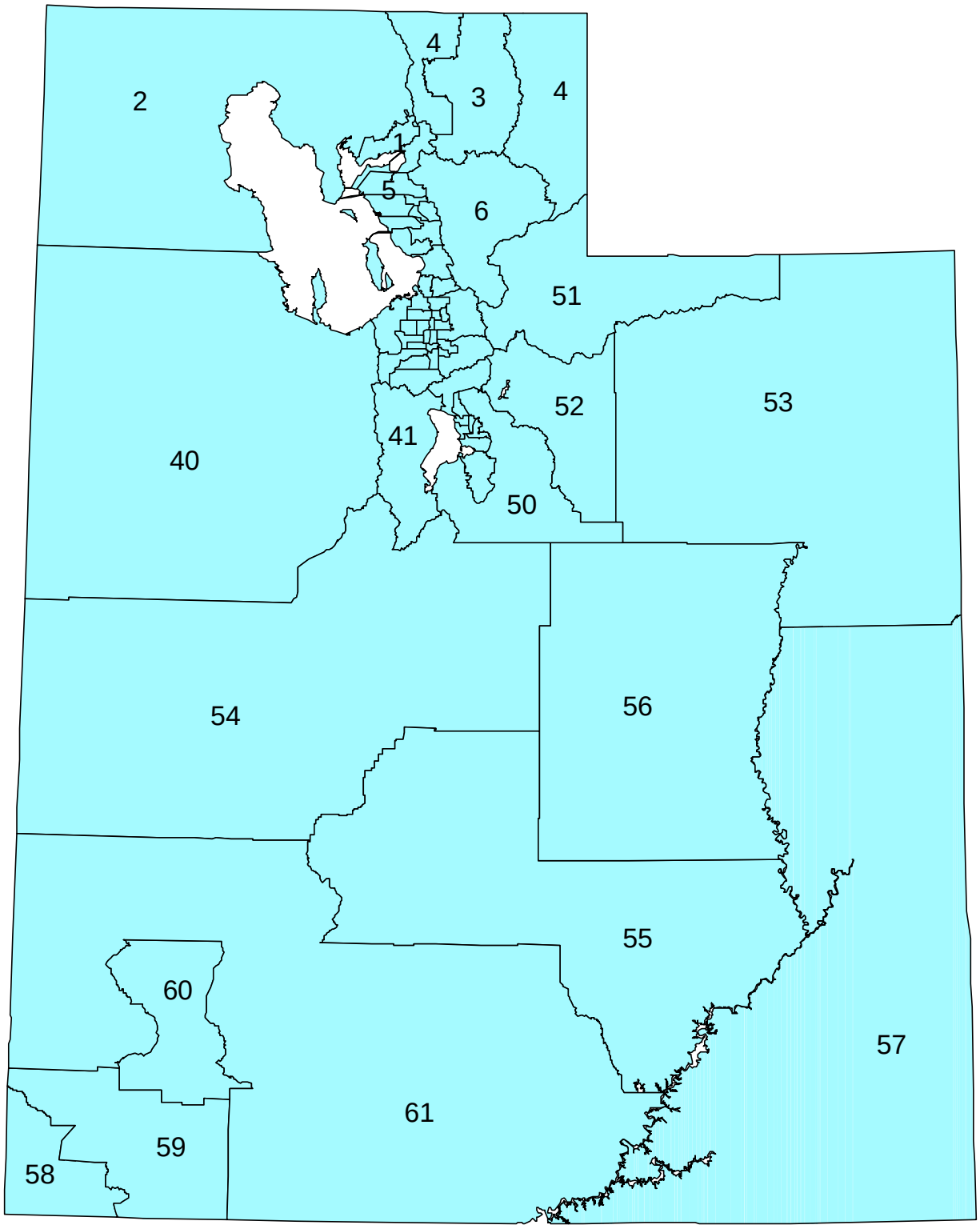
#	Area Name	Boundary Designation	Population[1]	Per Capita Income[1]	Median Age[1]
	State Total	All counties / ZIP codes in Utah	2,042,003	$14,045	28
1	Brigham City	ZIP code 84302	18,915	$14,867	30
2	Other Box Elder Co.	Box Elder County except ZIP code 84302	20,712	$13,231	27
3	Logan	ZIP codes 84321, 84322, 84341, 84332	60,515	$13,006	24
4	Other Cache/Rich Co.	Cache & Rich Co. except ZIP codes 84321, 84322, 84341, 84332	26,325	$11,769	26
5	Ben Lomond	ZIP codes 84404, 84407, 84412	39,592	$13,151	30
6	Morgan/East Weber Co.	ZIP codes 84310, 84317, 84414, 84050 or Morgan County	32,686	$14,757	28
7	Downtown Ogden	ZIP codes 84401, 84402	24,663	$12,484	31
8	South Ogden	ZIP code 84403	30,696	$18,185	33
9	Roy/Hooper	ZIP codes 84067, 84315	36,276	$14,404	28
10	Riverdale	ZIP codes 84405, 84409	23,783	$15,443	31
11	Clearfield/Hill AFB	ZIP codes 84015, 84016, 84056	45,593	$11,592	24
12	Layton	ZIP codes 84040, 84041	53,648	$14,465	26
13	Syracuse/Kaysville	ZIP codes 84037, 84075	29,312	$14,029	25
14	Farmington/Centerville	ZIP codes 84025, 84014	24,991	$14,948	24
15	Woods Cross/No SL	ZIP codes 84087, 84054	17,596	$13,972	25
16	Bountiful	ZIP codes 84010, 84011	44,309	$17,141	30
17	Rose Park	ZIP code 84116	26,083	$12,871	30
18	Avenues	ZIP codes 84103, 84114	23,277	$23,110	35
19	Foothill/U of U	ZIP codes 84108, 84112, 84113	22,917	$23,761	35
20	Magna	ZIP code 84044	20,128	$11,315	25
21	Glendale	ZIP codes 84104, 84101, 84110, 84152	20,579	$11,133	32
22	West Valley West	ZIP codes 84128, 84120, 84170	58,179	$11,989	25
23	West Valley East	ZIP codes 84119, 84199	40,174	$12,773	27
24	Downtown Salt Lake	ZIP codes 84111, 84102, 84105	48,215	$16,691	33
25	South Salt Lake	ZIP codes 84115, 84165	22,416	$12,582	31
26	Millcreek	ZIP codes 84106, 84151, 84109	55,943	$18,385	36
27	Holladay	ZIP codes 84124, 84117	46,584	$21,967	37
28	Cottonwood	ZIP code 84121	45,933	$20,675	33
29	Kearns	ZIP code 84118	62,462	$12,057	25

30	Taylorsville	ZIP code 84123	33,294	$15,877	29
31	Murray	ZIP codes 84107, 84157	30,139	$17,764	33
32	Midvale	ZIP code 84047	27,154	$14,959	29
33	West Jordan No.	ZIP code 84084	44,308	$12,100	22
34	W. Jordan, Copperton	ZIP codes 84088, 84006	28,860	$12,170	24
35	South Jordan	ZIP code 84095 (new zip code as of 1993)	32,401	$13,936	24
36	Sandy Center	ZIP codes 84070, 84091, 84094	52,784	$14,260	27
37	Sandy, NE	ZIP codes 84093, 84090	28,948	$19,615	28
38	Sandy, SE	ZIP code 84092	34,139	$19,391	25
39	Riverton/Draper	ZIP codes 84065, 84020	37,651	$12,542	27
40	Tooele Co.	Tooele County	30,371	$11,953	30
41	Lehi/Cedar Valley	ZIP codes 84043, 84013	14,951	$11,875	25
42	American Fork/Alpine	ZIP codes 84004, 84003	34,378	$12,285	24
43	Pleasant Grove/Lindon	ZIP codes 84062, 84042	26,294	$11,827	23
44	North Orem	ZIP codes 84057, 84059	35,107	$12,406	23
45	West Orem	ZIP code 84058	27,114	$12,735	23
46	East Orem	ZIP code 84097 (new zip code as of 1996)	30,579	$13,712	24
47	Provo/BYU	ZIP codes 84602, 84604	47,328	$12,581	22
48	Provo South	ZIP codes 84601, 84603, 84605, 84606	47,650	$9,795	24
49	Springville/Spanish Fork	ZIP codes 84660, 84663, 84664, 84653	44,774	$12,283	25
50	Utah Co. South	ZIP codes 84651, 84655, 84626, 84633	19,920	$10,539	24
51	Summit Co.	Summit County	25,301	$21,809	33
52	Wasatch Co.	Wasatch County	12,441	$13,616	29
53	Tri-county LHD	Daggett, Duchesne and Uintah Counties	39,334	$10,055	27
54	Juab/Millard/Sanpete Co.	Juab, Millard, and Sanpete Counties	39,473	$9,144	29
55	Sevier/Piute/Wayne Co.	Piute, Sevier, and Wayne Counties	21,373	$10,126	32
56	Carbon/Emery Co.	Carbon and Emery Counties	31,108	$11,257	31
57	Grand/San Juan Co.	Grand and San Juan Counties	21,083	$9,333	29
58	St. George	ZIP codes 84770, 84771, 84790	51,395	$13,574	30
59	Other Washington Co.	Washington County except ZIP codes 84770, 84771, 84790	26,263	$10,123	29
60	Cedar City	ZIP code 84720	24,424	$11,485	25
61	Other Southwest Dist.	Beaver, Garfield, Iron, and Kane Counties other than ZIP code 84720	19,162	$10,571	34

1. Population estimates are for 1997. Age and per capita income figures are means, weighted by population count, of the ZIP code median values.

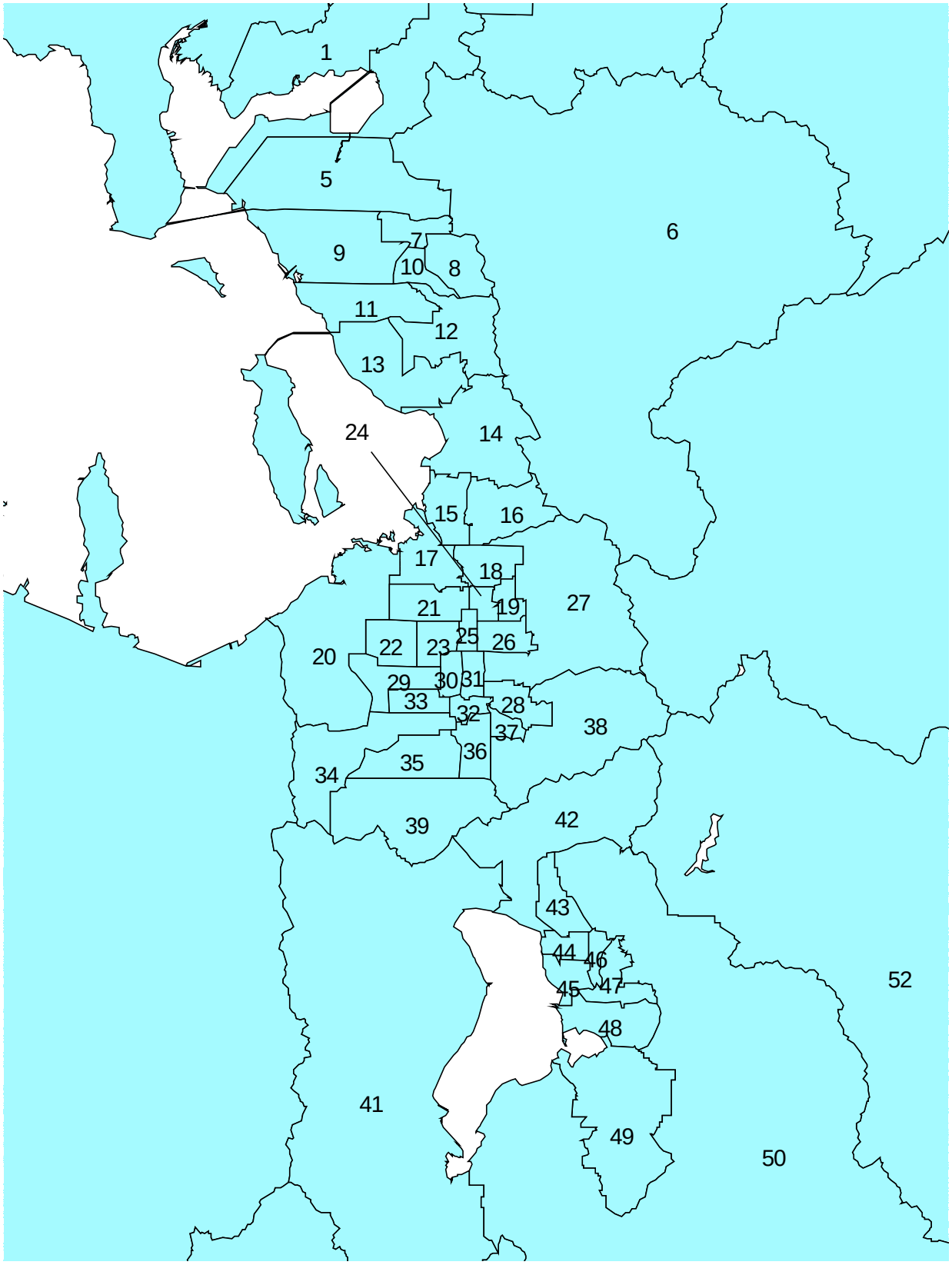
Source: CACI Marketing Systems, Inc. La Jolla, CA.

Key Map #1: State View of Small Areas



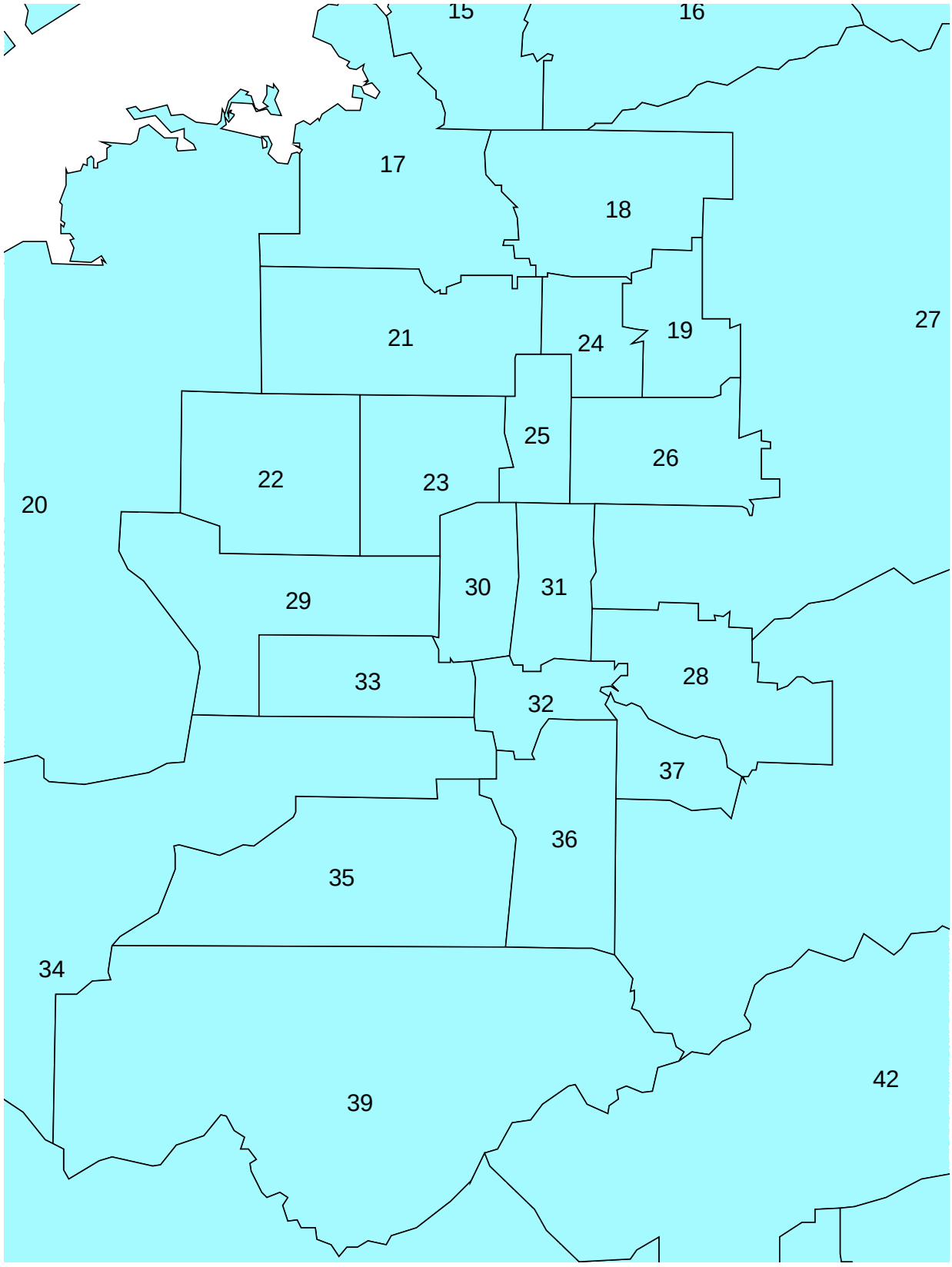
Numbers on map refer to area labels (see Table 1 or list on back cover).

Key Map #2: Wasatch Front View of Small Areas



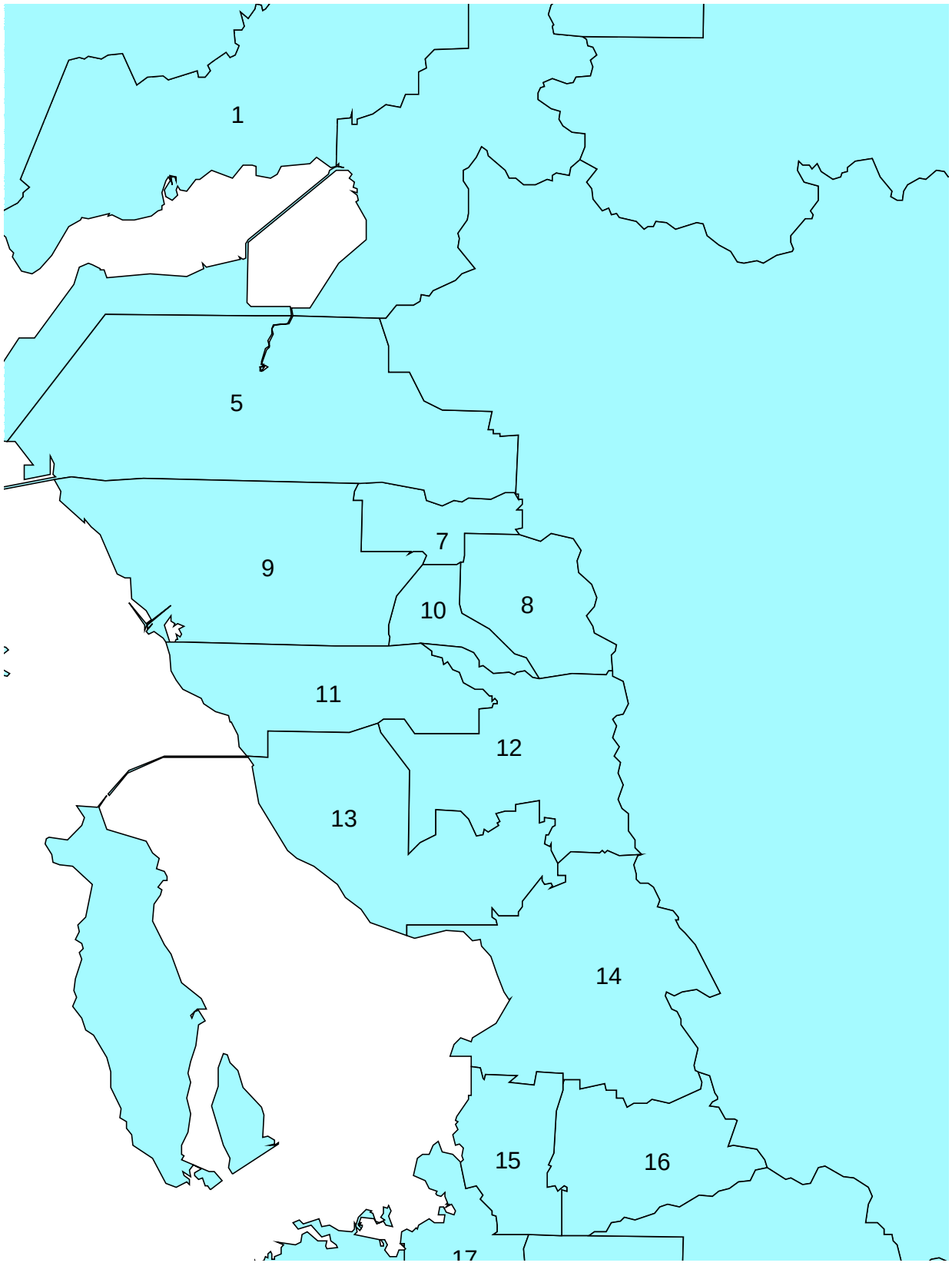
Numbers on map refer to area labels (see Table 1 or list on back cover).

Key Map #3: Salt Lake County View of Small Areas



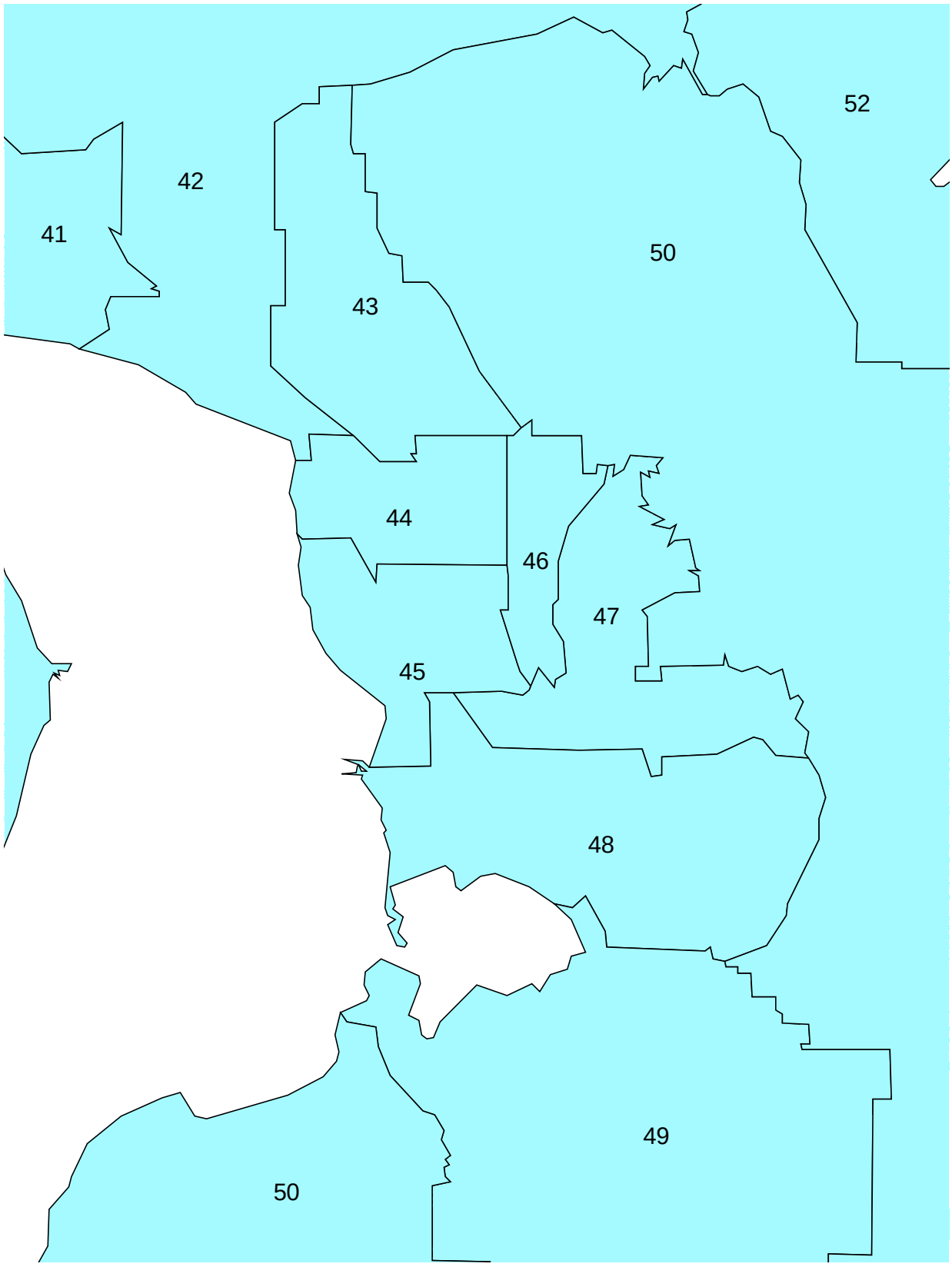
Numbers on map refer to area labels (see Table 1 or list on back cover).

Key Map #4: Weber-Morgan-Davis Counties View of Small Areas



Numbers on map refer to area labels (see Table 1 or list on back cover).

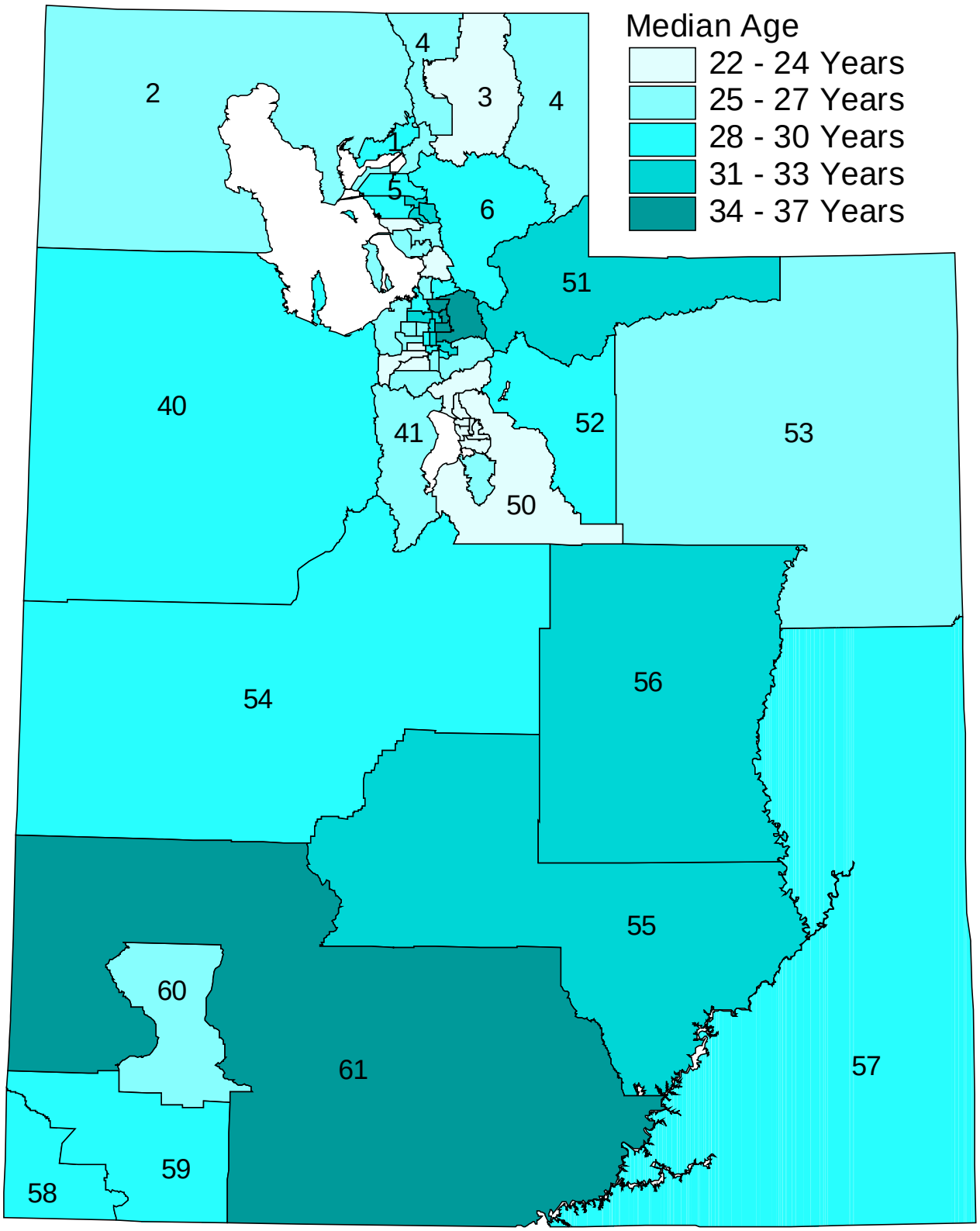
Key Map #5: Utah County View of Small Areas



Numbers on map refer to area labels (see Table 1 or list on back cover).

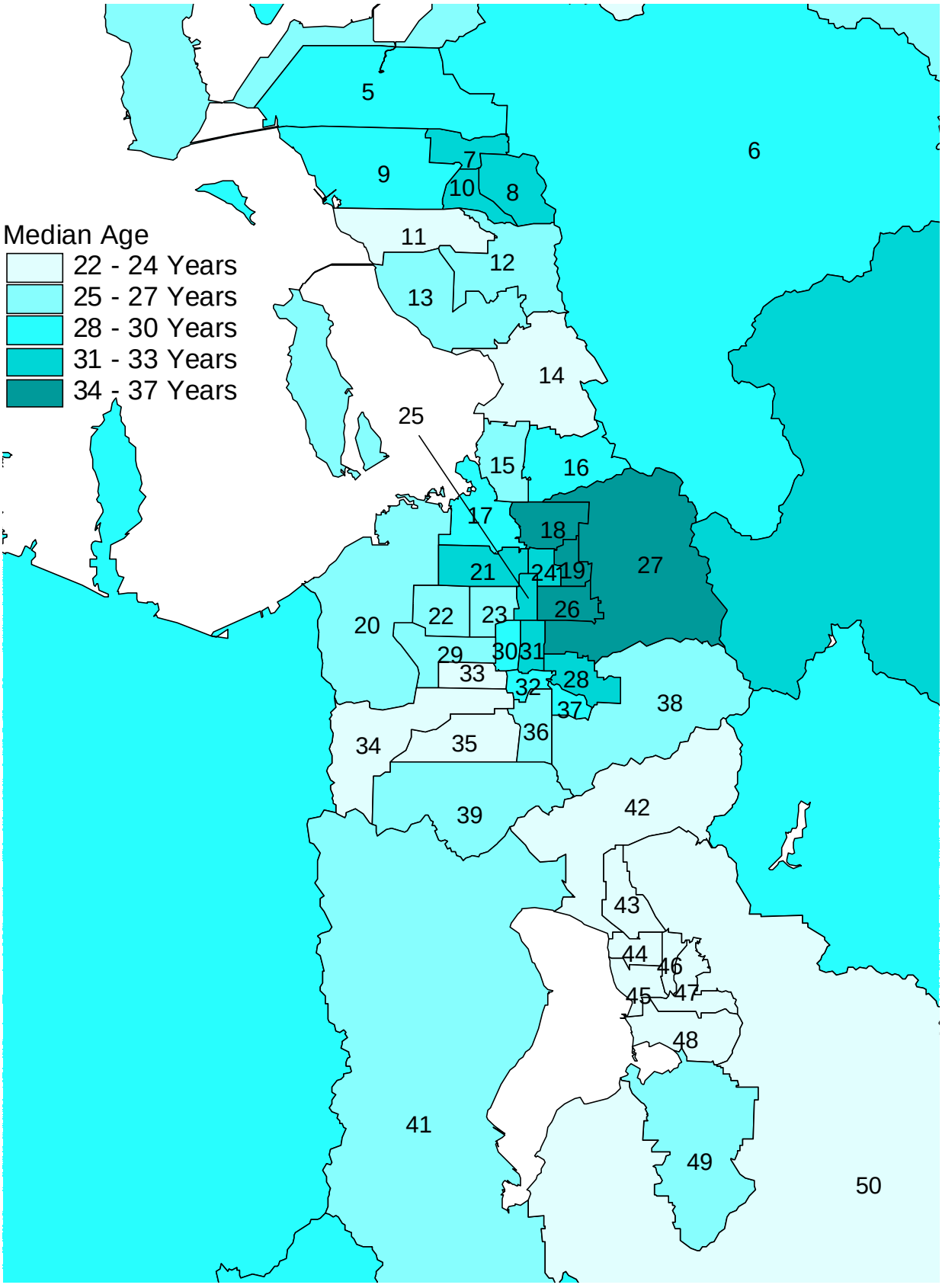
Part 2:
Health and Demographic Characteristics of Small Areas in Utah

Figure 1. Median Age. Utah, 1997.



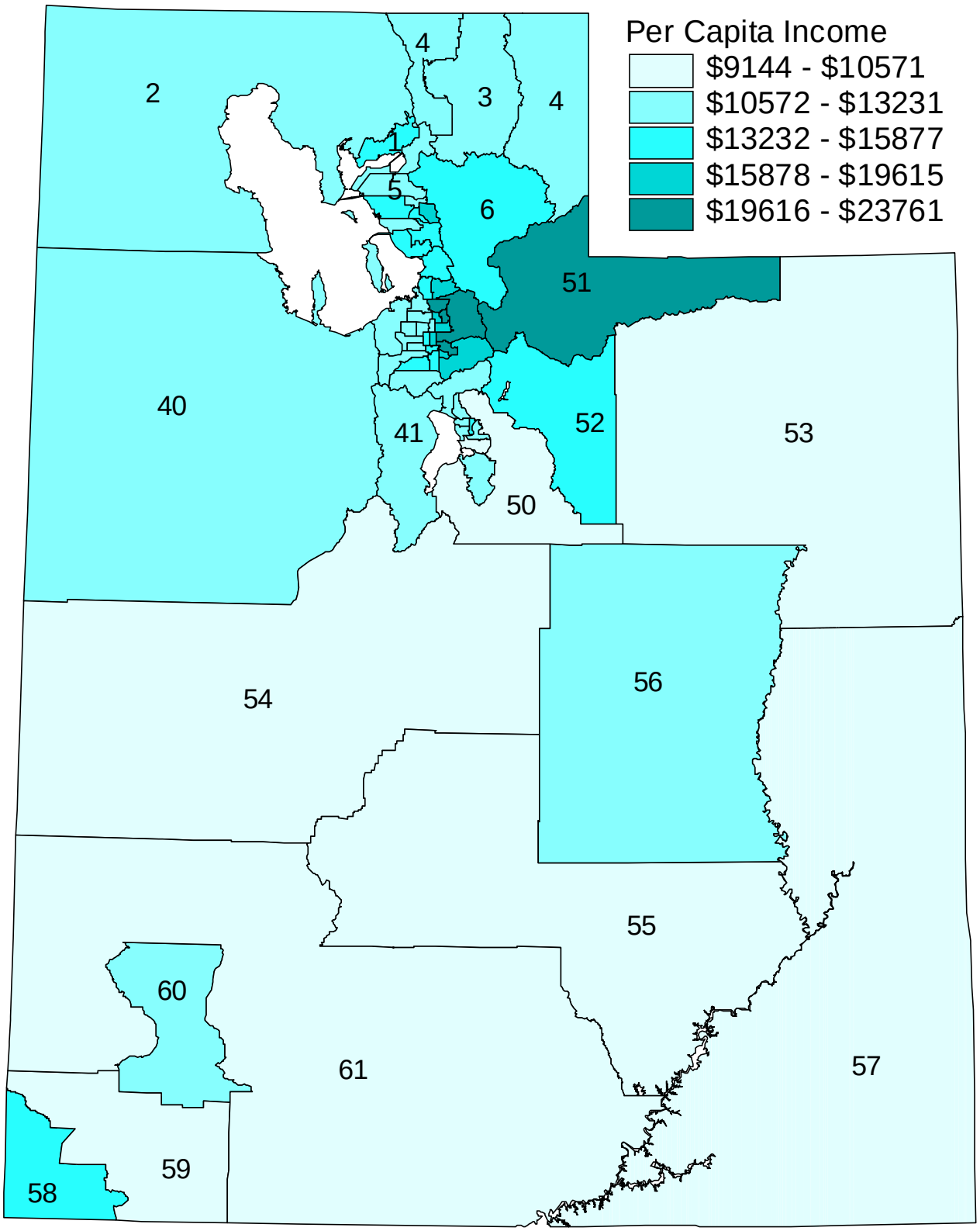
Median age figures are means, weighted by population count, of the zip code median values.
Data Source: CACI Marketing System, Inc. La Jolla, CA.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 2. Median Age. Utah Wasatch Front, 1997.



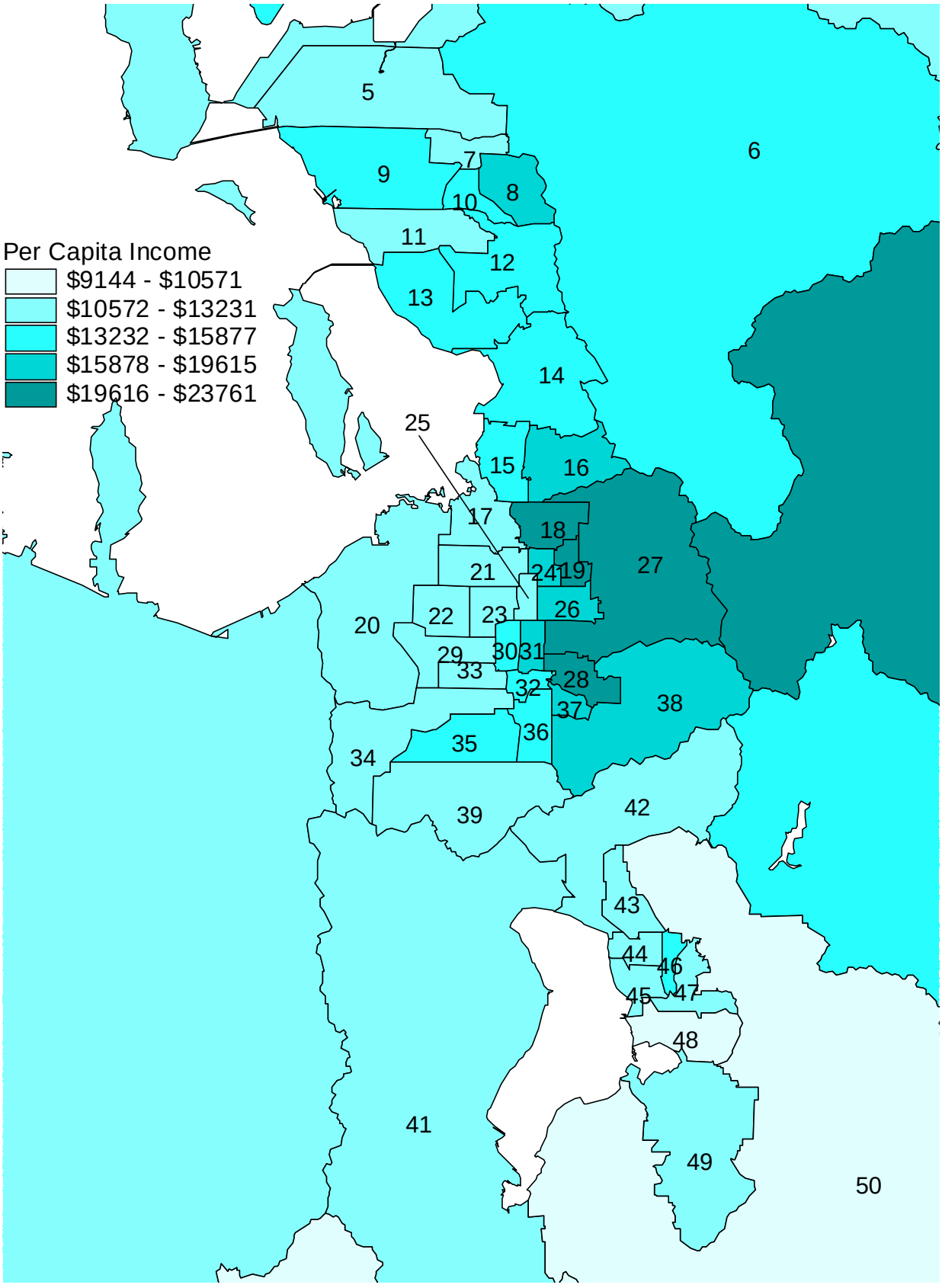
Median age figures are means, weighted by population count, of the zip code median values.
Data Source: CACI Marketing System, Inc. La Jolla, CA.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 3. Average Per Capita Income. Utah, 1997.



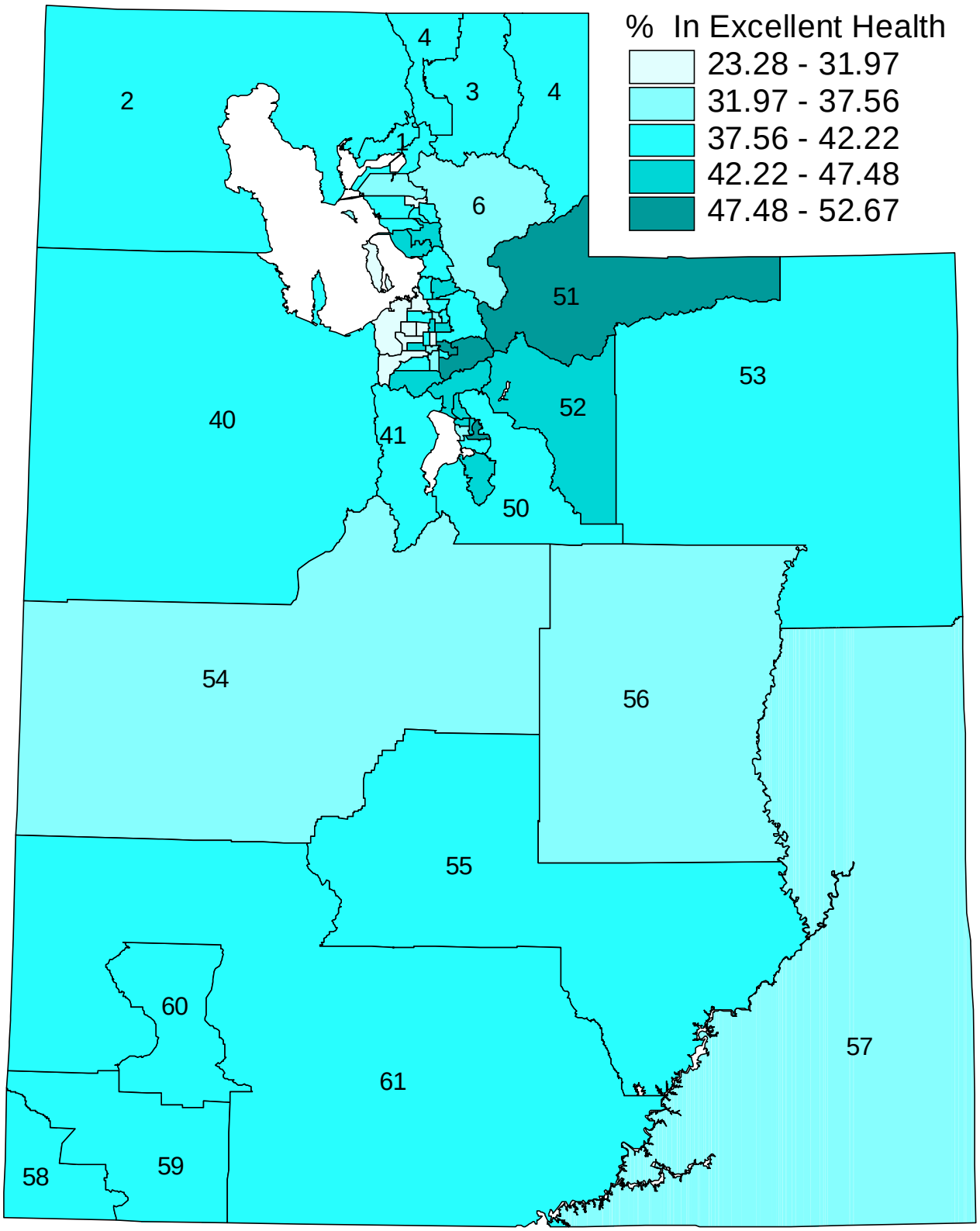
Average per capita income figures are means, weighted by population count, of the zip code median values.
Data Source: CACI Marketing System, Inc. La Jolla, CA.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 4. Average Per Capita Income. Utah Wasatch Front, 1997.



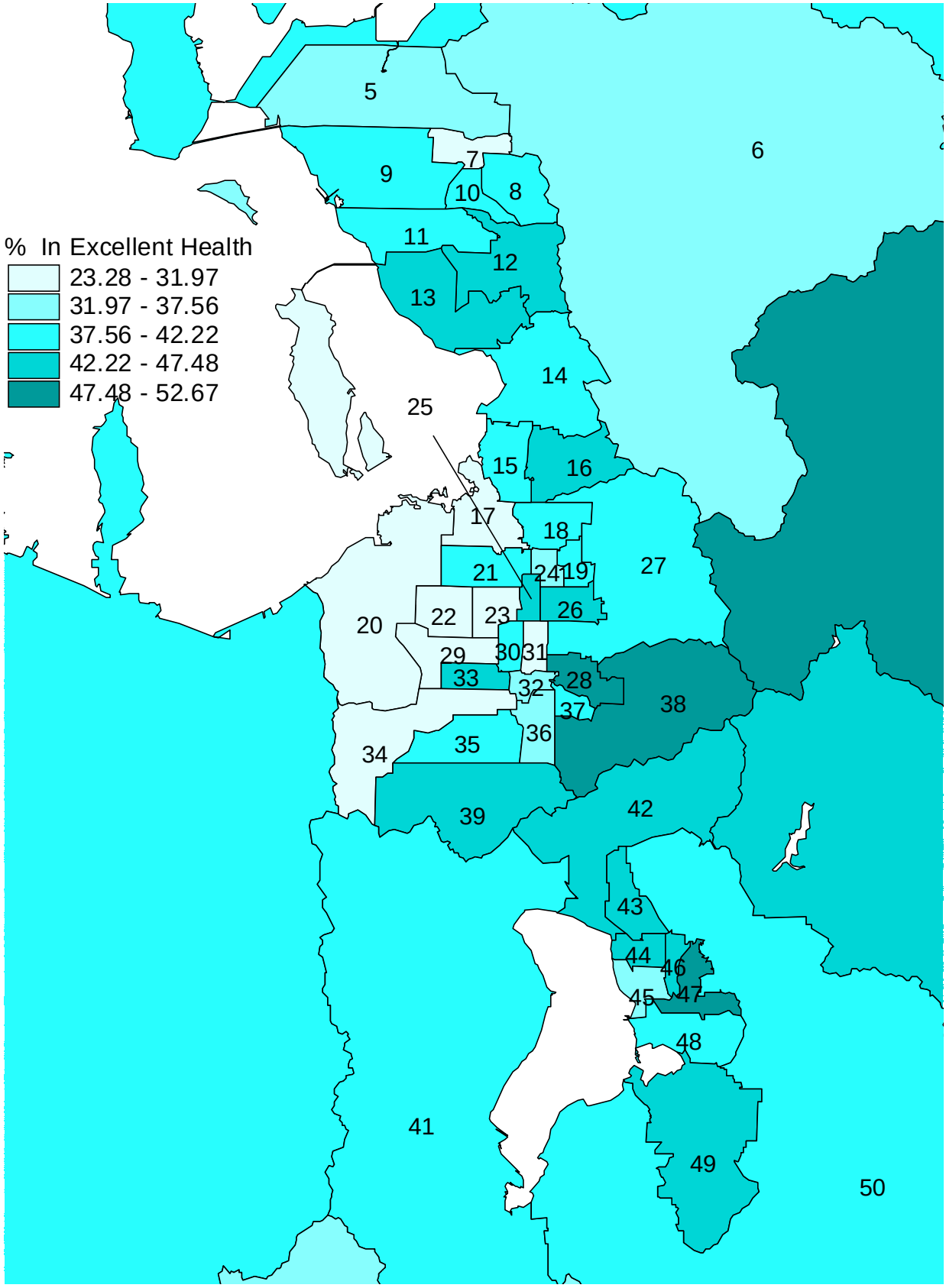
Average per capita income figures are means, weighted by population count, of the zip code median values.
Data Source: CACI Marketing System, Inc. La Jolla, CA.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 5. Percentage of Persons Who Reported Being in Excellent Health. Utah, 1996.



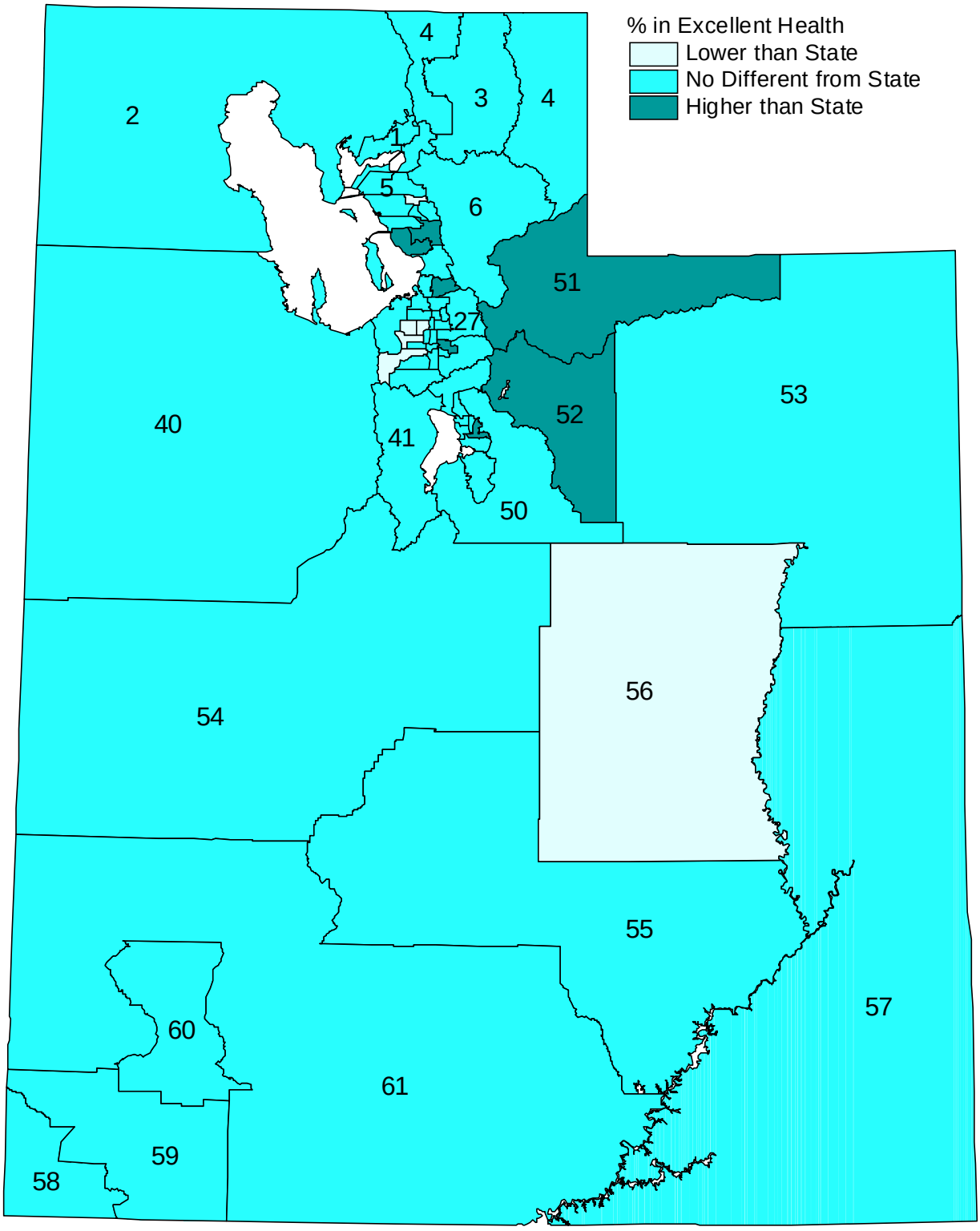
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 6. Percentage of Persons Who Reported Being in Excellent Health. Utah Wasatch Front, 1996.



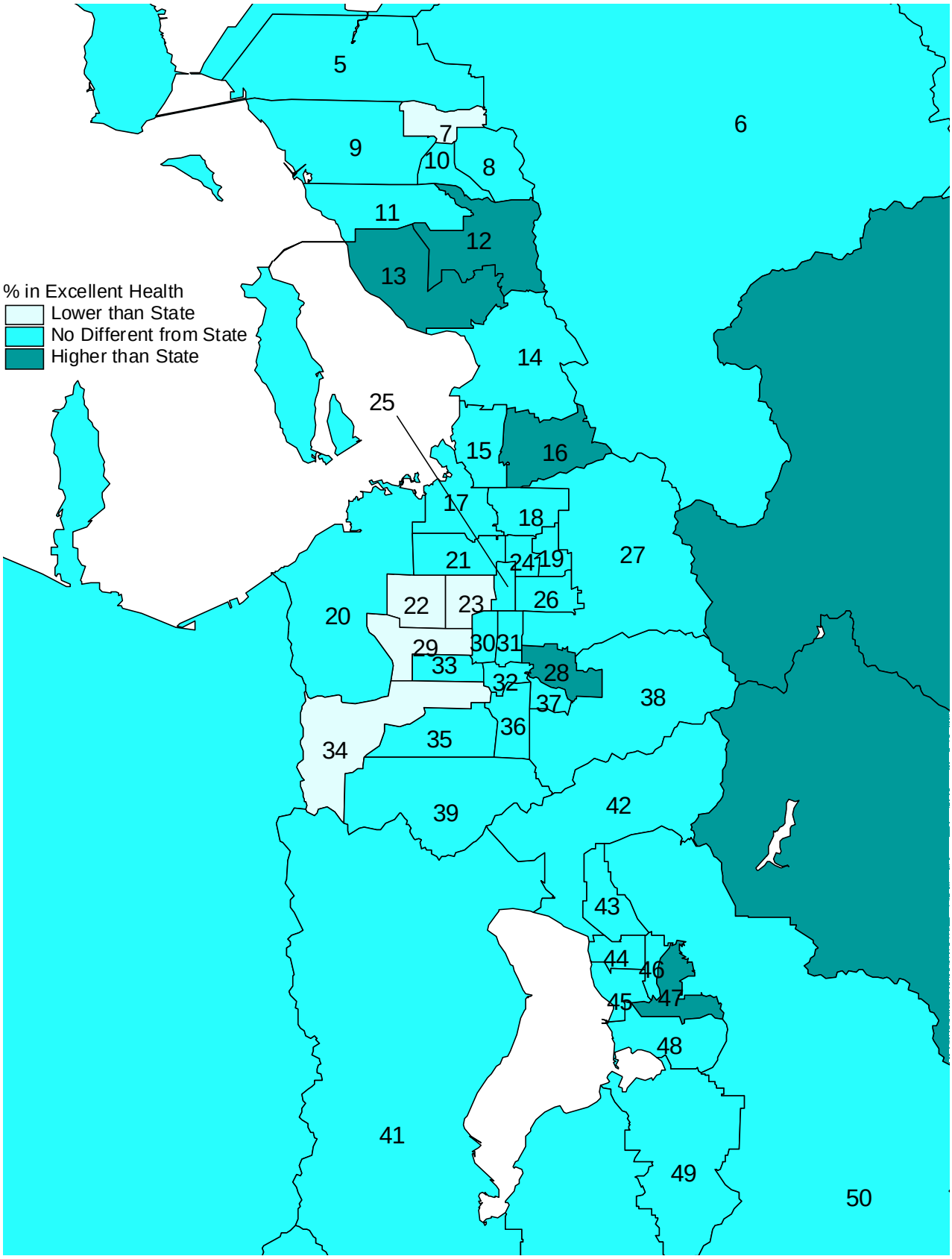
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 7. Percentage of Persons With Excellent Health by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1996.



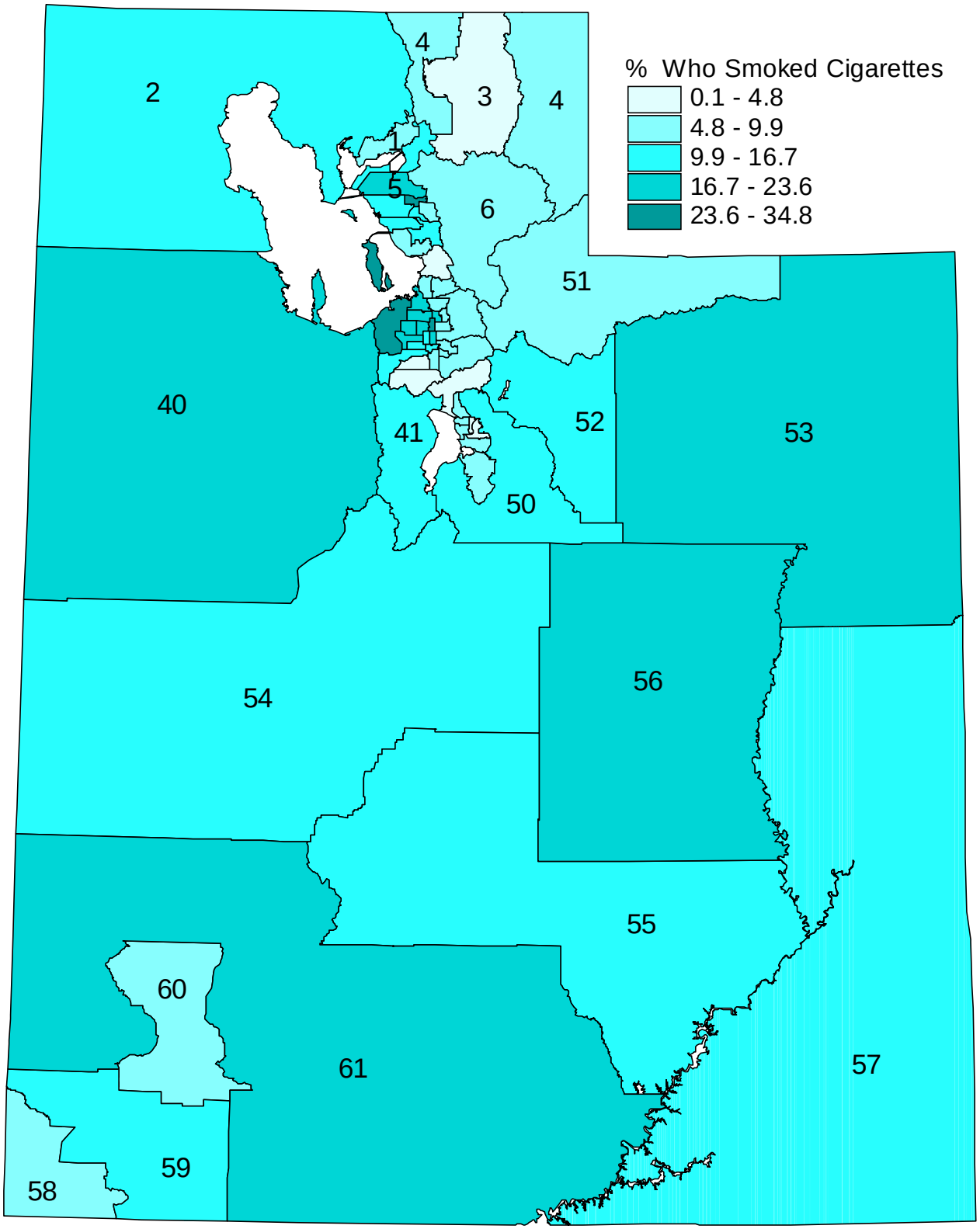
Percentage for a small area was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 8. Percentage of Persons With Excellent Health by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1996.



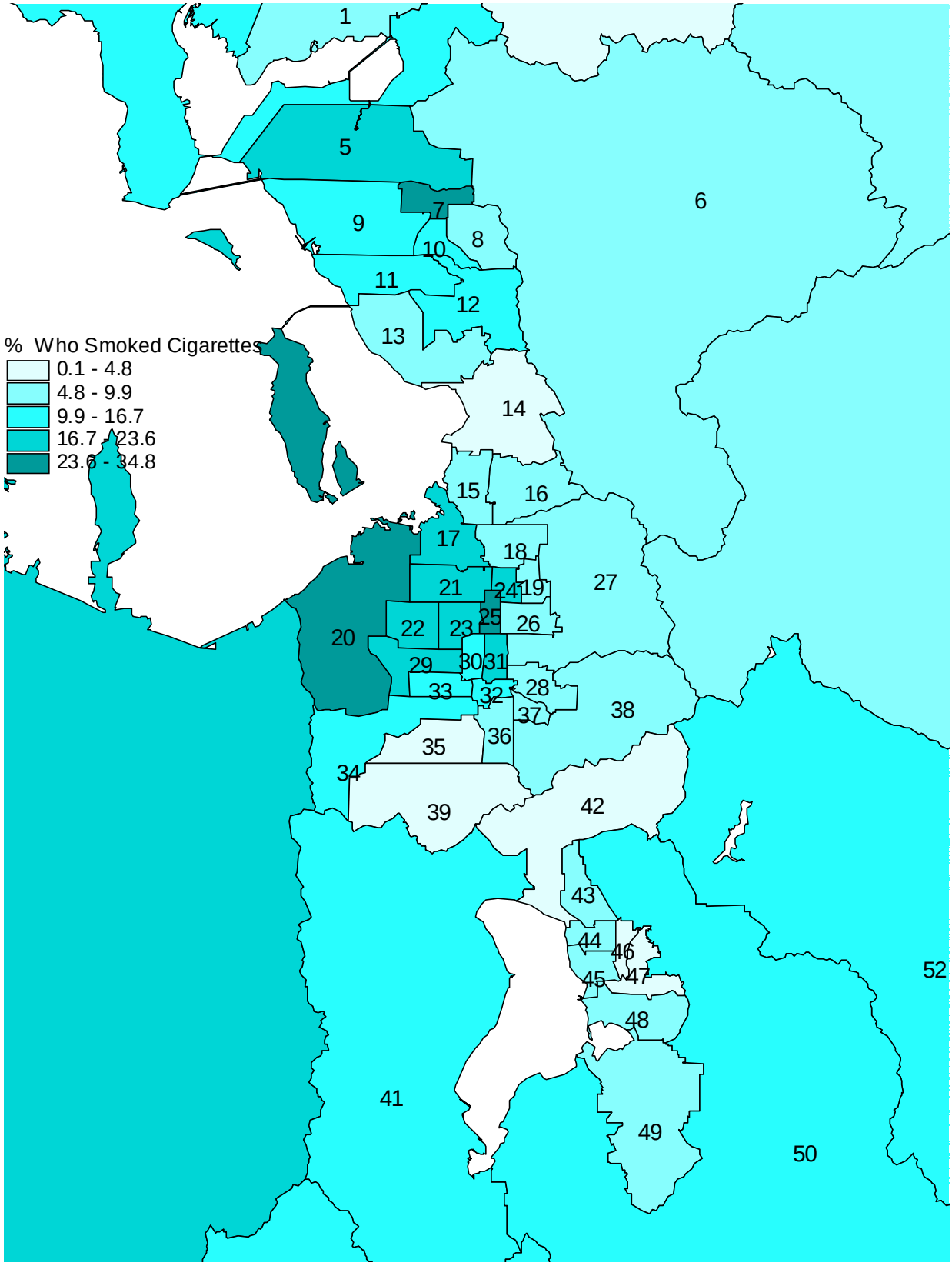
Percentage for a small area was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 9. Percentage of Adults (Age 18+) Who Smoked Cigarettes. Utah, 1996.



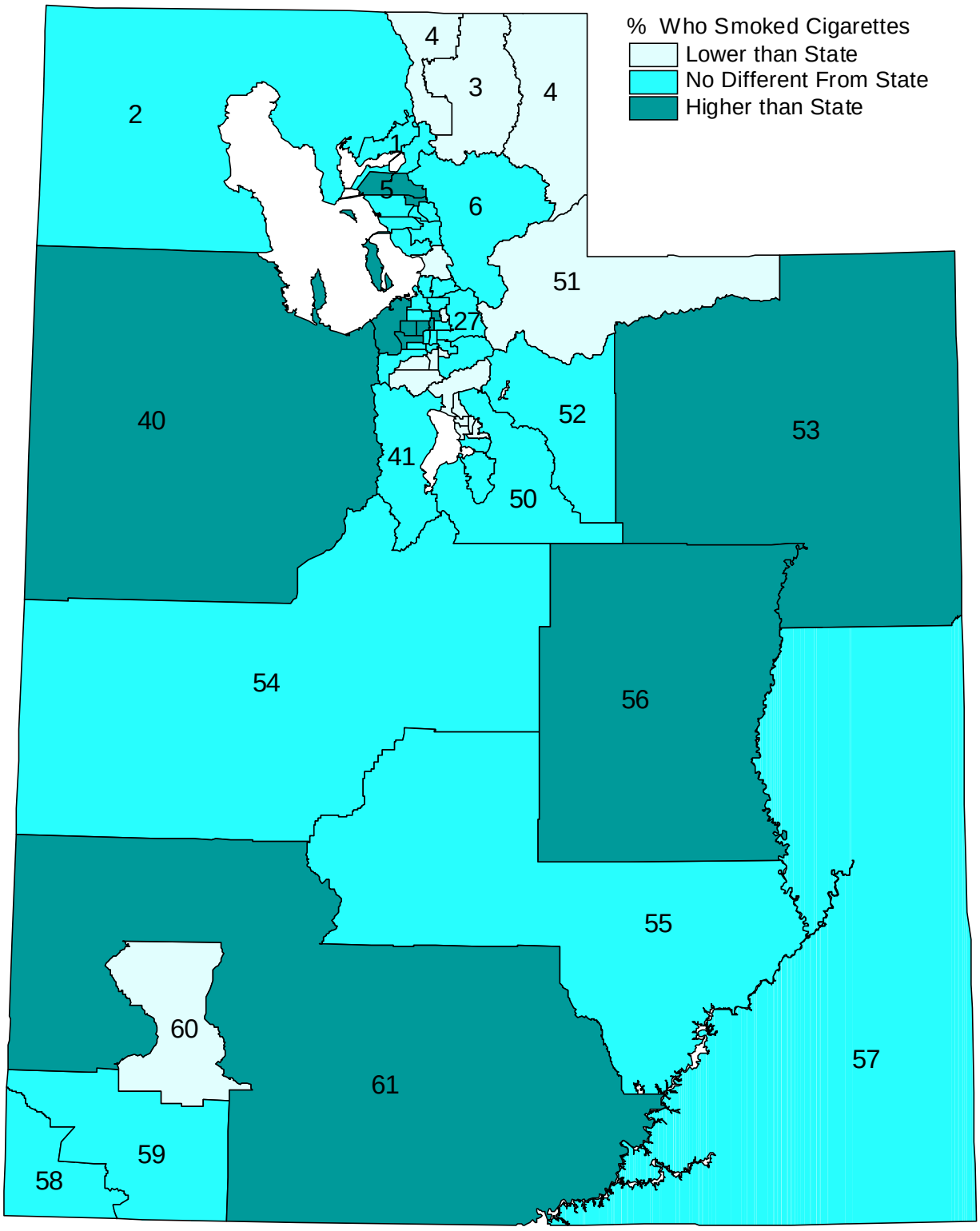
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 10. Percentage of Adults (Age 18+) Who Smoked Cigarettes. Utah Wasatch Front, 1996.



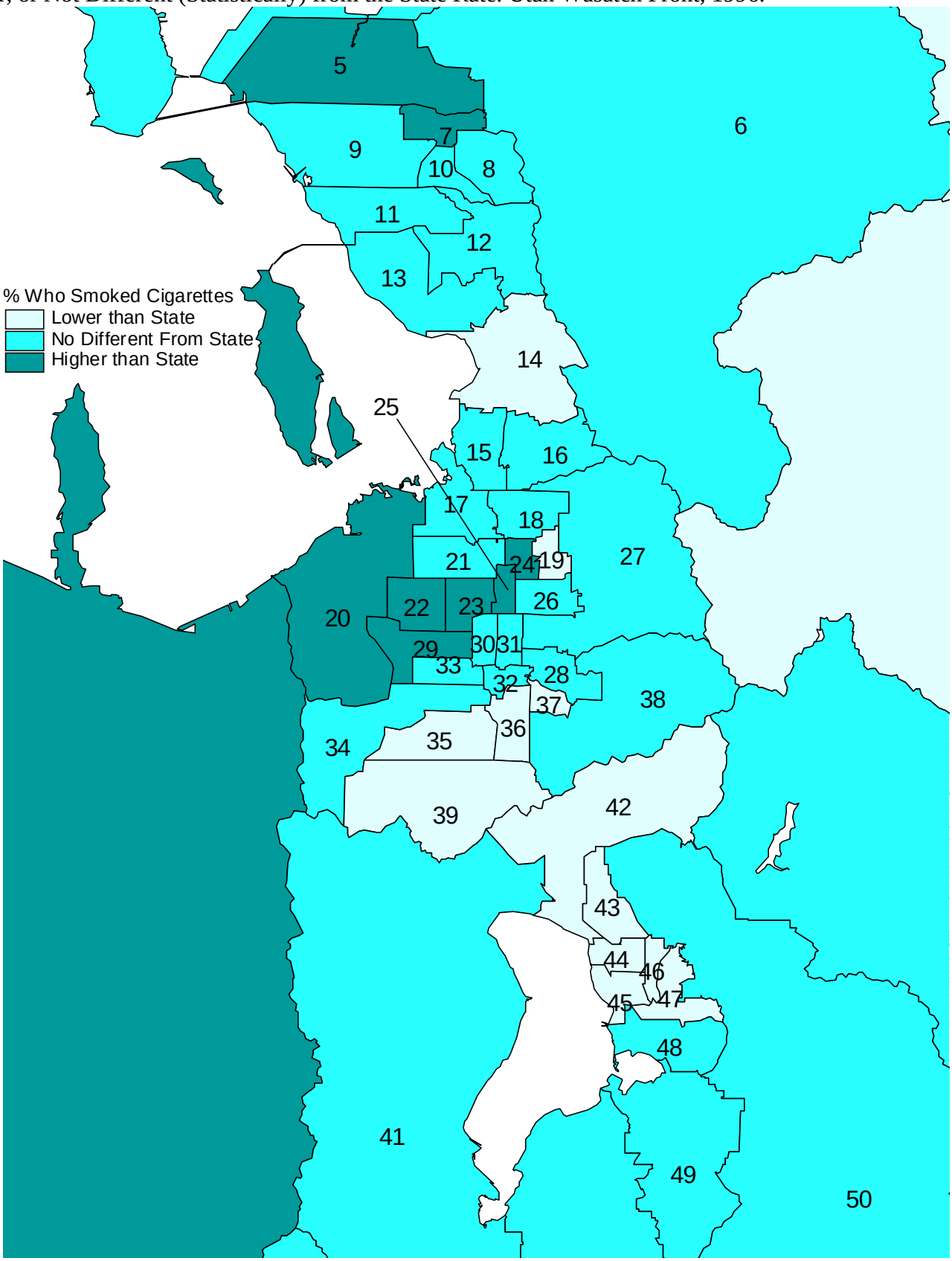
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 11. Percentage of Adults (Age 18+) Who Smoked Cigarettes by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1996.



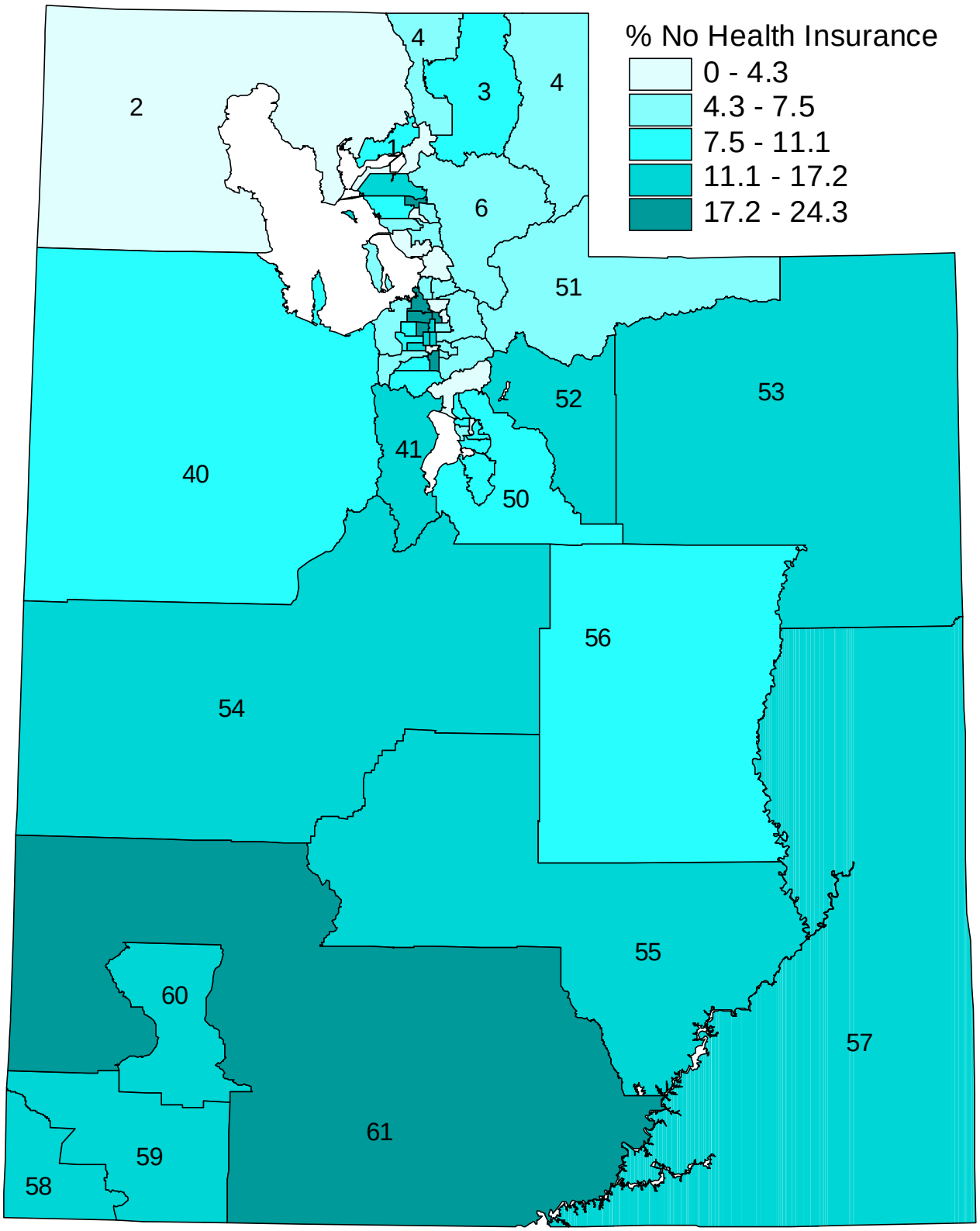
Percentage for a small area was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 12. Percentage of Adults (Age 18+) Who Smoked Cigarettes by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1996.



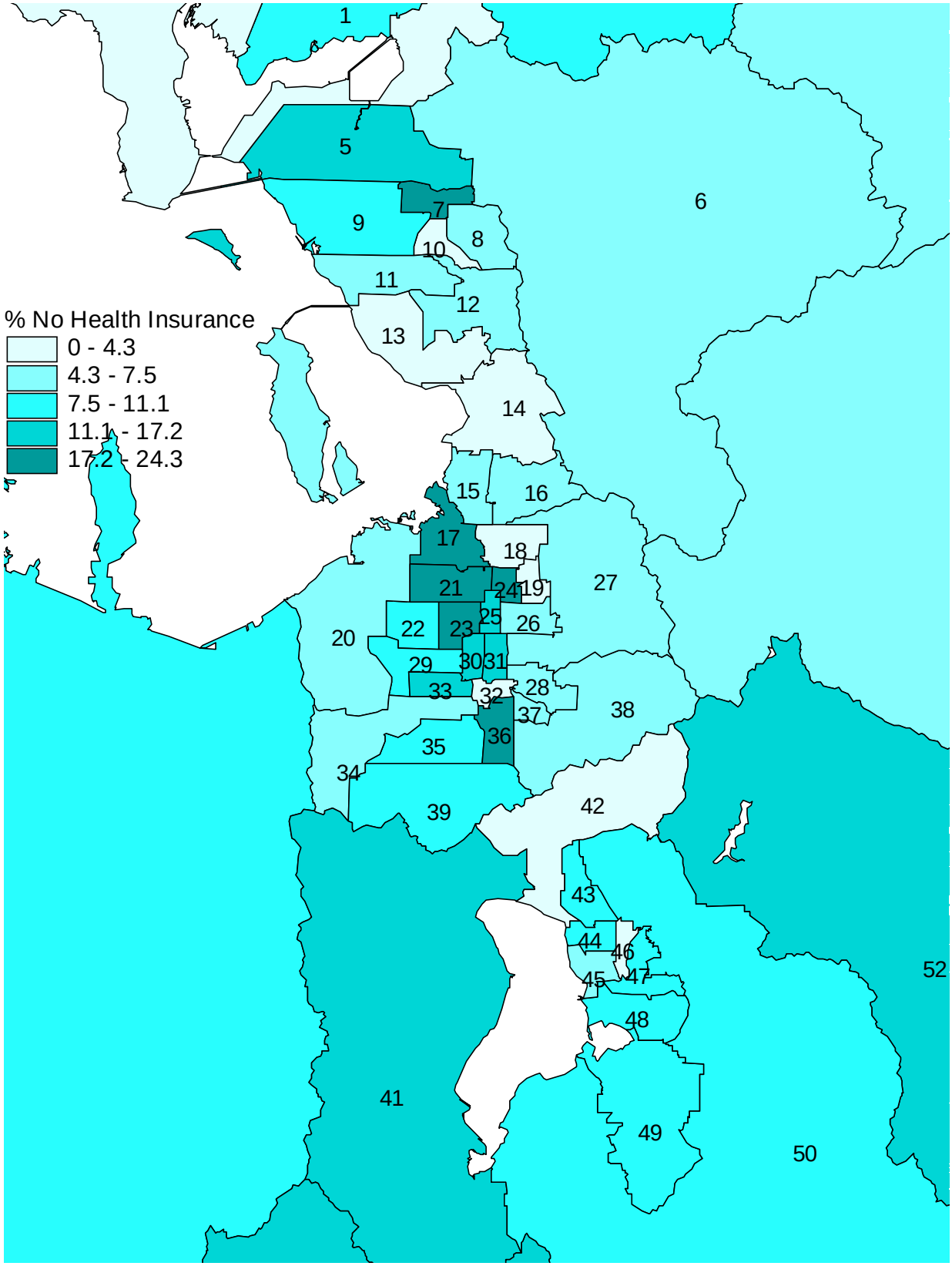
Percentage for a small area was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 13. Percentage of Persons Who Were Without Health Insurance. Utah, 1996.



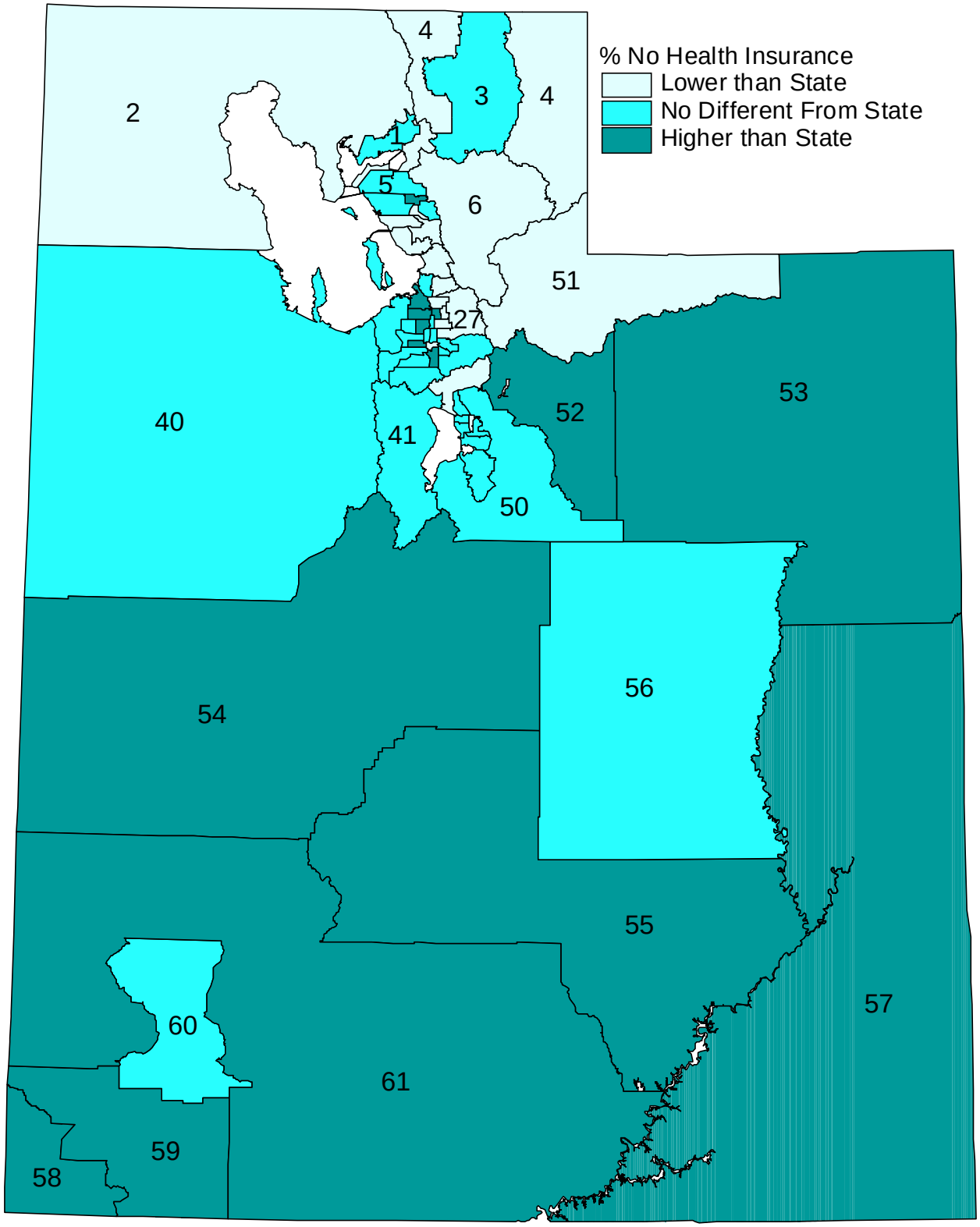
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 14. Percentage of Persons Who Were Without Health Insurance. Utah Wasatch Front, 1996.



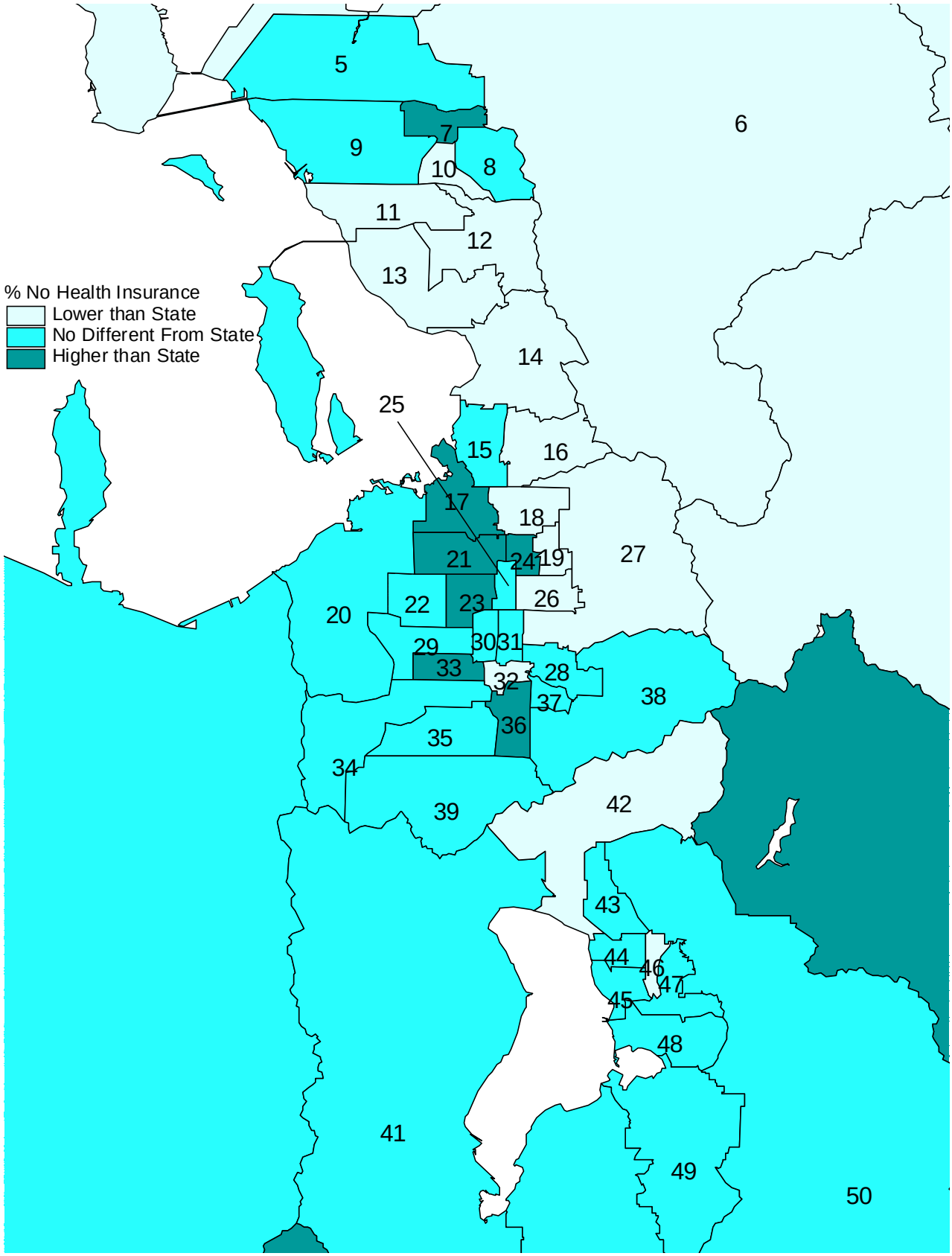
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 15. Percentage of Persons Who Were Without Health Insurance by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1996.



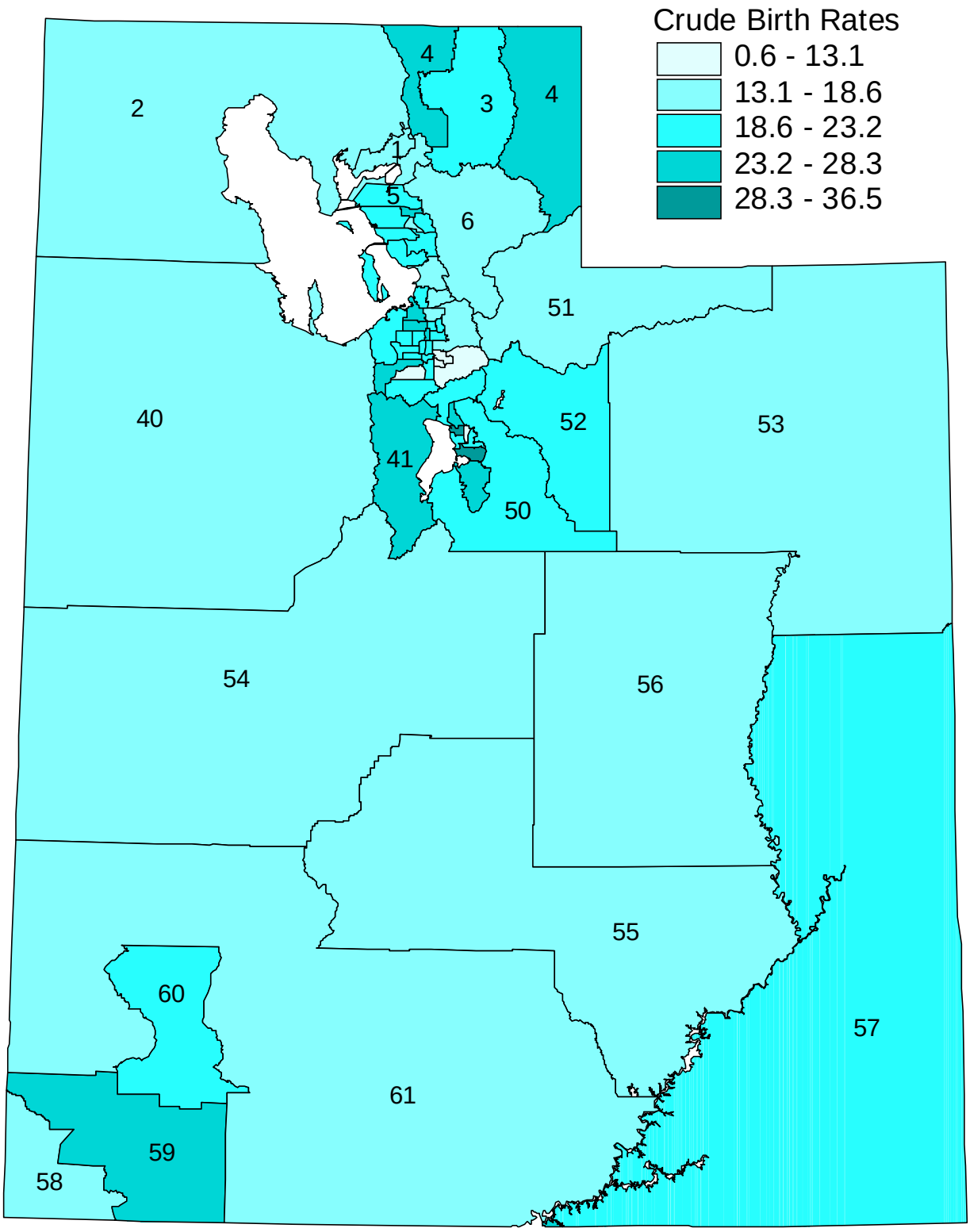
Percentage for a small area was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 16. Percentage of Persons Who Were Without Health Insurance by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1996.



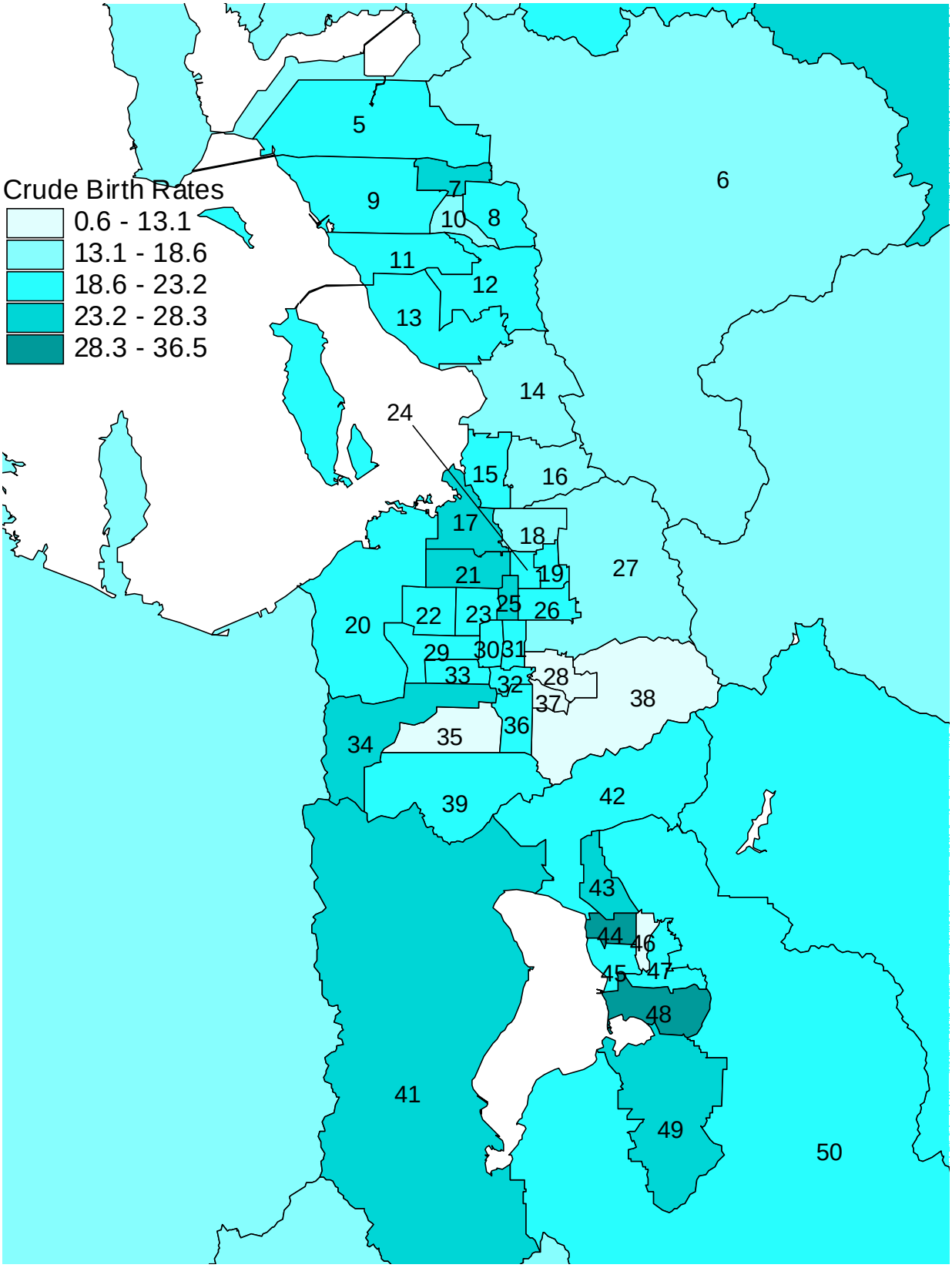
Percentage for a small area was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1996 Utah population using the direct method.
Data Source: 1996 Utah Health Status Survey, Utah Department of Health.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 17. Average Annual Crude Rate of Births per 1,000 Population. Utah, 1994-96.



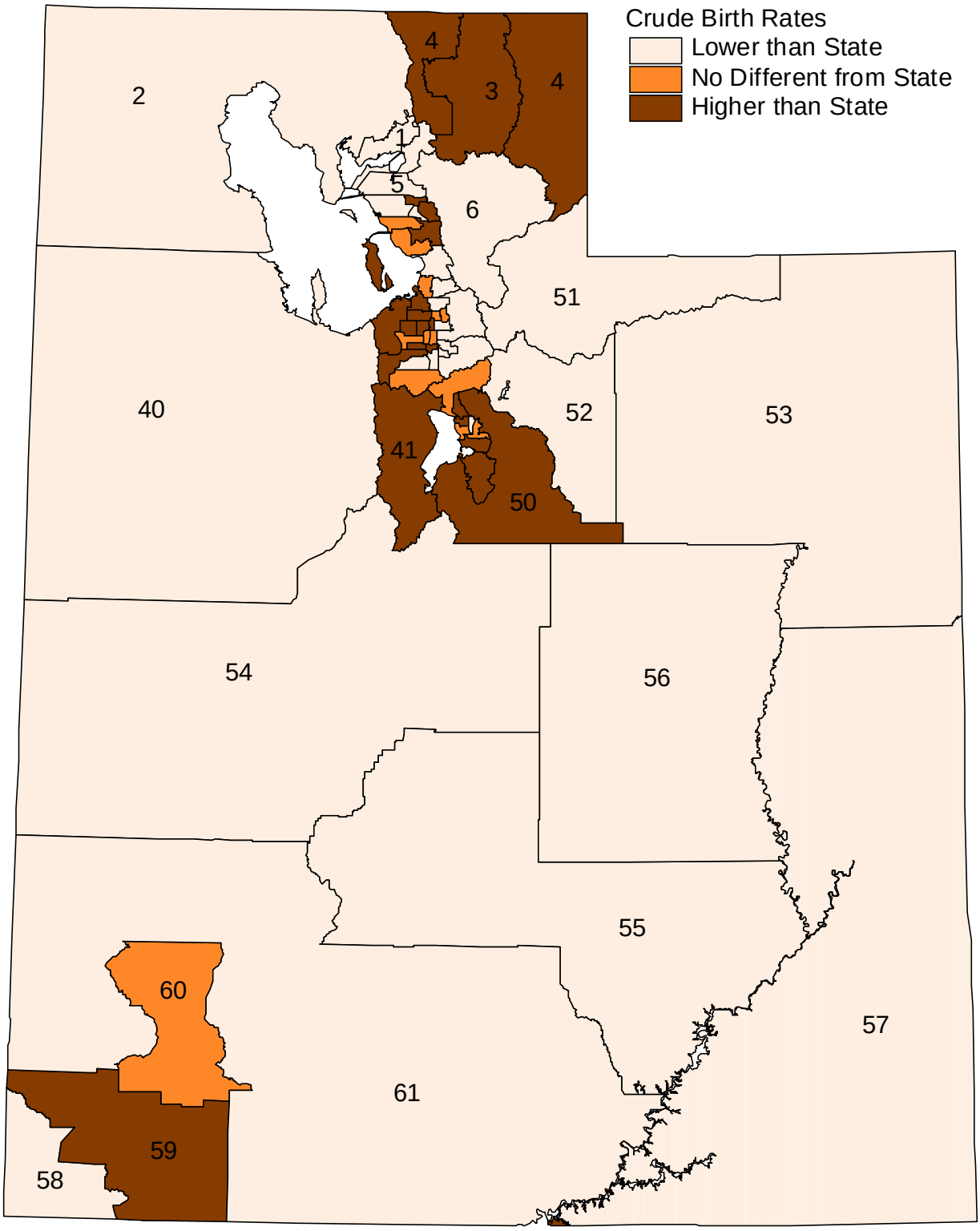
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 18. Average Annual Crude Rate of Births per 1,000 Population. Utah Wasatch Front, 1994-96.



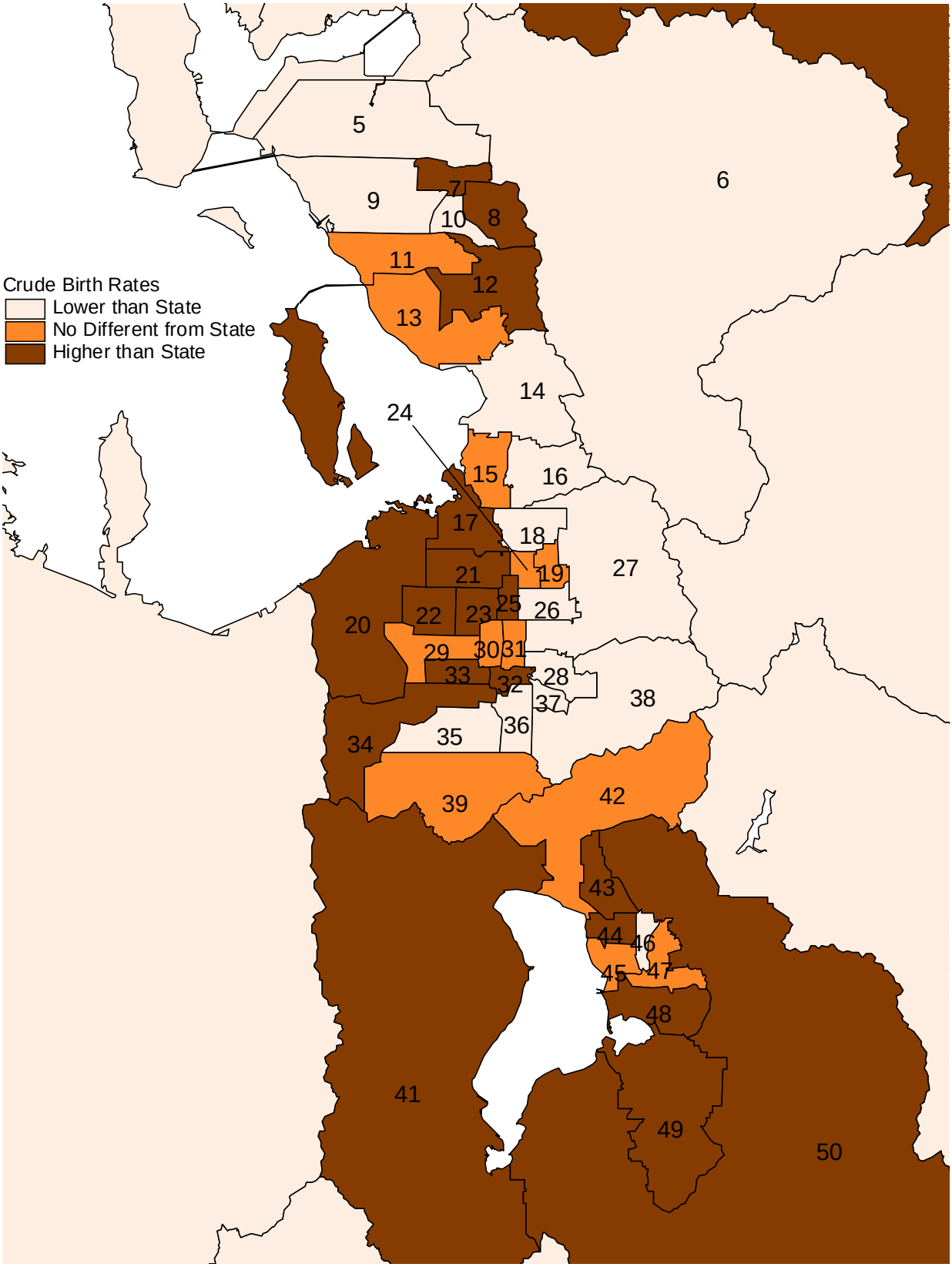
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 19. Average Annual Crude Rate of Births per 1,000 Population by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1994-96.



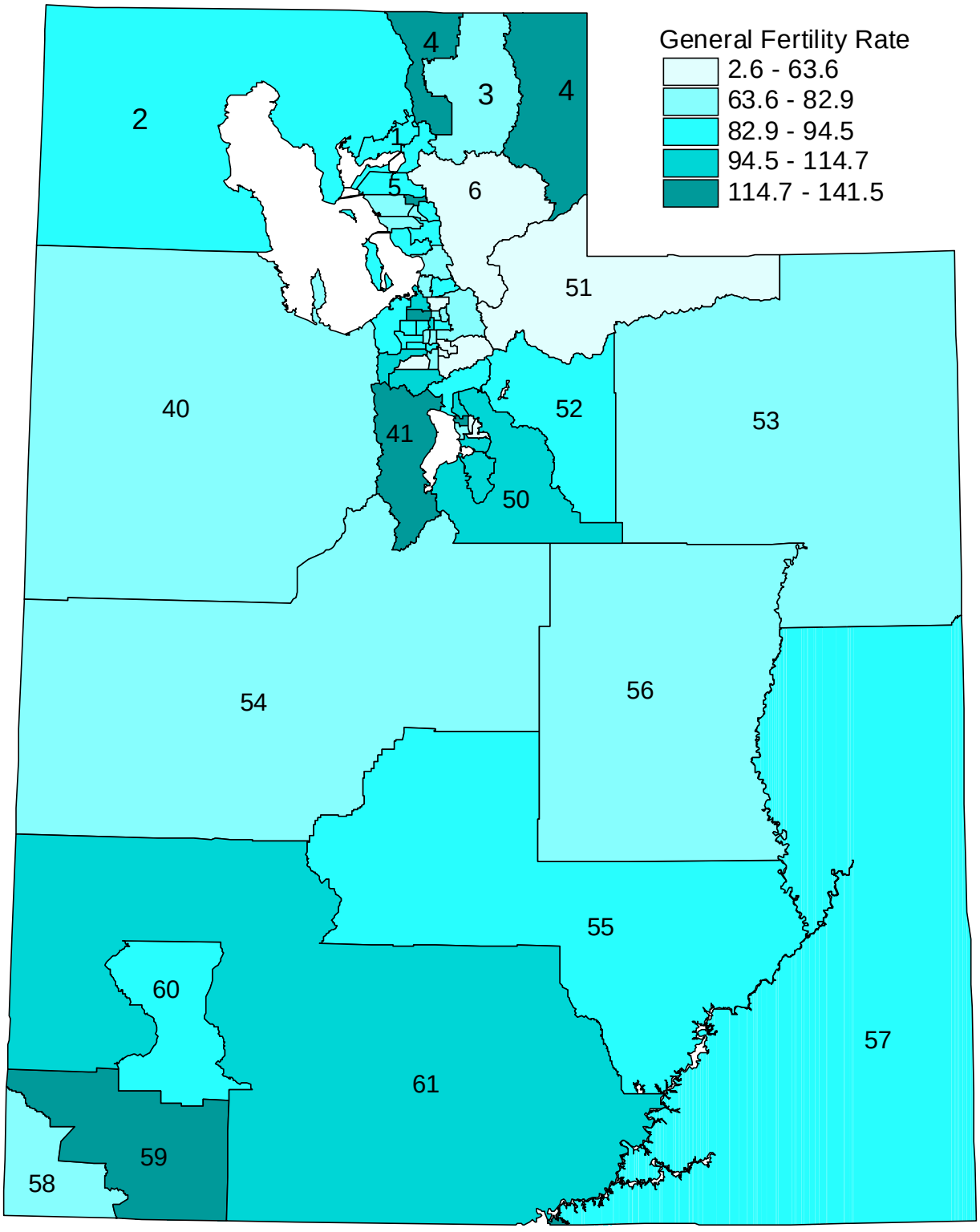
Rate for a small area was considered different from state percentage if its 95% confidence interval did not include the state rate.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 20. Average Annual Crude Rate of Births per 1,000 Population by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1994-96.



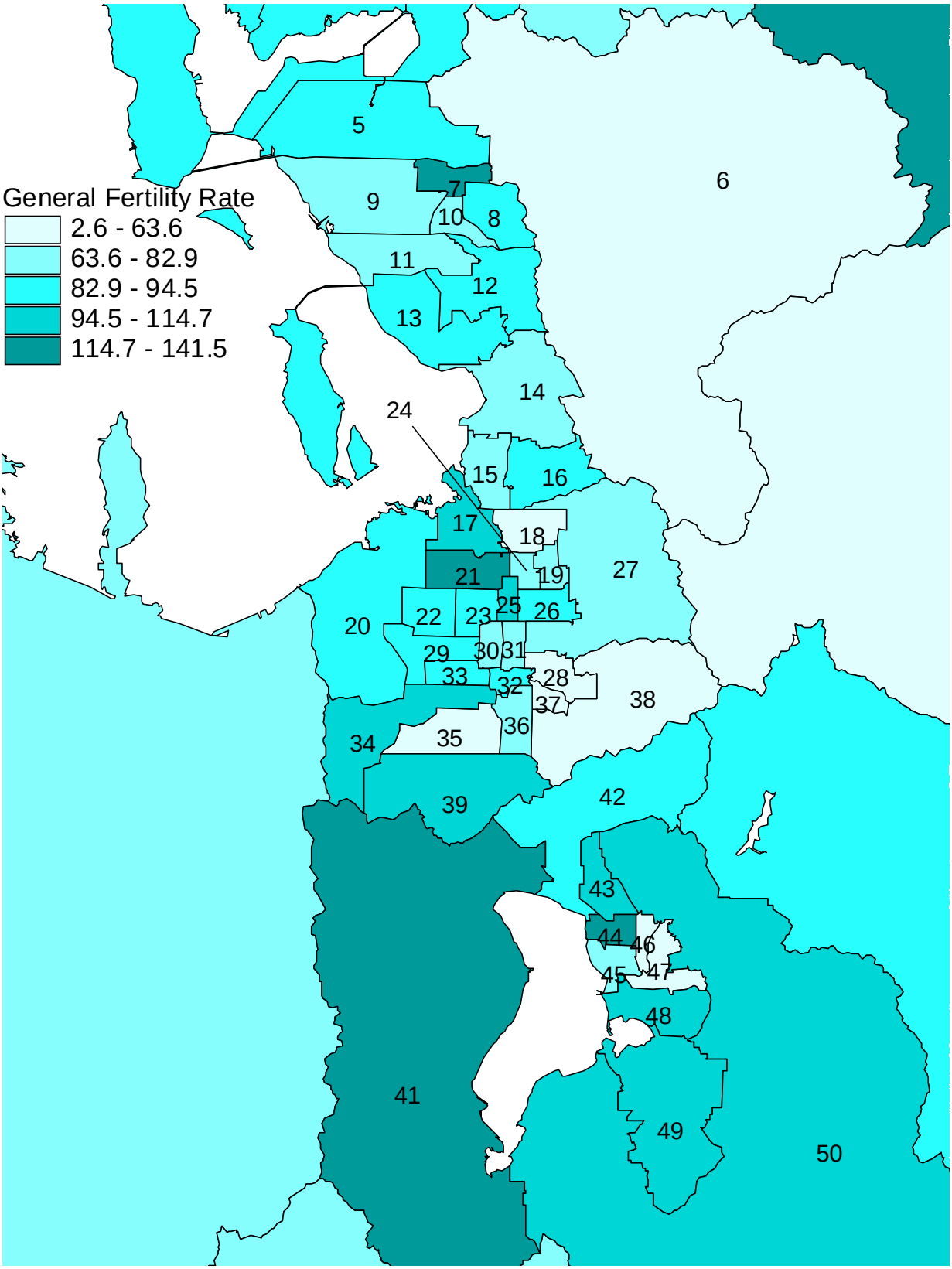
Rate for a small area was considered different from state percentage if its 95% confidence interval did not include the state rate.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 21. Average Annual Rate of Births per 1,000 Women of Ages 15-44 (General Fertility Rate). Utah, 1994-96.



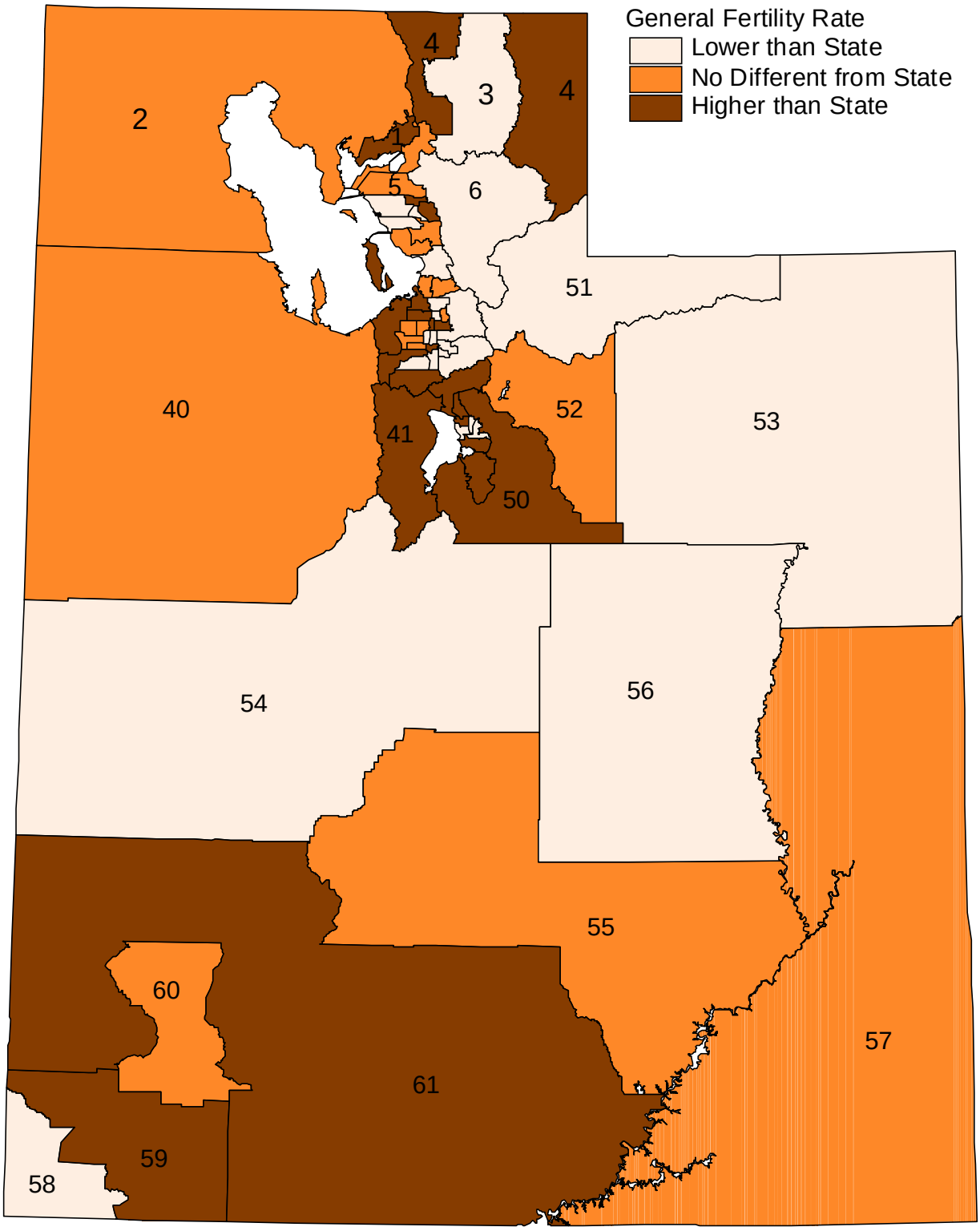
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 22. Average Annual Rate of Births per 1,000 Women of Ages 15-44 (General Fertility Rate). Utah Wasatch Front, 1994-96.



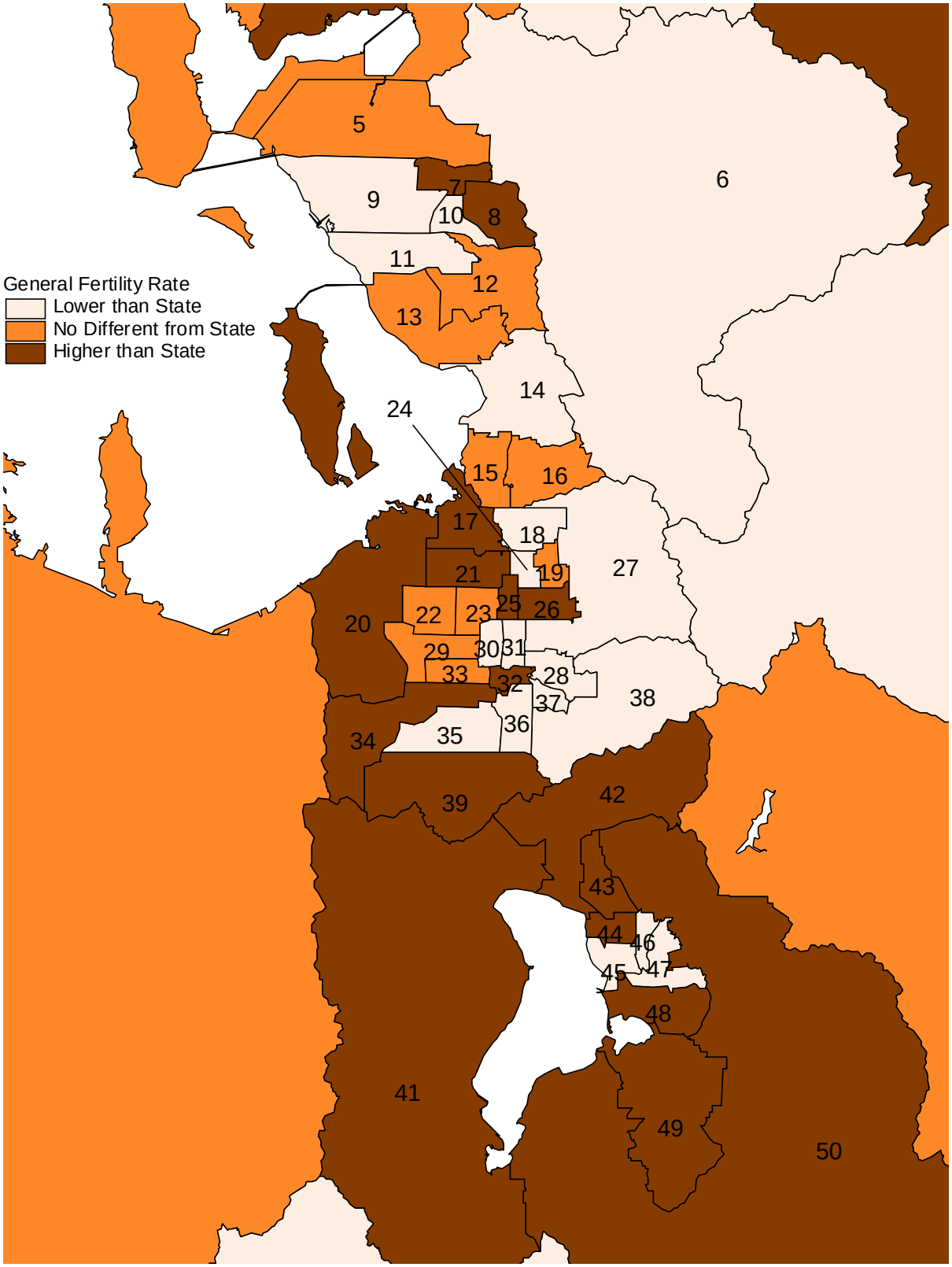
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 23. Average Annual Rate of Births per 1,000 Women of Ages 15-44 (General Fertility Rate) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1994-96.



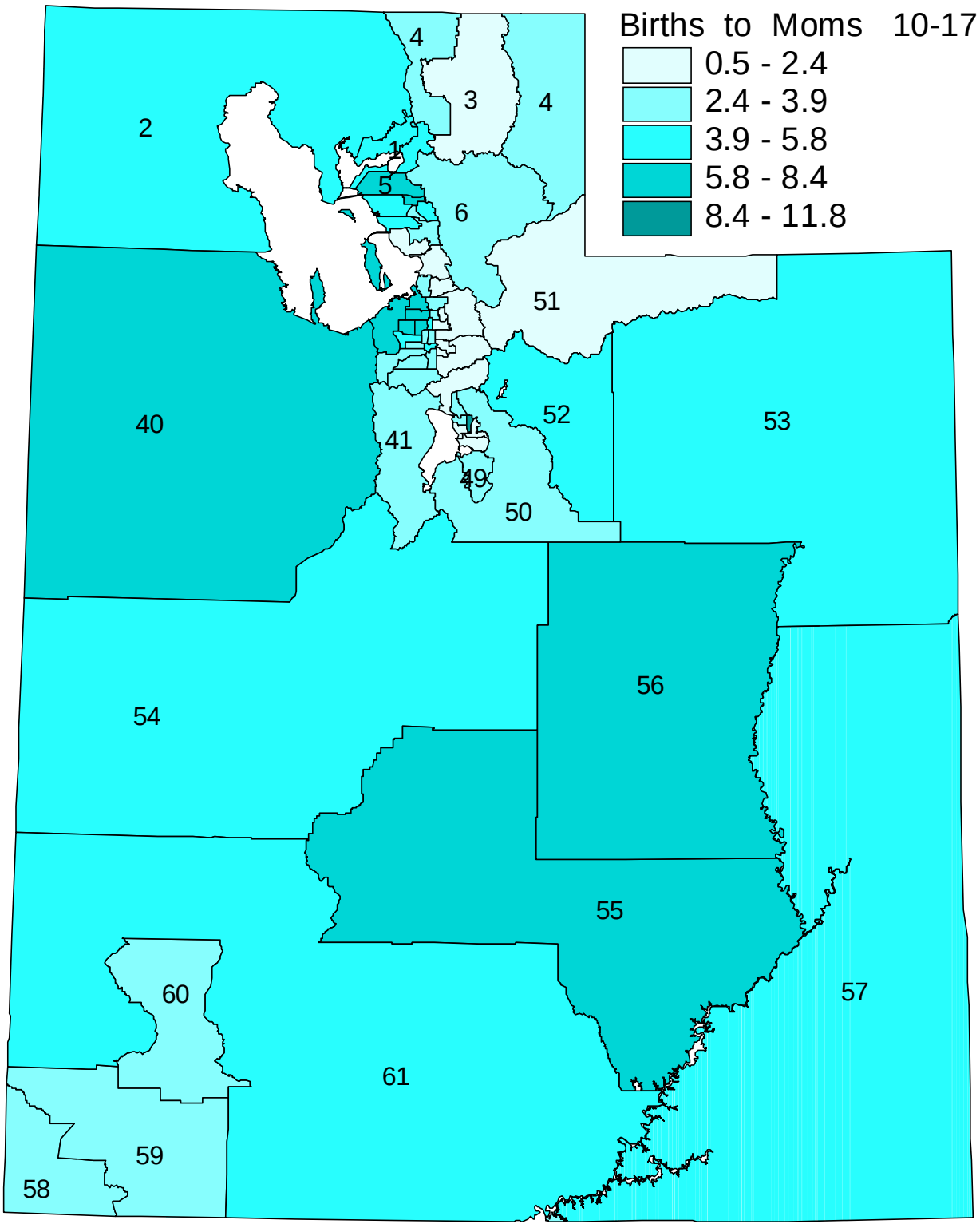
Rate for a small area was considered different from state percentage if its 95% confidence interval did not include the state rate.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 24. Average Annual Rate of Births per 1,000 Women of Ages 15-44 (General Fertility Rate) by Whether the Rate Was Higher, Lower, or Not Significant (Statistically) from the State Rate.
Utah Wasatch Front, 1994-96.



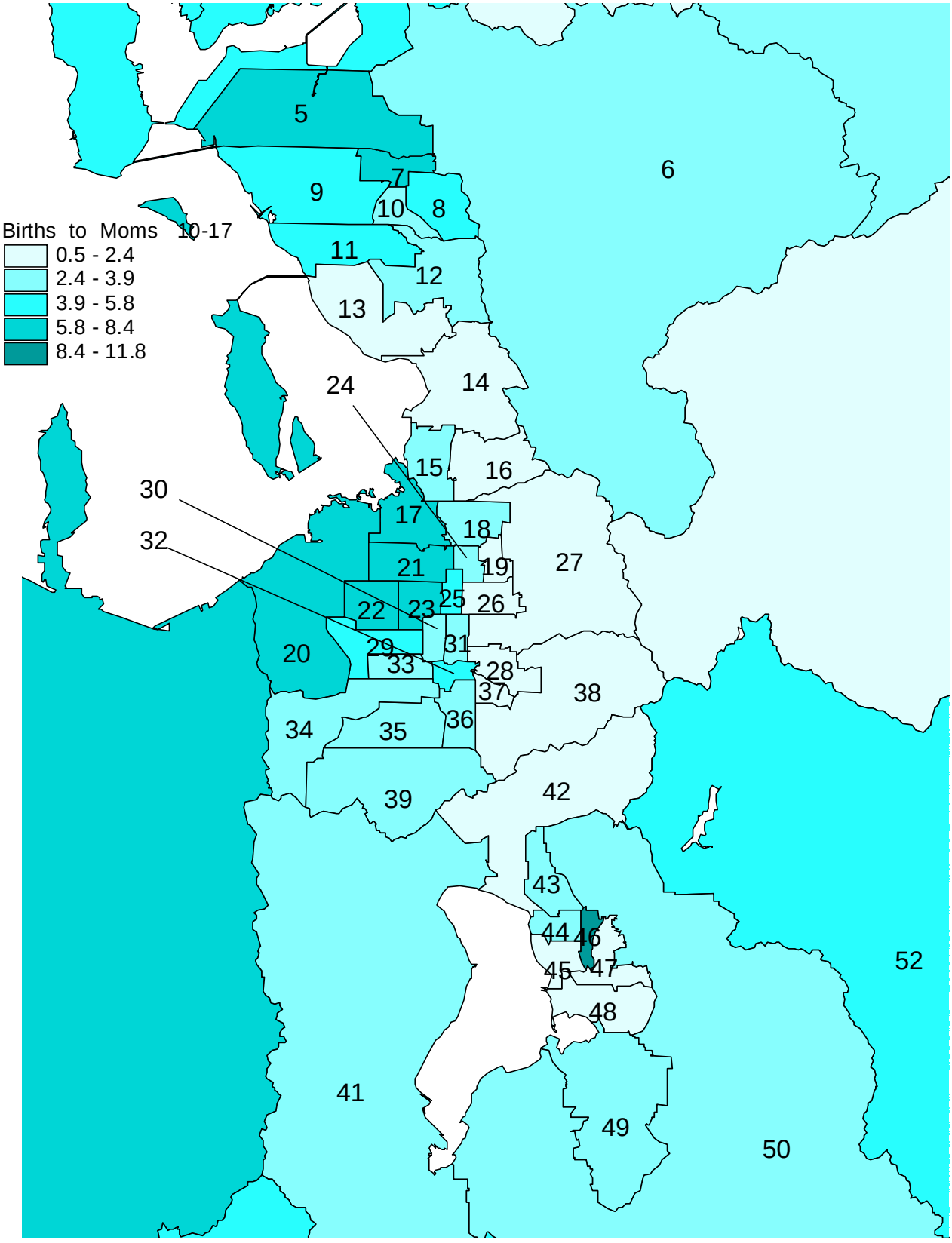
Rate for a small area was considered different from state percentage if its 95% confidence interval did not include the state rate.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 25. Percentage of Births That Were Born to Adolescent Mothers (10-17 Years). Utah, 1994-96.



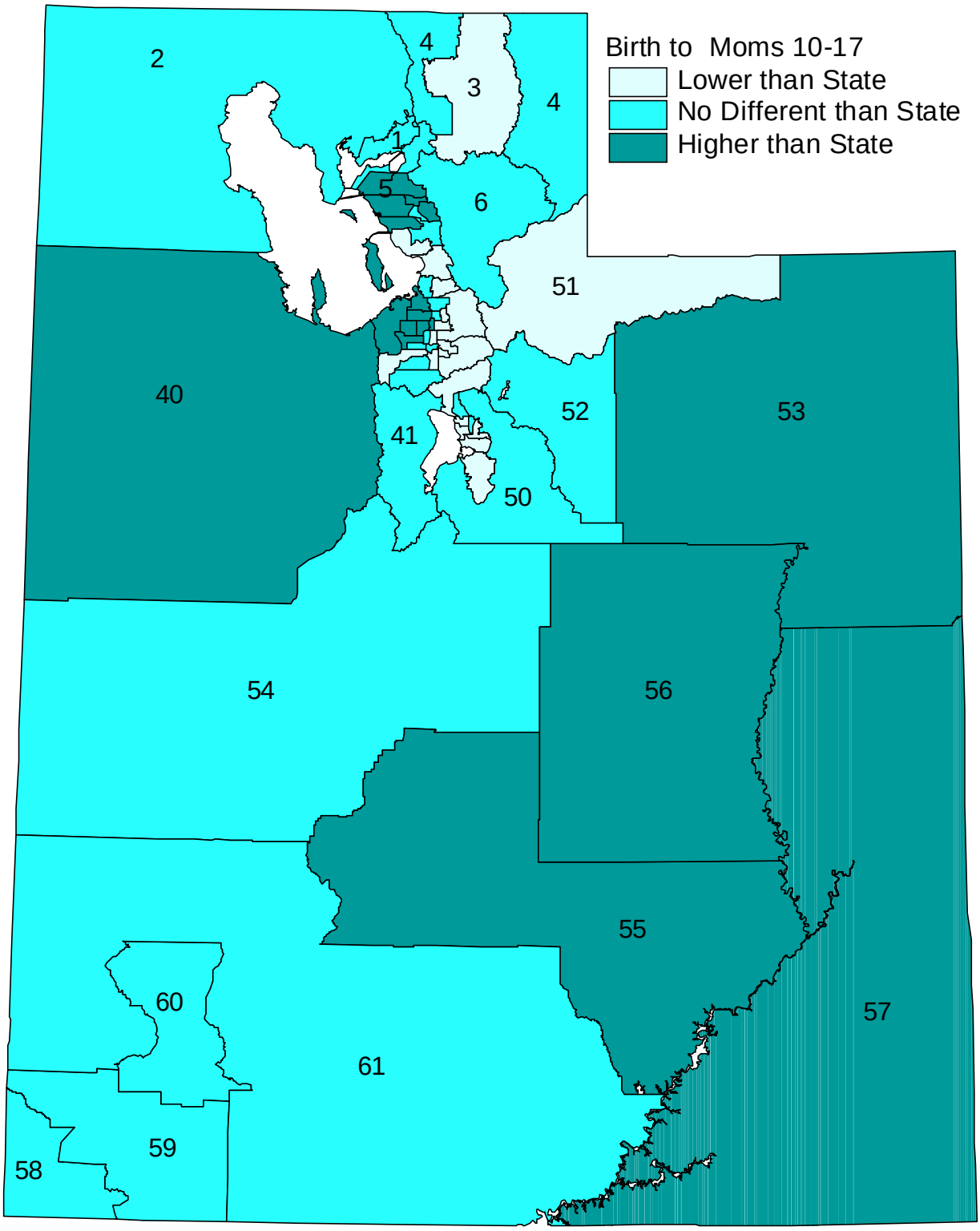
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 26. Percentage of Births That Were Born to Adolescent Mothers (10-17 Years).
Utah Wasatch Front, 1994-96.



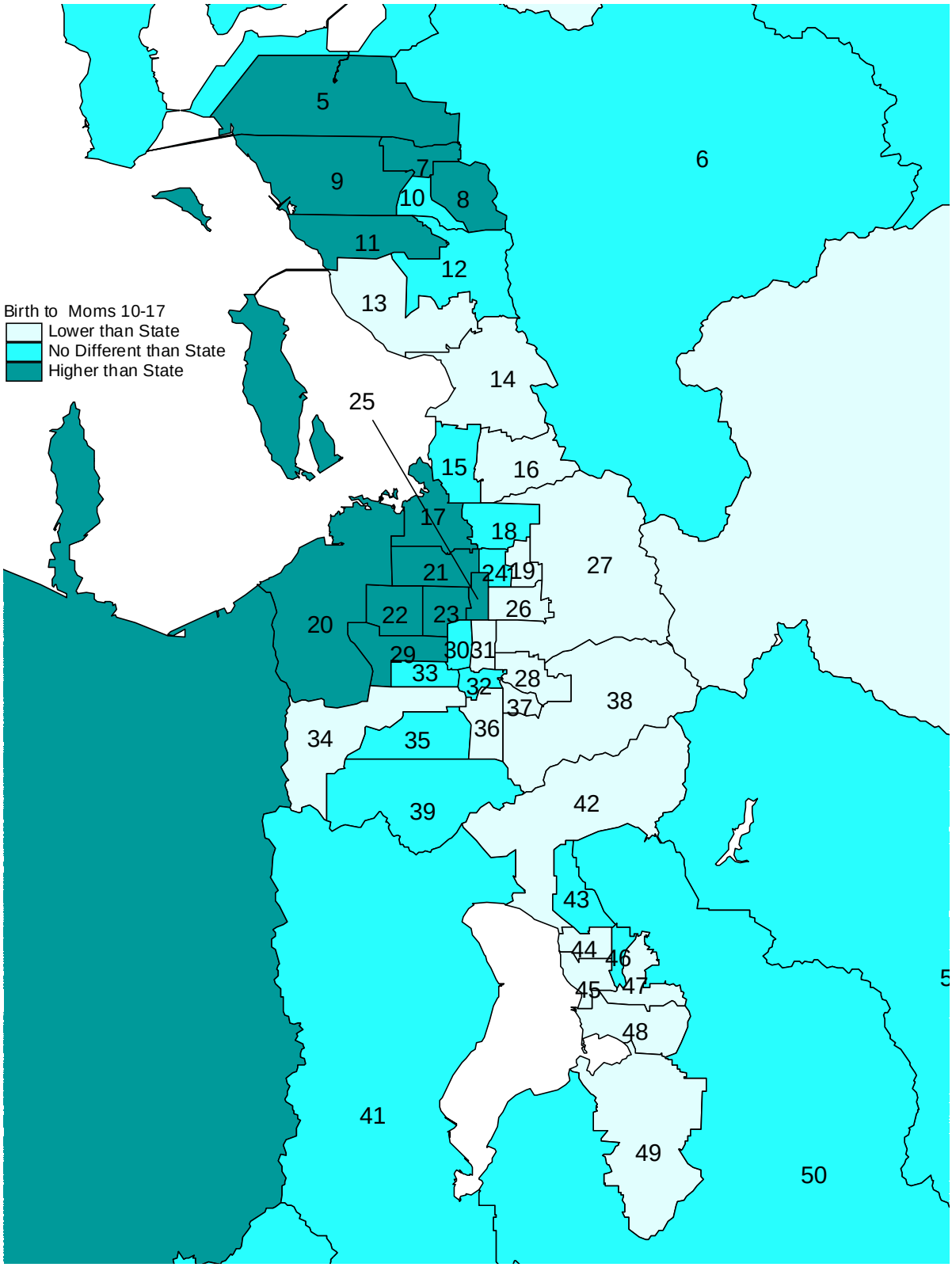
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 27. Percentage of Births That Were Born to Adolescent Mothers (10-17 Years) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Percentage. Utah, 1994-96.



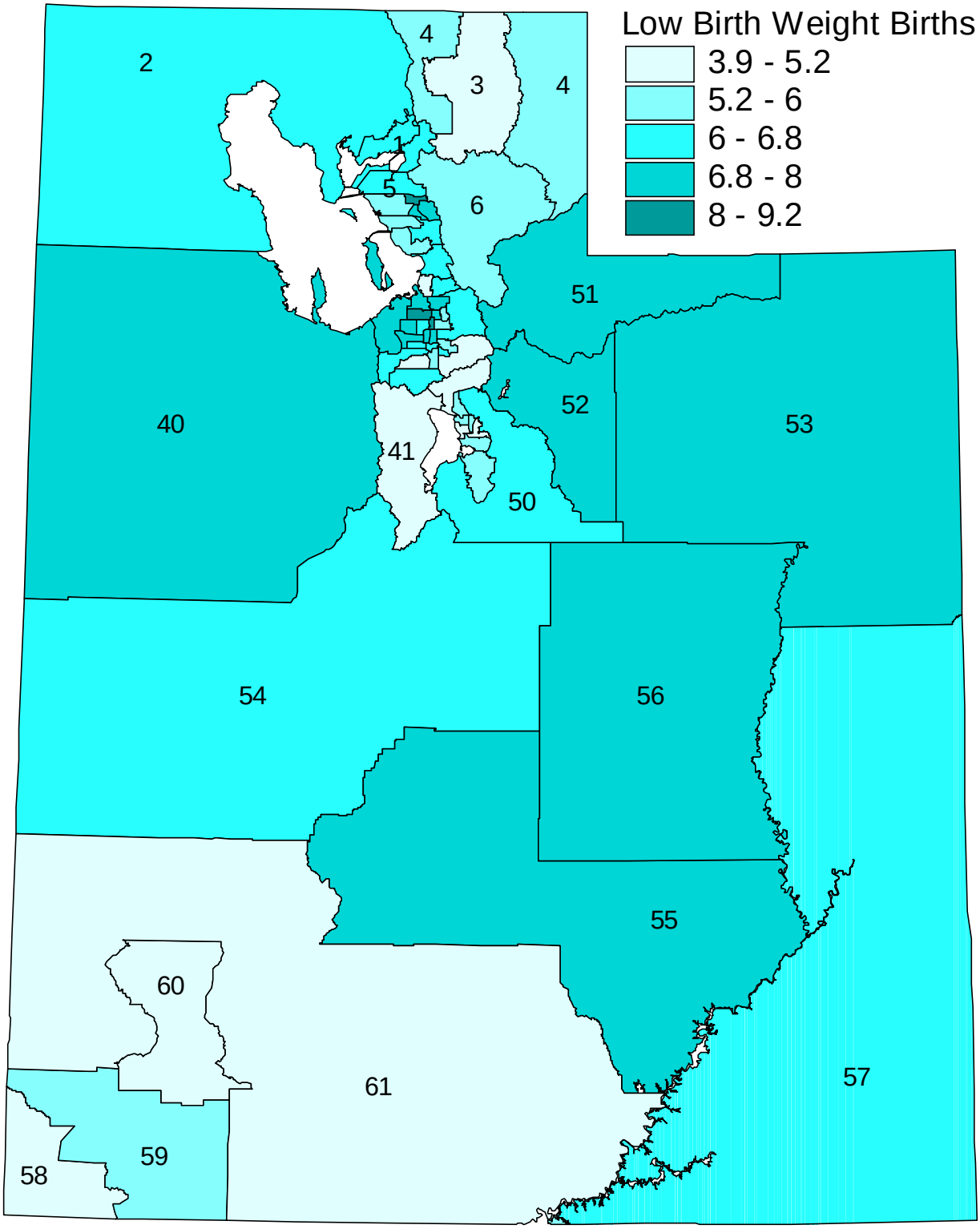
Percentage for a small area was considered different from state percentage if its 95% confidence interval did not include the state percentage.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 28. Percentage of Births That Were Born to Adolescent Mothers (10-17 Years) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Percentage.
Utah Wasatch Front, 1994-96.



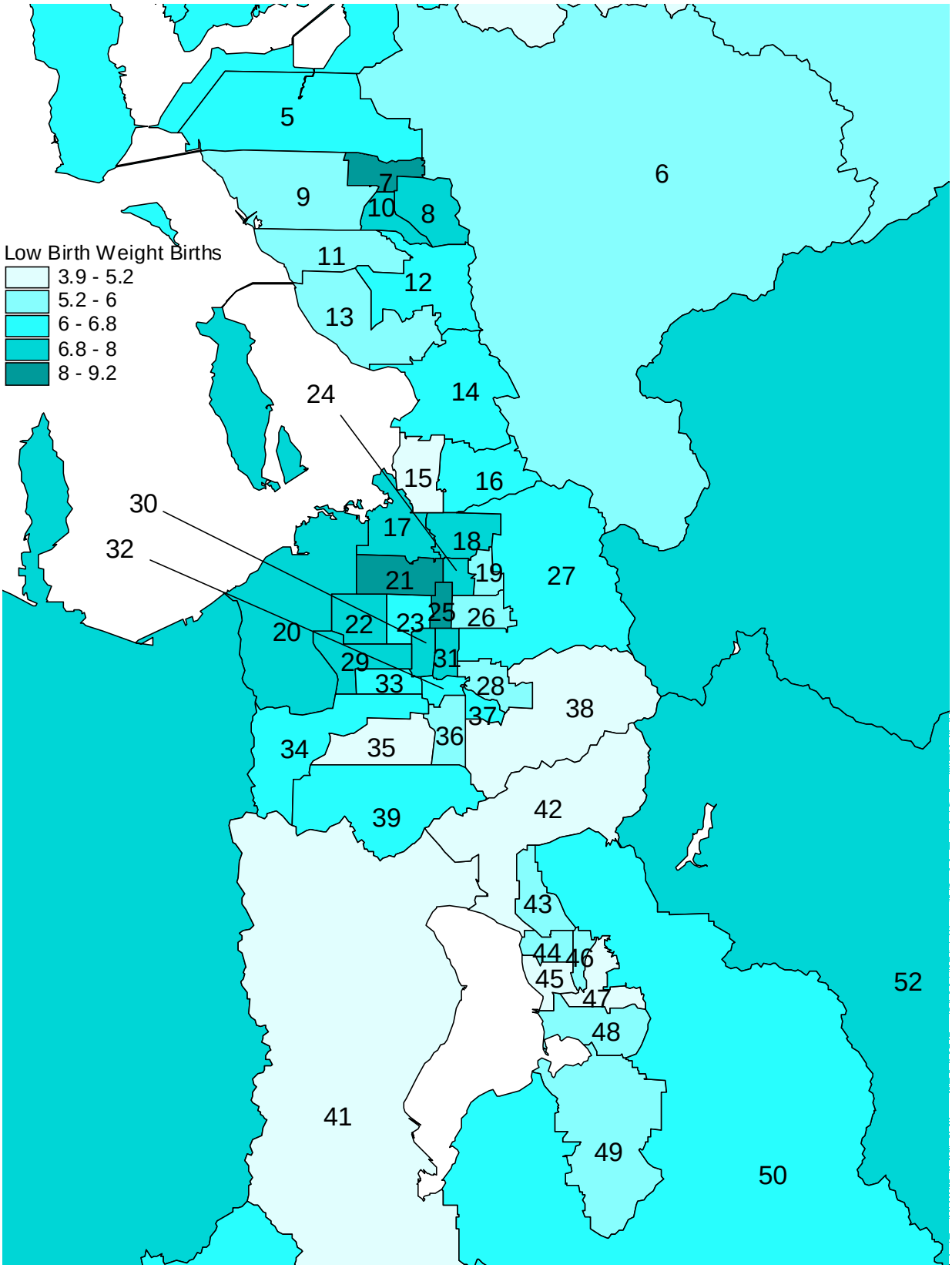
Percentage for a small area was considered different from state percentage if its 95% confidence interval did not include the state percentage.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 29. Percentage of Infants with Low Birth Weight (under 2500 Grams). Utah, 1994-96.



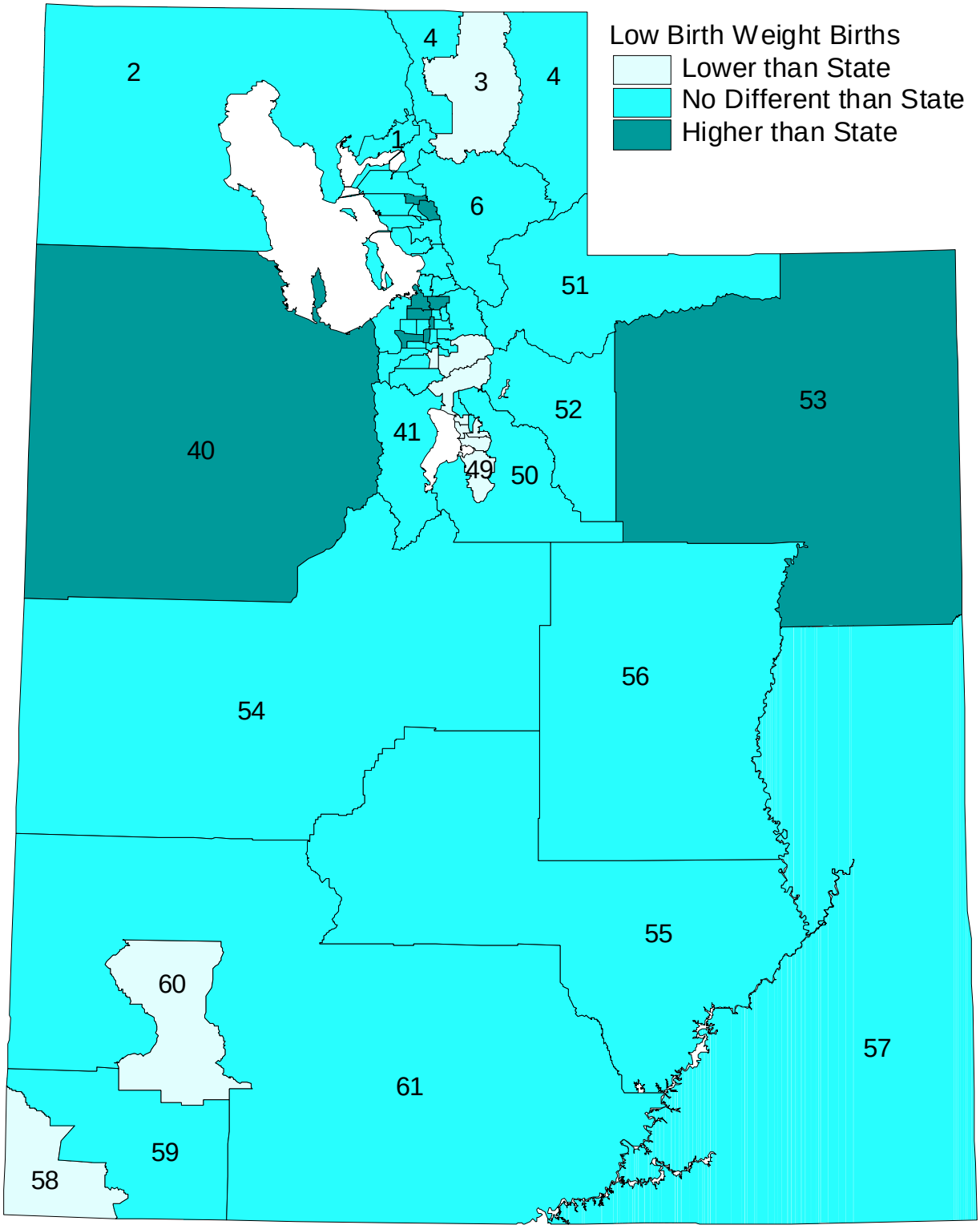
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 30. Percentage of Infants with Low Birth Weight (under 2500 Grams).
Utah Wasatch Front, 1994-96.



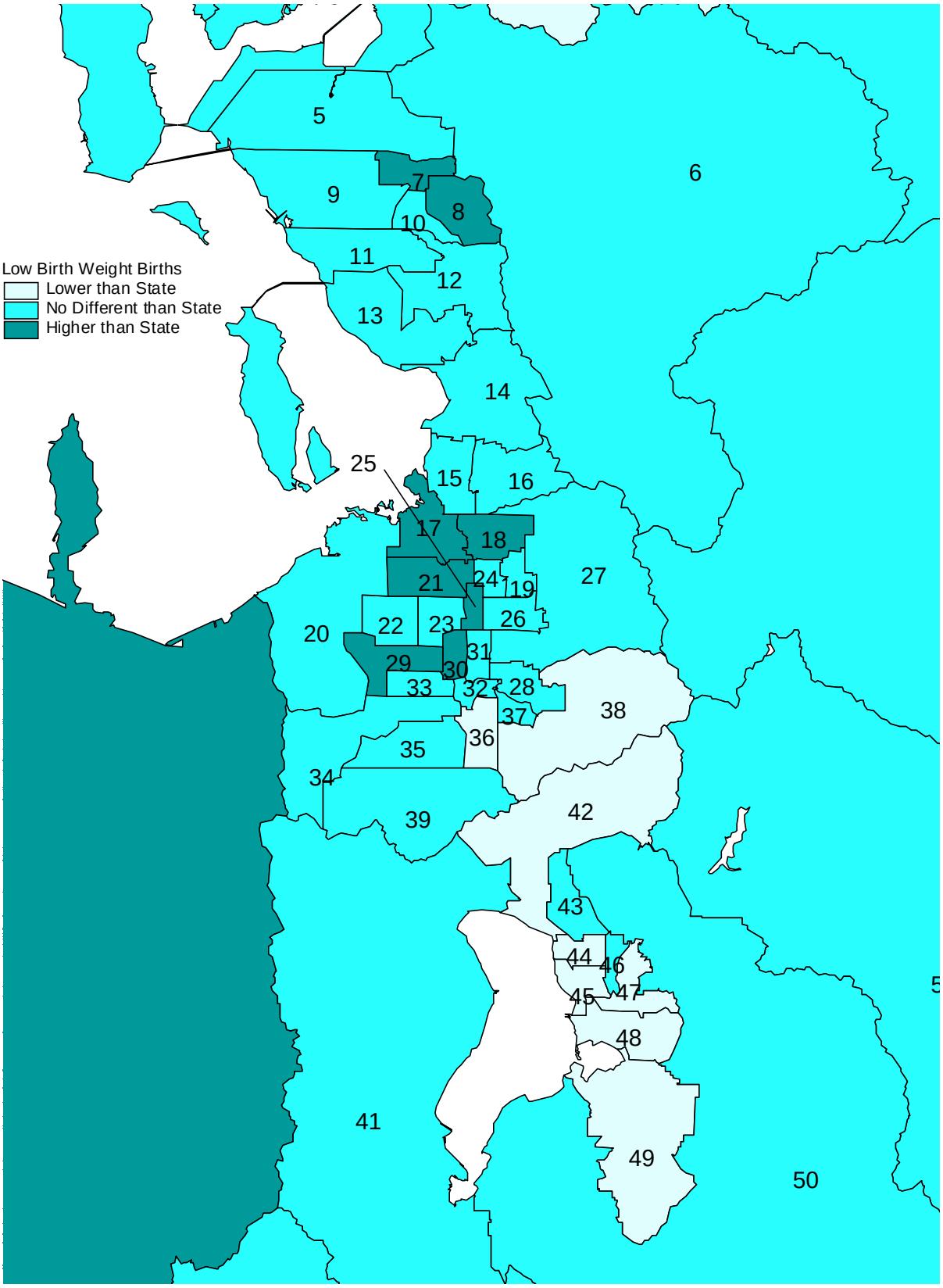
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 31. Percentage of Infants with Low Birth Weight (under 2500 Grams) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Percentage. Utah, 1994-96.



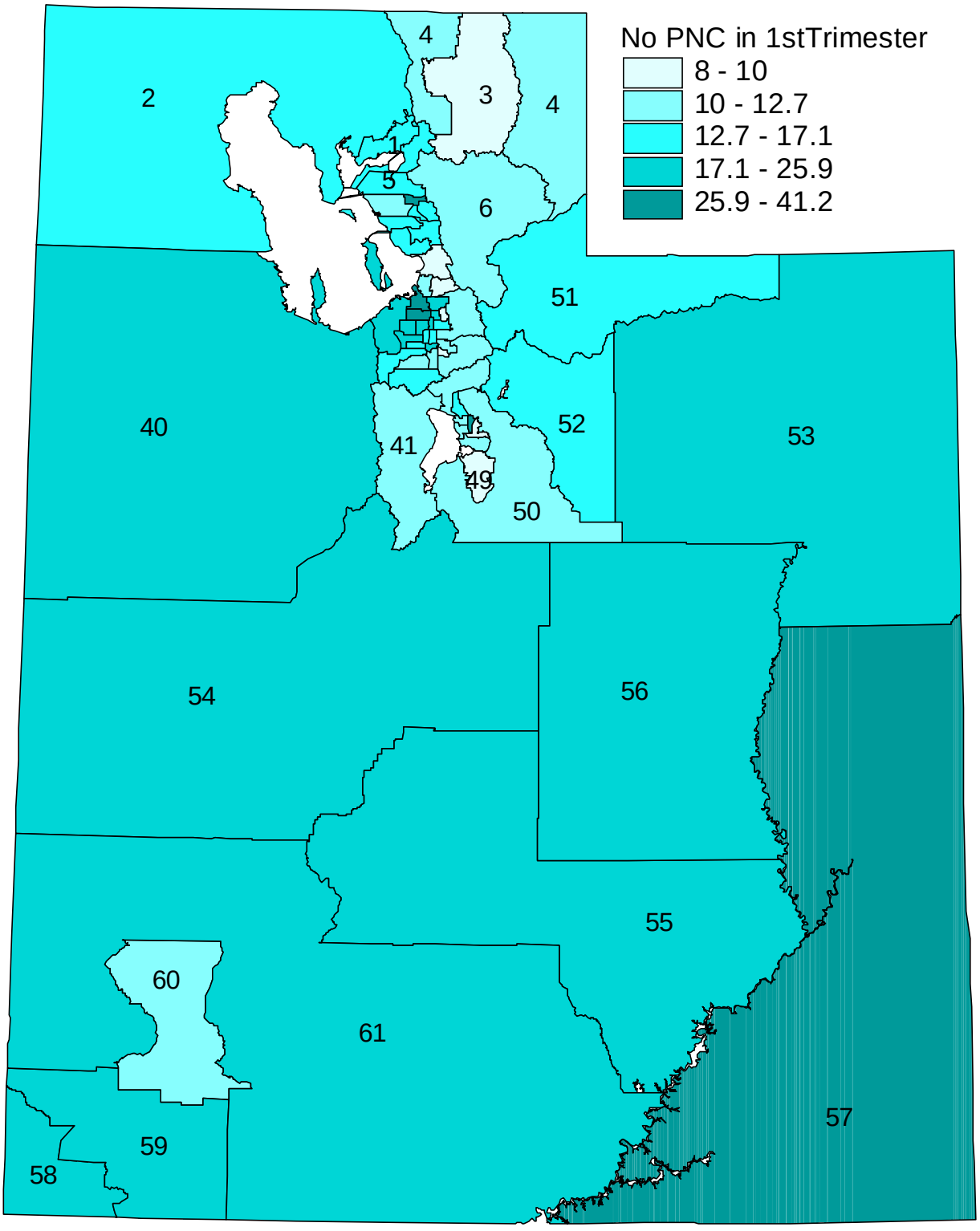
Percentage for a small area was considered different from state percentage if its 95% confidence interval did not include the state percentage.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 32. Percentage of Infants with Low Birth Weight (under 2500 Grams) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Percentage. Utah Wasatch Front, 1994-96.



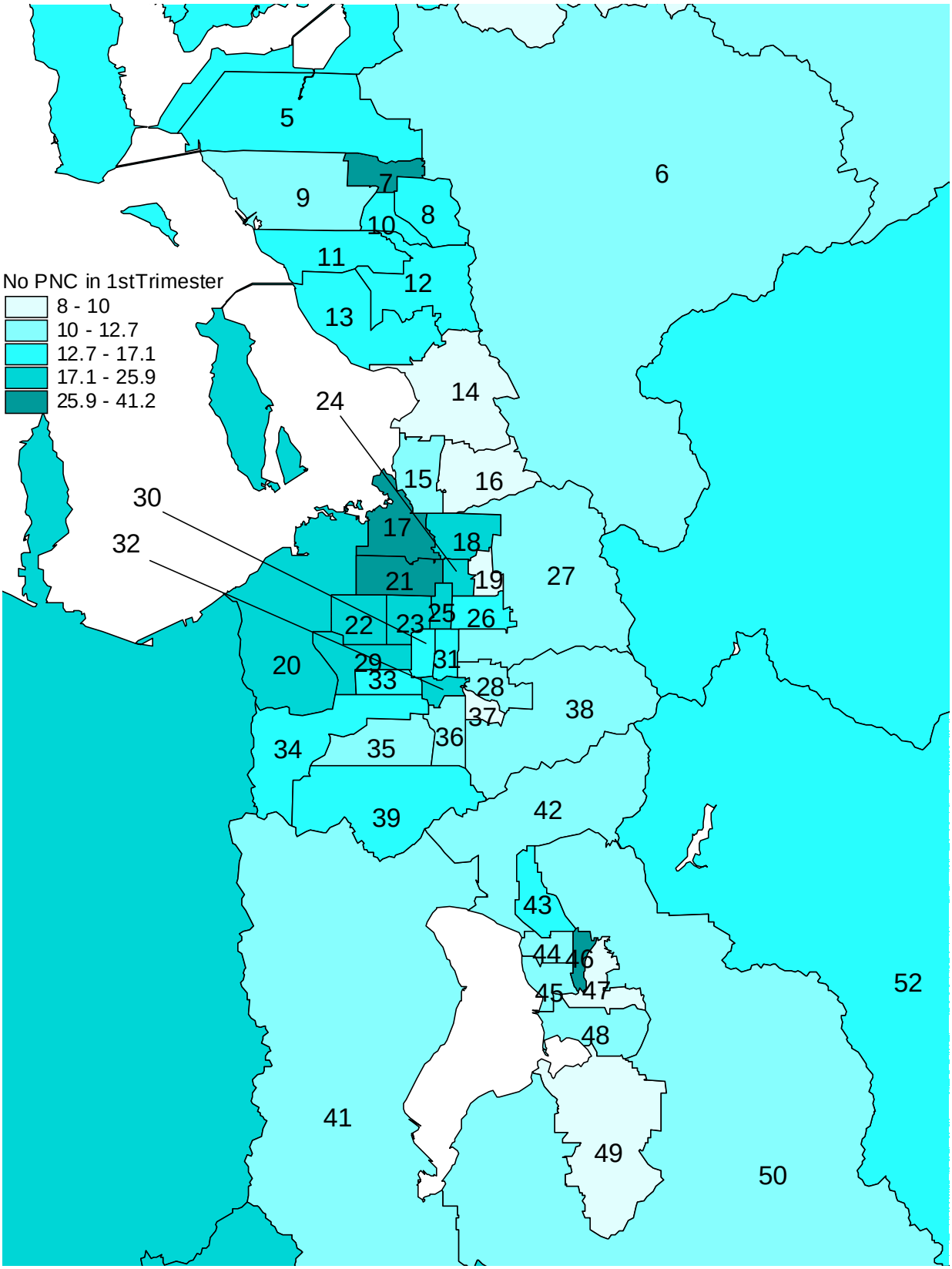
Percentage for a small area was considered different from state percentage if its 95% confidence interval did not include the state percentage.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 33. Percentage of Mothers of Live Born Infants Who Did Not Receive Prenatal Care (PNC) in the First Trimester of Pregnancy. Utah, 1994-96.



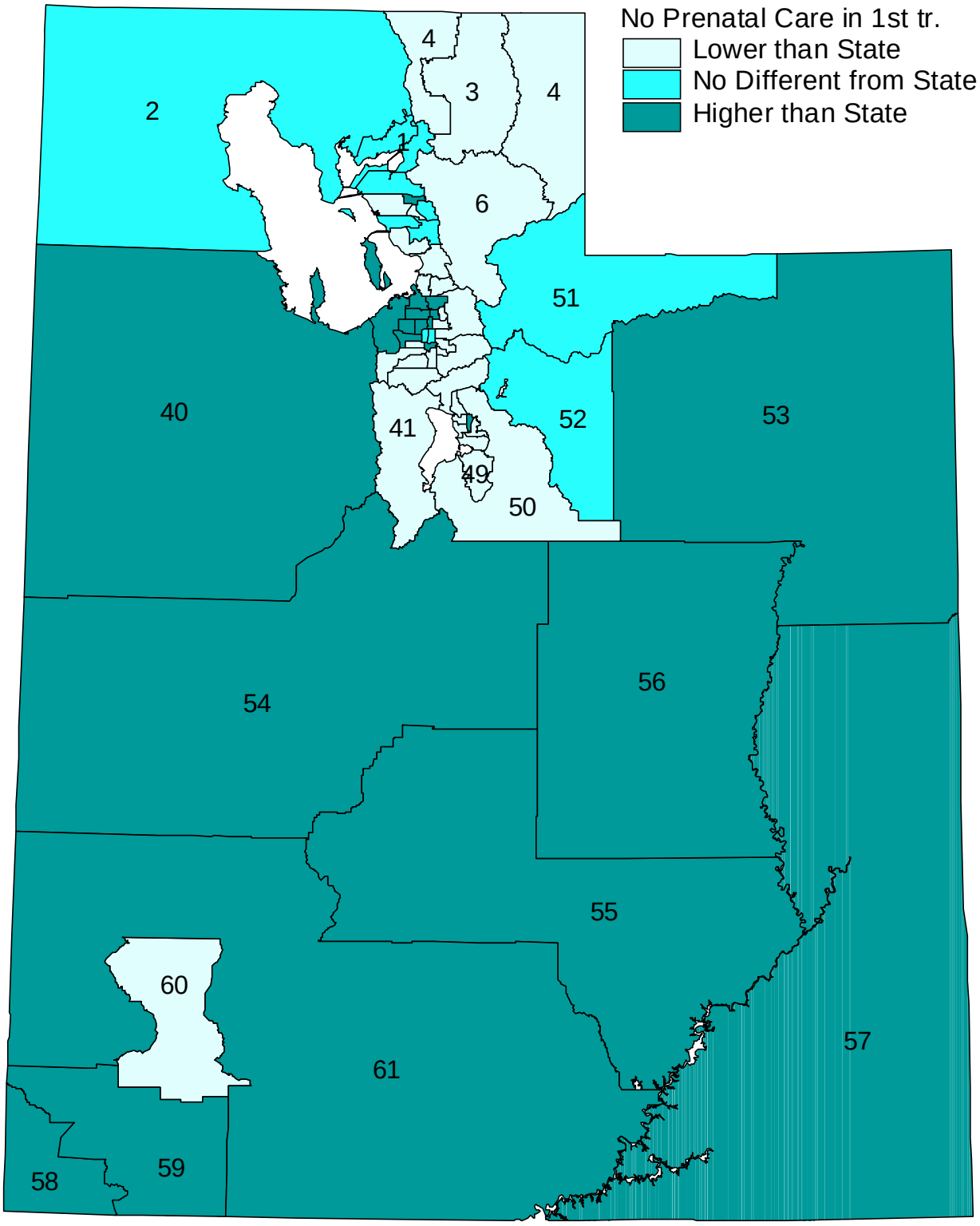
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 34. Percentage of Mothers of Live Born Infants Who Did Not Receive Prenatal Care (PNC) in the First Trimester of Pregnancy. Utah Wasatch Front, 1994-96.



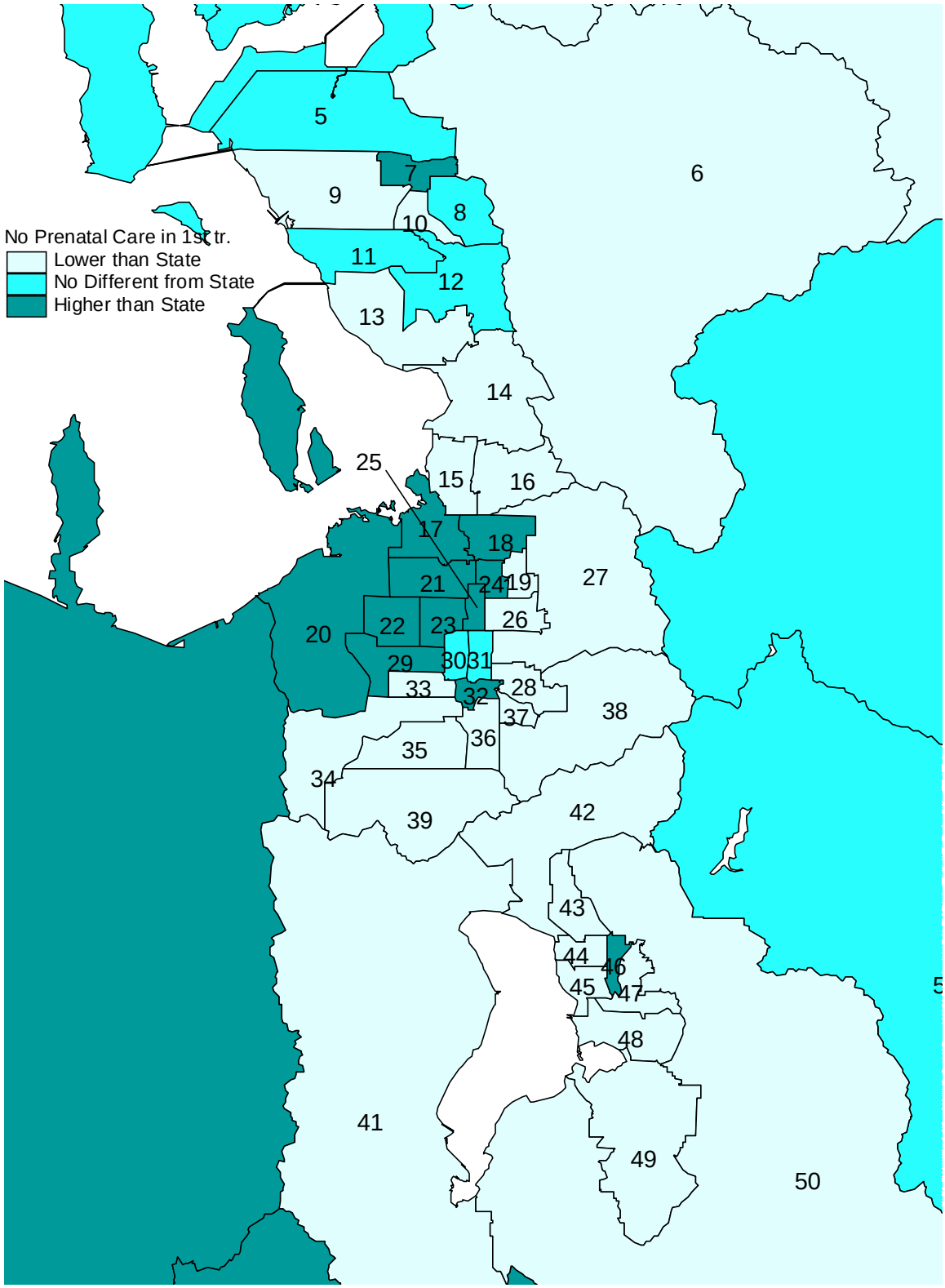
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 35. Percentage of Mothers of Live Born Infants Who Did Not Receive Prenatal Care in the First Trimester (tr.) of Pregnancy by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Percentage. Utah, 1994-96.



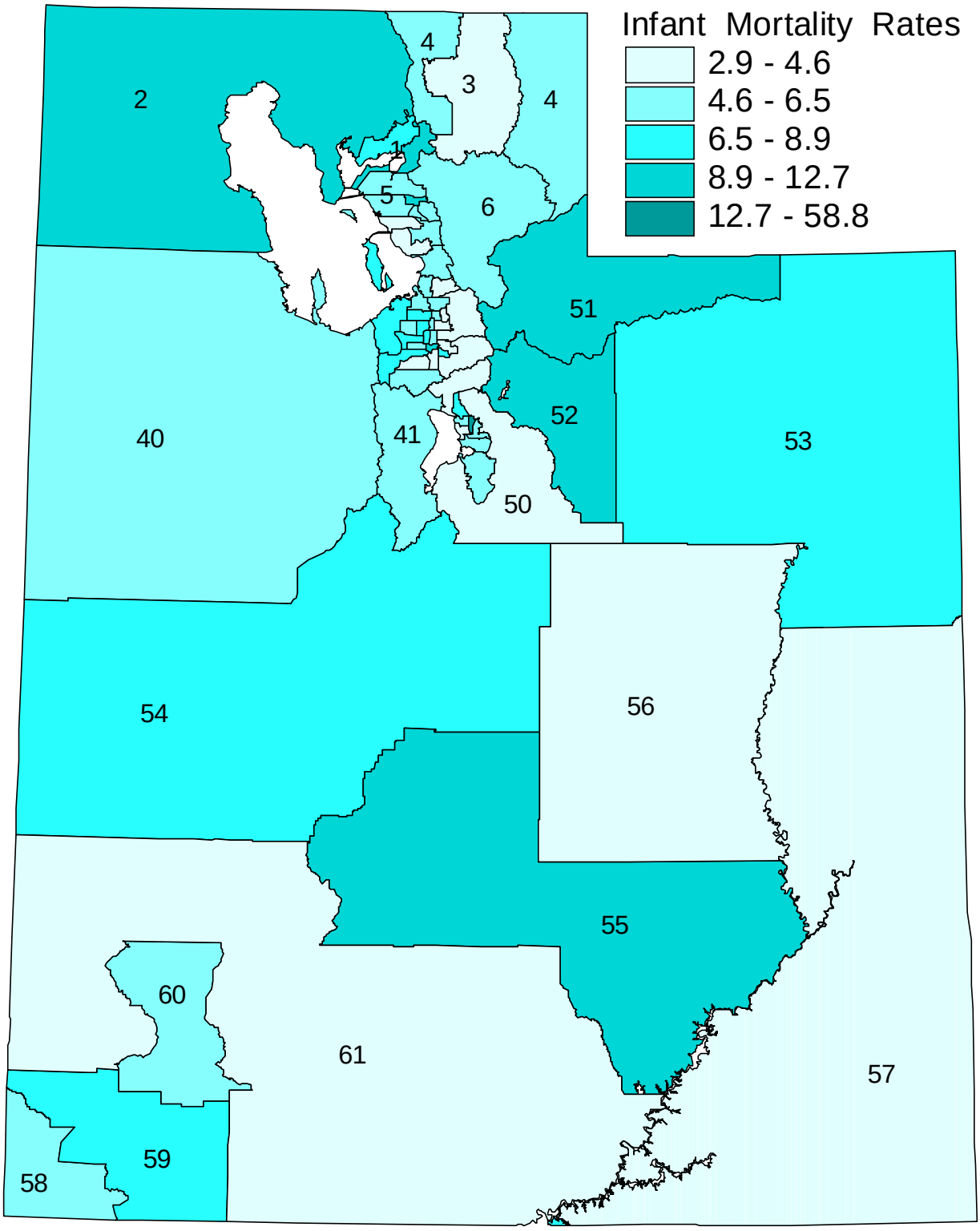
Percentage for a small area was considered different from state percentage if its 95% confidence interval did not include the state percentage.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 36. Percentage of Mothers of Live Born Infants Who Did Not Receive Prenatal Care in the First Trimester (tr.) of Pregnancy by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Percentage. Utah Wasatch Front, 1994-96.



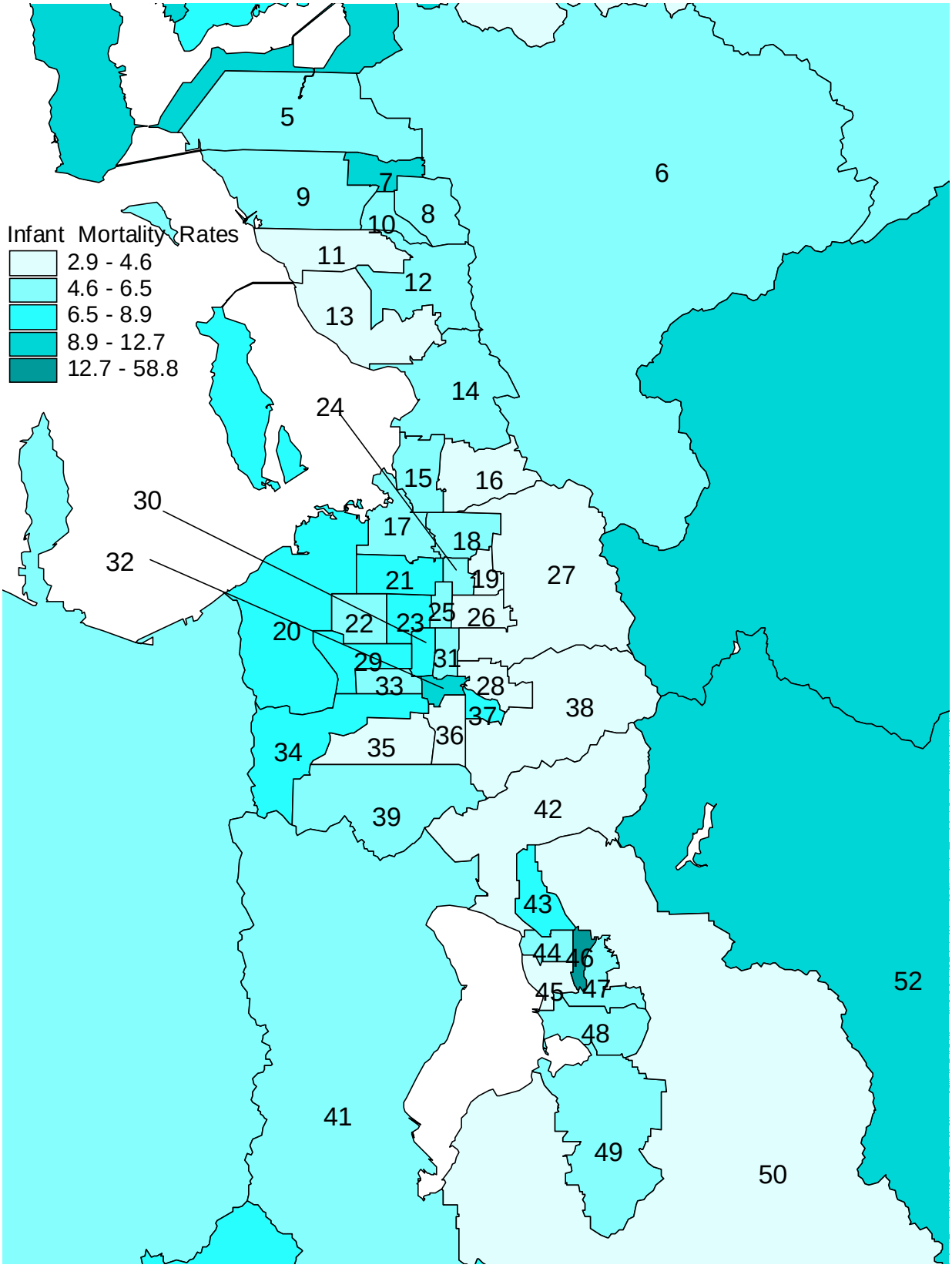
Percentage for a small area was considered different from state percentage if its 95% confidence interval did not include the state percentage.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 37. Rate of Infant Deaths (per 1,000 Live Births). Utah, 1992-96.



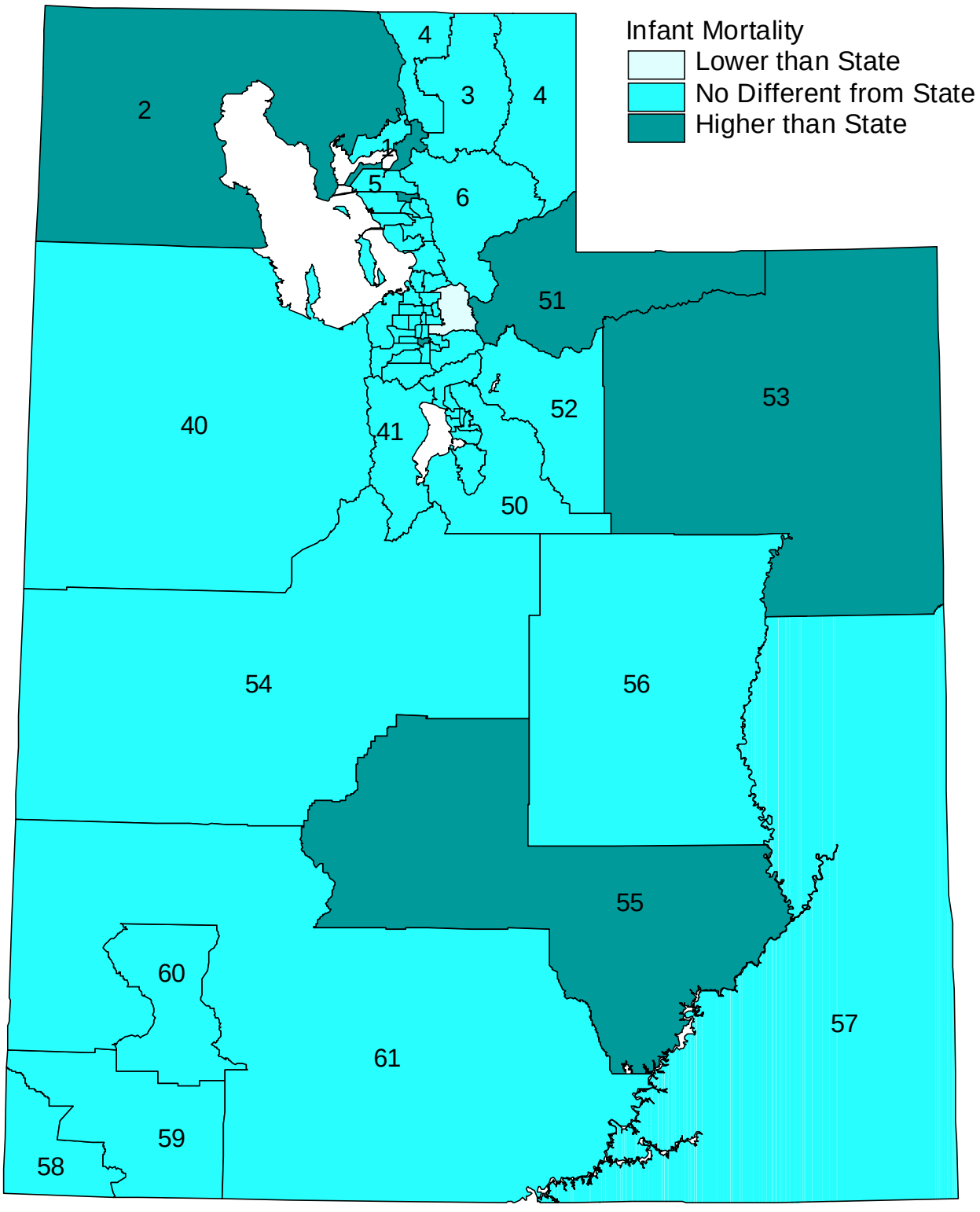
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 38. Rate of Infant Death (per 1,000 Live Births). Utah Wasatch Front, 1992-96.



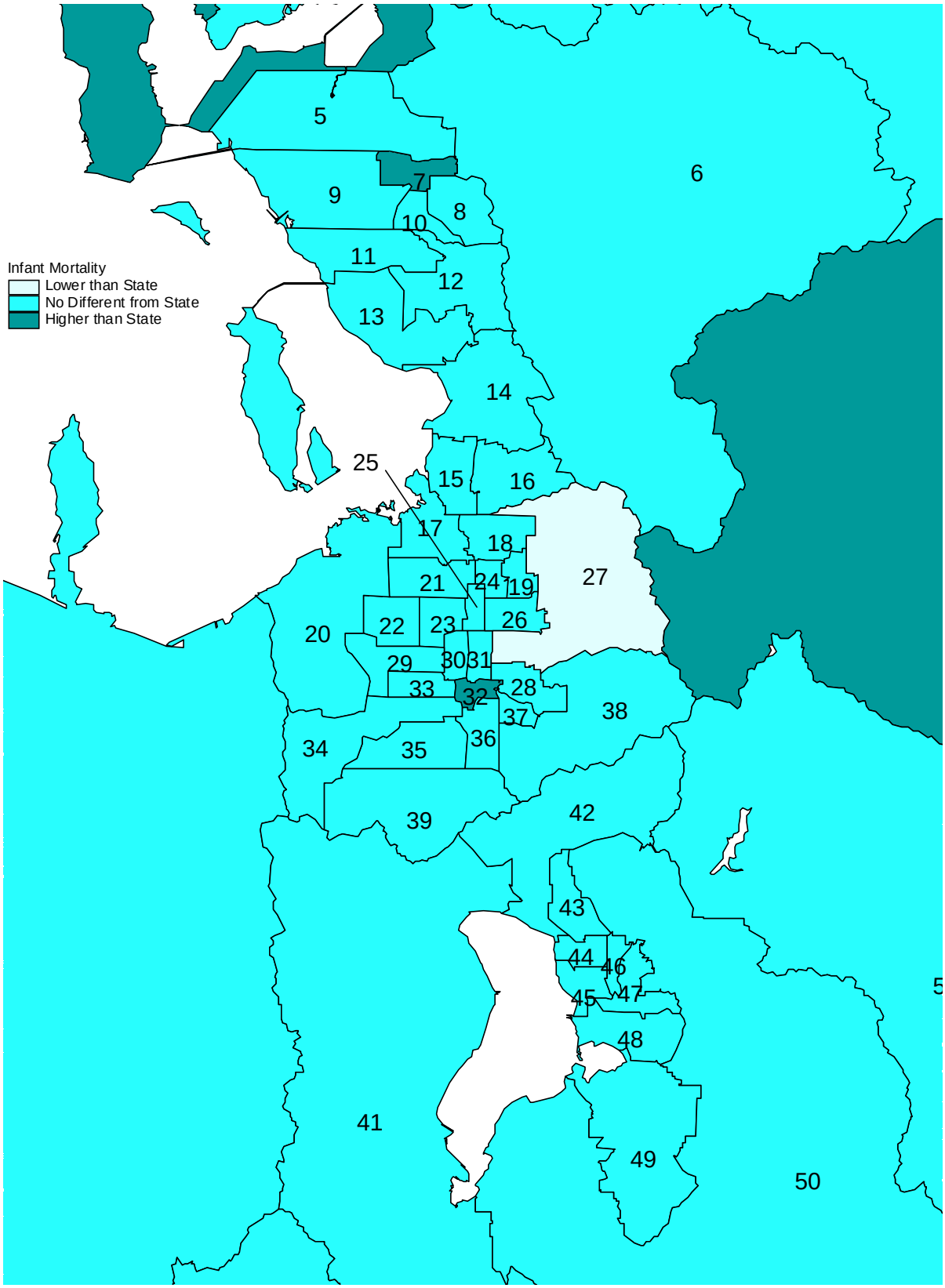
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 39. Rate of Infant Death (per 1,000 Live Births) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1992-96.



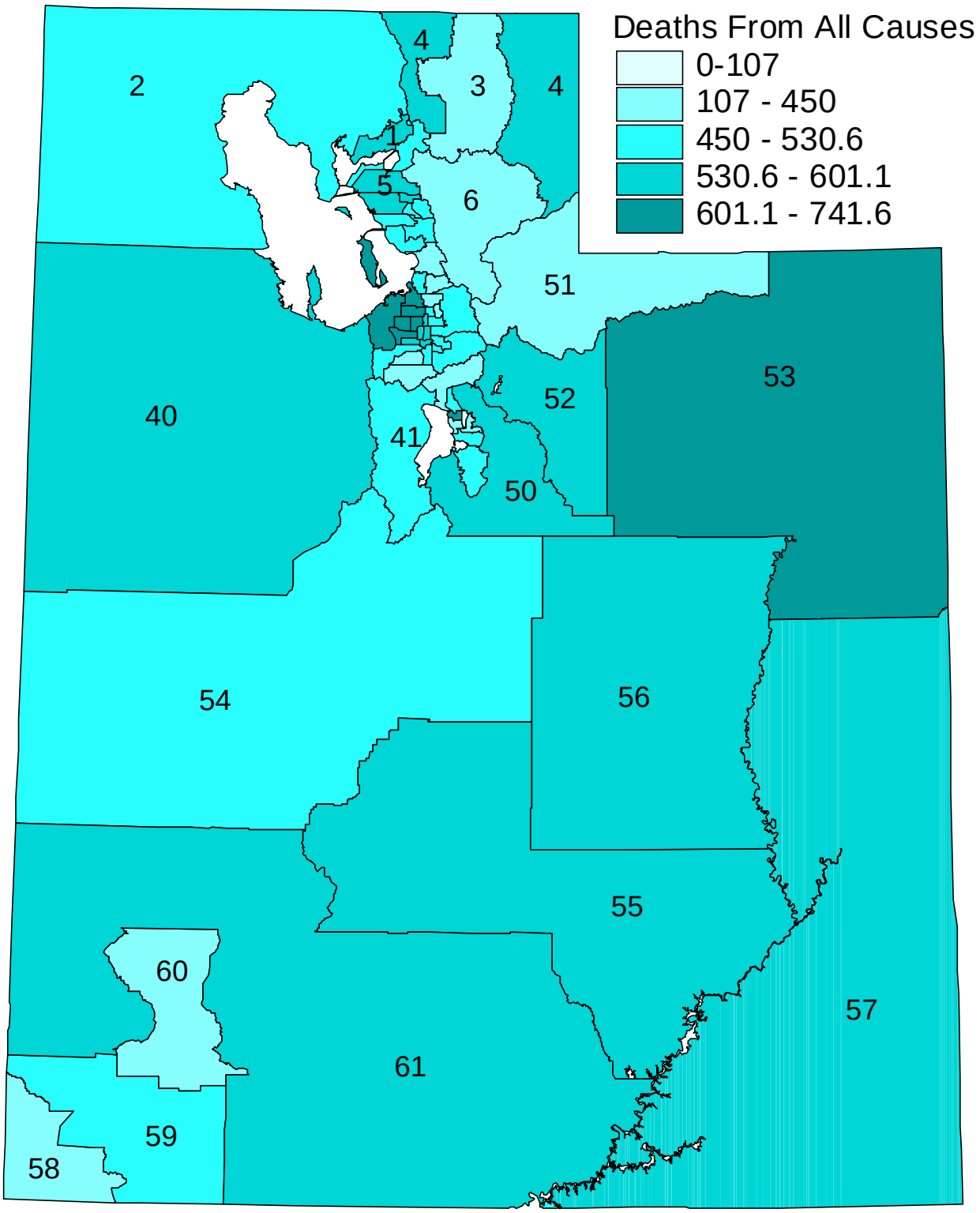
A small area rate was considered different from state percentage if its 95% confidence interval did not include the state rate.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 40. Rate of Infant Death (per 1,000 Live Births) by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1992-96.



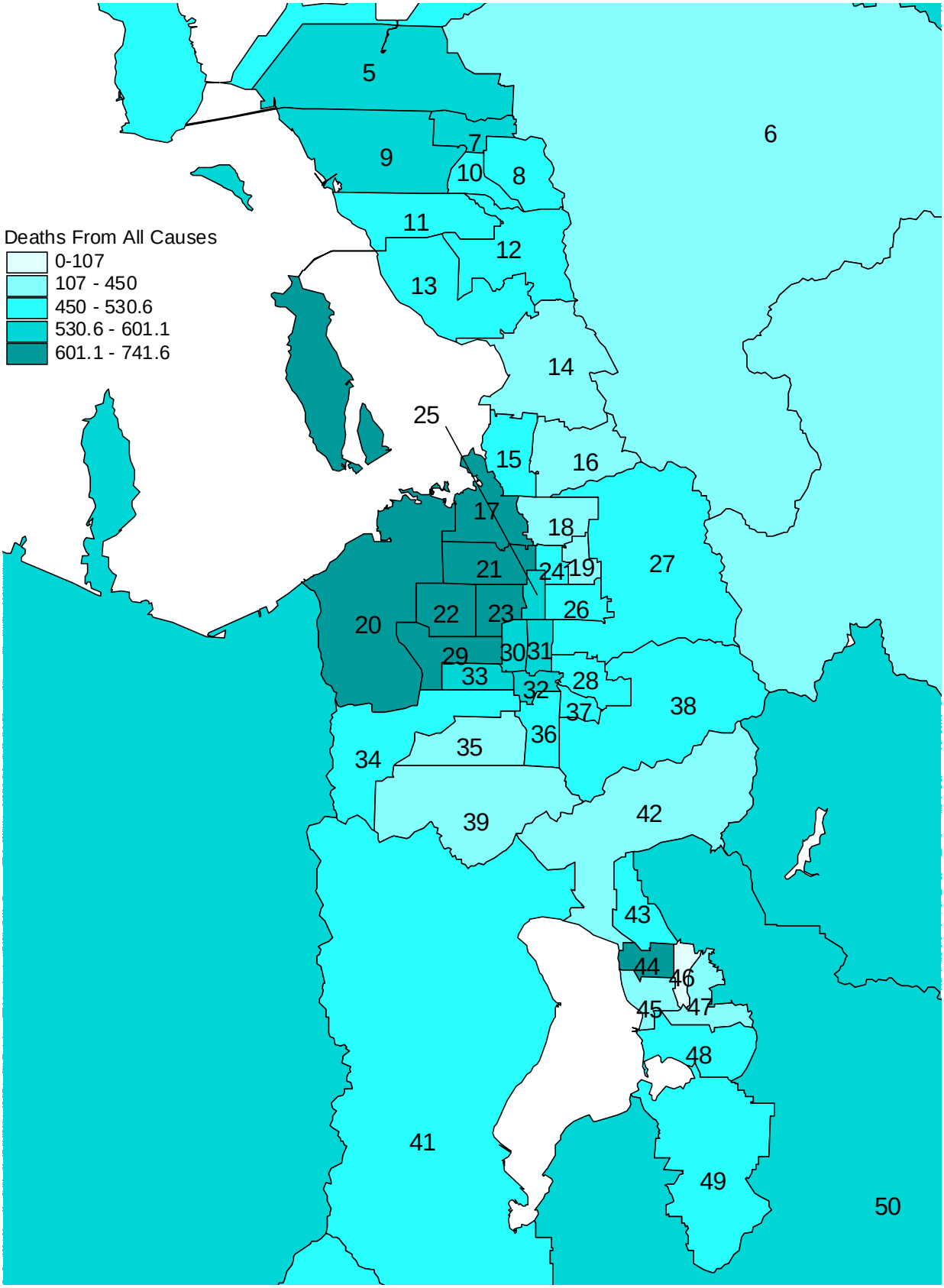
A small area rate was considered different from state percentage if its 95% confidence interval did not include the state rate.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of mother.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 41. Average Annual Rates of Death from All Causes per 100,000 Persons. Utah, 1992-96.



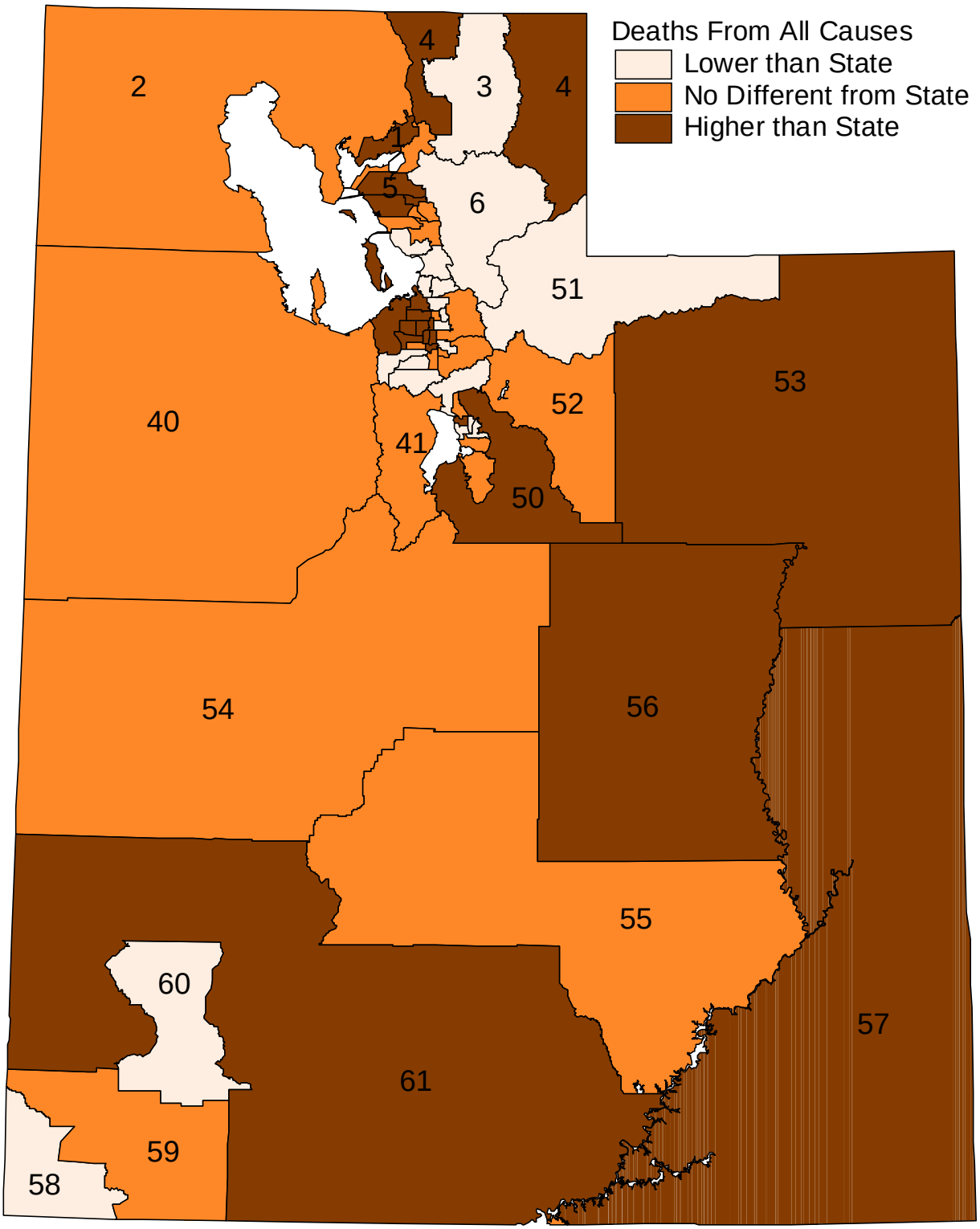
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 42. Average Annual Rates of Death from All Causes per 100,000 Persons.



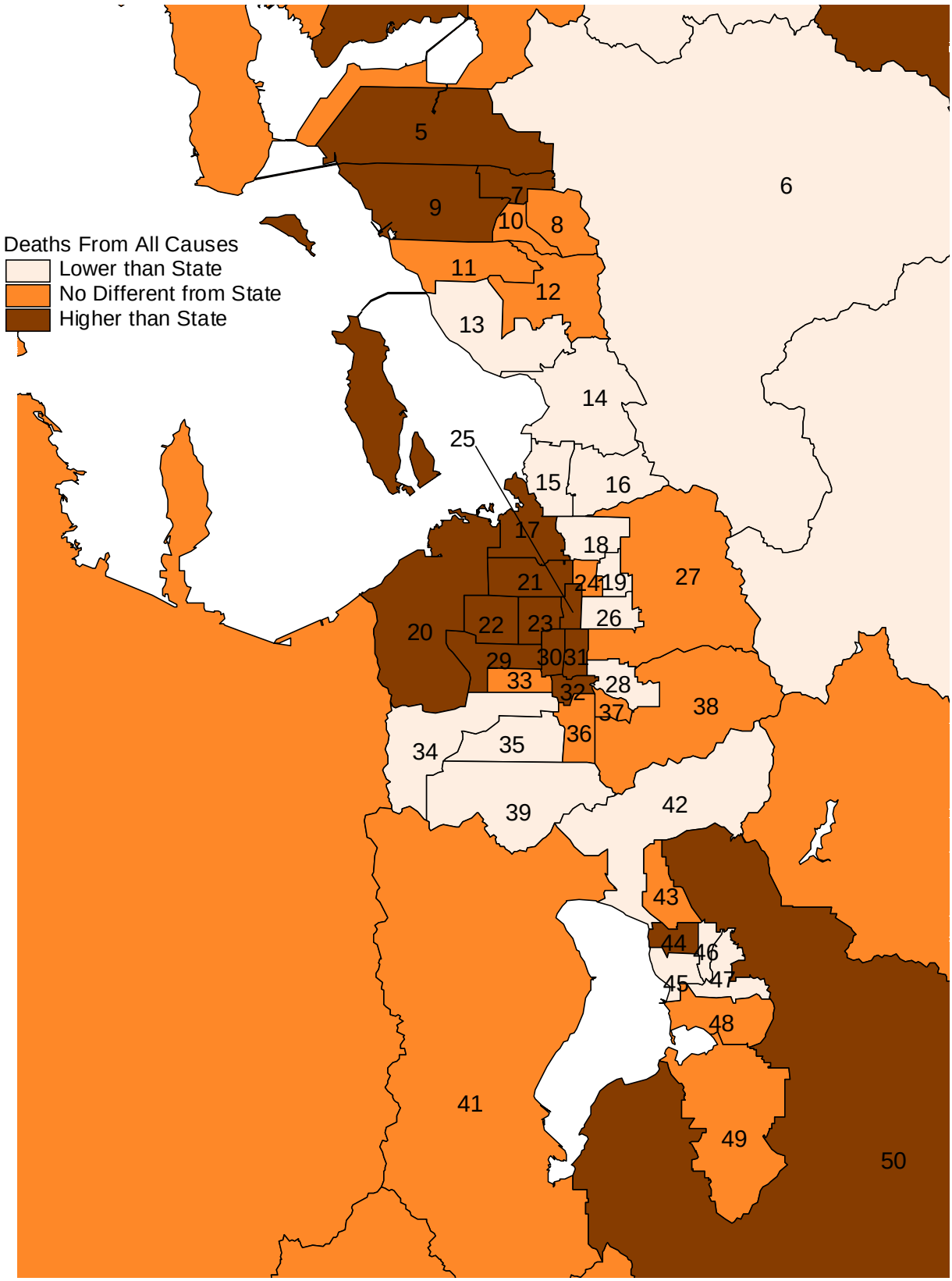
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 43. Average Annual Rates of Death from All Causes per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1992-96.



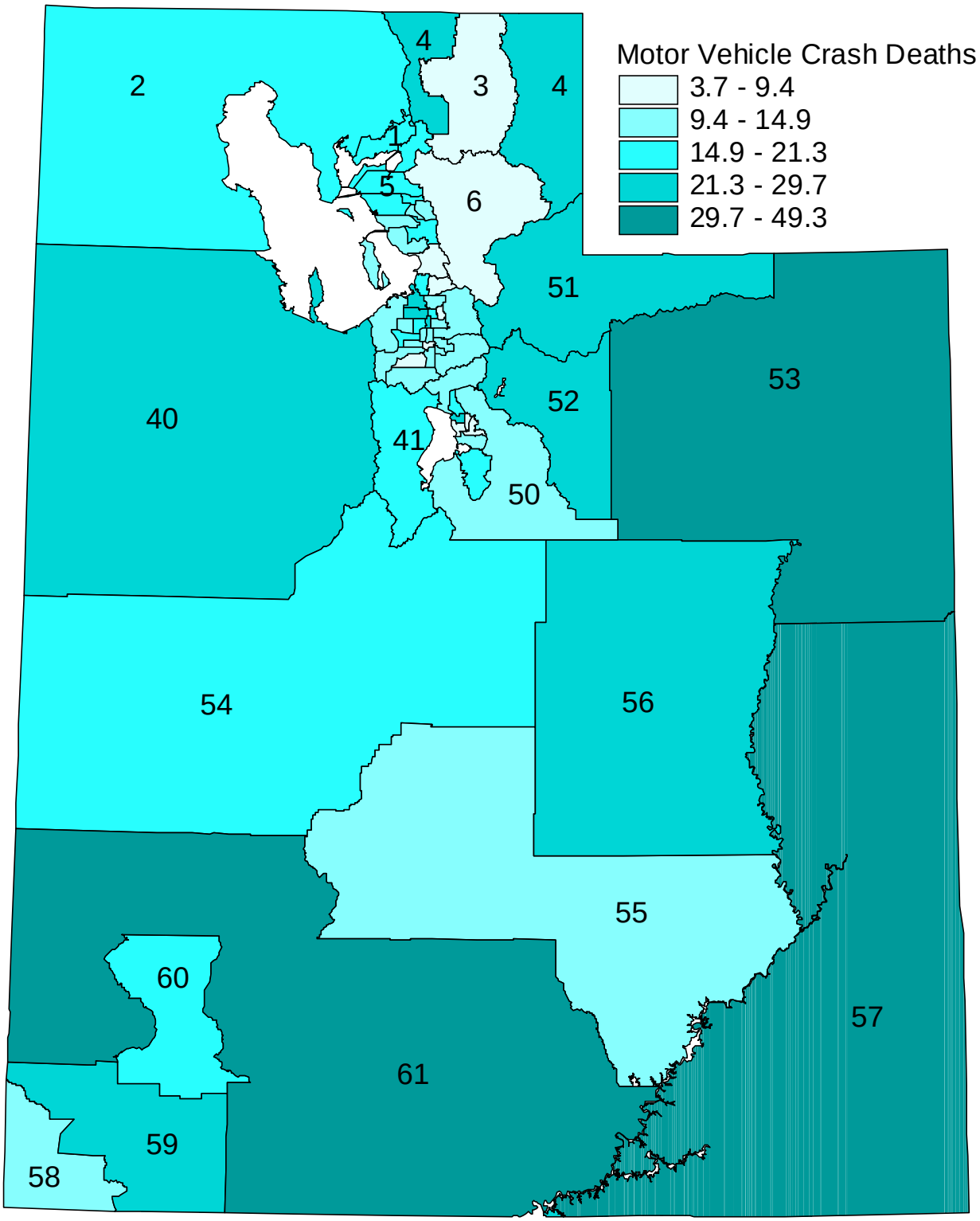
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 44. Average Annual Rates of Death from All Causes per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1992-96.



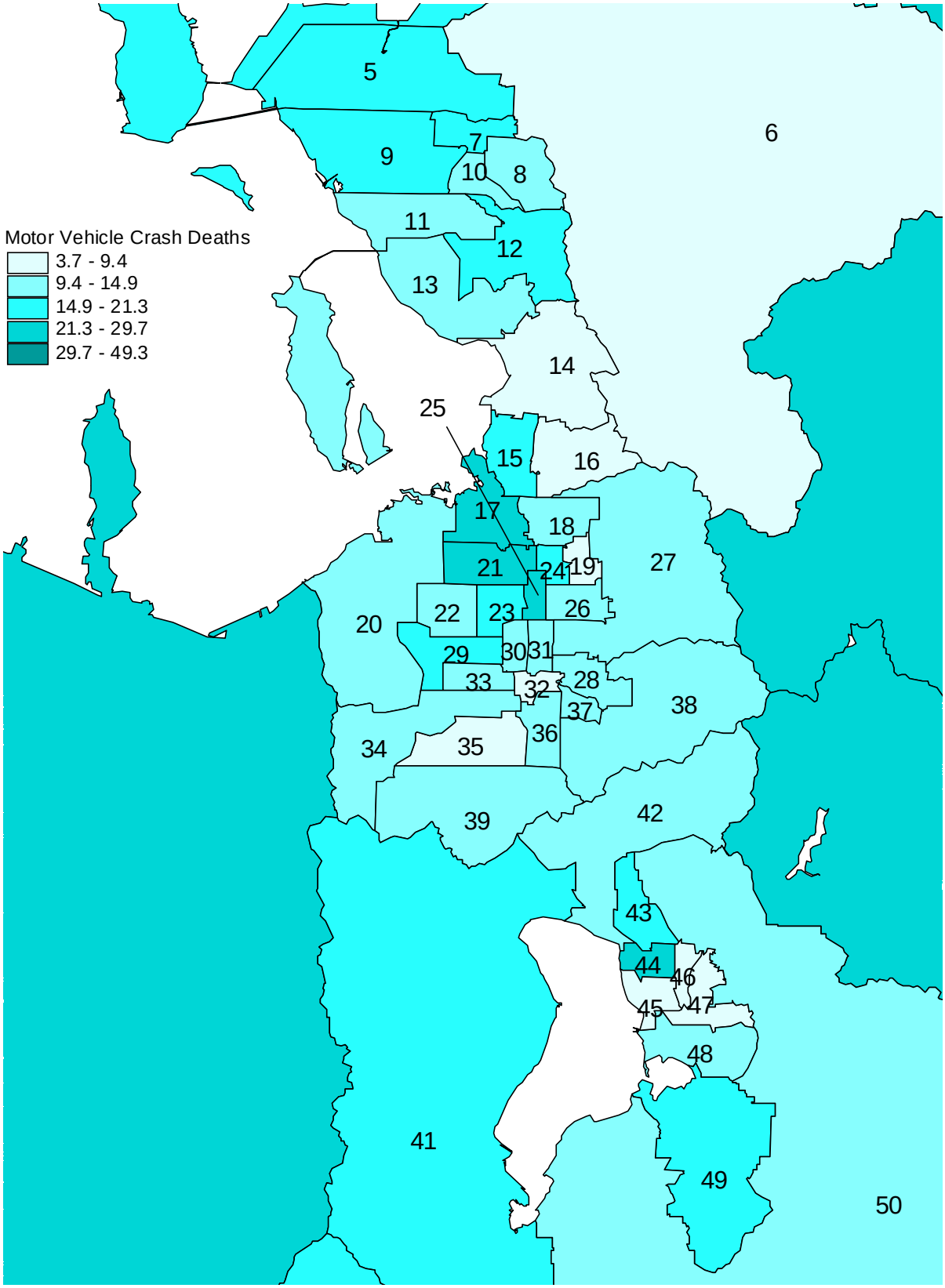
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 45. Average Annual Motor Vehicle Crash Death Rates per 100,000 Persons. Utah, 1992-96.



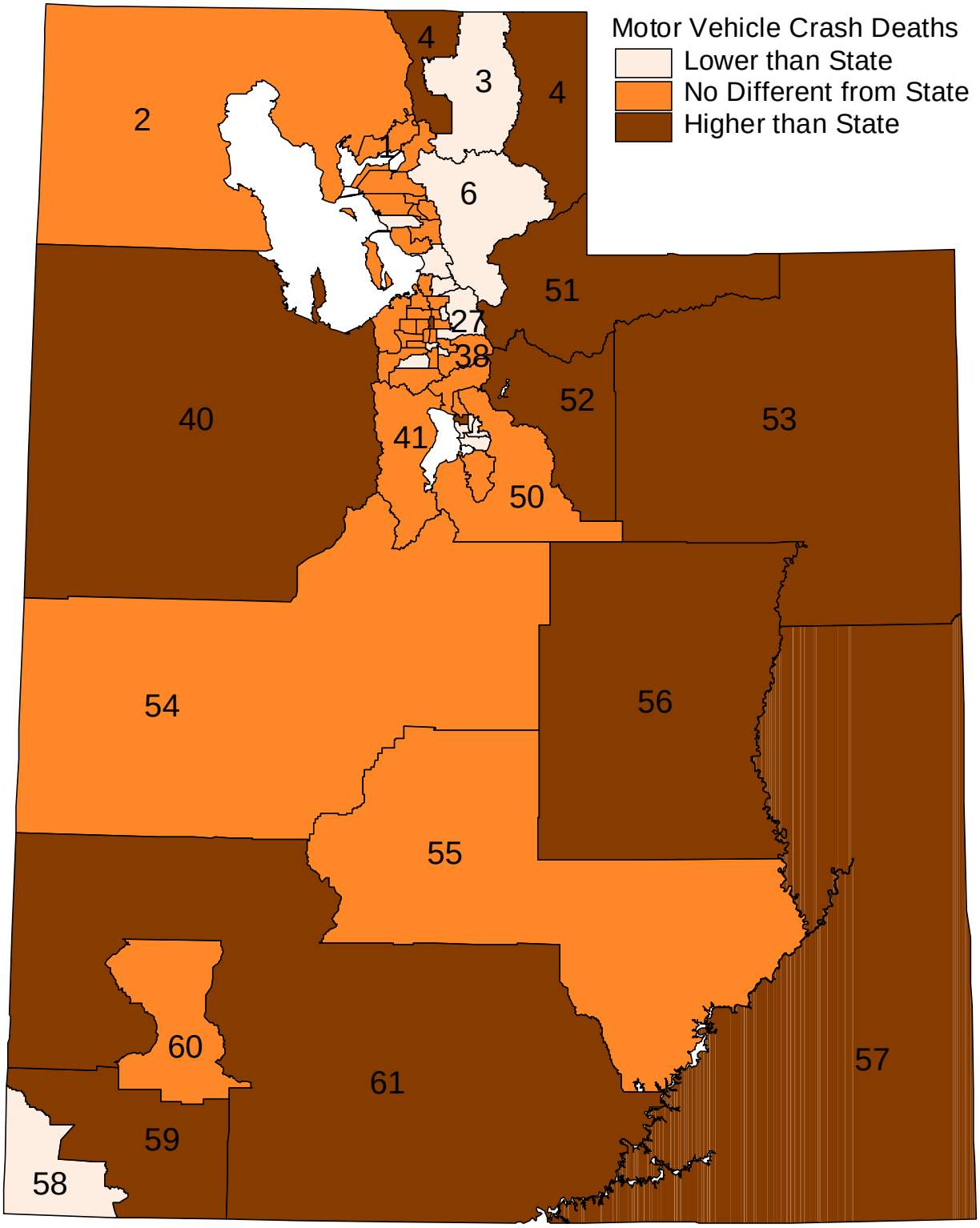
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 46. Average Annual Motor Vehicle Crash Death Rates per 100,000 Persons.
Utah Wasatch Front, 1992-96.



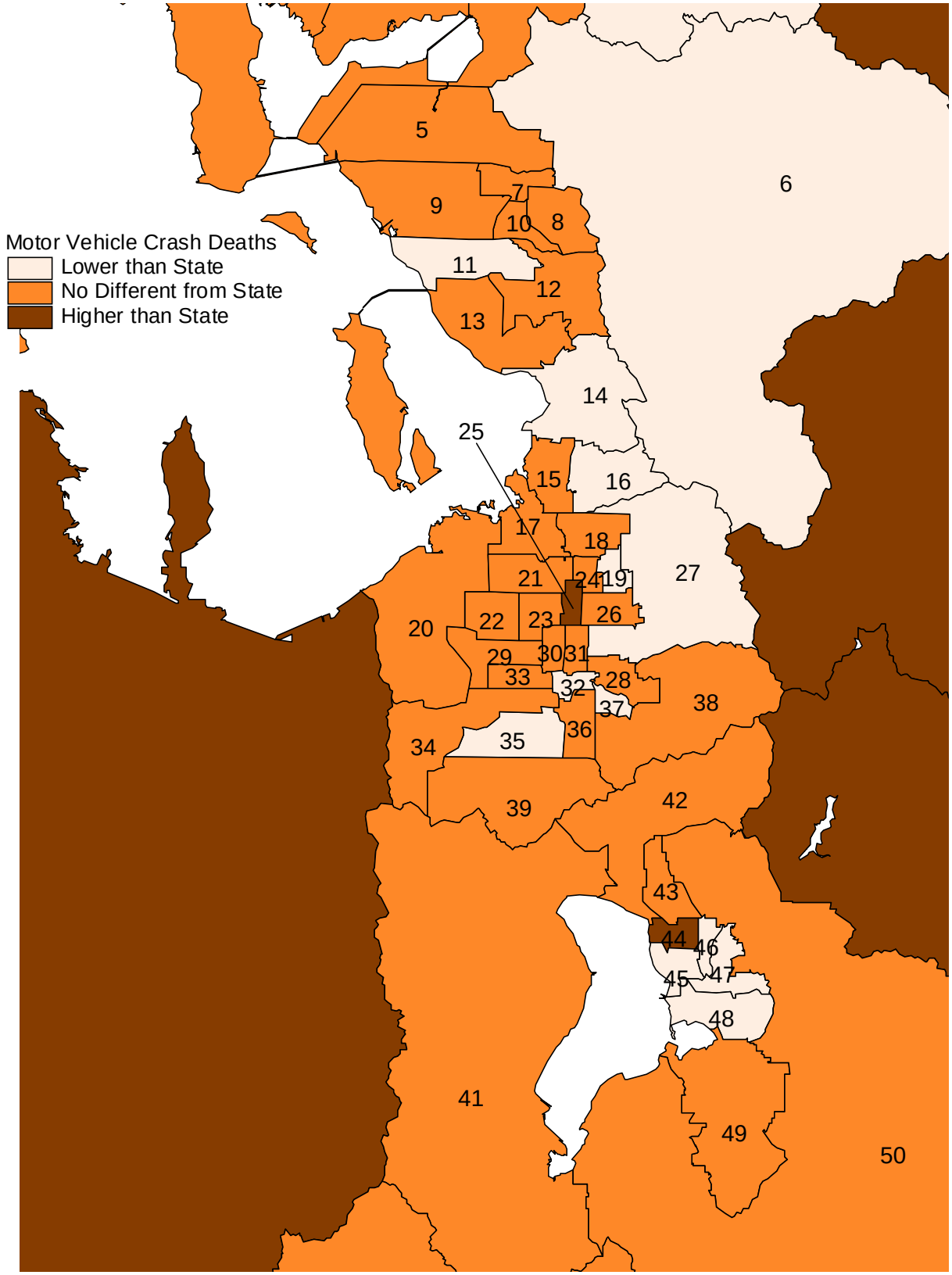
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 47. Average Annual Motor Vehicle Crash Death Rates per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1992-96.



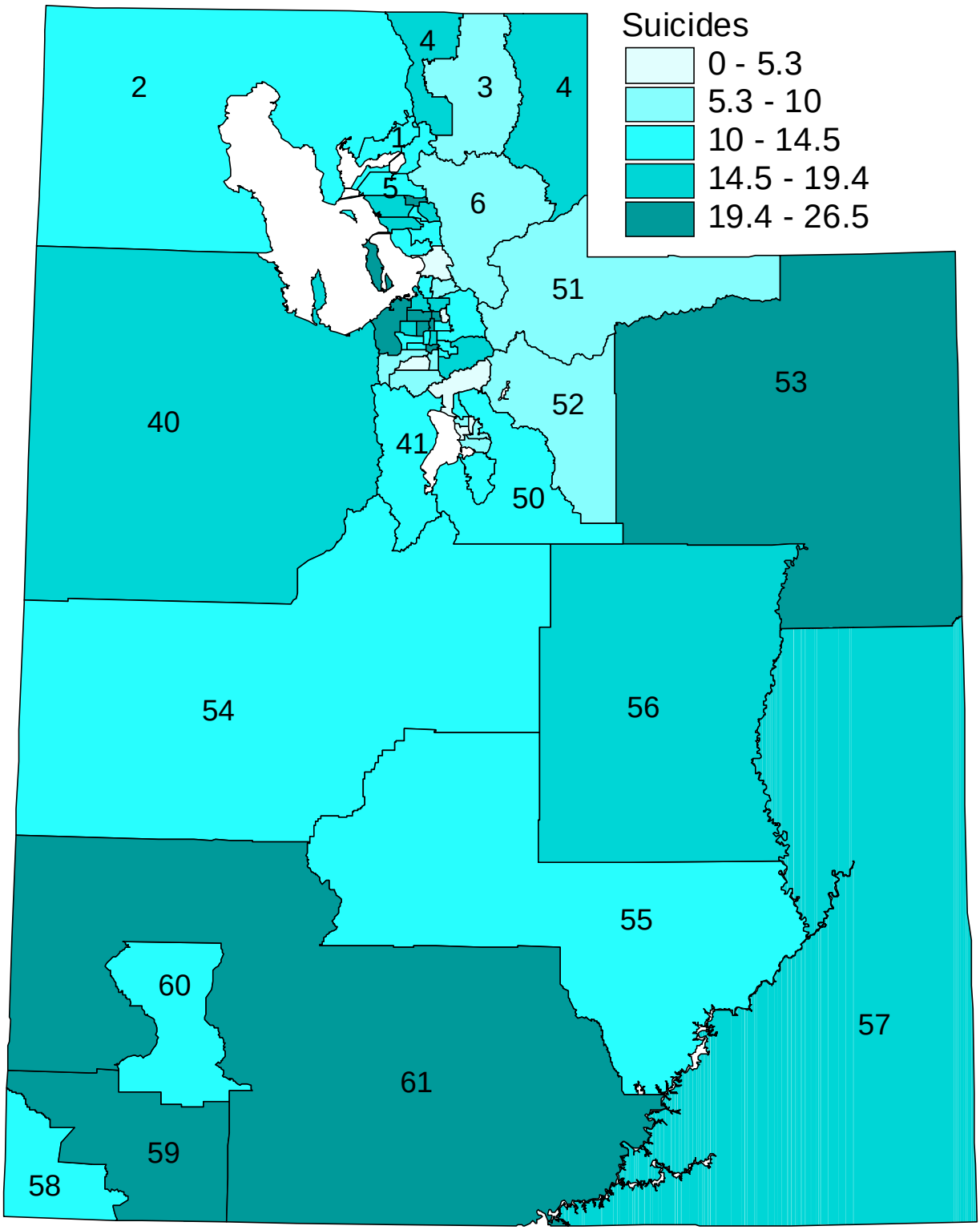
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 48. Average Annual Motor Vehicle Crash Death Rates per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1992-96.



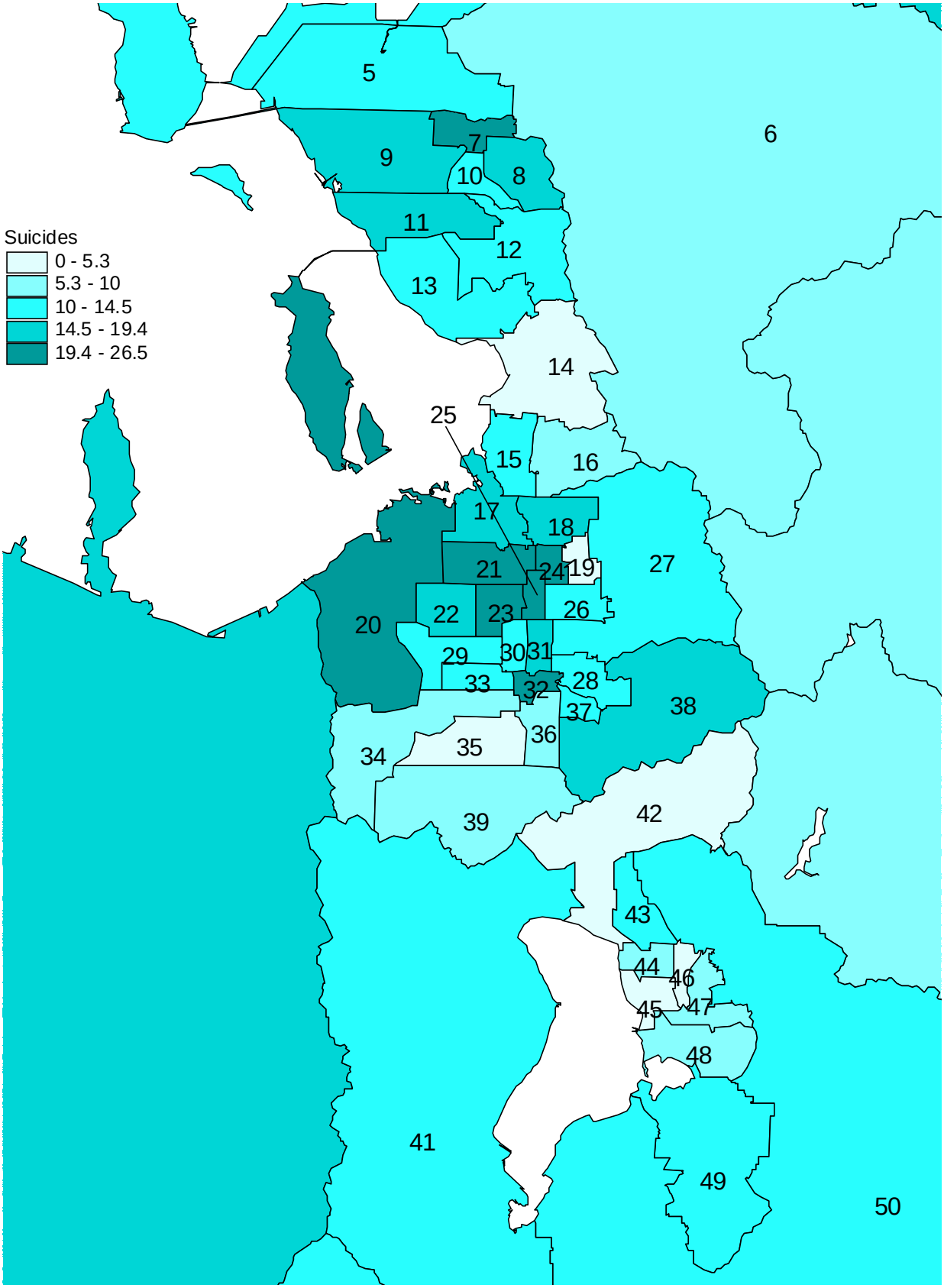
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 49. Average Annual Rates of Suicides per 100,000 Persons. Utah, 1992-96.



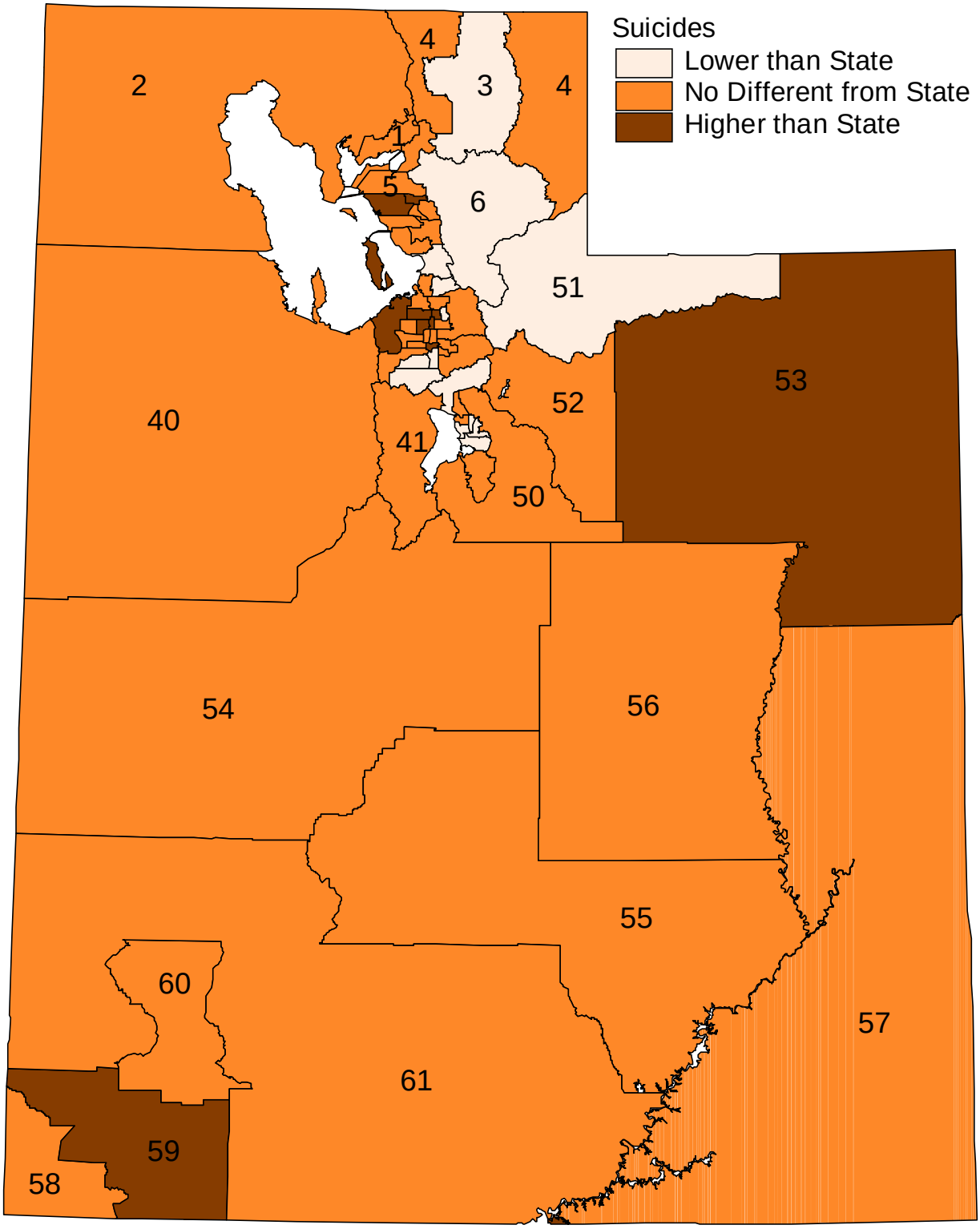
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 50. Average Annual Rates of Suicides per 100,000 Persons. Utah Wasatch Front, 1992-96.



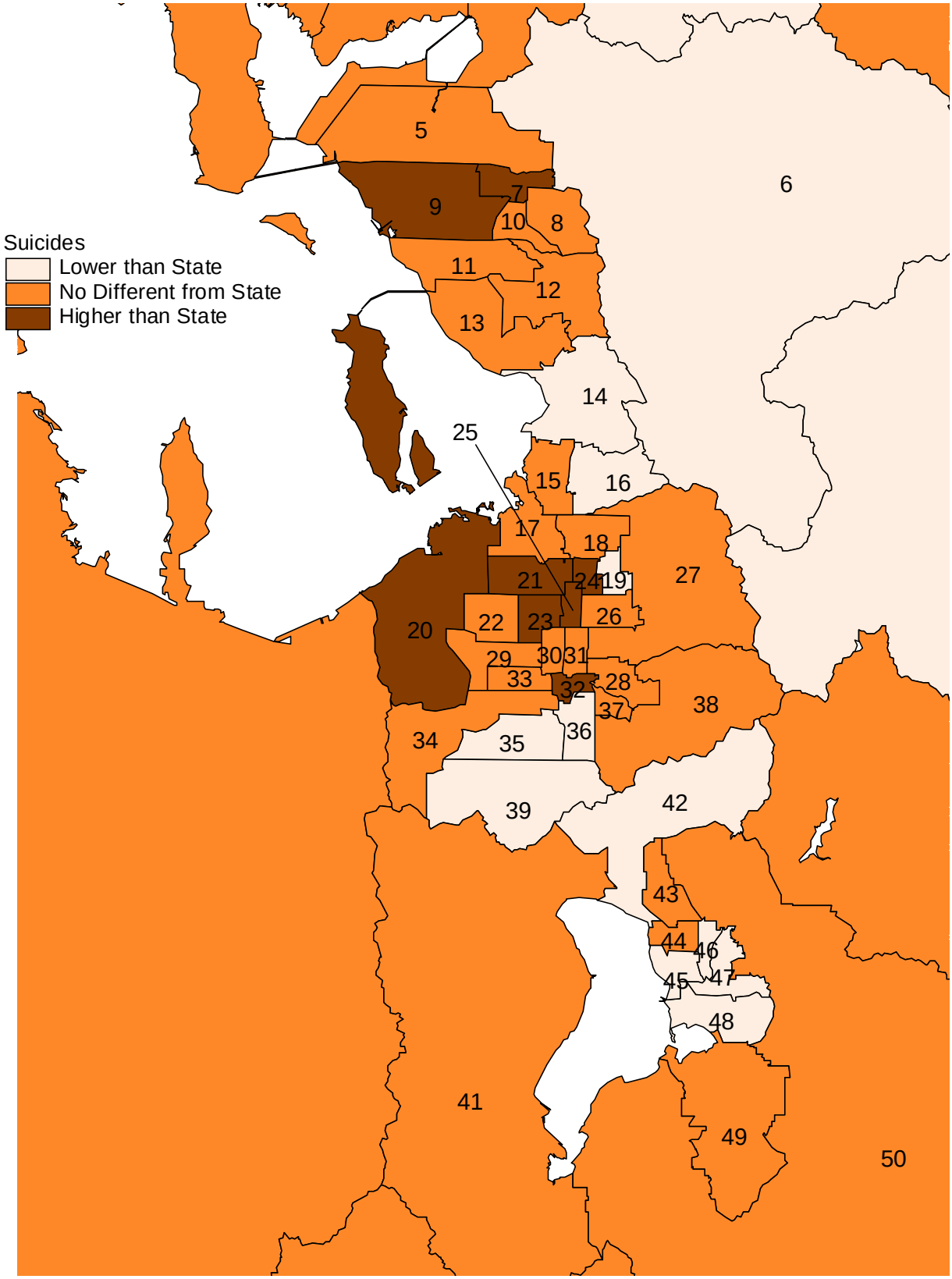
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 51. Average Annual Rates of Suicides per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1992-96.



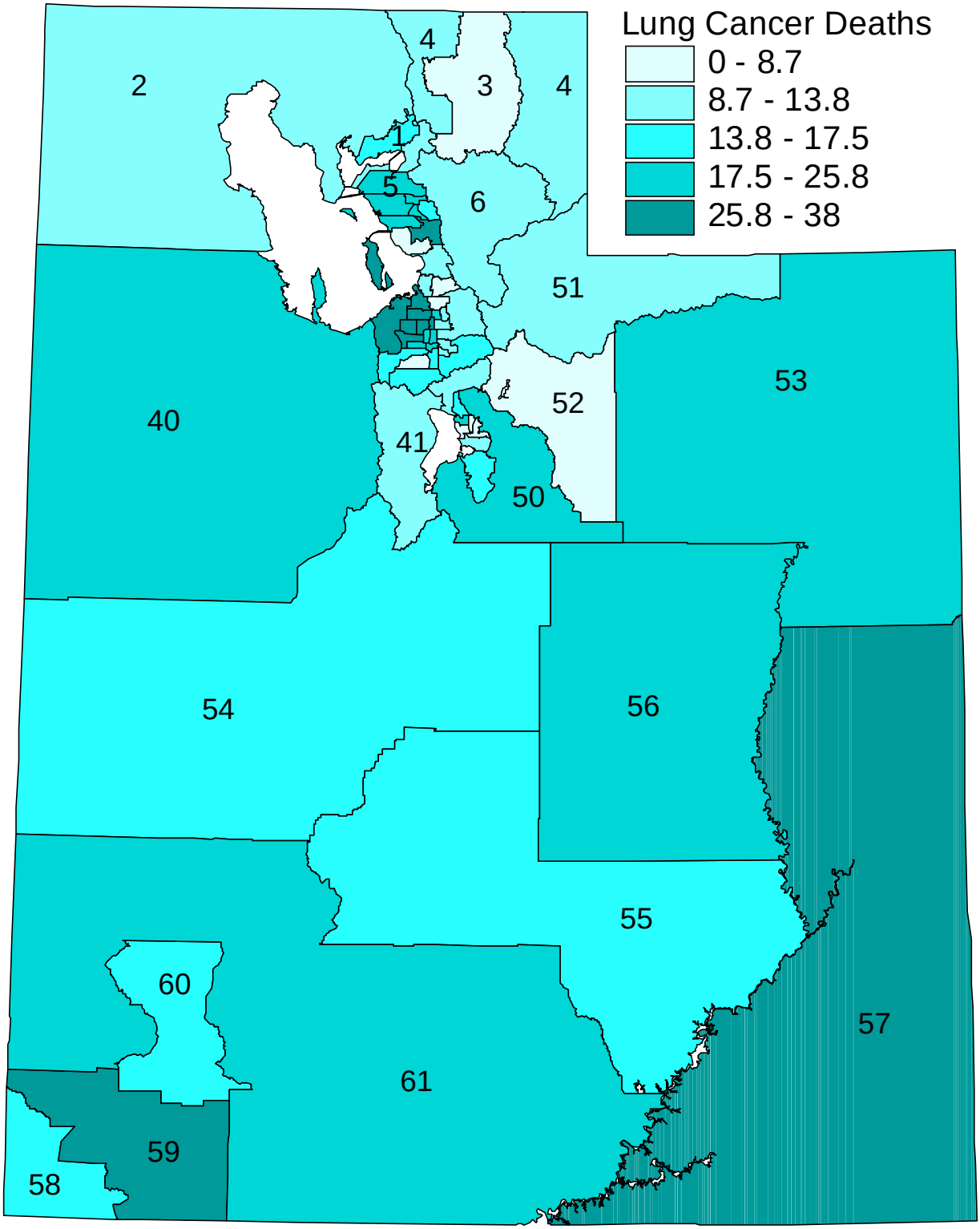
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 52. Average Annual Rates of Suicides per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1992-96.



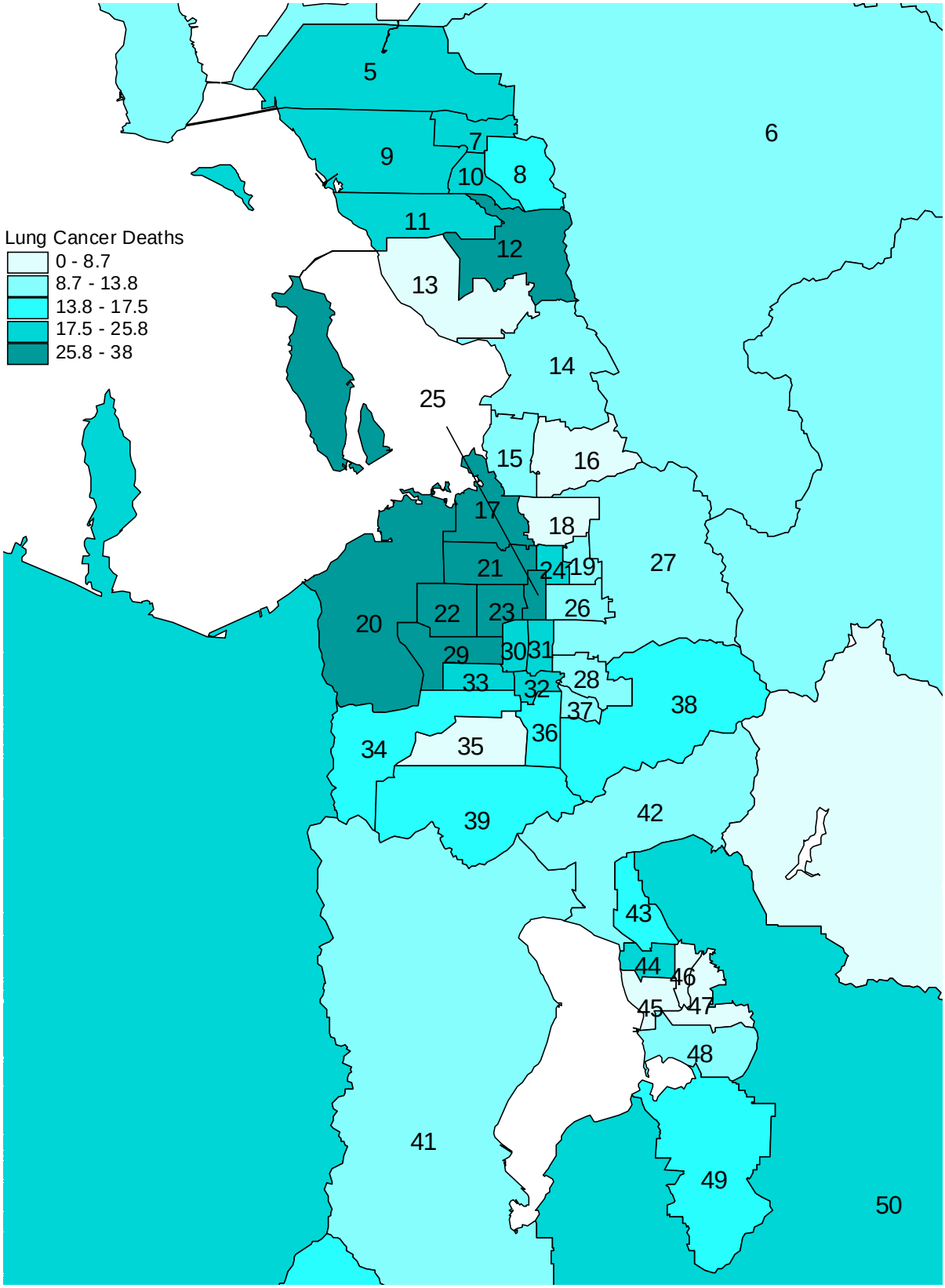
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 53. Average Annual Rates of Death from Lung Cancer per 100,000 Persons. Utah, 1992-96.



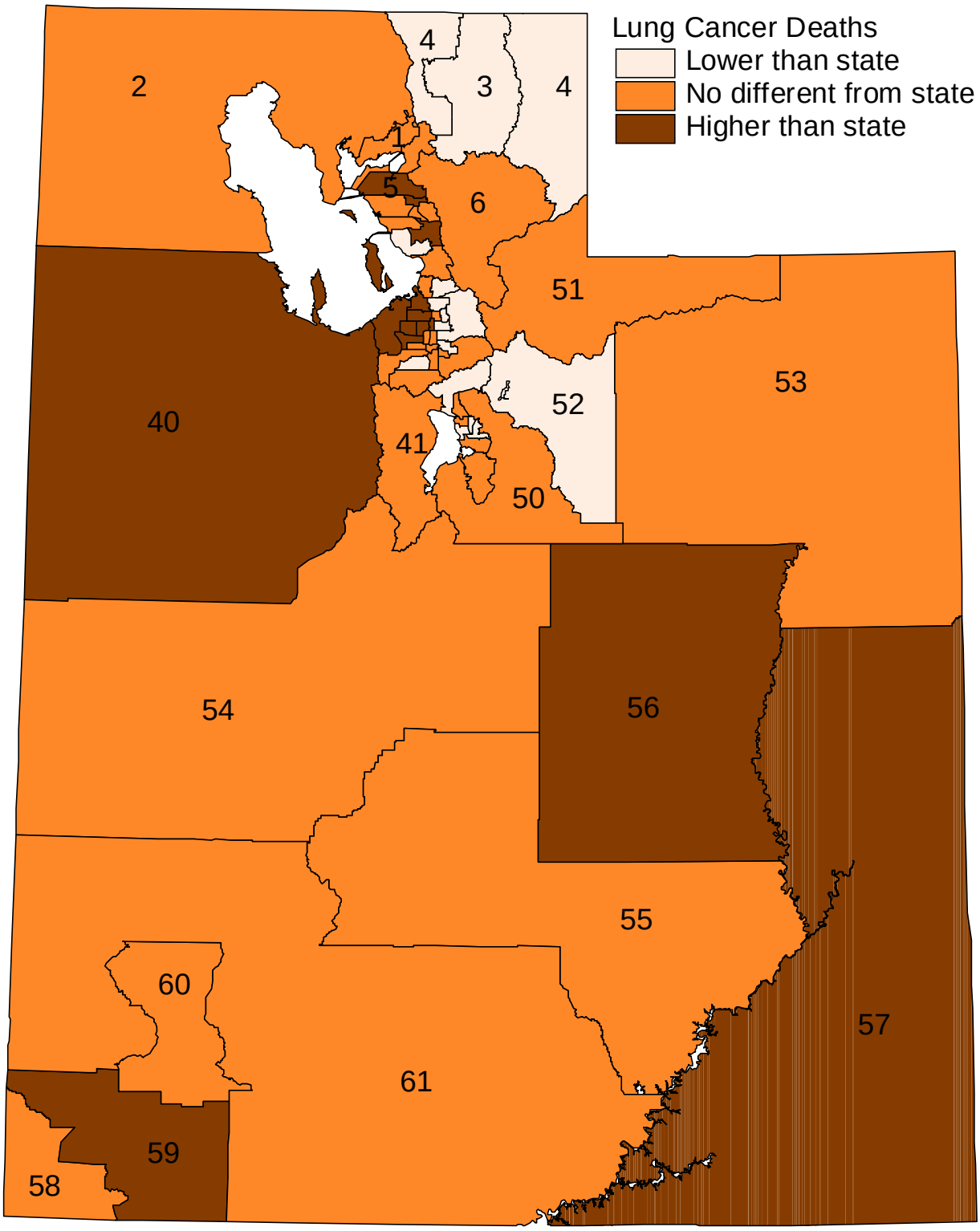
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 54. Average Annual Rates of Death from Lung Cancer per 100,000 Persons.
Utah Wasatch Front, 1992-96.



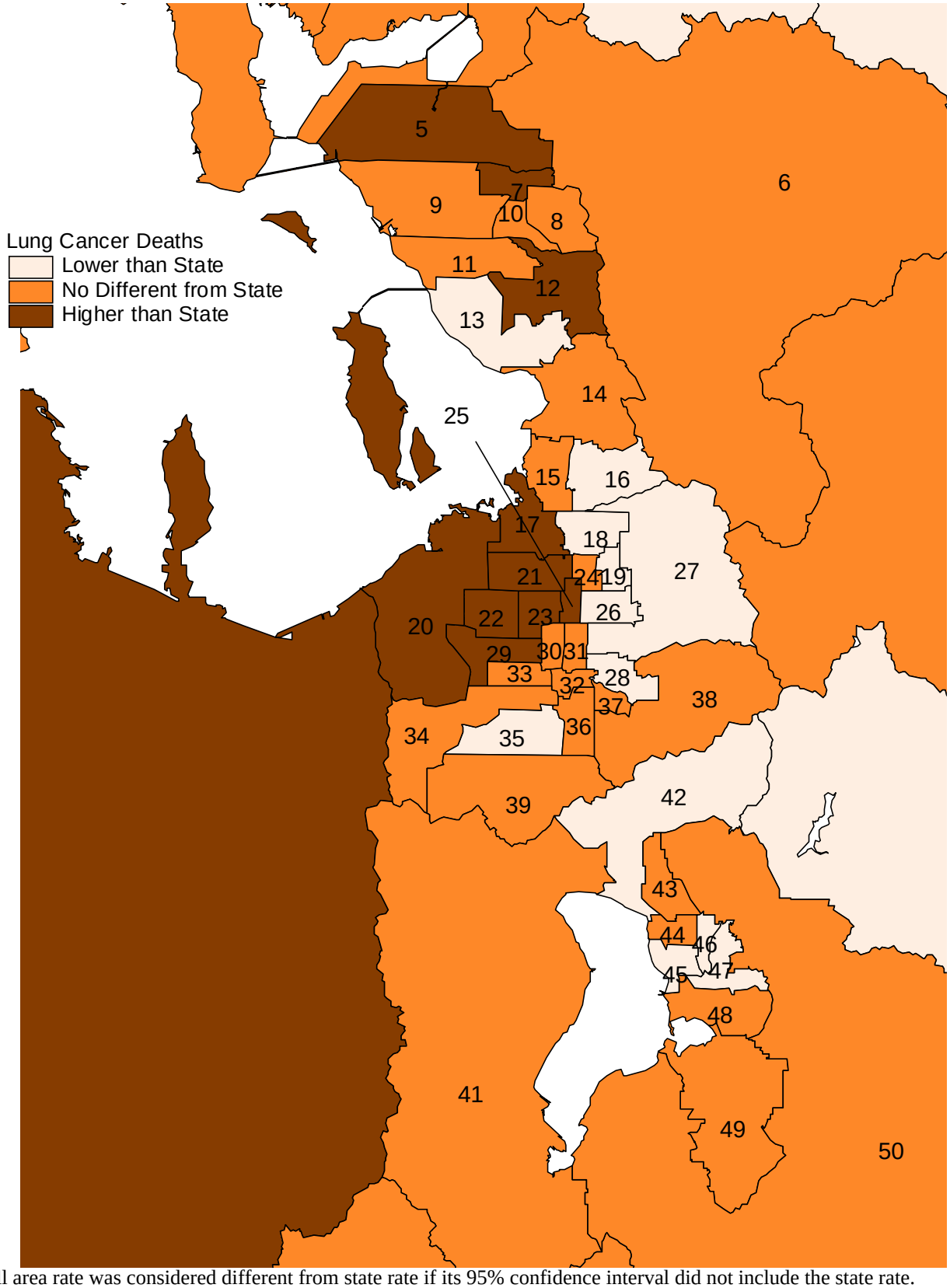
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 55. Average Annual Rates of Death from Lung Cancer per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1992-96.



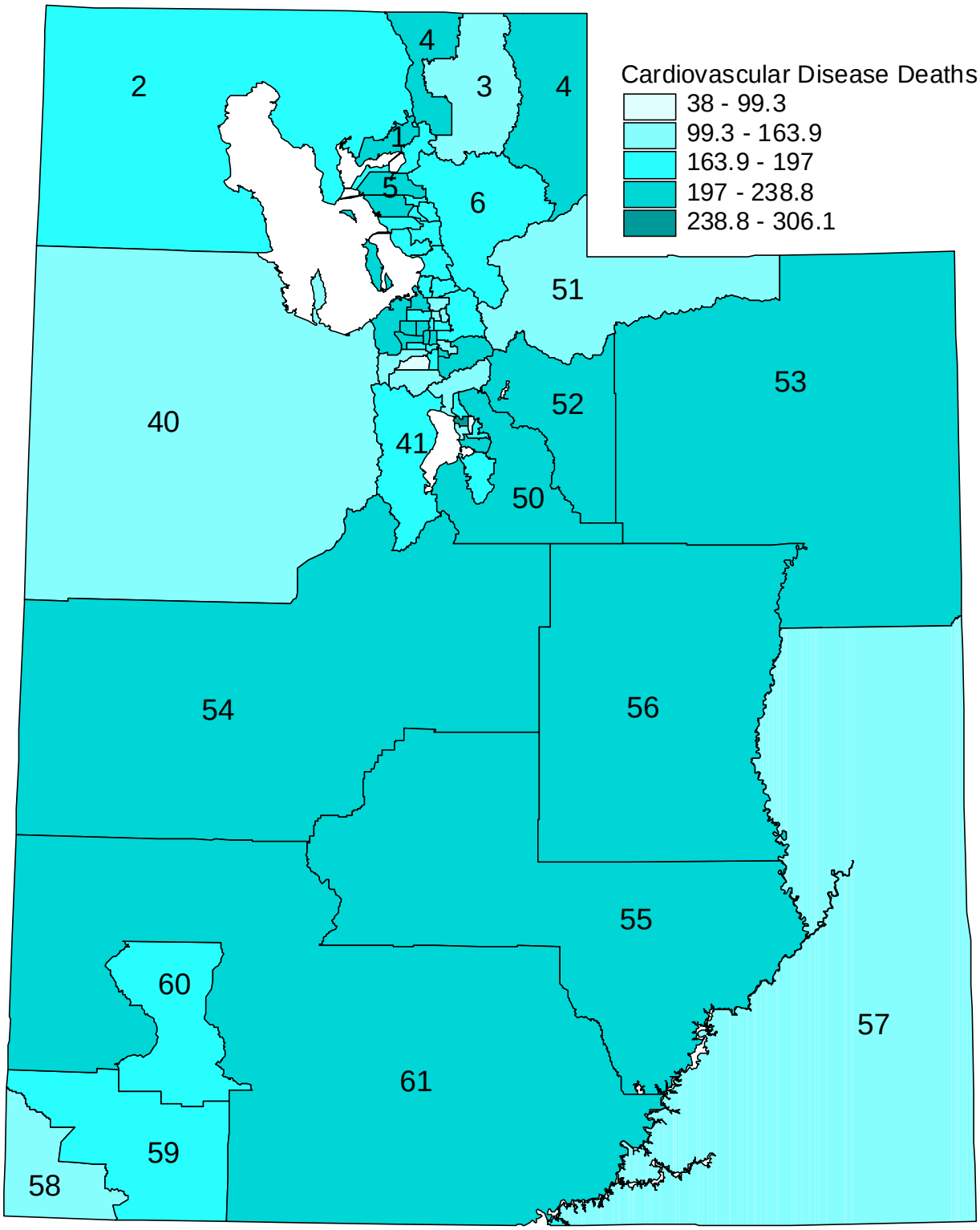
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 56. Average Annual Rates of Death from Lung Cancer per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1992-96.



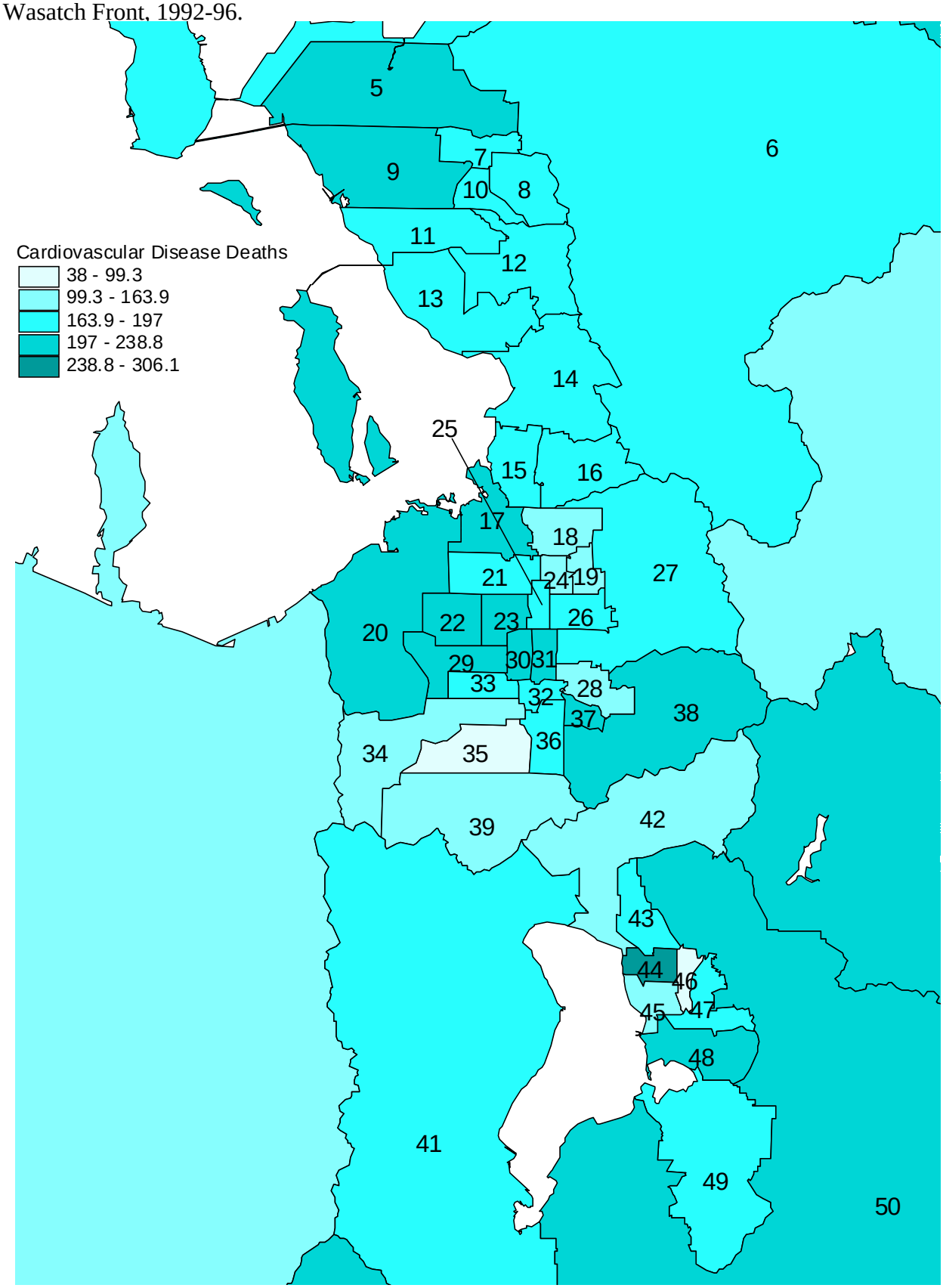
A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 57. Average Annual Rates of Death from Cardiovascular Disease per 100,000 Persons. Utah, 1992-96.



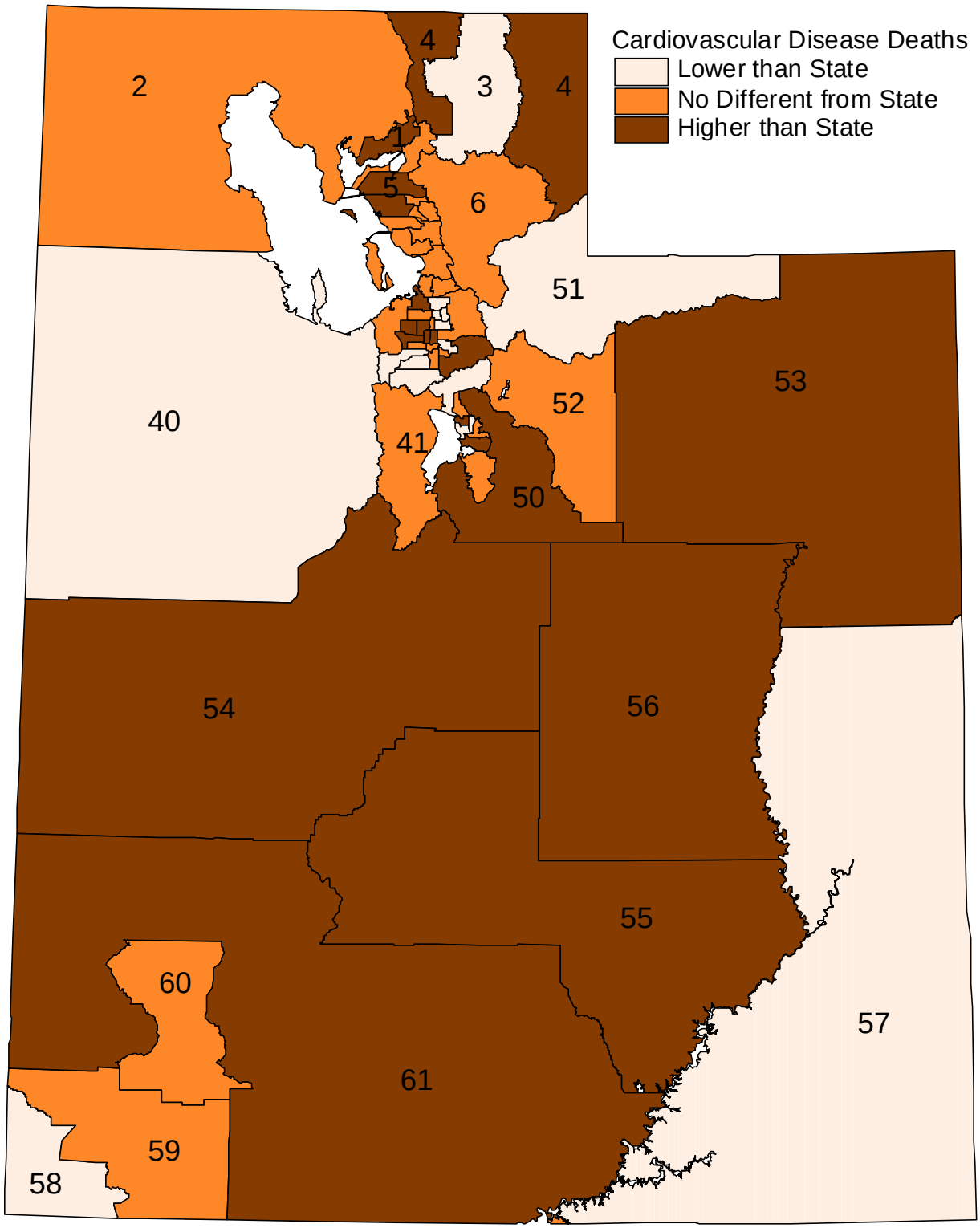
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 58. Average Annual Rates of Death from Cardiovascular Disease per 100,000 Persons. Utah Wasatch Front, 1992-96.



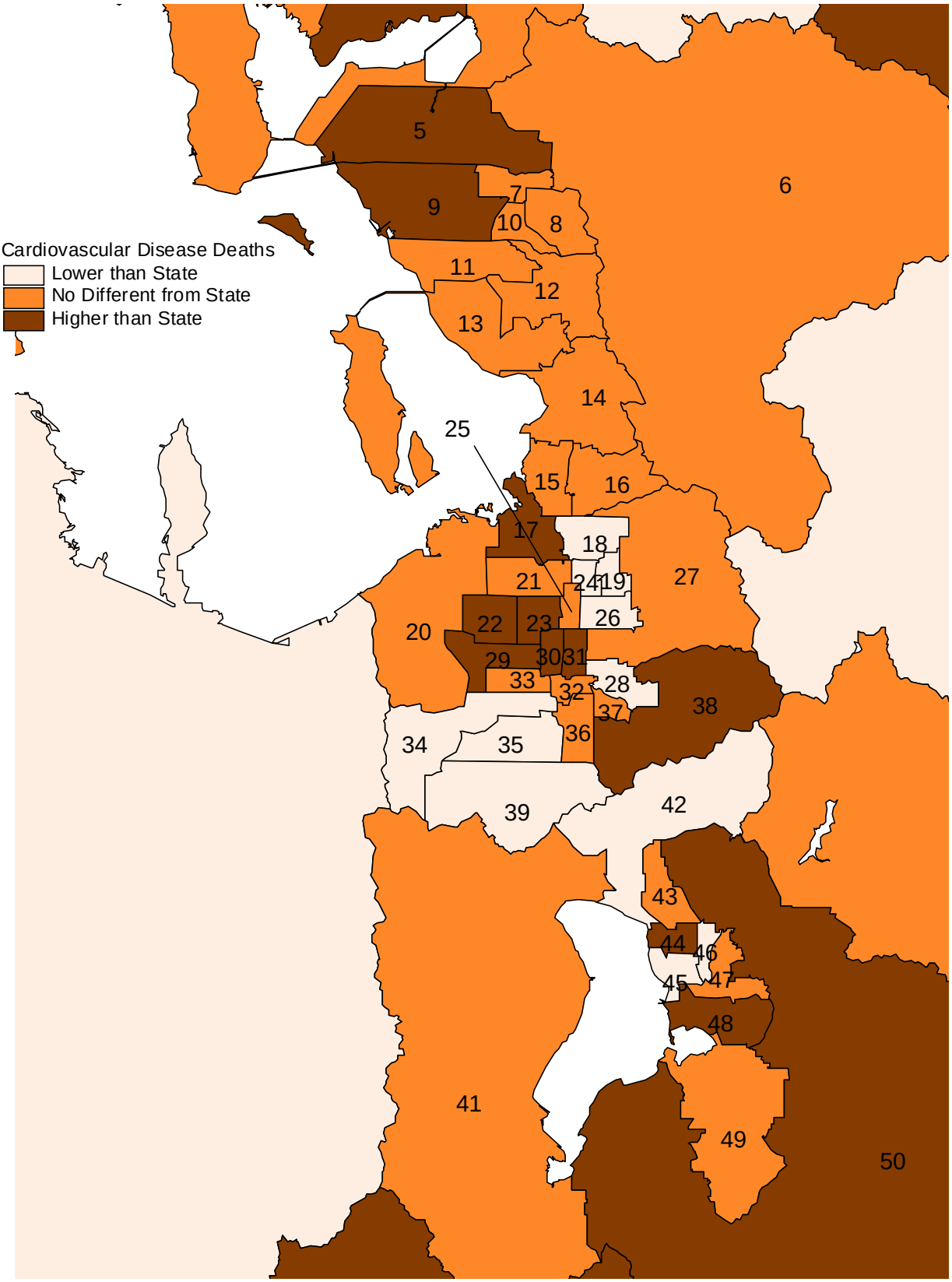
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 59. Average Annual Rates of Death from Cardiovascular Disease per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah, 1992-96.



A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Figure 60. Average Annual Rates of Death from Cardiovascular Disease per 100,000 Persons by Whether the Rate Was Higher, Lower, or Not Different (Statistically) from the State Rate. Utah Wasatch Front, 1992-96.



A small area rate was considered different from state rate if its 95% confidence interval did not include the state rate.
Age-adjusted to the 1990 Utah population using the indirect method.
Data Source: Utah Department of Health, Bureau of Vital Records.
Small area designation was based on residence of decedent.
Numbers on map refer to area labels (see Table 1 or list on back cover).

Reference Tables

General Health Status

Percentage of Persons Who Were Reported To Be in Excellent Health. Utah, 1996.

Area of Residence	Percentage of Persons in Excellent Health	95% Confidence Interval** Lower Limit	Upper Limit
0 State Total	39.3%	38.4%	40.3%
1 Brigham City	40.0%	34.5%	45.6%
2 Other Box Elder Co.	38.2%	33.1%	43.2%
3 Logan	38.7%	35.2%	42.2%
4 Other Cache/Rich Co.	41.8%	37.6%	46.0%
5 Ben Lomond	35.2%	29.6%	40.8%
6 Morgan/East Weber Co.	35.6%	30.2%	41.0%
7 Downtown Ogden	32.0%	25.7%	38.3%
8 South Ogden	38.0%	32.1%	43.8%
9 Roy/Hooper	39.7%	33.9%	45.4%
10 Riverdale	39.9%	33.0%	46.8%
11 Clearfield/Hill AFB	40.2%	35.2%	45.2%
12 Layton	45.6%	40.8%	50.4%
13 Syracuse/Kaysville	45.6%	40.3%	50.9%
14 Farmington/Centerville	41.4%	35.1%	47.8%
15 Woods Cross/North SL	41.7%	33.5%	49.9%
16 Bountiful	46.1%	41.0%	51.2%
17 Rose Park	31.9%	21.3%	42.5%
18 Avenues	39.4%	30.1%	48.6%
19 Foothill/U of U	38.5%	29.6%	47.5%
20 Magna	30.1%	19.8%	40.4%
21 Glendale	39.2%	27.3%	51.2%
22 West Valley West	29.3%	23.1%	35.6%
23 West Valley East	25.1%	16.9%	33.3%
24 Downtown Salt Lake	36.6%	29.5%	43.8%
25 South Salt Lake	44.8%	32.7%	56.9%
26 Millcreek	46.7%	39.2%	54.1%
27 Holladay	40.3%	32.8%	47.9%
28 Cottonwood	52.7%	44.5%	60.9%
29 Kearns	23.3%	17.9%	28.7%

30 Taylorsville	42.2%	33.5%	50.9%
31 Murray	31.9%	22.3%	41.4%
32 Midvale	37.6%	25.5%	49.6%
33 West Jordan No.	42.8%	36.1%	49.5%
34 W. Jordan, Copperton	25.4%	15.5%	35.2%
35 South Jordan	42.1%	31.5%	52.7%
36 Sandy Center	35.3%	28.1%	42.5%
37 Sandy, Northeast	38.8%	29.1%	48.5%
38 Sandy, Southeast	48.6%	38.2%	58.9%
39 Riverton/Draper	47.5%	37.2%	57.8%
40 Tooele Co.	39.2%	36.9%	41.4%
41 Lehi/Cedar Valley	38.2%	29.3%	47.1%
42 American Fork/Alpine	44.1%	36.3%	51.8%
43 Pleasant Grove/Lindon	44.9%	37.1%	52.8%
44 North Orem	44.0%	37.3%	50.6%
45 West Orem	36.3%	29.5%	43.1%
46 East Orem	47.2%	35.4%	59.0%
47 Provo/BYU	52.3%	44.5%	60.1%
48 Provo South	39.5%	33.0%	45.9%
49 Springville/Spanish Fork	44.4%	38.1%	50.6%
50 Utah Co. South	38.1%	30.2%	45.9%
51 Summit Co.	52.2%	49.9%	54.5%
52 Wasatch Co.	42.8%	41.0%	44.6%
53 Tri-county LHD	39.1%	36.9%	41.3%
54 Juab/Millard/Sanpete Co.	36.9%	34.2%	39.6%
55 Sevier/Piute/Wayne Co.	40.3%	36.4%	44.2%
56 Carbon/Emery Co.	33.5%	30.9%	36.1%
57 Grand/San Juan Co.	35.7%	31.8%	39.6%
58 St. George	40.9%	36.6%	45.3%
59 Other Washington Co.	39.8%	35.3%	44.3%
60 Cedar City	41.5%	36.3%	46.8%
61 Other Southwest	41.1%	35.6%	46.6%

* Percentages have been age-adjusted to the Utah 1996 population.
** 95% confidence intervals have been calculated with SUDAAN software.
Source: Utah Department of Health, 1996 Utah Health Status Survey

Cigarette Smoking

Percentage of Persons Who Smoked Cigarettes. Utah, 1996.

Area of Residence	Percentage of persons who smoked cigarettes*	95% Confidence Interval** Lower Limit	Upper Limit
0 State Total	12.3%	11.4%	13.1%
1 Brigham City	9.7%	5.2%	14.1%
2 Other Box Elder Co.	13.0%	8.0%	18.1%
3 Logan	4.8%	2.8%	6.8%
4 Other Cache/Rich Co.	7.2%	4.0%	10.3%
5 Ben Lomond	18.7%	12.9%	24.4%
6 Morgan/East Weber Co.	9.6%	4.9%	14.4%
7 Downtown Ogden	28.2%	20.7%	35.7%
8 South Ogden	9.4%	5.1%	13.7%
9 Roy/Hooper	16.4%	10.8%	22.0%
10 Riverdale	12.4%	6.0%	18.8%
11 Clearfield/Hill AFB	15.5%	10.3%	20.8%
12 Layton	14.0%	9.2%	18.7%
13 Syracuse/Kaysville	8.5%	4.3%	12.8%
14 Farmington/Centerville	2.9%	0.1%	5.7%
15 Woods Cross/North SL	8.3%	2.2%	14.4%
16 Bountiful	8.8%	4.5%	13.0%
17 Rose Park	23.6%	11.0%	36.2%
18 Avenues	6.3%	0.0%	12.9%
19 Foothill/U of U	6.1%	0.3%	11.9%
20 Magna	34.8%	21.6%	48.1%
21 Glendale	22.3%	11.1%	33.5%
22 West Valley West	21.9%	14.7%	29.0%
23 West Valley East	21.3%	12.3%	30.2%
24 Downtown Salt Lake	19.0%	12.6%	25.4%
25 South Salt Lake	34.0%	19.4%	48.7%
26 Millcreek	9.9%	3.8%	16.0%
27 Holladay	8.4%	3.2%	13.5%
28 Cottonwood	7.6%	2.3%	12.9%
29 Kearns	20.6%	13.5%	27.8%

30 Taylorsville	14.5%	5.2%	23.8%
31 Murray	18.5%	8.5%	28.5%
32 Midvale	12.6%	3.6%	21.6%
33 West Jordan No.	11.9%	5.3%	18.5%
34 W. Jordan, Copperton	13.4%	4.2%	22.5%
35 South Jordan	0.1%	0.0%	0.2%
36 Sandy Center	6.1%	0.8%	11.4%
37 Sandy, Northeast	5.2%	0.0%	10.8%
38 Sandy, Southeast	7.1%	0.8%	13.3%
39 Riverton/Draper	1.5%	0.0%	4.3%
40 Tooele Co.	22.2%	19.7%	24.7%
41 Lehi/Cedar Valley	16.7%	6.9%	26.5%
42 American Fork/Alpine	0.8%	0.0%	1.9%
43 Pleasant Grove/Lindon	5.8%	1.0%	10.6%
44 North Orem	6.0%	1.0%	11.0%
45 West Orem	5.5%	0.5%	10.4%
46 East Orem	3.7%	0.0%	8.5%
47 Provo/BYU	3.2%	0.0%	6.6%
48 Provo South	7.4%	2.4%	12.4%
49 Springville/Spanish Fork	9.5%	4.5%	14.4%
50 Utah Co. South	11.5%	4.1%	18.9%
51 Summit Co.	7.6%	6.0%	9.2%
52 Wasatch Co.	11.8%	10.2%	13.4%
53 Tri-county LHD	18.4%	16.0%	20.8%
54 Juab/Millard/Sanpete Co.	11.9%	9.4%	14.4%
55 Sevier/Piute/Wayne Co.	15.3%	11.4%	19.2%
56 Carbon/Emery Co.	21.2%	18.1%	24.3%
57 Grand/San Juan Co.	13.6%	9.8%	17.4%
58 St. George	9.2%	5.8%	12.5%
59 Other Washington Co.	16.0%	11.3%	20.7%
60 Cedar City	5.4%	2.2%	8.5%
61 Other Southwest	19.2%	13.4%	25.0%

* Percentages have been age-adjusted to the Utah 1996 population.
** 95% confidence intervals have been calculated with SUDAAN software.
Source: Utah Department of Health, 1996 Utah Health Status Survey

Health Insurance

Percentage of Persons Who Were Without Health Insurance. Utah, 1996.

Area of Residence	Percentage of persons who were uninsured*	95% Confidence Interval** Lower Limit	Upper Limit
0 State Total	9.3%	8.7%	9.9%
1 Brigham City	9.6%	5.7%	13.5%
2 Other Box Elder Co.	3.8%	1.7%	5.9%
3 Logan	9.2%	7.1%	11.3%
4 Other Cache/Rich Co.	6.2%	4.0%	8.4%
5 Ben Lomond	12.1%	8.2%	15.9%
6 Morgan/East Weber Co.	5.6%	2.7%	8.5%
7 Downtown Ogden	19.6%	13.6%	25.7%
8 South Ogden	7.2%	3.6%	10.8%
9 Roy/Hooper	9.3%	5.8%	12.8%
10 Riverdale	1.2%	0.0%	2.8%
11 Clearfield/Hill AFB	6.1%	3.5%	8.7%
12 Layton	4.9%	2.6%	7.2%
13 Syracuse/Kaysville	3.2%	1.0%	5.4%
14 Farmington/Centerville	3.4%	0.9%	5.8%
15 Woods Cross/North SL	6.1%	1.8%	10.5%
16 Bountiful	5.1%	2.6%	7.6%
17 Rose Park	19.3%	10.6%	28.0%
18 Avenues	0.0%	0.0%	0.0%
19 Foothill/U of U	2.8%	0.0%	5.8%
20 Magna	6.7%	0.4%	13.0%
21 Glendale	20.0%	11.0%	29.0%
22 West Valley West	8.2%	4.3%	12.1%
23 West Valley East	20.7%	12.9%	28.5%
24 Downtown Salt Lake	18.0%	11.5%	24.5%
25 South Salt Lake	17.2%	8.3%	26.1%
26 Millcreek	4.7%	1.3%	8.0%
27 Holladay	5.0%	1.5%	8.4%
28 Cottonwood	7.4%	2.5%	12.3%
29 Kearns	8.4%	4.7%	12.1%

30 Taylorsville	12.8%	7.0%	18.6%
31 Murray	14.8%	7.6%	22.0%
32 Midvale	4.3%	0.0%	9.0%
33 West Jordan No.	16.2%	11.3%	21.1%
34 W. Jordan, Copperton	7.3%	2.3%	12.4%
35 South Jordan	8.1%	1.5%	14.6%
36 Sandy Center	20.0%	14.1%	25.8%
37 Sandy, Northeast	6.6%	0.0%	14.0%
38 Sandy, Southeast	5.9%	2.2%	9.6%
39 Riverton/Draper	8.1%	1.4%	14.7%
40 Tooele Co.	8.5%	7.1%	10.0%
41 Lehi/Cedar Valley	14.2%	7.2%	21.1%
42 American Fork/Alpine	3.5%	0.6%	6.4%
43 Pleasant Grove/Lindon	7.8%	2.7%	13.0%
44 North Orem	10.2%	6.3%	14.1%
45 West Orem	7.5%	3.5%	11.5%
46 East Orem	2.0%	0.0%	5.6%
47 Provo/BYU	9.8%	5.3%	14.3%
48 Provo South	8.6%	4.8%	12.3%
49 Springville/Spanish Fork	11.1%	7.0%	15.2%
50 Utah Co. South	10.1%	5.2%	15.0%
51 Summit Co.	6.7%	5.5%	7.8%
52 Wasatch Co.	13.1%	11.8%	14.4%
53 Tri-county LHD	16.7%	14.8%	18.5%
54 Juab/Millard/Sanpete Co.	13.9%	11.8%	15.9%
55 Sevier/Piute/Wayne Co.	15.5%	12.4%	18.6%
56 Carbon/Emery Co.	9.8%	8.0%	11.5%
57 Grand/San Juan Co.	16.5%	13.2%	19.8%
58 St. George	13.2%	10.0%	16.3%
59 Other Washington Co.	14.9%	11.3%	18.5%
60 Cedar City	12.7%	9.0%	16.4%
61 Other Southwest	24.3%	19.3%	29.2%

* Percentages have been age-adjusted to the Utah 1996 population.
** 95% confidence intervals have been calculated with SUDAAN software.
Source: Utah Department of Health, 1996 Utah Health Status Survey

Birth and Fertility Rates

Crude Birth Rate and General Fertility
By Area of Residence
Utah, 1994-96

	Area of Residence	# of Live Births*	Crude Birth Rate**	95% Confidence Interval** Lower Limit	95% Confidence Interval** Upper Limit	General Fert. Rate***	95% Confidence Interval Lower Limit	95% Confidence Interval Upper Limit
0	State Total	39,871	20.4	20.2	20.5	85.3	84.9	85.8
1	Brigham City	343	18.6	17.4	19.7	91.5	85.9	97.1
2	Other Box Elder Co.	350	17.2	16.2	18.3	85.5	80.3	90.7
3	Logan	1,262	22.0	21.3	22.7	81.2	78.6	83.8
4	Other Cache/Rich Co.	652	25.5	24.4	26.7	118.1	112.9	123.4
5	Ben Lomond	745	19.3	18.5	20.1	86.1	82.5	89.7
6	Morgan/East Weber Co.	433	13.9	13.1	14.6	63.6	60.1	67.0
7	Downtown Ogden	675	27.9	26.7	29.1	126.7	121.2	132.2
8	South Ogden	649	21.7	20.7	22.6	93.3	89.2	97.5
9	Roy/Hooper	661	19.0	18.1	19.8	78.8	75.3	82.2
10	Riverdale	420	18.2	17.2	19.2	79.2	74.8	83.5
11	Clearfield/Hill AFB	878	19.8	19.1	20.6	81.9	78.8	85.0
12	Layton	1,115	21.8	21.1	22.6	86.6	83.7	89.6
13	Syracuse/Kaysville	551	19.8	18.8	20.7	85.9	81.8	90.1
14	Farmington/Centerville	420	17.5	16.6	18.5	74.6	70.5	78.7
15	Woods Cross/No SL	335	19.7	18.5	20.9	82.9	77.8	88.0
16	Bountiful	780	18.0	17.3	18.8	83.4	80.1	86.8
17	Rose Park	643	25.4	24.2	26.5	108.1	103.3	112.9
18	Avenues	375	16.4	15.4	17.4	63.6	59.9	67.3
19	Foothill/U of U	434	19.4	18.4	20.5	82.6	78.1	87.1
20	Magna	428	21.9	20.7	23.1	94.5	89.3	99.6
21	Glendale	569	28.3	26.9	29.6	137.7	131.2	144.2
22	West Valley West	1,193	21.1	20.4	21.8	84.7	81.9	87.5
23	West Valley East	888	22.6	21.7	23.4	86.8	83.5	90.1
24	Downtown Salt Lake	960	20.3	19.6	21.0	79.7	76.8	82.6
25	South Salt Lake	591	26.8	25.6	28.1	110.5	105.3	115.6
26	Millcreek	1,055	19.2	18.5	19.9	89.2	86.1	92.3
27	Holladay	675	14.9	14.2	15.5	69.6	66.5	72.6
28	Cottonwood	584	13.1	12.5	13.7	56.3	53.6	58.9
29	Kearns	1,263	20.8	20.2	21.5	83.9	81.2	86.6

30 Taylorsville	635	19.7	18.9	20.6	76.2	72.7	79.6
31 Murray	582	19.8	18.8	20.7	80.5	76.7	84.2
32 Midvale	600	22.7	21.7	23.8	90.4	86.2	94.6
33 West Jordan No.	911	21.5	20.7	22.3	84.3	81.1	87.5
34 W. Jordan, Copperton	652	24.3	23.2	25.4	97.6	93.2	101.9
35 South Jordan	309	11.0	10.3	11.7	48.8	45.6	51.9
36 Sandy Center	998	19.6	18.9	20.3	79.8	76.9	82.6
37 Sandy, NE	345	12.3	11.5	13.0	49.9	46.9	53.0
38 Sandy, SE	409	12.6	11.9	13.3	50.8	48.0	53.7
39 Riverton/Draper	718	20.9	20.0	21.8	98.4	94.2	102.6
40 Tooele Co.	544	18.5	17.6	19.4	81.9	77.9	85.9
41 Lehi/Cedar Valley	388	27.7	26.1	29.3	122.8	115.8	129.9
42 American Fork/Alpine	677	20.9	20.0	21.8	91.4	87.4	95.4
43 Pleasant Grove/Lindon	612	24.9	23.8	26.1	107.0	102.1	111.9
44 North Orem	1,150	34.7	33.6	35.9	141.5	136.7	146.2
45 West Orem	532	20.6	19.9	21.4	81.1	78.0	84.1
46 East Orem	16	0.6	0.3	0.9	2.6	1.4	3.8
47 Provo/BYU	950	20.7	20.0	21.5	61.3	59.0	63.5
48 Provo South	1,686	36.5	35.5	37.5	105.5	102.6	108.4
49 Springville/Spanish Fork	1,091	25.7	24.8	26.6	114.7	110.8	118.7
50 Utah Co. South	440	23.2	22.0	24.5	105.0	99.3	110.6
51 Summit Co.	350	15.3	14.3	16.2	62.7	58.9	66.5
52 Wasatch Co.	222	18.8	17.3	20.2	86.9	80.3	93.5
53 Tri-county LHD	661	17.3	16.5	18.0	79.5	76.0	83.0
54 Juab/Millard/Sanpete Co.	641	16.9	16.2	17.7	81.3	77.7	84.9
55 Sevier/Piute/Wayne Co.	339	16.4	15.4	17.4	84.9	79.6	90.1
56 Carbon/Emery Co.	459	14.8	14.0	15.6	67.8	64.2	71.4
57 Grand/San Juan Co.	390	19.0	17.9	20.0	85.2	80.4	90.1
58 St. George	775	16.9	16.2	17.6	80.0	76.7	83.2
59 Other Washington Co.	575	23.5	22.4	24.6	121.3	115.5	127.0
60 Cedar City	482	21.3	20.2	22.4	83.4	79.1	87.7
61 Other Southwest Dist	340	18.3	17.2	19.4	96.6	90.7	102.5

* Average annual Number of Births
** Average Annual Crude Birth Rate per 1,000 Population
*** Average annual General Fertility Rate (Number of Births /1,000 Women age 15-44)
Note: Upper and Lower Limits Reflect a 95% Confidence Interval
SOURCE: Utah Birth Certificate Data, Utah Department of Health.

Adolescent Births

Number of Births to Adolescents, Live Births, and Rate of Births to Adolescents
By Area of Residence
Utah, 1994-96

	Area of Residence	# of Live Births*	# Births to Adolescents**	% of Births to Adolescents***	95% Confidence Interval Lower Limit	95% Confidence Interval Upper Limit
0	State Total	119,611	4,518	3.8	3.7	3.9
1	Brigham City	1,028	47	4.6	3.4	6.1
2	Other Box Elder Co.	1,049	46	4.4	3.3	5.9
3	Logan	3,786	69	1.8	1.4	2.3
4	Other Cache/Rich Co.	1,956	68	3.5	2.7	4.4
5	Ben Lomond	2,236	148	6.6	5.6	7.7
6	Morgan/East Weber Co.	1,300	38	2.9	2.1	4.0
7	Downtown Ogden	2,025	170	8.4	7.2	9.7
8	South Ogden	1,947	109	5.6	4.6	6.7
9	Roy/Hooper	1,984	102	5.1	4.2	6.2
10	Riverdale	1,260	49	3.9	2.9	5.1
11	Clearfield/Hill AFB	2,635	134	5.1	4.3	6.0
12	Layton	3,344	132	3.9	3.3	4.7
13	Syracuse/Kaysville	1,654	33	2.0	1.4	2.8
14	Farmington/Centerville	1,260	29	2.3	1.6	3.3
15	Woods Cross/No SL	1,005	38	3.8	2.7	5.2
16	Bountiful	2,341	34	1.5	1.0	2.0
17	Rose Park	1,928	120	6.2	5.2	7.4
18	Avenues	1,124	38	3.4	2.4	4.7
19	Foothill/U of U	1,302	6	0.5	0.2	1.1
20	Magna	1,284	96	7.5	6.1	9.1
21	Glendale	1,708	113	6.6	5.5	7.9
22	West Valley West	3,579	214	6.0	5.2	6.8
23	West Valley East	2,663	158	5.9	5.1	6.9
24	Downtown Salt Lake	2,880	110	3.8	3.2	4.6
25	South Salt Lake	1,773	92	5.2	4.2	6.4
26	Millcreek	3,165	62	2.0	1.5	2.5
27	Holladay	2,026	46	2.3	1.7	3.0
28	Cottonwood	1,751	35	2.0	1.4	2.8
29	Kearns	3,789	183	4.8	4.2	5.6

30 Taylorsville	1,906	75	3.9	3.1	4.9
31 Murray	1,746	46	2.6	2.0	3.5
32 Midvale	1,800	78	4.3	3.5	5.4
33 West Jordan No.	2,733	101	3.7	3.0	4.5
34 W. Jordan, Copperton	1,957	55	2.8	2.1	3.7
35 South Jordan	928	29	3.1	2.1	4.5
36 Sandy Center	2,995	81	2.7	2.2	3.4
37 Sandy, NE	1,035	21	2.0	1.3	3.1
38 Sandy, SE	1,227	25	2.0	1.4	3.0
39 Riverton/Draper	2,155	71	3.3	2.6	4.2
40 Tooele Co.	1,633	121	7.4	6.2	8.8
41 Lehi/Cedar Valley	1,163	35	3.0	2.1	4.2
42 American Fork/Alpine	2,031	48	2.4	1.8	3.1
43 Pleasant Grove/Lindon	1,836	56	3.1	2.3	4.0
44 North Orem	3,451	99	2.9	2.3	3.5
45 West Orem	2,731	59	2.2	1.7	2.8
46 East Orem	17	2	11.8	2.1	37.7
47 Provo/BYU	2,851	35	1.2	0.9	1.7
48 Provo South	5,059	103	2.0	1.7	2.5
49 Springville/Spanish Fork	3,274	88	2.7	2.2	3.3
50 Utah Co. South	1,320	45	3.4	2.5	4.6
51 Summit Co.	1,049	24	2.3	1.5	3.4
52 Wasatch Co.	666	31	4.7	3.2	6.6
53 Tri-county LHD	1,984	110	5.5	4.6	6.7
54 Juab/Millard/Sanpete Co.	1,922	89	4.6	3.8	5.7
55 Sevier/Piute/Wayne Co.	1,017	62	6.1	4.7	7.8
56 Carbon/Emery Co.	1,376	95	6.9	5.6	8.4
57 Grand/San Juan Co.	1,170	68	5.8	4.6	7.4
58 St. George	2,325	83	3.6	2.9	4.4
59 Other Washington Co.	1,724	59	3.4	2.6	4.4
60 Cedar City	1,446	43	3.0	2.2	4.0
61 Other Southwest Dist	1,020	46	4.5	3.4	6.0

* Three-year Total Number of Live Births
** Three-year Total Number of Births to Adolescents (10-17 years)
*** Number of Births to Adolescents (10-17 years) as a Percentage of Total Live Births
SOURCE: Utah Birth Certificate Data, Utah Department of Health.

Low Birth Weight

Number of Low Weight Births (LBW), Live Births, and LBW Births Rate
By Area of Residence
Utah, 1994-96

	Area of Residence	# of Births*	# Low Birth Weight Births**	% Low Birth Weight Births***	95% Confidence Interval Lower Limit	95% Confidence Interval Upper Limit
0	State Total	119,611	7,510	6.3	6.1	6.4
1	Brigham City	1,028	64	6.2	4.9	7.9
2	Other Box Elder Co.	1,049	69	6.6	5.2	8.3
3	Logan	3,786	183	4.8	4.2	5.6
4	Other Cache/Rich Co.	1,956	116	5.9	4.9	7.1
5	Ben Lomond	2,236	153	6.8	5.8	8.0
6	Morgan/East Weber Co.	1,300	75	5.8	4.6	7.2
7	Downtown Ogden	2,025	187	9.2	8.0	10.6
8	South Ogden	1,947	153	7.9	6.7	9.2
9	Roy/Hooper	1,984	118	5.9	5.0	7.1
10	Riverdale	1,260	90	7.1	5.8	8.7
11	Clearfield/Hill AFB	2,635	159	6.0	5.2	7.0
12	Layton	3,344	222	6.6	5.8	7.5
13	Syracuse/Kaysville	1,654	94	5.7	4.6	6.9
14	Farmington/Centerville	1,260	79	6.3	5.0	7.8
15	Woods Cross/No SL	1,005	52	5.2	3.9	6.8
16	Bountiful	2,341	151	6.5	5.5	7.5
17	Rose Park	1,928	146	7.6	6.5	8.9
18	Avenues	1,124	88	7.8	6.4	9.6
19	Foothill/U of U	1,302	73	5.6	4.4	7.0
20	Magna	1,284	91	7.1	5.8	8.7
21	Glendale	1,708	143	8.4	7.1	9.8
22	West Valley West	3,579	252	7.0	6.2	7.9
23	West Valley East	2,663	180	6.8	5.8	7.8
24	Downtown Salt Lake	2,880	205	7.1	6.2	8.1
25	South Salt Lake	1,773	152	8.6	7.3	10.0
26	Millcreek	3,165	178	5.6	4.9	6.5
27	Holladay	2,026	133	6.6	5.5	7.8
28	Cottonwood	1,751	101	5.8	4.7	7.0
29	Kearns	3,789	278	7.3	6.5	8.2

30 Taylorsville	1,906	152	8.0	6.8	9.3
31 Murray	1,746	126	7.2	6.1	8.6
32 Midvale	1,800	121	6.7	5.6	8.0
33 West Jordan No.	2,733	168	6.1	5.3	7.1
34 W. Jordan, Copperton	1,957	126	6.4	5.4	7.6
35 South Jordan	928	45	4.8	3.6	6.5
36 Sandy Center	2,995	160	5.3	4.6	6.2
37 Sandy, NE	1,035	66	6.4	5.0	8.1
38 Sandy, SE	1,227	55	4.5	3.4	5.8
39 Riverton/Draper	2,155	137	6.4	5.4	7.5
40 Tooele Co.	1,633	124	7.6	6.4	9.0
41 Lehi/Cedar Valley	1,163	58	5.0	3.8	6.4
42 American Fork/Alpine	2,031	99	4.9	4.0	5.9
43 Pleasant Grove/Lindon	1,836	102	5.6	4.6	6.7
44 North Orem	3,451	185	5.4	4.6	6.2
45 West Orem	2,731	138	5.1	4.3	6.0
46 East Orem	17	1	5.9	0.3	30.8
47 Provo/BYU	2,851	147	5.2	4.4	6.0
48 Provo South	5,059	275	5.4	4.8	6.1
49 Springville/Spanish Fork	3,274	175	5.3	4.6	6.2
50 Utah Co. South	1,320	83	6.3	5.1	7.8
51 Summit Co.	1,049	81	7.7	6.2	9.5
52 Wasatch Co.	666	49	7.4	5.5	9.7
53 Tri-county LHD	1,984	148	7.5	6.4	8.7
54 Juab/Millard/Sanpete Co.	1,922	122	6.3	5.3	7.6
55 Sevier/Piute/Wayne Co.	1,017	74	7.3	5.8	9.1
56 Carbon/Emery Co.	1,376	99	7.2	5.9	8.7
57 Grand/San Juan Co.	1,170	72	6.2	4.9	7.7
58 St. George	2,325	91	3.9	3.2	4.8
59 Other Washington Co.	1,724	96	5.6	4.6	6.8
60 Cedar City	1,446	68	4.7	3.7	6.0
61 Other Southwest Dist	1,020	52	5.1	3.9	6.7

* Three-year Total Number of Live Births
** Three-year Total Number of Births with birth weight under 2500 grams
*** Average annual Percent of Births with Birth weight under 2500 grams
SOURCE: Utah Birth Certificate Data, Utah Department of Health.

Late or No Prenatal Care

Number and Percent of Mothers Delivering Live Infants Who Did Not Receive Care in First Trimester of Pregnancy by Area of Residence
Utah, 1994-96

Area of Residence	# of Live Births*	# Births with Late or No Prenatal Care**	% Births with Late or No Prenatal Care***	95% Confidence Interval Lower Limit	95% Confidence Interval Upper Limit
0 State Total	119,611	18,388	15.4	15.2	15.6
1 Brigham City	1,028	151	14.7	12.6	17.0
2 Other Box Elder Co.	1,049	179	17.1	14.9	19.5
3 Logan	3,786	326	8.6	7.7	9.6
4 Other Cache/Rich Co.	1,956	208	10.6	9.3	12.1
5 Ben Lomond	2,236	362	16.2	14.7	17.8
6 Morgan/East Weber Co.	1,300	143	11.0	9.4	12.9
7 Downtown Ogden	2,025	575	28.4	26.4	30.4
8 South Ogden	1,947	325	16.7	15.1	18.4
9 Roy/Hooper	1,984	222	11.2	9.9	12.7
10 Riverdale	1,260	166	13.2	11.4	15.2
11 Clearfield/Hill AFB	2,635	405	15.4	14.0	16.8
12 Layton	3,344	484	14.5	13.3	15.7
13 Syracuse/Kaysville	1,654	220	13.3	11.7	15.1
14 Farmington/Centerville	1,260	101	8.0	6.6	9.7
15 Woods Cross/No SL	1,005	111	11.0	9.2	13.2
16 Bountiful	2,341	220	9.4	8.3	10.7
17 Rose Park	1,928	601	31.2	29.1	33.3
18 Avenues	1,124	217	19.3	17.1	21.8
19 Foothill/U of U	1,302	126	9.7	8.2	11.4
20 Magna	1,284	241	18.8	16.7	21.0
21 Glendale	1,708	609	35.7	33.4	38.0
22 West Valley West	3,579	691	19.3	18.0	20.6
23 West Valley East	2,663	527	19.8	18.3	21.4
24 Downtown Salt Lake	2,880	596	20.7	19.2	22.2
25 South Salt Lake	1,773	459	25.9	23.9	28.0
26 Millcreek	3,165	413	13.0	11.9	14.3
27 Holladay	2,026	244	12.0	10.7	13.6
28 Cottonwood	1,751	199	11.4	9.9	13.0
29 Kearns	3,789	681	18.0	16.8	19.2

30 Taylorsville	1,906	311	16.3	14.7	18.1
31 Murray	1,746	267	15.3	13.7	17.1
32 Midvale	1,800	361	20.1	18.2	22.0
33 West Jordan No.	2,733	359	13.1	11.9	14.5
34 W. Jordan, Copperton	1,957	263	13.4	12.0	15.0
35 South Jordan	928	102	11.0	9.1	13.2
36 Sandy Center	2,995	379	12.7	11.5	13.9
37 Sandy, NE	1,035	89	8.6	7.0	10.5
38 Sandy, SE	1,227	127	10.4	8.7	12.2
39 Riverton/Draper	2,155	282	13.1	11.7	14.6
40 Tooele Co.	1,633	317	19.4	17.5	21.4
41 Lehi/Cedar Valley	1,163	124	10.7	9.0	12.6
42 American Fork/Alpine	2,031	247	12.2	10.8	13.7
43 Pleasant Grove/Lindon	1,836	237	12.9	11.4	14.5
44 North Orem	3,451	408	11.8	10.8	13.0
45 West Orem	2,731	320	11.7	10.5	13.0
46 East Orem	17	7	41.2	19.4	66.5
47 Provo/BYU	2,851	284	10.0	8.9	11.1
48 Provo South	5,059	566	11.2	10.3	12.1
49 Springville/Spanish Fork	3,274	295	9.0	8.1	10.1
50 Utah Co. South	1,320	146	11.1	9.4	12.9
51 Summit Co.	1,049	138	13.2	11.2	15.4
52 Wasatch Co.	666	90	13.5	11.1	16.4
53 Tri-county LHD	1,984	371	18.7	17.0	20.5
54 Juab/Millard/Sanpete Co.	1,922	367	19.1	17.4	20.9
55 Sevier/Piute/Wayne Co.	1,017	220	21.6	19.2	24.3
56 Carbon/Emery Co.	1,376	263	19.1	17.1	21.3
57 Grand/San Juan Co.	1,170	347	29.7	27.1	32.4
58 St. George	2,325	506	21.8	20.1	23.5
59 Other Washington Co.	1,724	340	19.7	17.9	21.7
60 Cedar City	1,446	159	11.0	9.5	12.7
61 Other Southwest Dist	1,020	231	22.6	20.1	25.4

* Three-year Total Number of Live Births
** Three-year Total Number of Births to Mothers Delivering Live Infants Who Did not Receive Care in First Trimester of Pregnancy
*** Number of Births to Mothers Who Did not Receive Care in First Trimester of Pregnancy as a Percentage of Total Live Births
SOURCE: Utah Birth Certificate Data, Utah Department of Health.

Infant Mortality

Number of Births, Infant Deaths, and Infant Mortality Rate
By Area of Residence
Utah, 1992-96

Area of Residence	Births*	Deaths**	Infant Mortality Rate***	95% Confidence Interval Lower Limit	95% Confidence Interval Upper Limit
0 State Total	193,717	1,134	5.9	5.5	6.2
1 Brigham City	1,708	13	7.6	4.2	13.3
2 Other Box Elder Co.	1,736	17	9.8	5.9	16.0
3 Logan	6,211	25	4.0	2.7	6.0
4 Other Cache/Rich Co.	3,128	17	5.4	3.3	8.9
5 Ben Lomond	3,656	21	5.7	3.7	8.9
6 Morgan/East Weber Co.	2,055	13	6.3	3.5	11.1
7 Downtown Ogden	3,311	31	9.4	6.5	13.4
8 South Ogden	3,133	17	5.4	3.3	8.9
9 Roy/Hooper	3,146	18	5.7	3.5	9.2
10 Riverdale	2,075	10	4.8	2.5	9.2
11 Clearfield/Hill AFB	4,292	18	4.2	2.6	6.8
12 Layton	5,336	26	4.9	3.3	7.2
13 Syracuse/Kaysville	2,626	12	4.6	2.5	8.2
14 Farmington/Centerville	2,111	13	6.2	3.4	10.8
15 Woods Cross/No SL	1,617	8	4.9	2.3	10.1
16 Bountiful	3,889	16	4.1	2.4	6.8
17 Rose Park	3,073	18	5.9	3.6	9.4
18 Avenues	1,859	12	6.5	3.5	11.6
19 Foothill/U of U	2,190	7	3.2	1.4	6.9
20 Magna	2,046	17	8.3	5.0	13.6
21 Glendale	2,789	20	7.2	4.5	11.3
22 West Valley West	5,924	37	6.2	4.5	8.7
23 West Valley East	4,388	31	7.1	4.9	10.1
24 Downtown Salt Lake	4,750	30	6.3	4.3	9.1
25 South Salt Lake	2,986	16	5.4	3.2	8.9
26 Millcreek	5,267	21	4.0	2.5	6.2
27 Holladay	3,431	10	2.9	1.5	5.5
28 Cottonwood	2,933	11	3.8	2.0	6.9
29 Kearns	6,161	42	6.8	5.0	9.3

30 Taylorsville	3,177	24	7.6	5.0	11.4
31 Murray	2,949	17	5.8	3.5	9.4
32 Midvale	2,956	32	10.8	7.5	15.4
33 West Jordan No.	4,439	27	6.1	4.1	9.0
34 W. Jordan, Copperton	3,000	21	7.0	4.5	10.9
35 South Jordan	1,031	3	2.9	0.8	9.2
36 Sandy Center	4,892	22	4.5	2.9	6.9
37 Sandy, NE	1,740	12	6.9	3.7	12.4
38 Sandy, SE	2,174	7	3.2	1.4	6.9
39 Riverton/Draper	3,601	20	5.6	3.5	8.7
40 Tooele Co.	2,610	13	5.0	2.8	8.7
41 Lehi/Cedar Valley	1,650	8	4.8	2.3	9.9
42 American Fork/Alpine	3,246	15	4.6	2.7	7.8
43 Pleasant Grove/Lindon	2,766	24	8.7	5.7	13.1
44 North Orem	5,736	29	5.1	3.5	7.4
45 West Orem	4,420	20	4.5	2.8	7.1
46 East Orem	17	1	58.8	3.1	307.6
47 Provo/BYU	4,613	22	4.8	3.1	7.3
48 Provo South	8,227	46	5.6	4.1	7.5
49 Springville/Spanish Fork	4,990	26	5.2	3.5	7.7
50 Utah Co. South	2,096	9	4.3	2.1	8.5
51 Summit Co.	1,651	18	10.9	6.7	17.5
52 Wasatch Co.	1,029	11	10.7	5.6	19.7
53 Tri-county LHD	3,371	30	8.9	6.1	12.8
54 Juab/Millard/Sanpete Co.	3,146	24	7.6	5.0	11.5
55 Sevier/Piute/Wayne Co.	1,651	21	12.7	8.1	19.7
56 Carbon/Emery Co.	2,281	8	3.5	1.6	7.2
57 Grand/San Juan Co.	1,967	8	4.1	1.9	8.3
58 St. George	3,588	19	5.3	3.3	8.4
59 Other Washington Co.	2,572	21	8.2	5.2	12.7
60 Cedar City	2,217	13	5.9	3.3	10.3
61 Other Southwest Dist	1,641	6	3.7	1.5	8.4

* Five-year Total Number of Births
** Five-year Total Number of Infant Deaths
*** Average annual Rate of Infant Deaths per 1,000 live births
SOURCE: Utah Birth and Death Certificate Data, Utah Department of Health.

Deaths from All Causes

Number of Deaths, and Death Rates
By Area of Residence
Utah, 1992-96

Area of Residence	Average Annual # of Deaths	Crude Rate per 100,000 persons	Age-adjusted Rate per 100,000 persons*	90% Confidence Interval	
				Lower Limit	Upper Limit
0 State Total	10458	545.9	514.1	510.4	517.8
1 Brigham City	132.6	727.5	556.4	520.9	592.0
2 Other Box Elder Co.	113.6	565.2	513.5	478.0	548.9
3 Logan	221.4	396.9	378.7	360.0	397.4
4 Other Cache/Rich Co.	151.6	603.0	601.1	565.1	637.0
5 Ben Lomond	265.6	699.4	553.4	528.4	578.4
6 Morgan/East Weber Co.	117.0	384.2	428.6	399.5	457.8
7 Downtown Ogden	245.4	1024.2	578.1	550.9	605.2
8 South Ogden	258.0	858.9	522.1	498.2	546.0
9 Roy/Hooper	162.2	474.5	563.2	530.6	595.7
10 Riverdale	151.8	666.8	492.9	463.5	522.3
11 Clearfield/Hill AFB	163.0	373.6	518.2	488.4	548.1
12 Layton	159.0	319.4	490.0	461.4	518.6
13 Syracuse/Kaysville	97.0	356.8	469.0	433.9	504.0
14 Farmington/Centerville	67.8	289.5	404.1	368.0	440.2
15 Woods Cross/No SL	57.2	343.3	460.7	415.9	505.6
16 Bountiful	247.2	579.1	450.0	429.0	471.1
17 Rose Park	191.2	767.1	669.1	633.5	704.7
18 Avenues	160.2	708.2	376.3	354.5	398.2
19 Foothill/U of U	171.6	780.0	424.7	400.8	448.5
20 Magna	98.8	514.5	622.4	576.4	668.5
21 Glendale	191.6	961.6	662.7	627.4	697.9
22 West Valley West	189.6	340.0	626.0	592.5	659.4
23 West Valley East	194.4	500.6	658.5	623.7	693.2
24 Downtown Salt Lake	501.6	1071.5	521.2	504.0	538.3
25 South Salt Lake	229.0	1048.3	580.1	551.9	608.3
26 Millcreek	532.2	977.3	479.5	464.2	494.8

27 Holladay	359.0	800.1	507.2	487.5	526.9
28 Cottonwood	193.0	441.4	469.7	444.9	494.6
29 Kearns	204.2	342.3	668.8	634.4	703.2
30 Taylorsville	152.6	483.0	591.3	556.1	626.5
31 Murray	226.6	778.5	582.7	554.2	611.2
32 Midvale	159.8	614.9	566.5	533.5	599.4
33 West Jordan No.	93.6	225.8	546.2	504.7	587.7
34 W. Jordan, Copperton	69.2	267.7	462.4	421.5	503.3
35 South Jordan	46.0	176.6	293.3	255.2	331.3
36 Sandy Center	198.8	399.1	517.9	490.9	545.0
37 Sandy, NE	71.8	259.3	497.6	454.4	540.8
38 Sandy, SE	72.4	230.0	530.6	484.7	576.4
39 Riverton/Draper	114.2	253.5	350.0	325.9	374.1
40 Tooele Co.	170.4	589.4	539.5	509.1	569.9
41 Lehi/Cedar Valley	69.4	513.7	510.5	465.4	555.6
42 American Fork/Alpine	123.8	395.6	440.4	411.3	469.5
43 Pleasant Grove/Lindon	97.2	410.7	524.8	485.6	563.9
44 North Orem	177.5	501.7	741.6	698.6	784.6
45 West Orem	149.9	295.2	373.0	349.4	396.5
46 East Orem	28.0	105.2	107.0	73.7	140.3
47 Provo/BYU	148.4	328.9	407.2	382.6	431.8
48 Provo South	200.4	441.2	515.8	489.0	542.6
49 Springville/Spanish Fork	232.6	564.2	522.7	497.5	547.9
50 Utah Co. South	105.8	574.4	571.9	531.0	612.8
51 Summit Co.	73.6	339.5	441.2	403.4	479.1
52 Wasatch Co.	71.8	623.6	545.4	498.1	592.8
53 Tri-county LHD	229.6	607.7	624.7	594.4	655.0
54 Juab/Millard/Sanpete Co.	287.8	777.9	528.6	505.7	551.5
55 Sevier/Piute/Wayne Co.	172.6	846.7	543.4	512.9	573.8
56 Carbon/Emery Co.	236.0	764.0	594.3	565.8	622.8
57 Grand/San Juan Co.	123.6	608.7	553.4	516.8	590.1
58 St. George	305.0	706.6	402.5	385.5	419.4
59 Other Washington Co.	182.4	773.5	522.7	494.3	551.2
60 Cedar City	94.6	434.3	443.5	409.9	477.0
61 Other Southwest Dist	168.6	921.6	566.5	534.4	598.6

* Adjusted to 1990 Utah Population Using Indirect Method
SOURCE: Utah Death Certificate Data, 1992-1996, Utah Department of Health.

Motor Vehicle Crash Deaths

Number of Deaths, and Death Rates
By Area of Residence
Utah, 1992-96

Area of Residence	Average Annual # of Deaths	Crude Rate per 100,000 persons	Age-adjusted Rate per 100,000* persons	90% Confidence Interval	
				Lower Limit	Upper Limit
0 State Total	315.4	16.5	15.8	15.1	16.4
1 Brigham City	3.8	20.8	20.3	13.3	29.8
2 Other Box Elder Co.	4.2	20.9	21.3	13.7	29.0
3 Logan	4.8	8.6	7.7	5.1	10.3
4 Other Cache/Rich Co.	6.2	24.7	25.0	17.6	32.4
5 Ben Lomond	7.2	19.0	18.2	13.2	23.2
6 Morgan/East Weber Co.	2.8	9.2	9.4	5.7	14.7
7 Downtown Ogden	4.6	19.2	16.8	11.1	22.6
8 South Ogden	4.0	13.3	11.7	7.7	17.0
9 Roy/Hooper	5.8	17.0	17.2	11.9	22.4
10 Riverdale	3.2	14.1	13.0	8.2	19.8
11 Clearfield/Hill AFB	5.0	11.5	11.2	7.5	14.9
12 Layton	7.8	15.7	15.9	11.7	20.0
13 Syracuse/Kaysville	3.6	13.2	13.7	8.9	20.4
14 Farmington/Centerville	1.4	6.0	6.2	2.9	11.6
15 Woods Cross/No SL	3.0	18.0	18.5	11.4	28.5
16 Bountiful	4.2	9.8	9.1	5.9	12.4
17 Rose Park	5.8	23.3	22.1	15.3	28.8
18 Avenues	3.0	13.3	11.1	6.8	17.0
19 Foothill/U of U	1.0	4.5	3.9	1.5	8.2
20 Magna	2.0	10.4	10.9	5.9	18.4
21 Glendale	4.8	24.1	22.2	14.8	29.7
22 West Valley West	7.6	13.6	14.4	10.6	18.3
23 West Valley East	6.8	17.5	16.9	12.2	21.7
24 Downtown Salt Lake	9.4	20.1	16.3	12.4	20.2
25 South Salt Lake	6.2	28.4	24.5	17.2	31.7
26 Millcreek	8.0	14.7	12.7	9.4	16.1

27 Holladay	5.6	12.5	11.3	7.8	14.8
28 Cottonwood	6.2	14.2	13.8	9.7	17.9
29 Kearns	9.4	15.8	17.1	13.0	21.2
30 Taylorsville	4.8	15.2	14.7	9.8	19.7
31 Murray	3.8	13.1	11.9	7.8	17.5
32 Midvale	2.6	10.0	9.4	5.5	14.9
33 West Jordan No.	4.4	10.6	11.9	7.7	16.1
34 W. Jordan, Copperton	3.0	11.6	12.5	7.7	19.2
35 South Jordan	2.0	7.7	8.3	3.9	15.5
36 Sandy Center	6.2	12.4	12.7	8.9	16.4
37 Sandy, NE	2.6	9.4	9.9	5.8	15.7
38 Sandy, SE	3.2	10.2	11.1	7.0	16.9
39 Riverton/Draper	5.2	11.5	11.9	8.1	15.8
40 Tooele Co.	9.0	31.1	29.7	22.4	37.0
41 Lehi/Cedar Valley	2.8	20.7	20.5	12.4	32.1
42 American Fork/Alpine	3.8	12.1	12.1	7.9	17.8
43 Pleasant Grove/Lindon	4.0	16.9	17.2	11.4	25.0
44 North Orem	7.7	21.8	22.8	16.4	29.1
45 West Orem	4.6	9.1	8.8	5.6	12.0
46 East Orem	1.0	3.8	3.7	0.2	17.3
47 Provo/BYU	4.2	9.3	7.1	4.6	9.7
48 Provo South	6.0	13.2	10.7	7.5	13.9
49 Springville/Spanish Fork	8.8	21.3	20.8	15.6	25.9
50 Utah Co. South	2.6	14.1	14.0	8.3	22.2
51 Summit Co.	5.0	23.1	23.7	15.9	31.5
52 Wasatch Co.	3.0	26.1	25.7	15.8	39.5
53 Tri-county LHD	13.6	36.0	36.7	29.4	44.0
54 Juab/Millard/Sanpete Co.	7.2	19.5	18.1	13.1	23.1
55 Sevier/Piute/Wayne Co.	3.2	15.7	14.9	9.3	22.6
56 Carbon/Emery Co.	8.2	26.5	25.5	18.9	32.0
57 Grand/San Juan Co.	10.2	50.2	49.3	38.0	60.7
58 St. George	5.2	12.0	10.6	7.2	14.0
59 Other Washington Co.	6.6	28.0	26.9	19.2	34.6
60 Cedar City	4.2	19.3	17.9	11.5	24.3
61 Other Southwest Dist	6.6	36.1	33.7	24.1	43.4

* Adjusted to 1990 Utah Population Using Indirect Method
SOURCE: Utah Death Certificate Data, 1992-1996, Utah Department of Health. (ICD-9 codes E810-E825)

Suicide

Number of Deaths, and Death Rates
By Area of Residence
Utah, 1992-96

Area of Residence	Average Annual # of Deaths	Crude Rate per 100,000 persons	Age-adjusted Rate per 100,000 persons*	90% Confidence Interval	
				Lower Limit	Upper Limit
0 State Total	277.0	14.5	13.6	13.0	14.2
1 Brigham City	2.4	13.2	12.6	7.3	20.4
2 Other Box Elder Co.	2.4	11.9	12.0	6.9	19.4
3 Logan	4.4	7.9	7.2	4.7	9.7
4 Other Cache/Rich Co.	4.0	15.9	16.0	10.6	23.3
5 Ben Lomond	5.8	15.3	14.3	10.0	18.7
6 Morgan/East Weber Co.	2.2	7.2	7.0	3.9	11.6
7 Downtown Ogden	6.0	25.0	21.6	15.1	28.0
8 South Ogden	5.4	18.0	15.4	10.5	20.2
9 Roy/Hooper	6.8	19.9	19.4	14.0	24.9
10 Riverdale	2.8	12.3	11.1	6.7	17.3
11 Clearfield/Hill AFB	7.2	16.5	16.1	11.7	20.5
12 Layton	5.8	11.7	11.4	7.9	14.9
13 Syracuse/Kaysville	3.2	11.8	12.1	7.6	18.3
14 Farmington/Centerville	1.0	4.3	4.3	1.7	9.1
15 Woods Cross/No SL	2.0	12.0	12.0	6.5	20.4
16 Bountiful	4.6	10.8	9.7	6.4	13.1
17 Rose Park	5.2	20.9	19.1	13.0	25.3
18 Avenues	4.4	19.5	15.3	9.9	20.7
19 Foothill/U of U	1.4	6.4	5.3	2.5	10.0
20 Magna	4.8	25.0	25.9	17.2	34.6
21 Glendale	5.4	27.1	24.1	16.5	31.7
22 West Valley West	8.8	15.8	16.0	12.0	20.0
23 West Valley East	8.6	22.1	20.4	15.3	25.5
24 Downtown Salt Lake	12.6	26.9	21.2	16.8	25.6
25 South Salt Lake	6.8	31.1	26.5	19.0	33.9
26 Millcreek	7.6	14.0	11.8	8.6	14.9

27 Holladay	7.6	16.9	14.4	10.5	18.2
28 Cottonwood	6.2	14.2	12.6	8.9	16.3
29 Kearns	8.2	13.7	14.5	10.8	18.3
30 Taylorsville	4.0	12.7	11.6	7.7	16.8
31 Murray	5.6	19.2	16.5	11.4	21.6
32 Midvale	7.4	28.5	25.3	18.4	32.1
33 West Jordan No.	5.2	12.5	14.0	9.5	18.5
34 W. Jordan, Copperton	2.2	8.5	9.0	5.1	15.0
35 South Jordan	0.9	3.3	3.4	0.9	8.8
36 Sandy Center	4.8	9.6	9.4	6.2	12.5
37 Sandy, NE	3.4	12.3	11.8	7.5	17.7
38 Sandy, SE	5.4	17.2	17.4	11.9	22.9
39 Riverton/Draper	4.4	9.8	9.6	6.2	13.0
40 Tooele Co.	5.0	17.3	15.9	10.7	21.1
41 Lehi/Cedar Valley	1.8	13.3	13.2	6.9	23.0
42 American Fork/Alpine	1.2	3.8	3.8	1.7	7.5
43 Pleasant Grove/Lindon	3.2	13.5	13.8	8.6	20.9
44 North Orem	3.1	8.7	9.3	5.6	14.6
45 West Orem	2.4	4.8	4.7	2.6	7.7
46 East Orem	0.0	0.0	0.0	0.0	11.1
47 Provo/BYU	3.8	8.4	6.8	4.4	10.0
48 Provo South	4.0	8.8	7.5	5.0	10.9
49 Springville/Spanish Fork	4.8	11.6	11.3	7.5	15.2
50 Utah Co. South	2.4	13.0	13.0	7.5	21.0
51 Summit Co.	1.8	8.3	7.7	4.0	13.4
52 Wasatch Co.	1.2	10.4	10.0	4.3	19.6
53 Tri-county LHD	8.0	21.2	21.0	15.5	26.5
54 Juab/Millard/Sanpete Co.	5.6	15.1	14.1	9.7	18.5
55 Sevier/Piute/Wayne Co.	2.6	12.8	11.9	7.0	18.9
56 Carbon/Emery Co.	5.8	18.8	17.5	12.2	22.8
57 Grand/San Juan Co.	3.6	17.7	17.1	11.0	25.3
58 St. George	6.2	14.4	12.9	9.1	16.7
59 Other Washington Co.	5.2	22.1	21.5	14.5	28.4
60 Cedar City	3.0	13.8	12.7	7.8	19.6
61 Other Southwest Dist	4.0	21.9	20.1	13.3	29.2

* Adjusted to 1990 Utah Population Using Indirect Method
SOURCE: Utah Death Certificate Data, 1992-1996, Utah Department of Health. (ICD-9 codes E950-E959)

Lung Cancer Deaths

Number of Deaths, and Death Rates
By Area of Residence
Utah, 1992-96

Area of Residence	Average Annual # of Deaths	Crude Rate per 100,000 persons	Age-adjusted Rate per 100,000 persons*	90% Confidence Interval Lower Limit	90% Confidence Interval Upper Limit
0 State Total	353.2	18.8	18.1	17.4	18.8
1 Brigham City	4.0	21.9	17.1	11.3	24.8
2 Other Box Elder Co.	2.6	12.9	11.9	7.0	18.9
3 Logan	3.8	6.8	7.9	5.2	11.7
4 Other Cache/Rich Co.	2.4	9.5	10.1	5.8	16.4
5 Ben Lomond	12.0	31.6	24.7	19.4	29.9
6 Morgan/East Weber Co.	4.0	13.1	13.8	9.2	20.1
7 Downtown Ogden	9.0	37.6	24.2	18.2	30.1
8 South Ogden	6.8	22.6	14.3	10.3	18.4
9 Roy/Hooper	6.0	17.6	20.1	14.1	26.2
10 Riverdale	6.4	28.1	21.3	15.1	27.5
11 Clearfield/Hill AFB	6.6	15.1	21.3	15.2	27.4
12 Layton	9.4	18.9	26.6	20.2	32.9
13 Syracuse/Kaysville	1.6	5.9	7.4	3.7	13.4
14 Farmington/Centerville	2.2	9.4	13.3	7.4	22.0
15 Woods Cross/No SL	1.6	9.6	12.3	6.1	22.2
16 Bountiful	5.0	11.7	8.6	5.8	11.4
17 Rose Park	9.2	36.9	30.4	23.0	37.7
18 Avenues	3.2	14.1	8.7	5.4	13.2
19 Foothill/U of U	5.0	22.7	13.0	8.7	17.2
20 Magna	5.0	26.0	32.2	21.6	42.8
21 Glendale	7.8	39.1	26.3	19.4	33.2
22 West Valley West	9.8	17.6	32.9	25.2	40.7
23 West Valley East	8.2	21.1	26.4	19.6	33.1
24 Downtown Salt Lake	14.6	31.2	19.6	15.8	23.4
25 South Salt Lake	9.0	41.2	27.0	20.4	33.6
26 Millcreek	13.2	24.2	12.4	9.9	14.9

27 Holladay	9.8	21.8	13.0	10.0	16.1
28 Cottonwood	5.4	12.3	11.7	8.0	15.4
29 Kearns	11.8	19.8	38.0	29.9	46.1
30 Taylorsville	5.6	17.7	20.0	13.8	26.3
31 Murray	10.0	34.4	23.4	18.0	28.9
32 Midvale	6.4	24.6	21.7	15.4	28.0
33 West Jordan No.	3.6	8.7	25.8	16.7	38.3
34 W. Jordan, Copperton	2.4	9.3	17.4	10.0	28.2
35 South Jordan	1.1	4.4	7.3	2.5	16.6
36 Sandy Center	6.2	12.4	17.4	12.2	22.5
37 Sandy, NE	2.0	7.2	12.6	6.8	21.4
38 Sandy, SE	2.0	6.4	15.5	8.4	26.2
39 Riverton/Draper	4.4	9.8	14.5	9.4	19.6
40 Tooele Co.	8.4	29.1	25.2	18.8	31.6
41 Lehi/Cedar Valley	1.6	11.8	12.4	6.2	22.4
42 American Fork/Alpine	3.0	9.6	11.3	7.0	17.4
43 Pleasant Grove/Lindon	3.2	13.5	17.4	10.9	26.5
44 North Orem	4.9	13.7	21.7	14.1	29.3
45 West Orem	2.6	5.2	7.0	4.1	11.4
46 East Orem	0.0	0.0	0.0	0.0	12.2
47 Provo/BYU	1.8	4.0	5.5	2.8	9.5
48 Provo South	3.8	8.4	12.4	8.1	18.2
49 Springville/Spanish Fork	6.6	16.0	14.9	10.6	19.2
50 Utah Co. South	3.8	20.6	21.1	13.8	31.0
51 Summit Co.	2.0	9.2	11.3	6.1	19.2
52 Wasatch Co.	1.0	8.7	7.8	3.1	16.3
53 Tri-county LHD	8.4	22.2	22.2	16.6	27.9
54 Juab/Millard/Sanpete Co.	8.8	23.8	16.7	12.6	20.9
55 Sevier/Piute/Wayne Co.	5.6	27.5	17.5	12.1	22.9
56 Carbon/Emery Co.	9.8	31.7	24.5	18.8	30.3
57 Grand/San Juan Co.	6.4	31.5	29.0	20.6	37.4
58 St. George	12.6	29.2	16.6	13.1	20.0
59 Other Washington Co.	9.6	40.7	26.6	20.3	32.9
60 Cedar City	3.4	15.6	16.1	10.2	24.1
61 Other Southwest Dist	6.8	37.2	22.5	16.2	28.9

* Adjusted to 1990 Utah Population Using Indirect Method
SOURCE: Utah Birth and Death Certificate Data, Utah Department of Health. (ICD-9 code 162)

Cardiovascular Disease Deaths

Number of Deaths, and Death Rates
By Area of Residence
Utah, 1992-96

Area of Residence	Average Annual # of Deaths	Crude Rate per 100,000 persons	Age-adjusted Rate per 100,000 persons*	90% Confidence Interval	
				Lower Limit	Upper Limit
0 State Total	3810.2	198.9	185.1	182.9	187.3
1 Brigham City	55.0	301.7	219.3	197.5	241.0
2 Other Box Elder Co.	43.8	217.9	194.5	172.9	216.2
3 Logan	82.2	147.3	135.5	124.5	146.5
4 Other Cache/Rich Co.	60.8	241.8	238.8	216.3	261.3
5 Ben Lomond	105.0	276.5	211.0	195.9	226.2
6 Morgan/East Weber Co.	46.2	151.7	175.9	156.9	194.9
7 Downtown Ogden	92.4	385.6	196.0	181.0	211.0
8 South Ogden	105.4	350.4	196.1	182.0	210.1
9 Roy/Hooper	62.0	181.4	227.2	206.0	248.4
10 Riverdale	64.2	282.0	197.0	178.9	215.1
11 Clearfield/Hill AFB	52.0	119.2	181.3	162.8	199.8
12 Layton	53.0	106.5	191.2	171.9	210.5
13 Syracuse/Kaysville	36.6	134.6	192.3	168.9	215.7
14 Farmington/Centerville	29.0	123.8	189.4	163.5	215.2
15 Woods Cross/No SL	20.4	122.4	180.9	151.4	210.3
16 Bountiful	103.0	241.3	180.9	167.8	194.1
17 Rose Park	62.0	248.7	215.3	195.1	235.4
18 Avenues	59.2	261.7	124.3	112.4	136.1
19 Foothill/U of U	68.6	311.8	154.1	140.4	167.8
20 Magna	31.0	161.4	204.0	177.1	231.0
21 Glendale	52.8	265.0	173.2	155.6	190.7
22 West Valley West	56.0	100.4	227.1	204.8	249.4
23 West Valley East	63.6	163.8	237.4	215.5	259.3
24 Downtown Salt Lake	180.8	386.2	163.9	154.9	172.8
25 South Salt Lake	81.8	374.5	185.3	170.3	200.4
26 Millcreek	208.0	381.9	168.7	160.1	177.3

27 Holladay	135.6	302.2	180.2	168.8	191.6
28 Cottonwood	63.4	145.0	161.2	146.3	176.1
29 Kearns	56.2	94.2	234.3	211.3	257.3
30 Taylorsville	53.0	167.8	222.5	200.0	245.0
31 Murray	83.6	287.2	209.4	192.6	226.3
32 Midvale	53.8	207.0	191.9	172.7	211.2
33 West Jordan No.	23.4	56.4	192.1	162.9	221.4
34 W. Jordan, Copperton	20.0	77.4	158.2	132.2	184.3
35 South Jordan	13.4	51.6	99.3	75.5	123.2
36 Sandy Center	66.6	133.7	184.8	168.1	201.4
37 Sandy, NE	23.4	84.5	208.9	177.1	240.7
38 Sandy, SE	21.6	68.6	221.5	186.4	256.5
39 Riverton/Draper	40.6	90.1	134.3	118.8	149.8
40 Tooele Co.	51.4	177.8	162.2	145.6	178.9
41 Lehi/Cedar Valley	26.6	196.9	194.1	166.4	221.8
42 American Fork/Alpine	44.4	141.9	160.3	142.6	178.0
43 Pleasant Grove/Lindon	32.4	136.9	186.1	162.1	210.2
44 North Orem	65.5	185.1	306.1	276.9	335.3
45 West Orem	58.6	115.5	154.1	138.5	169.6
46 East Orem	10.0	37.6	38.0	20.6	64.5
47 Provo/BYU	62.8	139.2	177.7	161.2	194.2
48 Provo South	84.0	184.9	217.8	200.3	235.3
49 Springville/Spanish Fork	85.0	206.2	188.9	173.8	203.9
50 Utah Co. South	39.4	213.9	212.2	187.3	237.1
51 Summit Co.	23.4	107.9	154.3	130.9	177.8
52 Wasatch Co.	28.8	250.1	213.0	183.8	242.2
53 Tri-county LHD	77.8	205.9	215.0	197.0	232.9
54 Juab/Millard/Sanpete Co.	119.6	323.3	204.5	190.8	218.3
55 Sevier/Piute/Wayne Co.	70.8	347.3	207.5	189.3	225.6
56 Carbon/Emery Co.	89.0	288.1	214.6	197.9	231.3
57 Grand/San Juan Co.	36.0	177.3	158.4	138.9	177.8
58 St. George	114.8	266.0	138.8	129.2	148.3
59 Other Washington Co.	65.0	275.6	175.3	159.3	191.3
60 Cedar City	36.8	168.9	173.6	152.6	194.7
61 Other Southwest Dist	70.6	385.9	219.8	200.6	239.1

* Adjusted to 1990 Utah Population Using Indirect Method
SOURCE: Utah Death Certificate Data, 1992-1996, Utah Department of Health. (ICD-9 codes 390-448)

Technical Appendix

Designation of Small Area Boundaries

ZIP codes and counties were used individually or combined to create 61 geographic areas. ZIP code areas were primarily used to define small areas in the current study because they are the smallest commonly-used geographic units that are also identified in most health data sources. ZIP code areas are discrete geographic areas used by the U.S. Postal Service in mail delivery that often roughly follow political boundaries. In some sparsely populated areas, counties were used as the geographic unit of interest.

Population size criteria for designing the small areas in this study were determined based on health event incidence rates. Smaller areas may be more meaningful to communities, but rates based on small numerators are unstable (Buescher, 1997) and confidence intervals for such rates are large, rendering the comparisons uninterpretable for most practical purposes. Using such small areas with small numbers of events may also pose privacy problems for more sensitive events, such as suicide or AIDS. The population size criteria were determined by examining the three- and five-year incidences of selected events, such as infant mortality and lung cancer, for which small area estimates were desired. A numerator of 20 or greater produces relatively stable estimates, and also simplifies computation of confidence intervals from a Poisson distribution (Ahlbom, 1993). It was determined that areas with 40,000 to 60,000 persons would produce incidence counts of 20 or more for a wide range of health events. Increasing the population sizes sufficiently to produce reliable estimates for rare events (e.g., homicide or AIDS) would increase area size beyond that which would allow meaningful community level analyses. Where possible, areas with 40,000 to 60,000 persons were established, but areas with population sizes of approximately 20,000 were created when low population density, community identity, or others factors suggested that it was appropriate.

Areas were geographically constrained so that their boundaries would not cross local health district boundaries. Whenever possible the following conditions were met: local health districts were divided into multiple small areas, only contiguous ZIP codes were combined, sub-county small areas were not combined with ZIP code areas in neighboring counties, areas conformed to established political boundaries of cities and towns, and a ZIP code area was not combined with another area with an extremely different estimated median income. For some areas (primarily the urban counties that were subdivided into many small areas), a draft of the small area design was submitted to local representatives. The local representatives (10 of the 12 Utah local health officers, and 26 city officials selected from the directory of the Utah League of Cities and Towns) were provided a map of their locality showing the proposed small area boundaries and asked to consider whether the combined ZIP code areas were similar in terms of lifestyle and demographic characteristics. Several changes were made based on their recommendations.

Population Estimates

Data on population size, median age, and median income were purchased for current Utah ZIP codes from a commercial vendor, CACI Marketing Systems. CACI constructed population estimates at the ZIP code level by using the most recent decennial census data and additional information, such as sub-county estimates of change from the U.S. Census Bureau, special censuses, local sources of information about change, and changes in residential delivery statistics from the U.S. Postal Service. Estimates included 1997 population totals and population by sex and age group for each ZIP code. The age-specific population estimates were used in age-adjusting the data. The CACI file also included estimates for the average annual rate of population change for each ZIP code

area, which were used to derive the 1994 through 1996 population estimates required for these analyses.

Selection of Measures

Sixteen measures were selected for presentation in this report. The 1997 estimates of two demographic variables, median age and per capita income, were purchased from CACI along with the population estimates. Nine variables, births to adolescents, low birth weight, prenatal care, infant mortality, deaths from all causes, motor vehicle crash deaths, suicide, lung cancer deaths, and cardio-vascular disease deaths, are Health Status Indicators that were developed as part of the Healthy People 2000 process under the leadership of the Centers for Disease Control and Prevention. These nine health status indicators were selected because the events occurred with sufficient frequency to be meaningful at the small area level. Birth rate and general fertility rate were selected for use from the birth certificate data set. Finally, three variables, overall health status, cigarette smoking, and health insurance coverage, were selected from the 1996 Utah Health Status Survey data set because they were good indicators of overall health status, and the data were available for over 20,000 household members included in the survey.

Calculation of Rates

Typically, the number of events (e.g., number of deaths) in a given area has little meaning unless the size of the population is known. A rate is a fraction in which the numerator is the number of events, and the denominator is the number of people in the population at risk over the same period of time. For example, there were 13 infant deaths in the Brigham City area from 1992 through 1996, and 1,708 births: 13 / 1,708 = .0076 infant deaths for every live birth in Brigham City from 1992 through 1996. Small fractions are generally communicated as multiples of 100 (i.e., a percentage) 1,000, or 100,000. In the example above, we could say that there were 7.6 infant deaths for every 1,000 live births in Brigham City over the time period.

For some measures, multiple years have been combined to enhance the reliability of the estimates. In these cases, average annual rates have been calculated by dividing the multiple-year estimate by the sum of the area's population count across the multiple years. For instance, for the death measures, the death counts for a five-year period (1992-1996) were divided by the population counts for 1992-1996 combined. The average annual number of events have been reported in the reference tables.

Two areas (#35, South Jordan and #46, East Orem) contain zip codes that were created recently (1993 and 1996, respectively). For measures that rely on combining data over multiple years, the estimates for those areas will be based on smaller populations (e.g., a population over one year instead of five). Because of the smaller population base, the precision of the estimates for areas #35 and #46 will not be as good as it would otherwise have been. In addition to lack of precision in the estimates, it is likely that use of new ZIP codes does not begin uniformly on the date the ZIP code change was initiated. It is very possible that some events that took place in areas #35 and #46 after creation of the new ZIP codes were improperly coded as having taken place in areas #39 (Riverton) and #45 (West Orem), respectively, the areas that once included the new ZIP codes. **Reported rates calculated for areas #35 and #46 should be interpreted with caution.**

Age-Adjustment

When comparing rates across geographic areas, the rates to be compared are typically age-adjusted to control for area-to-area differences in health events that can be explained by differing ages of the area populations. For example, an area that has an older population will have higher crude (not age-adjusted) rates for cancer, even though its exposure levels and cancer rates for specific age groups are the same as those of other areas. One might incorrectly attribute the high cancer rates to some characteristic of the area other than age. Age-adjusted rates control for age effects, allowing more meaningful comparisons of rates across areas.

The age-adjusted death rate is most often computed using the direct method, as it is the simplest and most straight-forward method of standardization. Direct standardization adjusts the age-specific rates observed in the small area to the age distribution of a standard population (Lilienfeld & Stolley, 1994). Using direct standardization, the age-adjusted death rate is a weighted average of the age-specific death rates, where the age-specific rates are the relative age distribution of the standard population (i.e., the percentage of the standard population in each age group).

Direct standardization can present problems when age-group-specific rates for small areas are unstable. In such cases, indirect standardization of rates may be used. Indirect standardization adjusts the overall standard population rate to the age distribution of the small area (Lilienfeld & Stolley, 1994). Indirectly standardized rates are based on the standard mortality or morbidity ratio (SMR) and the crude rate for a standard population.

An indirectly standardized death or disease rate (ISR) can be computed as:

$$ISR = SMR * R_s$$

$$SMR = \frac{\text{observed deaths/disease in the small area}}{\text{expected deaths/disease in the small area}} = \frac{D}{e} = \frac{D}{(R_{si} * P_i)}$$

Where...

R_s = the crude death/disease rate in the standard population

R_{si} = the age-specific death/disease rate in age group i of the standard population (# deaths/population count)

P_i = the population count in age group i of the small area

It is technically appropriate to compare indirectly standardized rates only with the rate in the standard population, not with each other.

Age and sex adjusted birth rates (ASABR) were computed using the following formula:

$$ASABR = \sum f_a \, (P^f_a / P) * 1000$$

Where...

$\sum f_a = \sum (b_a / P^f_a)$ is age specific birth rate in a particular population

P^f_a is the age-specific female population count in the standard population

P is the total population (both sexes) in standard population

Age-adjusting is not necessary when only age-specific rates are used, when the population of study has a narrow age range, or when it is desired to report the crude rate, regardless of age effects. Age-adjustment and calculation of 95% confidence intervals for the 1996 Utah Health Status Survey were accomplished using SUDAAN software (Shah, Barnwell & Bieler, 1997), which takes into account the design effects inherent in complex survey data (Lee, Forthoger & Lorimor, 1989).

Calculation of Confidence Limits

A rate calculation may be of limited value when derived from a small population. Rates based on small numbers are statistically more likely to be affected by chance variation and have large variability over time. One way of dealing with small numbers is to use confidence intervals for help in interpreting the rates. The confidence interval is a range of values within which the "true" value of the rate is expected to occur.

A common formula for calculating a confidence interval is that for a proportion: CI = 1.96 * {SQRT of [(p * 1-p)/n]} where p = the proportion, and n = the size of the population at risk. When calculating confidence intervals for rates based on rarely occurring events (fewer than 20 events), the formula differs, and the Poisson distribution must be used. The confidence interval for directly standardized rates (DSR) can be computed as follows:

$$\begin{aligned} CI(DSR) &= \pm 1.96 * SE(DSR) * K \\ &= \pm 1.96 * SQRT(VAR(DSR)) * K \\ &= \pm 1.96 * SQRT(W_i^2 * Var(R_i)) * K \\ &= \pm 1.96 * SQRT(W_i^2 * ((R_i * (1 - R_i))/P_i)) * K \end{aligned}$$

Where...

SE(DSR) = the standard error of the directly standardized rate

K = a constant (e.g., 100,000) that is being used to communicate the rate

W_{si}^2 = the population weight for the ith age group in the standard population

R_i = the age-specific death/disease rate in the ith age group of the small area population (# deaths/population count)

P_i = the population count in age group i of the small area

For indirectly standardized rates based on events that follow a Poisson distribution and for which the ratio of events to total population is small (<.3) and the sample size is large, the following two methods can be used to calculate confidence interval (Kahn & Sempos, 1989).

(1) When the number of events >20:

$$CI(ISR) = (SMR \pm 1.96\ SQRT(SMR/e)) * R_s * K$$

Where...

R_s = the crude death/disease rate in the standard population

K = a constant (e.g., 100,000) that is being used to communicate the rate

SMR = observed deaths in the small area / expected deaths in the small area

e = expected deaths/disease in the small area = $(R_{si} * P_i)$

R_i = the age-specific death/disease rate in the ith age group of the small area population (# deaths/population count)

P_i = the population count in age group i of the small area

(2) When the number of events <=20:

LL(ISR) = (Lower limit for parameter estimate from Poisson table/e)) * R_s * K
UL(ISR) = (Upper limit for parameter estimate from Poisson table/e)) * R_s * K

Where LL is the lower confidence interval limit, and UL is the upper confidence interval limit. For measures based on events that occurred over multiple years, the number of events refers to the total number of events during the time period, an not the average annual number of events.

Mapping and Statistical Software

ArcView geographic informations system software was used to create the maps found in this report. The software applications used for data analysis included SAS and SUDAAN.

Definition of Measures

Measure	Definition	Data Source[4]	Denominator	Age-Adjustment	Confidence Limits
Median Age	Weighted average of the median age of all ZIP code areas included in the small area.	CACI Marketing, Inc.	All members of the population	No	Not calculated
Per Capita Income	Weighted average of the per capita income of all ZIP code areas included in the small areas.	CACI Marketing, Inc.	All members of the population	No	Not calculated
Overall Health Status	Survey item[1]	1996 Utah Health Status Survey, Utah Department of Health	All members of the survey sample	Age-adjusted to 1996 Utah population using SUDAAN software	95% confidence limits calculated using SUDAAN software
Cigarette Smoking	Survey item[2]	1996 Utah Health Status Survey, Utah Department of Health	All members of the survey sample	Age-adjusted to 1996 Utah population using SUDAAN software	95% confidence limits calculated using SUDAAN software
Health Insurance Coverage	Survey item[3]	1996 Utah Health Status Survey, Utah Department of Health	All members of the survey sample	Age-adjusted to 1996 Utah population using SUDAAN software	95% confidence limits calculated using SUDAAN software
Birth Rate	Number of births per 1,000 population	UDOH Vital Records births data set	All members of the population	No	95% confidence intervals calculated (1.66 * s.e.)
General Fertility Rate	Number of births per 1,000 women age 15-44	UDOH Vital Records births data set	All females in the population age 15-44	No	95% confidence intervals calculated (1.66 * s.e.)
Births to Adolescents	Number of births to adolescents age 10-17 per 1,000 adolescent females age 10-17 in the population	UDOH Vital Records births data set	All females in the population age 10-17	No	95% confidence intervals calculated (1.66 * s.e.)

Definition of Measures (continued from previous page)

Measure	Definition	Data Source[4]	Denominator	Age-Adjustment	Confidence Limits
Low Birth Weight	Percentage of live-born infants weighing less than 2,500 grams at birth	UDOH Vital Records births data set	All live-born infants during the time period	No	95% confidence intervals calculated (1.66 * s.e.)
Prenatal Care	% of mothers delivering live infants who did not receive prenatal care in the first trimester.	UDOH Vital Records births data set	All live-born infants during the time period	No	95% confidence intervals calculated (1.66 * s.e.)
Infant Mortality	Deaths among infants under 1 year of age per 1,000 live births	UDOH Vital Records births and deaths data sets	All live-born infants during the time period	No	95% confidence intervals calculated (1.96 * s.e.)
Deaths from All Causes	Deaths per 100,000 population. ICD-9 codes 001-999	UDOH Vital Records deaths data set	All members of the population	Age-adjusted to Utah 1990 population using the indirect method[5]	95% confidence intervals calculated for indirectly standardized rates[6]
Motor Vehicle Crash Deaths	Motor vehicle crash deaths per 100,000 population. ICD-9 codes E810-E825	UDOH Vital Records deaths data set	All members of the population	Age-adjusted to Utah 1990 population using the indirect method[5]	95% confidence intervals calculated for indirectly standardized rates[6]
Suicide	Suicides per 100,000 population. ICD-9 codes E950-E959	UDOH Vital Records deaths data set	All members of the population	Age-adjusted to Utah 1990 population using the indirect method[5]	95% confidence intervals calculated for indirectly standardized rates[6]
Lung Cancer Deaths	Lung cancer deaths per 100,000 population. ICD-9 code 162	UDOH Vital Records deaths data set	All members of the population	Age-adjusted to Utah 1990 population using the indirect method[5]	95% confidence intervals calculated for indirectly standardized rates[6]
Cardiovascular Disase Deaths	Cardiovascular disease deaths per 100,000 population. ICD-9 codes 390-448	UDOH Vital Records deaths data set	All members of the population	Age-adjusted to Utah 1990 population using the indirect method[5]	95% confidence intervals calculated for indirectly standardized rates[6]

1. "In general, would you say your health is excellent, very good, good, fair, or poor." Survey items were reported by one survey respondent for all household members.
2. Has smoked at least 100 cigarettes in lifetime, and was a current smoker at the time of the survey. Survey items were reported by one survey respondent for all household members.
3. The next few questions ask about health insurance. By health insurance I mean private and employer plans, prepaid plans such as HMOs, and government plans, such as Medicare. Are all, some, or none of the members of your household currently covered by health insurance? [If "some"] Which members of your household ARE covered by any kind of health insurance, public or private? Survey items were reported by one survey respondent for all household members.
4. All population estimates were purchased from CACI Marketing, Inc.
5. The indirect method of age-adjustment was used because there were small numbers of deaths in individual age strata. Indirect standardization adjusts the overall standard population rate to the age distribution of the small area (Lilienfeld & Stolley, 1994). It is technically appropriate to compare indirectly standardized rates only with the rate in the standard population, not with each other.
6. Confidence intervals were calculated using a method recommended for indirectly standardized rates (Kahn & Sempos, 1989). For the death data, 95% confidence intervals were used.

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