

PRIMARY CARE SENSITIVE EMERGENCY DEPARTMENT VISITS IN UTAH, 2001



April 2004

Utah Department of Health
Health Data Committee
Center for Health Data
Office of Health Care Statistics

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EXECUTIVE SUMMARY

Hospital Emergency Departments (ED) have a critical role as a safety net provider in a community. For the uninsured, underinsured, or those who otherwise have limited access to primary care providers, the ED serves as the primary means of entry into the health care system. Therefore, ED utilization profiles can provide proxy information about the accessibility to primary and preventive care in a community.

This report uses the 2001 Utah emergency department outpatient-encounter data to examine policy issues related to access to primary care and health care seeking behavior in Utah. Using the New York University (NYU) algorithm of classifying ED patient emergency status, we categorized all Utah residents' ED visits into one of five emergency statuses: (1) non-emergent, (2) emergent but primary care treatable, (3) emergent-ED needed but preventable/avoidable, (4) emergent-ED needed-not preventable/avoidable, and (5) other (which included injuries and conditions related to mental health, alcohol, and substance abuse, and residual diagnoses codes). We use the first three categories as an indicator for primary care sensitive emergency department visits.

Our analyses showed that:

1. Primary Care Sensitive (PCS) ED visits are common.

- Four out of every ten ED visits in 2001 were PCS ED visits.

2. PCS ED visits consume significant health care dollars.

- PCS ED visits were associated with use of substantial health care resources totaling approximately \$113.5 million (40% of total ED facility charges).
- About \$16 million in ED charges occurred for patients who were uninsured, intended to pay for care themselves, received charity care or whose insurers were unknown to the reporting emergency department. EDs that provided these treatments were likely to be uncompensated or under-compensated.
- Approximately \$17 million ED facility charges were billed to the Medicaid Program for a total of 48,712 PCS ED visits. Medicaid's reimbursement policy for some PCS ED visits is to pay primary care rates rather than ED rates.

3. PCS ED visits are more prevalent among certain subpopulations

- Children under 15 years of age were slightly more likely than other age groups to have PCS ED visits.
- Utah Medicaid enrollees had the highest percentage (56.9%) of PCS ED visits among all payers.
- Small geographic areas that had higher rates of hospitalization due to ambulatory sensitive conditions (e.g. children's asthma hospitalizations) also tended to have a higher rate of PCS ED visits. In small areas where the rate for prenatal care during the first trimester was low, the rate of PCS ED visits was higher.

- A cluster of low-income small geographic areas along the Wasatch Front and the majority of rural small areas had ED utilization rates that were greater than the overall state rate.
- Approximately 53% of ED visits in the Tri-County Local Health District (Small area number 53 = Duchesne, Uintah and Daggett counties) were for PCS conditions; compared to a state rate of 44%. Other areas where at least half of ED visits were classified as PCS conditions are Rose Park (No. 17) at 52%, Glendale (No. 21) at 51%, and South Salt Lake (25) at 50%.

This report provides a baseline for measuring PCS ED visits in Utah. The Utah Department of Health will provide follow-up information to policy makers, community access initiatives, health plans, patient education groups and the public. We hope that this type of analyses can assist improvements of access to primary and preventive care in Utah.

Caveats of Using the Report

- The New York University ED algorithm was derived using administrative/claim data and medical records in New York City. New York City and Utah differ substantially in the demographic composition of their populations, primary care delivery systems, and general health care environments.
- The NYU ED algorithm development team is in the process of deriving classification weights based on analysis from a national sample. Utah Department of Health plans to adopt the new national ED algorithm when it is available.

ACKNOWLEDGMENTS

This report is developed under the direction of the Utah Department of Health's Executive Director's Office and the Health Data Committee. The Division of Health System Improvement Bureau of Emergency Medical Services provided the data for the analysis. Numerous individuals and organizations made important contributions to this report's development.

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Salt Lake Valley Health Care Coverage Coalition, September 17, 2002

A telephone conference for hospital administrators and ED directors, facilitated by Bruce Murray, UHA, September 24, 2002.

Utah Health Data Committee, October 8, 2002

Special thanks go to Professor John Billings

At Center for Health and Public Service Research
New York University

Professor Billings, Principal Investigator, made a special visit to Salt Lake City, Utah to meet with the physician advisory panel for this report. After Professor Billings thoroughly explained the New York University-developed emergency department classification algorithm and its uses in the nation, the physician panel endorsed the method used in this report.

Utah Emergency Department Encounter Database

Administrative Rule R426-1-7 (i) mandates all Utah licensed hospitals to report information on emergency department patient encounters to the Bureau of Emergency Medical Services (BEMS), Utah Department of Health. The Department releases annual reports on Utah Emergency Department Utilization and Charges Profile Statewide Summary. The public also can access the Utah Emergency Department Encounter Database's summary information from Utah's Indicator-Based Information System for Public Health (IBIS-PH) at <http://health.utah.gov/ibis-ph/>.

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INTRODUCTION

Use of Emergency Department and Access to Primary and Preventive Care

Hospital Emergency Departments (ED) have a critical role as a safety net provider in a community. For the uninsured, underinsured, or those who have no contact with primary care providers, the ED serves as the primary means of entry into the health care system. Individuals who regularly get their health care at an emergency department do not have regular health care providers or continuity in their care, use costlier services, may be more seriously ill by the time they arrive at the ED and often receive treatment that could have been avoided if they received primary care. As public insurance covered benefits and physician reimbursement rates are reduced during an economic recession, low-income residents may be depending on emergency department care even more than before.

The 2001 Utah Health Status Survey estimated that about 8.7% of Utah residents had no insurance coverage in 2001, about 8.8% had no usual place of medical care, and 4.6% mentioned the emergency department or an urgent care center as their usual point of access to medical care. These findings indicate that a significant segment of Utah's population may have the potential to use emergency departments as a source of care due to lack of access to primary and preventive care (Utah Office of Public Health Assessment, 2002). Also, ED services fill a gap for patients when other health services are not available such as during evenings and weekends. Therefore, ED utilization profiles can provide proxy information about the accessibility to primary and preventive care in a community.

About This Report

This report examines the magnitude and pattern of primary care sensitive emergency department (PCS ED) visits in Utah using statewide, all-payer, ED outpatient-encounter data in 2001. The report will address the following questions:

- What is the magnitude of PCS ED visits in Utah?
- What is the resource use associated with PCS ED visits in Utah?
- Were Utahns more likely to make PCS ED visits during late evening, early morning, or weekends when doctor offices or clinics are not available?
- What population subgroups show relatively high incidence of PCS ED visits?
- What is the financial burden for payers and providers to cover PCS ED visits?
- What geographic areas in Utah show relatively high incidence of PCS ED visits?
- Do the findings provide evidence of a relationship between PCS ED visits and access to primary care or prenatal care?

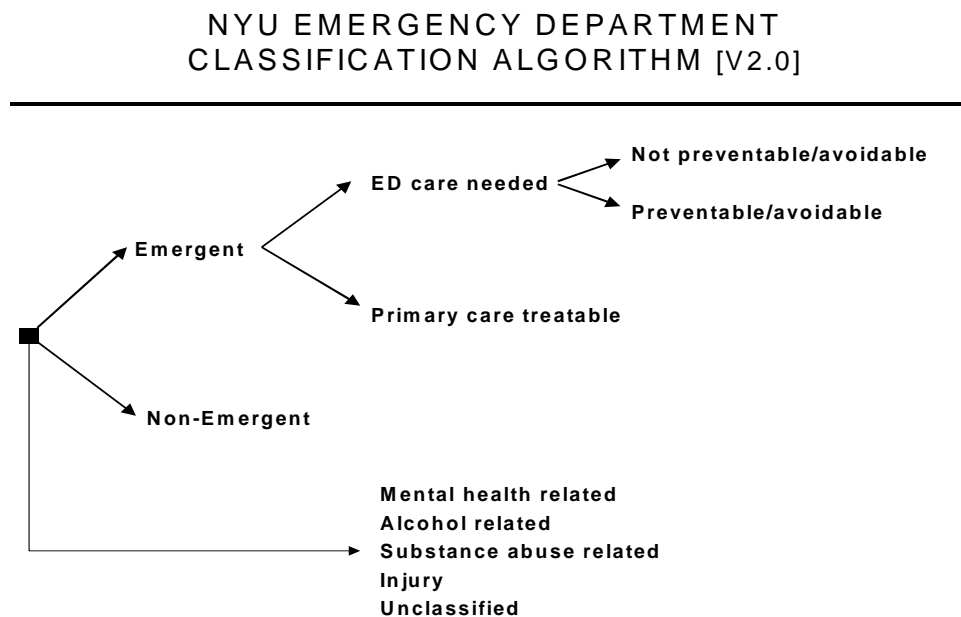
DATA AND METHODOLOGY

Utah's Emergency Department Patient Encounter Database

The data used in this report are patient encounter-level information from the Utah Bureau of Emergency Medical Services' Emergency Department Patient Encounter Database collected from all licensed hospital emergency departments in Utah. A patient encounter means a consolidated record of complete billing, medical, and personal information describing a patient, services received, and charges billed for initial and follow-up visits to an emergency department (Utah Bureau of Emergency Medical Services, 2000). The term "visit" is also used in this report interchangeably with "encounter" in a technical sense. The report's analyses focuses on ED encounters during calendar year 2001 that did not result in admission into the hospital as an inpatient stay (outpatient). ED visits by individuals whose residence was outside Utah or unknown were excluded from the analyses.

The NYU ED Classification Algorithm

The New York University Center for Health and Public Service Research has developed an algorithm to classify ED utilization from the perspective of primary and preventive care (Billings, Parikh and Mijanovich, 2000a). The algorithm was developed with the advice of a panel of emergency medicine and primary care physicians, and it is based on an examination of a sample of almost 6,000 full patient ED records. Data abstracted from these records included initial complaint, presenting symptoms, vital signs, medical history, age, gender, diagnoses, procedures performed, and resources used in the ED. Based on this information, each case was classified into one of the following categories of emergency status:



- Non-emergent - The patient's initial complaint, presenting symptoms, vital signs, medical history, and age indicated that immediate medical care was not required within 12 hours.
- Emergent/Primary Care Treatable - Based on information in the record, treatment was required within 12 hours, but care could have been provided effectively and safely in a primary care setting. The

complaint did not require continuous observation, and no procedures were performed or resources used that are not available in a primary care setting (e.g., CAT scan or certain lab tests).

- **Emergent - ED Care Needed - Preventable/Avoidable** - Emergency department care was required based on the complaint or procedures performed/resources used, but the emergent nature of the condition was potentially preventable/avoidable if timely primary care or ambulatory care had been received during the episode of illness (e.g., asthma flare-ups, diabetes, congestive heart failure, etc.)
- **Emergent - ED Care Needed - Not Preventable/Avoidable** - Emergency department care was required and ambulatory care treatment could not have prevented the condition (e.g., trauma, appendicitis, myocardial infarction, etc.). In this report we use "ED Warranted" as an alternative reference to this category.

Since the original development of the algorithm, certain users (such as community health access projects) have expressed an interest in separately examining cases involving a primary diagnosis of injury, mental health problems, alcohol, or substance abuse. Accordingly, the NYU algorithm development team has excluded these conditions from the original standard classification scheme. A residual of other conditions (approximately 15% of the NYU sample) did not have large enough sample cases to assign percentages for the standard classification.

The NYU algorithm is not intended as a triage tool or a mechanism to determine whether ED use in a specific case is "appropriate" (e.g., for reimbursement purposes). It is designed for population-based studies. Nor does the NYU algorithm assign all visits in each diagnosis category, which is represented by the International Classification of Diseases Version 9 Clinical Modification (ICD-9-CM) code, to only one emergency status, such as non-emergent. Since few diagnostic categories or ICD-9-CM codes are clear-cut in all emergency status, the algorithm assigns each diagnosis category one or more probability weights (on a percentage basis) to one or more emergency status categories, which reflects this potential uncertainty and variation. Based on chart review findings, each diagnosis is broken down into the proportion of visits that fall into each category. In the case of ICD-9-CM code 599.0, urinary tract infections, roughly two-thirds of these were found to be non-emergent, while the remaining one-third were emergent and split between primary care treatable and ED needed but preventable. Table 1 provides some examples in assigning probability weights to a principal diagnosis code for an ED visit:

Table 1. Examples of Probability of Emergency Status Assigned to Selected ICD-9-CM Codes and Hypothetic Number of ED Patients for Each Condition

	ICD-9-CM Code - Description							
	599.0-Urinary Tract Infection		789.0-Abdominal Pain		703.0-Ingrown Nail		462-Acute Sore Throat	
	Weights	# of Patients	Weights	# of Patients	Weights	# of Patients	Weights	# of Patients
Non-Emergent	66.0%	66	3.8%	4	83.3%	83	67.4%	67
Emergent, Primary Care Treatable	17.0%	17	71.7%	72	16.7%	17	26.7%	27
Emergent, E.D. Needed, Preventable/Avoidable	17.0%	17	0.0%	0	0.0%	0	0.0%	0
Emergent, E.D. Needed, Not Preventable/Avoidable	0.0%	0	24.5%	25	0.0%	0	5.9%	6
Total	100.0%	100	100.0%	100	100.0%	100	100.0%	100

Source: The New York University ED Classification Algorithm, Version 2.

The Concept of Primary Care Sensitive Emergency Department (PCS ED) Visits

Studies in New York City revealed that four out of five ED visits for reasons other than injury, mental health, alcohol or substance abuse were for non-emergent conditions, for care that could otherwise be provided in a primary care setting, or for potentially preventable conditions (Billings, Parikh and Mijanovich, 2000a). A follow-up survey of New York City residents showed that most patients knew their conditions were not an emergency (Billings, Parikh and Mijanovich, 2000c). Factors that contributed to using the ED for non-urgent conditions included the convenience and level of service offered by EDs that attracts patients. Typical comments from survey respondents claimed that alternative care settings involved long waits for appointments, disrespectful service, and inconvenient hours. Other studies have shown evidence of a relationship between some form of non-optimal use and access to primary care. For example, Petersen et al (1998) found that patients who did not have a regular doctor were more likely to use EDs for non-urgent conditions, even when the authors controlled for potential confounders, such as socio-demographics, health status, and comorbidity.

This report uses the concept of primary care sensitive (PCS) ED visits to encompass three emergency status categories in the NYU ED algorithm: (1) non-emergent, (2) emergent but treatable through primary care, and (3) emergent needing ED care but could have been preventable or avoidable. This concept reflects the recognition that the magnitude and pattern of “non-emergency” use of the emergency department are the result of a multitude of factors that include availability and accessibility of primary care system, patient’s health status, insurance coverage, referral patterns by providers, and overall relative preference for the ED as source of care.

Although we propose the concept of PCS ED visits, this report will analyze separately the three categories described above in order to show a full profile of ED uses in Utah. A combined “Other” category, including Mental Health/Alcohol/Substance Abuse Related Conditions (2.5% of all patient encounters in 2001), Injury (37.5%), and Unclassified (6.2%), will be discussed.

Utah Physician Panel’s Review of the NYU Algorithm

Because the derivation of the NYU algorithm involved the advice of a panel of ED and primary care physicians, it can be assumed that some degree of subjectivity has affected the resulting weights. Evidence of subjectivity can be gleaned from similar studies in this area. In a chart review of 266 ED patients in an urban teaching hospital, Gill, Reese and Diamond (1997) found that even when using the same criteria, health professionals frequently disagree about the urgency of care in ED patients. In a review of 892 adult ED visits, O’Brien and his colleagues (1997) saw only moderate agreement among internists, ED physicians, and ED nurses in assessing appropriateness of emergency department visits.

In order to get local providers’ “buy-in” for using the NYU algorithm in this report, the report advisors in Utah recommended conducting a physician review of selected Utah ED records with weights derived from the NYU algorithm. Three Utah physicians volunteered to serve on the panel. The panel included one practice physician of emergency medicine in a university teaching hospital; one practice physician of family practice in a rural clinic who is also on-call for a rural hospital ED on weekends; and a physician researcher in the Utah Department of Health.

A total of 30 ICD-9-CM codes were identified as the top ten high frequency cases by each of the four categories of the NYU algorithm in the Utah Emergency Department Encounter Database. These codes covered approximately 40% of all encounters in 2000 (See Appendix A). Nine codes appeared in more than one

category as one of the top ten high frequency codes. Headache (ICD-9-CM code 784.0) accounted for 8,269 weighted ED encounters and was the Number 1 reason for using emergency department services by Utahns in 2000.

Each member of the physician panel received a spreadsheet including the 30 ICD-9-CM codes, their labels/descriptions, the NYU algorithm's probability weights, the definition of each emergency status category, the number of medical charts reviewed by the NYU research team, the number of weighted ED encounters in Utah in 2000, as well as the Utah Medicaid reimbursement policy on these selected codes. Each reviewer evaluated the spreadsheet and independently provided a confidence score for the NYU weights assigned to each of the 30 ICD-9-CM codes.

The reviewers' confidence scores range from 5 (very confident about the priority weight in the NYU algorithm) to 1 (not confident at all). Each ICD-9-CM code has one priority weight. For example, ICD-9-CM code 599.0 (Urinary tract infections) has a priority weight (66.0%) under the non-emergent category, and the priority weight for 789.0 (Abdominal pain) is 71.7% under emergent, primary care treatable. If a physician reviewer rated 5 for 789.0 (Abdominal pain) that mean that he was "very confident about the assignment of the highest weight to the category of emergent, primary care treatable."

Appendix A shows the results from the physician panel's review. The average confidence scores of the 30 codes ranged from 2.00 to 4.67; the differences in the panel members' rating were from 1 to 3 points. Having analyzed the average confident scores, panel members' comments on the priority weights, and the Utah Medicaid ED reimbursement policy, the authors concluded that the panel's subjective ratings agreed with the NYU algorithm on 22 (73.3%) out of the 30 codes. The panel did not feel "confident" on the priority weights assignment for 8 codes (26.7%), based on very limited information they received.

The results from the Utah panel review were presented to Professor John Billings, Principal Investigator for the NYU ED algorithm. Billings made a special visit to Salt Lake City, Utah, to meet with the physician advisory panel for their ratings. He thoroughly explained the methods and processes of the development of the NYU algorithm and especially emphasized that this method was designed for population-based health care system or policy studies. The priority and secondary probability weights for each ICD-9-CM code were derived from primary data sources including patient initial complaint, presenting symptoms, vital signs, medical history, age, gender, diagnoses, procedures performed in several study samples; then assigned to an ICD-9-CM code in the population-based ED encounter database. The emergency status categories should never be used to judge an individual ED visit. For example, among 100 unspecified migraine (346.90) ED patients, medical care might not be required within 12 hours for 78 patients; 9 patients could be treated in a primary care setting if it were available; 13 out of 100 patients definitely needed ED care and their unspecified migraines were not preventable or avoidable. With a better understanding of the method of the NYU algorithm, the physician panel endorsed to use the NYU algorithm and the assigned weights, without any modification, in this report. This report will support assessment of adequate access to primary and preventive care in Utah and can be compared with other states' similar reports.

Caveats of Using This Report

Many states, including Utah, have established the "prudent layperson" standard for insurance coverage of ED use. The "prudent layperson" standard means that appropriate utilization should not be determined based on the diagnosis upon discharge from the ED but on the patients' perception that the symptoms they are experiencing could constitute a medical emergency. For example, a prudent layperson who is experiencing

significant chest pain would not know whether it was heart burn or a heart attack, so seeking ED care would be appropriate.

The NYU algorithm was derived using administrative/claim data and medical records in New York City. New York City and Utah differ substantially in the demographic composition of their populations, primary care delivery systems, and general health care environments. The NYU ED algorithm development team is in the process of deriving classification weights based on analysis from a national sample. Utah Department of Health plans to adopt the new national ED algorithm when it is released.

This report focuses on only some aspects of Utahns' ED utilizations. Injuries, mental health, alcohol and substance abuse related visits made up of 43% of total ED use in 2001. These conditions are not analyzed in this report. ED data users, who are interested in ED utilization classified by major disease/condition categories such as maternal care, infectious or chronic diseases, can use another series of annual reports released by the Utah Department of Health, entitled "Utah Emergency Department Utilization and Charges Profile, Statewide Summary," at <http://health.utah.gov/ems/data/er/>.

Given the limitations of this report, users may still find useful information from comparative and trend analyses within Utah sub-populations or geographic areas. For example, if a sizable percentage of patients in a Utah community use hospital EDs but could be more efficiently taken care of elsewhere, then this issue warrants policy discussion, intervention or service improvement.

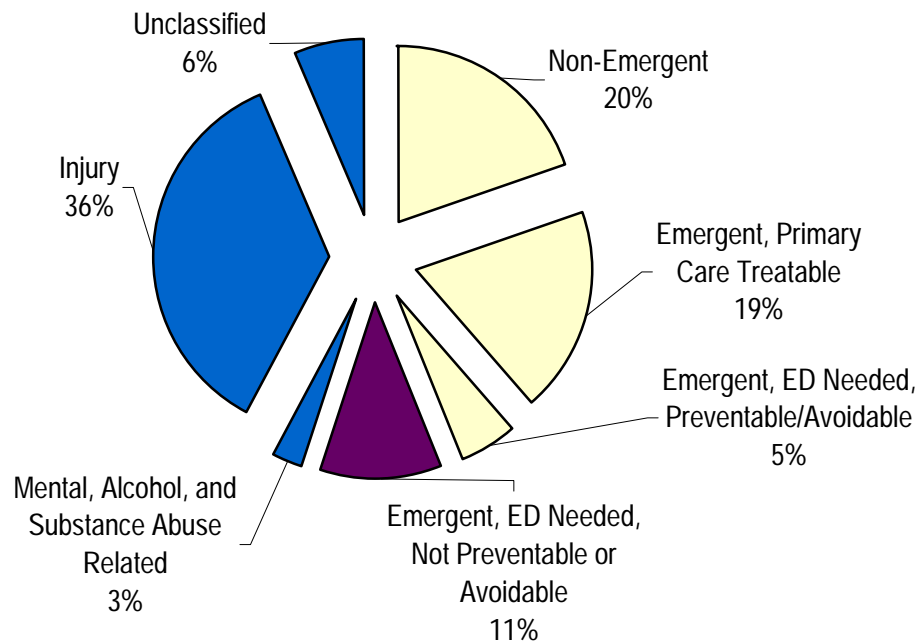
FINDINGS

What is the magnitude of primary care sensitive (PCS) ED visits in Utah?

Table 2 shows the overall outpatient ED utilization pattern of Utah residents in 2001 and summary of hospital total charges associated with each category. Figure 1 is a graphic representation of the distribution contained in Table 2.

About four of every ten Utah outpatient emergency department visits in 2001 were PCS ED visits. Excluding emergency department visits for mental health, alcohol, substance abuse and injuries, the percentage of PCS ED visits rises to about 80%. The NYU Center for Health and Policy Research also reported that PCS ED uses counted for 85% of overall ED visits for children, age 0 to 17 years, and 81% for adults, age 18 to 64 years, in New York City, 1998, excluding ED visits for mental health, alcohol, substance abuse and injuries (Billings 2003).

Figure 1. Percentage of E.D. Outpatient Visits by Emergency Status: Utah, 2001



What is the resource use associated with PCS ED visits in Utah?

Table 2 also shows the average, total and percent distribution of charges incurred by ED visits by emergency status. Charges are included in this report as a proxy for the degree of resource use at hospitals. Charges in the ED database include hospital charges defined by the UB92 form, but exclude physician's charges defined by the HCFA1500 form. Charges are not the same as the cost of care provided, nor of payment received for it. In 2001, Utah residents' ED visits incurred a total of about \$281 million in ED hospital charges, of which nearly \$113 million or 40% was associated with conditions that were primary care sensitive.

Average charges are shown in Table 2 as a proxy measure of resource use. As expected, the average charges increase from non-emergent (\$347) to emergent, ED needed, and not preventable/avoidable (\$815).

While ED visit for non-emergent conditions comprised about 19.8% of all ED encounters in 2001, they accounted for only 14% of all total charge. ED visits comprised about 11% of all ED encounters but accounted for about 18% of all total charges.

To the extent that differences in charges reflect the relative cost of treating ED visits for the various categories, the authors surmise that for every dollar spent for ED visits for which ED care was needed and not preventable or avoidable, \$2 were spent for PCS ED visits. This information demonstrates the potential savings in the health care system if PCS ED visits can be minimized through improved access to primary care and encouraging people to use it instead of the ED.

Table 2. Profile of Emergency Department Outpatient Encounters: Utah Residents, 2001

	Number of Encounters	Percent of all Encounters	Average charge	Total charges	Percent of all charges
All	572,439	100%	\$492	\$281,643,149	100%
Primary Care Sensitive Conditions	251,704	43.9	\$451	\$113,516,365	40.3
Non-Emergent	113,255	19.8	\$347	\$39,339,302	14
Emergent, Primary Care Treatable	107,861	18.8	\$526	\$56,691,682	20.1
Emergent, ED Needed, Preventable/Avoidable	30,588	5.3	\$572	\$17,485,381	6.2
Emergent, ED Needed, Not Preventable or Avoidable	63,513	11.1	\$815	\$51,726,414	18.4
Mental, Alcohol, and Substance Abuse Related	15,392	2.7	\$501	\$7,707,986	2.7
Injury	205,338	35.9	\$436	\$89,507,860	31.8

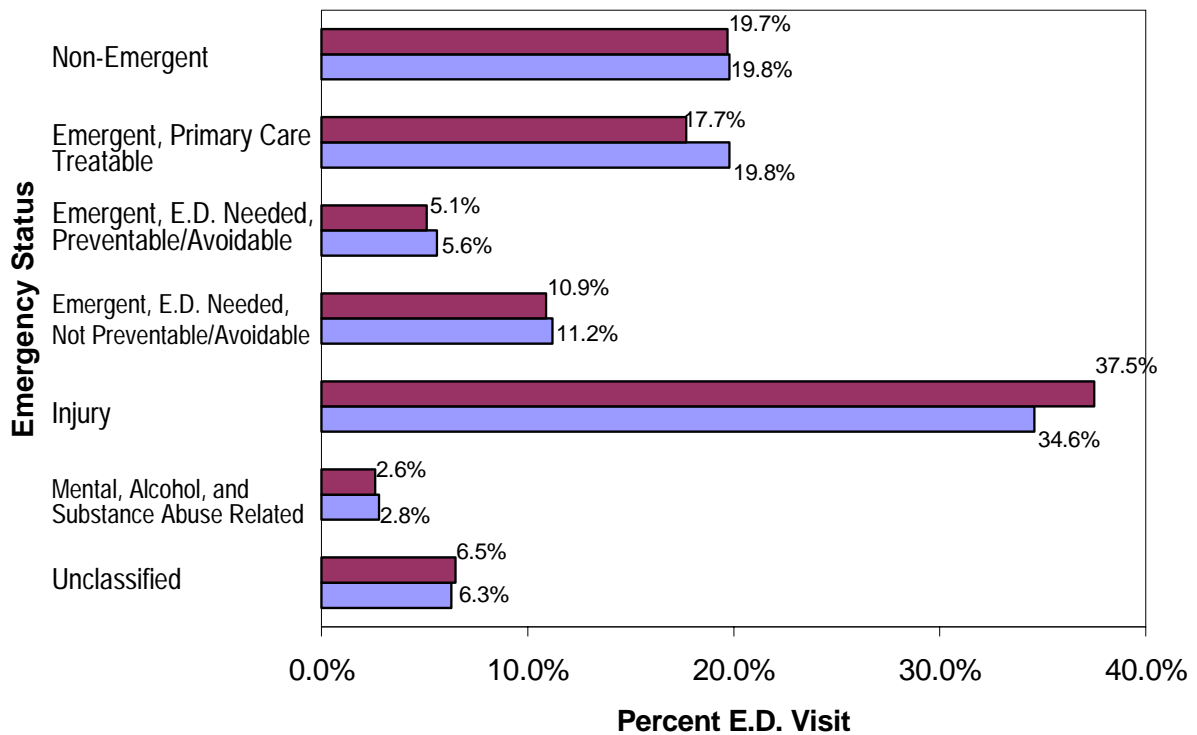
Data Source: Utah Emergency Department Encounter Database, 2001. Utah Department of Health.

Note: Not a comprehensive profile; therefore, percentages do not equal 100%.

Were Utahns more likely to make PCS ED visits during late evening, early morning, or weekends when doctor offices or clinics are not available?

To test this hypothesis, the authors divided all ED visits into two groups according to admission time and day. One group contains visits that occurred during weekdays from 7:00 AM to 7:59 PM, another group for visits during weekends and late night or early morning (8:00 PM to 6:59 AM) in weekdays. Figure 2 presents the distribution of ED visits by emergency status and time/day of encounters. No significant difference in time or day of the occurrences of PCS ED visits was found.

Figure 2. Percentage of Emergency Department Outpatient Visits by Emergency Status and Time of Visits: Utah Residents, 2001



What population subgroups show relatively high incidence of PCS ED visits?

Gender

Table 3 shows the emergency status of outpatient ED visits by gender. PCS ED visits are the sum of the three emergency statuses in the columns to the left in this table. The column percent section (percent of emergency status) reveals a greater proportion of females in each of the ED status categories. The rows containing percentages of all ED visits by each gender suggest a higher percentage of visits by females were for non-emergent conditions (22 %) compared to males (17%). However this difference appears to reflect the fact that a greater proportion of ED visits by males are for injury compared to females.

Figure 3 shows the ED utilization rates by gender and emergency status. Utah women had a higher rate of PCS ED visits than Utah men. In 2001, about 13 PCS ED outpatient visits occurred for every 100 Utah females and about nine for every 100 Utah males. Meanwhile, about two to three ED-warranted visits were made by every 100 Utah men or women.

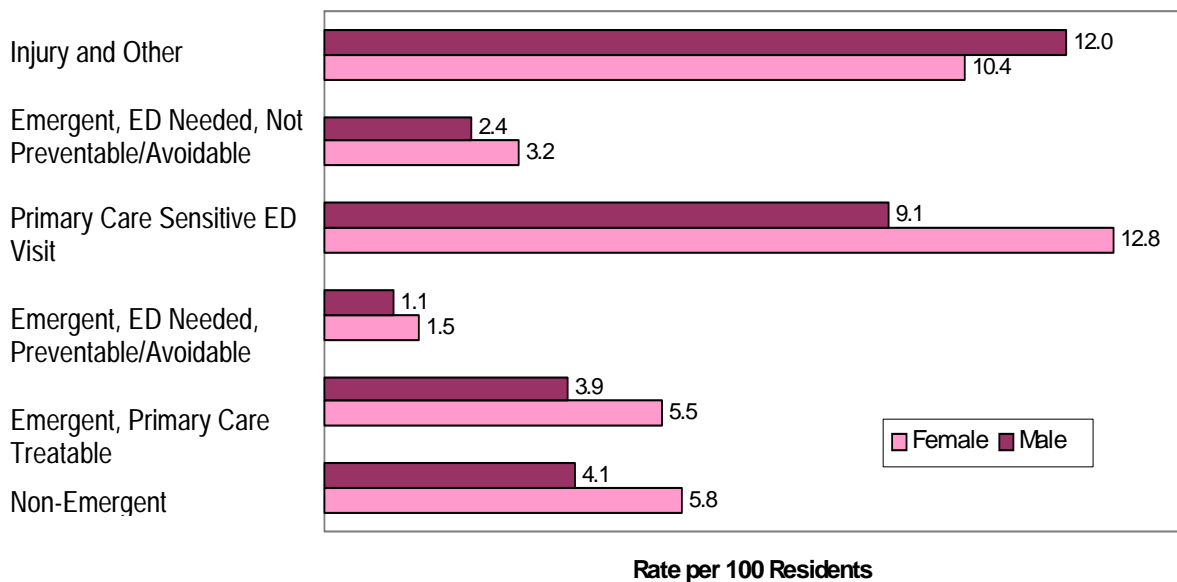
Table 3. Patient Status of Emergency Department Outpatient Visits* by Gender: Utah Residents, 2001

	Primary Care Sensitive ED Visits				Primary Care Sensitive ED visit	Emergent, ED Needed, Not Preventable/Avoidable	Injury and Other
	All	Non-Emergent	Emergent, Primary Care Treatable	Emergent, ED Needed, Preventable/Avoidable			
Number of visits							
All	572,424	113,253	107,859	30,587	251,699	63,511	257,214
Female	301,550	66,379	62,612	17,600	146,590	36,088	118,872
Male	270,874	46,874	45,247	12,987	105,109	27,423	138,342
Percent of ED visits for each gender category							
All	100.0	19.8	18.8	5.3	44.0	11.1	44.9
Female	100.0	22.0	20.8	5.8	48.6	12.0	39.4
Male	100.0	17.3	16.7	4.8	38.8	10.1	51.1
Patient status rate, per 100 residents							
All	24.9	4.9	4.7	1.3	11.0	2.8	11.2
Female	26.3	5.8	5.5	1.5	12.8	3.2	10.4
Male	23.5	4.1	3.9	1.1	9.1	2.4	12.0

Source: Utah Emergency Department Encounter Database, 2001. Utah Department of Health.

*Visit refers to a consolidated billed ED encounter which may include follow up visits, such as removal of stitches.

Figure 3. Emergency Department Utilization Rate per 100 Utah Residents, 2001



Age

Several studies based in urban settings have shown various ways in which the ED is used by adults over 65 years of age. These older adults are more likely to arrive with high or intermediate urgency conditions (e.g., Singal, et al 1992). They have a low rate of inappropriate visits (e.g., Baum SA, Rubenstein 1987). They arrive at EDs more often by ambulance. They often need more high-technology intervention. They require longer assessment time in the ED. They are more frequently hospitalized than younger patients (Hamdy, et al. 1997).

Table 4 shows the emergency status of outpatient ED visits by age group. Differences by age in the magnitude of PCS ED visits can be seen in Table 4. These differences reflect wide variation in the types of conditions for which individuals of various ages visit the emergency department. Children below 15 years of age were slightly more likely than the other age groups to seek care in emergency departments for PCS conditions (47.9%). More than half of ED visits (51.7%) made by teens and young adults, age 15-24, were injuries or mental, alcohol, and substance abuse related visits. Seniors, age 65 years or older, had the highest percentage of ED-warranted visits (17.7%).

Figure 4 reports PCS ED visit rates by age group. Utah youth, age 15 to 24 years, have the highest rate of PCS ED visits compared to other age groups. One out of every five Utahns, age 15 to 24 years, will make one PCS ED visit annually.

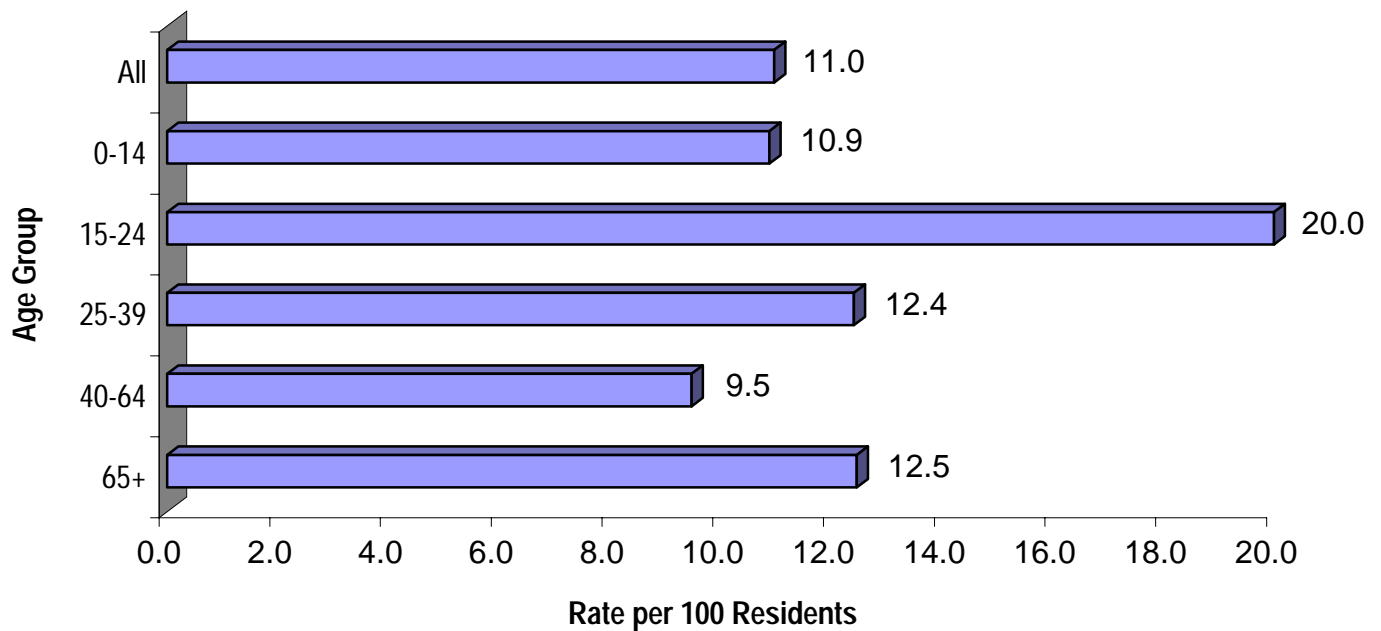
Table 4. Patient Emergency Status of Emergency Department Visits by Patient Age: Utah Residents, 2001

	Primary Care Sensitive ED Visits				Primary Care Sensitive ED Visit	Emergent, ED Needed, Not Preventable or Avoidable	Injury and Other
	All	Non-Emergent	Emergent, Primary Care Treatable	Emergent, ED Needed, Preventable/Avoidable			
Number of Visits							
All Ages	572,439	113,251	107,856	30,586	251,693	63,510	257,236
0-14	138,242	28,478	29,104	8,694	66,275	9,914	62,053
15-24	121,833	22,353	20,260	5,206	47,820	10,978	63,035
25-39	138,413	29,755	25,039	6,310	61,103	15,843	61,467
40-64	120,113	23,645	22,420	6,224	52,290	17,245	50,578
65+	53,786	9,020	11,033	4,152	24,205	9,530	20,051
Percent of visits for each age group							
All Ages	100.0	19.8	18.8	5.3	44.0	11.1	44.9
0-14	100.0	20.6	21.1	6.3	47.9	7.2	44.9
15-24	100.0	18.3	16.6	4.3	39.3	9.0	51.7
25-39	100.0	21.5	18.1	4.6	44.1	11.4	44.4
40-64	100.0	19.7	18.7	5.2	43.5	14.4	42.1
65+	100.0	16.8	20.5	7.7	45.0	17.7	37.3
Patient Emergency Status Rate, per 100 residents							
All Ages	24.9	4.9	4.7	1.3	11.0	2.8	11.2
0-14	22.7	4.7	4.8	1.4	10.9	1.6	10.2
15-24	50.9	9.3	8.5	2.2	20.0	4.6	26.3
25-39	28.1	6.0	5.1	1.3	12.4	3.2	12.5
40-64	21.8	4.3	4.1	1.1	9.5	3.1	9.2
65+	27.7	4.6	5.7	2.1	12.5	4.9	10.3

Source: Utah Emergency Department Encounter Database, 2001. Utah Department of Health.

*Visit refers to a consolidated billed ED encounter which may include follow up visits, such as removal of stitches.

FIGURE 4. Primary Care Sensitive ED Rates per 100 Utah Residents by Age Group, 2001



Payer

One factor that can significantly affect the magnitude of PCS ED visits is insurance coverage. An individual's decision to visit the ED for certain symptoms may depend on their insurance policies' coverage, co-payment, and pre-authorization requirement for ED visits. Table 5 shows the profile of emergency department outpatient visits by primary payer of the patient. This table reports that Utah Medicaid program has the highest percentage (56.9%) of PCS ED visits, followed by Children's Health Insurance Program (47.6%), Medicare and other government programs (46.4%), and uninsured/uncompensated care population (45.7%). The commercial insured population has a slightly lower percentage (40.6%) of PCS ED visits.

What is the financial burden for payers and providers to cover PCS ED visits?

Figure 5 reveals the distribution of total emergency department charges for PCS ED visits by type of primary payers in Utah, 2001. Primary care sensitive ED visits were associated with substantial financial resources, that is, approximately \$113.5 million (40% of total ED facility charges). Approximately \$17 million ED charges were billed to the Utah Medicaid Program for 48,712 PCS ED visits and \$720,000 for 2,659 CHIP patient visits. About \$16 million ED charges occurred for the patients who were uninsured, intended to pay for care themselves, received charity care or whose insurers were unknown to the reporting emergency department. The emergency departments that provided these treatments were likely to be uncompensated or under-compensated.

Table 5. Patient Emergency Status of Emergency Department Visit* by Patient Primary Payer: Utah Residents, 2001

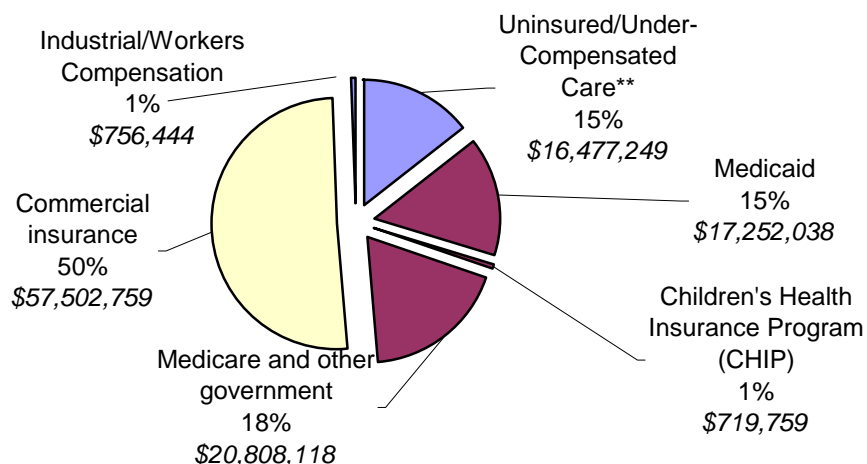
	Primary Care Sensitive E.D. Visits				Primary Care Sensitive ED visit	Emergent, ED Needed, Not Preventable or Avoidable	Injury and Other
	All	Non-Emergent	Emergent, Primary Care Treatable	Emergent, ED Needed, Preventable /Avoidable			
Number of visits*							
All Payers	572,439	113,255	107,861	30,588	251,704	63,513	257,222
Uninsured/Under-compensated Care**	86,431	18,367	16,470	4,634	39,472	8,492	38,467
Self pay / Charity / Unclassified	69,910	15,289	13,416	3,676	32,382	7,036	30,492
Unknown	1,365	138	49	11	198	28	1,139
Not reported	15,156	2,941	3,005	947	6,892	1,428	6,836
Medicaid	85,678	21,621	21,150	5,941	48,712	8,577	28,389
Children's Health Insurance Program	5,582	1,165	1,130	364	2,659	408	2,515
Medicare and other government	70,756	12,917	14,604	5,331	32,851	11,615	26,290
Commercial insurance	306,489	56,594	53,626	14,183	124,403	34,045	148,041
Industrial/Workers Compensation	17,503	2,591	881	136	3,607	376	13,520
Percent of ED visits for each payer category							
All Payers	100.0	19.8	18.8	5.3	44.0	11.1	44.9
Uninsured/Uncompensated Care**	100.0	21.3	19.1	5.4	45.7	9.8	44.5
Self pay / Charity / Unclassified	100.0	21.9	19.2	5.3	46.3	10.1	43.6
Unknown	100.0	10.1	3.6	0.8	14.5	2.1	83.4
Not reported	100.0	19.4	19.8	6.2	45.5	9.4	45.1
Medicaid	100.0	25.2	24.7	6.9	56.9	10.0	33.1
Children's Health Insurance Program	100.0	20.9	20.2	6.5	47.6	7.3	45.1
Medicare and other government	100.0	18.3	20.6	7.5	46.4	16.4	37.2
Commercial insurance	100.0	18.5	17.5	4.6	40.6	11.1	48.3
Industrial/Workers Compensation	100.0	14.8	5.0	0.8	20.6	2.1	77.2

Source: Utah Emergency Department Encounter Database, 2001. Utah Department of Health.

*Visit refers to a consolidated billed emergency department encounter which may include follow up visits, such as removal of stitches.

** Uninsured/under-compensated care category includes self pay, charity care, unclassified, unknown, or non-reported payers. Reimbursement for providers on those categories are more likely to be under-compensated.

Figure 5. Total E.D. Charges for Primary Care Sensitive E.D. Visits by Payer: Utah Residents, 2001



What geographic areas show relatively high incidence of PCS ED visits among Utahns?

One possible explanation for PCS ED visits is lack of access to primary care and alternative sources of urgent care in patients' area of residence. Patterns of ED use by certain sub-populations are known to vary between urban and rural areas, and between inner cities and peripheral urban areas. Hamdy, et al (1997), for example, found that compared with patients in urban areas, older patients in rural locations use the ED less frequently, require an ambulance to get to the ED more frequently, are kept in the ED for a longer time, and are more likely to be hospitalized than younger patients. An ethnographic study of two inner city hospital ED's showed that at least 70 percent of the heavy ED users were homeless and/or sufficiently poor or disabled to qualify for some form of public assistance (Malone 1998). A majority of them either had no family or were estranged from their families, and most suffered from one or more chronic illnesses, such as alcoholism, opiate addiction, diabetes, hypertension, chronic pulmonary diseases, and/or mental disorders. Geographic variation in magnitude and pattern of PCS ED visits is of great interest for policy makers, local health officials, and community health clinics in this analysis. This report examines geographic variation in 61 small areas in Utah.

Small Area Analysis

Based on boundaries of zip code, county, and local health district in Utah, the Utah Department of Health identified 61 small areas with a 1997 population size ranging from 15,000 to 62,500 persons (Utah Office of Public Health Data, 1998). Appendix B provides the small area designations with detailed 2001 population and county/zip code information for each small area.

The findings from the small area analysis are presented in four sections of paired maps. The first map of each section is a view of the entire state, and the second map includes the small areas of the Wasatch Front. Each map designates whether the small area had a rate of ED visits that fell into one of three categories: below state, no different than state, or above state. A small area was designated as "below state" if its rate's 95% confidence interval did not include and was below the state rate. If the small area's rate had a 95% confidence interval that overlapped the state rate it was designated as "no different than state." Finally if a small area's rate had a 95% confidence interval that did not include the state rate and was above the state rate it was designated as "above state."

The first set of maps, 1a and 1b, depict the crude ED utilization rates per 100 residents by small area in Utah and the Wasatch Front, respectively. Map 1a shows that the populations in the majority of rural areas of Utah are using the ED at a rate greater than the overall state rate. Map 1b shows a cluster of low-income small areas of the Wasatch Front also have an ED utilization rate greater than that of the state. While 24 of the 61 (39%) small areas fall into the "above state" category, 25 (40%) small areas are no different than the state rate.

The next 6 maps illustrate three categories of ED outpatient visits: Non-Emergent, Emergent and Primary Care (PC) Treatable, and PCS. There is almost no significant statistical variation in the category Emergent, ED Needed, Preventable/Avoidable, among the 61 small areas; hence, no map is included in this report for the ED warranted category.

ED visits for PCS conditions include all visits that are (1) Non-Emergent, (2) Emergent and PC Treatable, and (3) Emergent, ED Needed, Preventable/Avoidable. Maps 4a and 4b show the small areas of the state where these types of visits are above the state rate. Fifty-three percent of ED visits in the Tri-County Local Health District (53) were for PCS conditions; compared to a state rate of 44%. Other areas where at least half of the visits were classified as PCS ED visits are Rose Park (17) at 52%, Glendale (21) at 51%, and South Salt Lake

(25) at 50%. Small areas that stand out with ED visits above the state rate in at least two of the three maps/categories are Downtown Ogden (7), Rose Park (21), West Valley I & II (22,23), South Salt Lake (25), Midvale (32), Tri-County Local Health District (53), and Cedar City (60).

Following the maps are Tables 6 and 7, which provide information that gives a more detailed description of how much lower or higher a small area is from the state for ED use.

Using the information provided in these maps/tables will further assist community health efforts in these and other small areas throughout the state to shift the source of care from the emergency departments to a center where PCS conditions can be treated in a more cost-efficient and timely manner.

Do the findings provide evidence of a relationship between PCS ED visits and access to primary care?

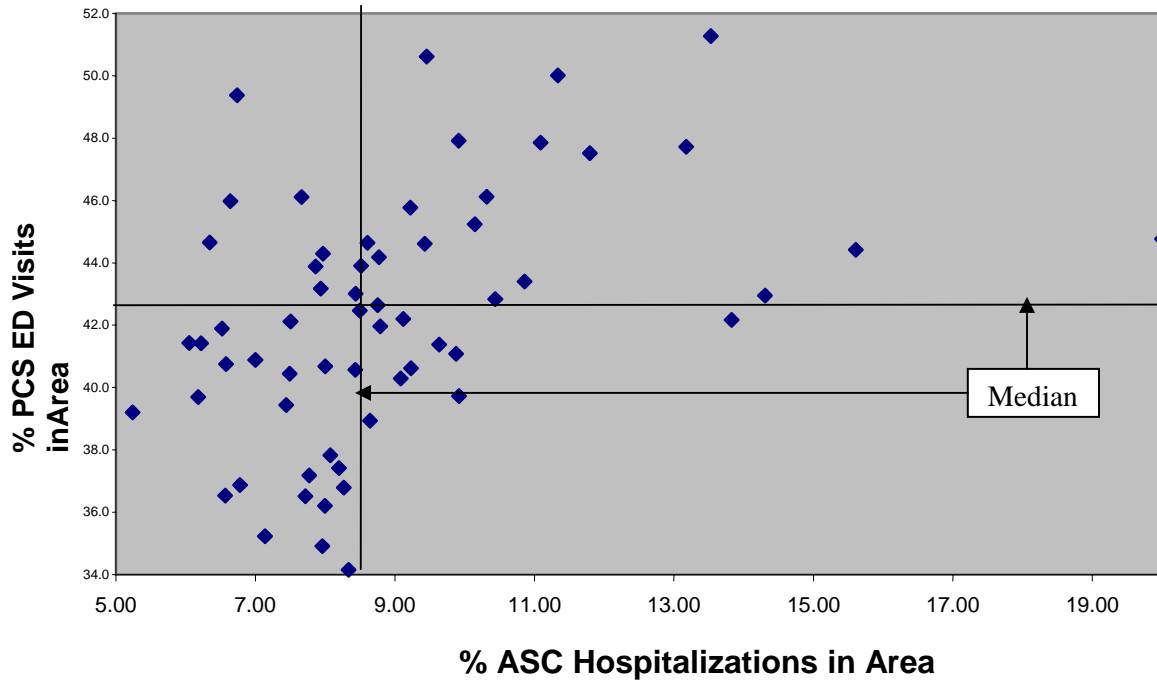
One way to evaluate the applicability of the NYU algorithm to Utah ED use is to compare percentages of PCS ED visits with measures that are known to be strongly related to primary care access. One such measure is hospitalization for ambulatory care sensitive conditions (ASC). The 2000 data from the ED outpatient encounter database and hospital inpatient discharge database were used for the following figures.

Figure 6 shows the rate of hospitalization for ASC plotted against percent of PCS ED visits for Utah's small areas. The chart shows that areas with a high rate of hospitalization for ASC tend to have a high prevalence of PCS ED visits.

Do the findings provide evidence of a relationship between PCS ED visits and access to prenatal care?

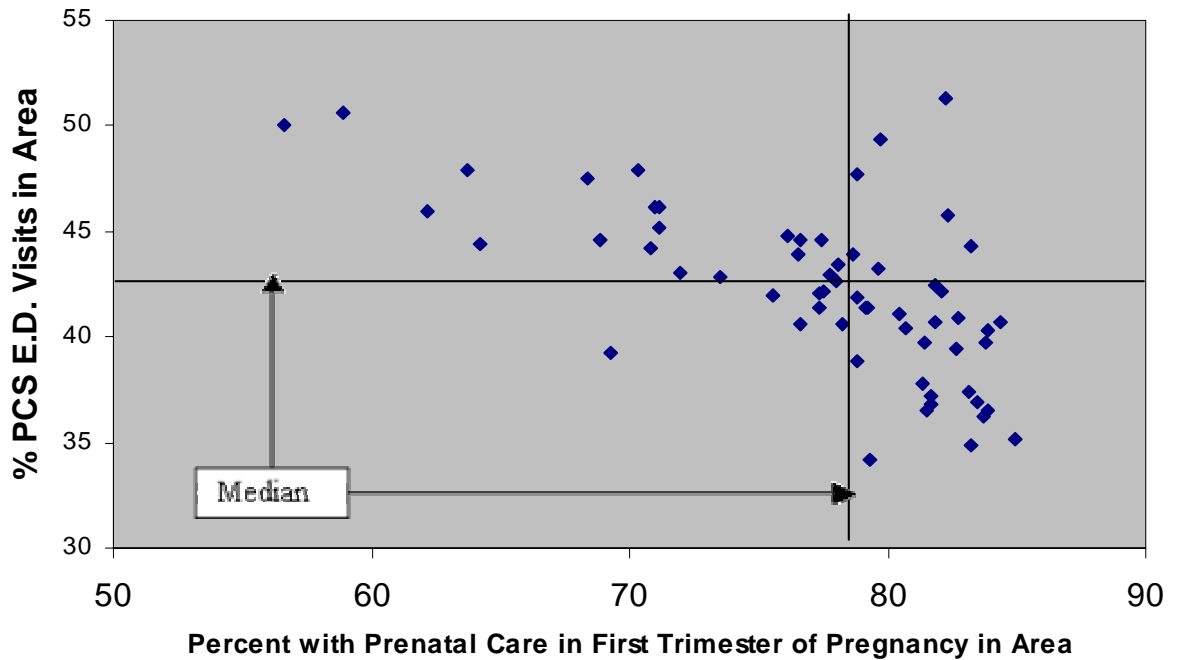
A second measure, prenatal care during the first trimester (a form of preventive care), also provides useful information about the applicability of the NYU algorithm for analyzing area variation of ED use in Utah. In addition to the ED outpatient encounter database, the birth certificate database was used for Figure 7. This figure shows that small areas with a high prevalence of PCS ED visits tend to have a low rate of prenatal care during the first trimester. This finding and the finding from Figure 6 support application of the NYU algorithm to profile Utah ED uses.

Figure 6. Primary Care Sensitive ED Visits vs. Ambulatory Care Sensitive Hospitalizations: Utah Small Areas, 2000



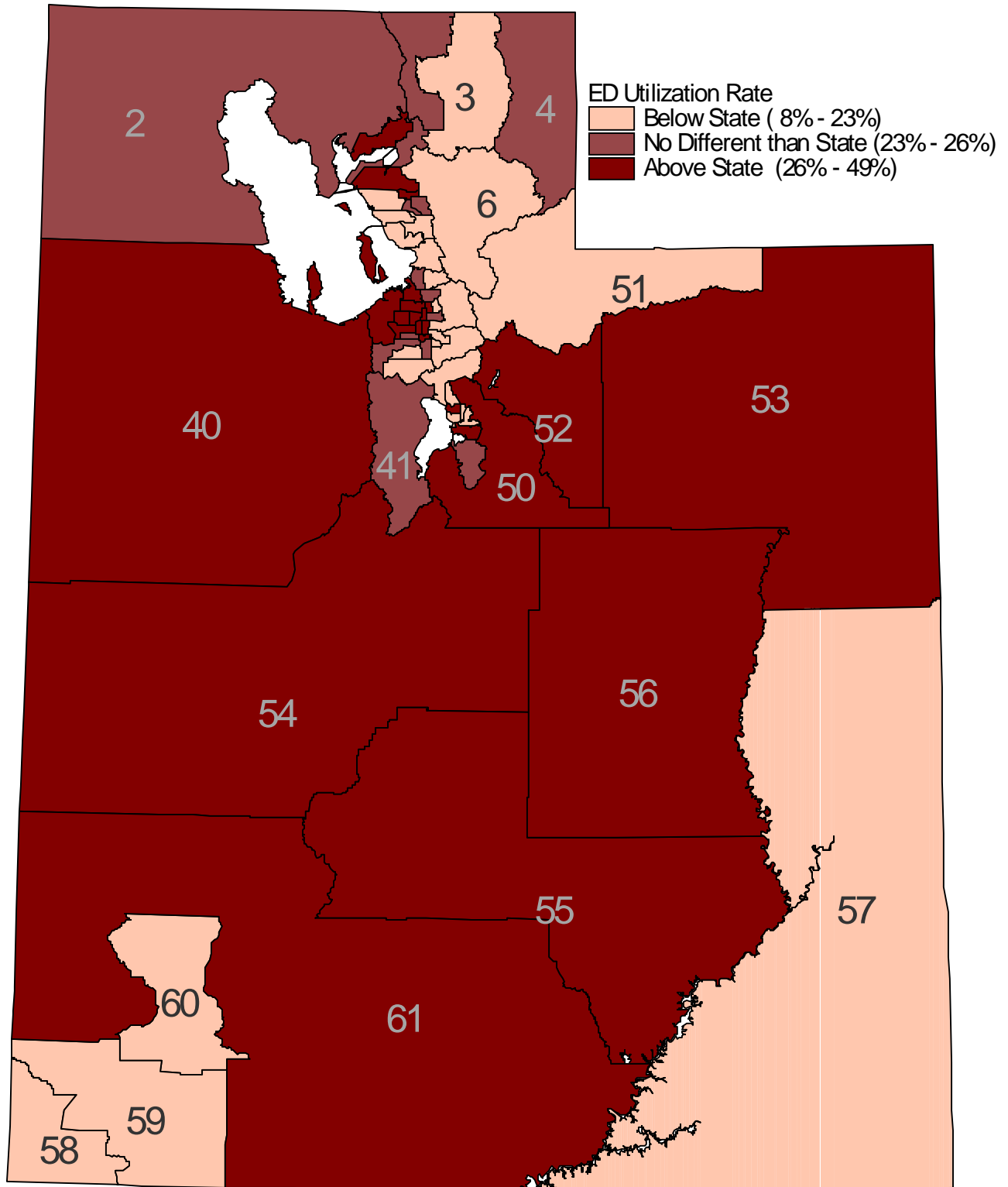
Correlation = .326, $p < 0.05$, meaning that this correlation is statistically significant.

Figure 7. Prenatal Care vs Primary Care Sensitive E.D. Visits Utah Small Areas, 2000



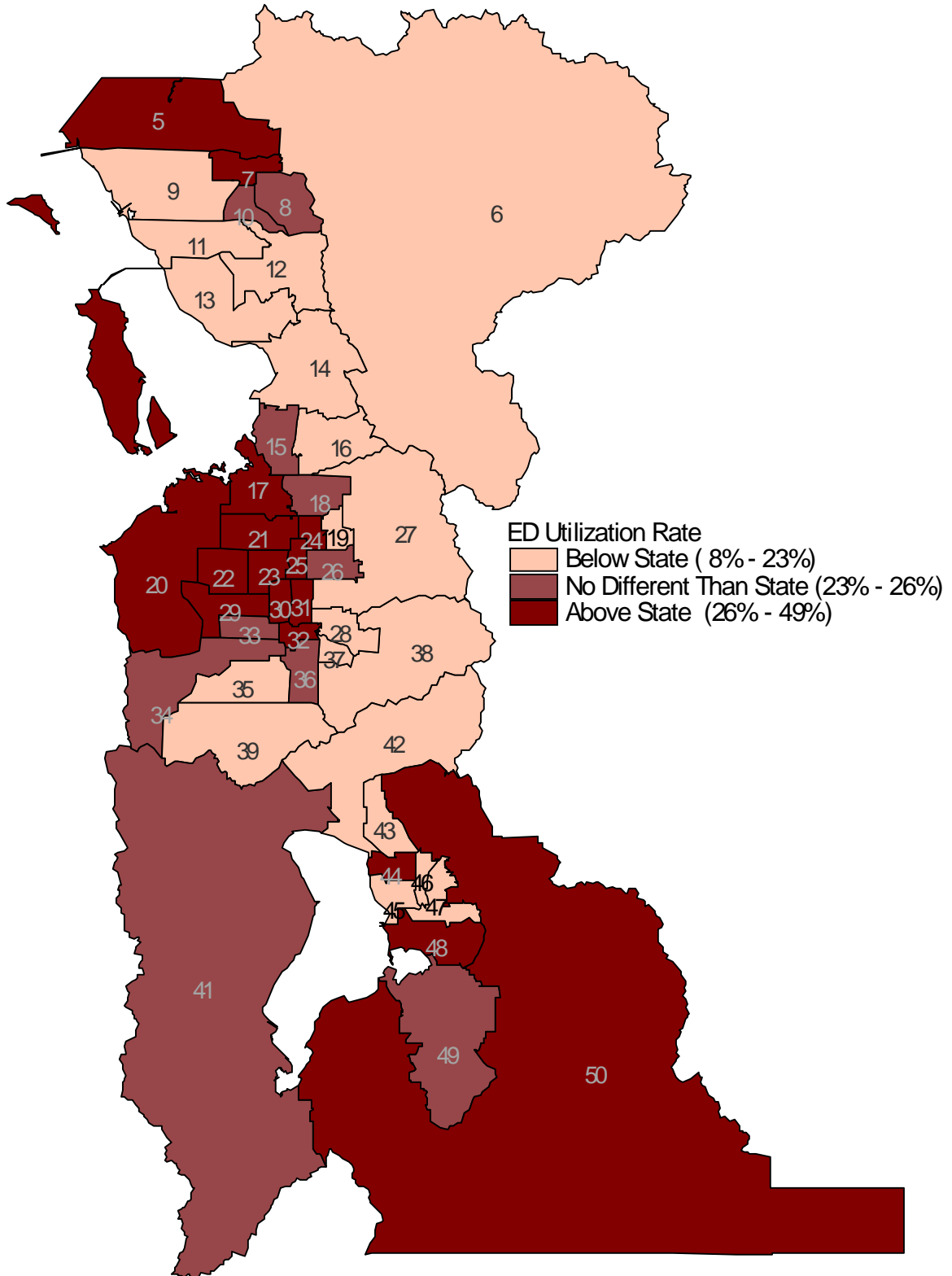
Map Section

Map 1a. Emergency Department Utilization Rate, Outpatient Visits per 100 persons by Small Area: Utah, 2001



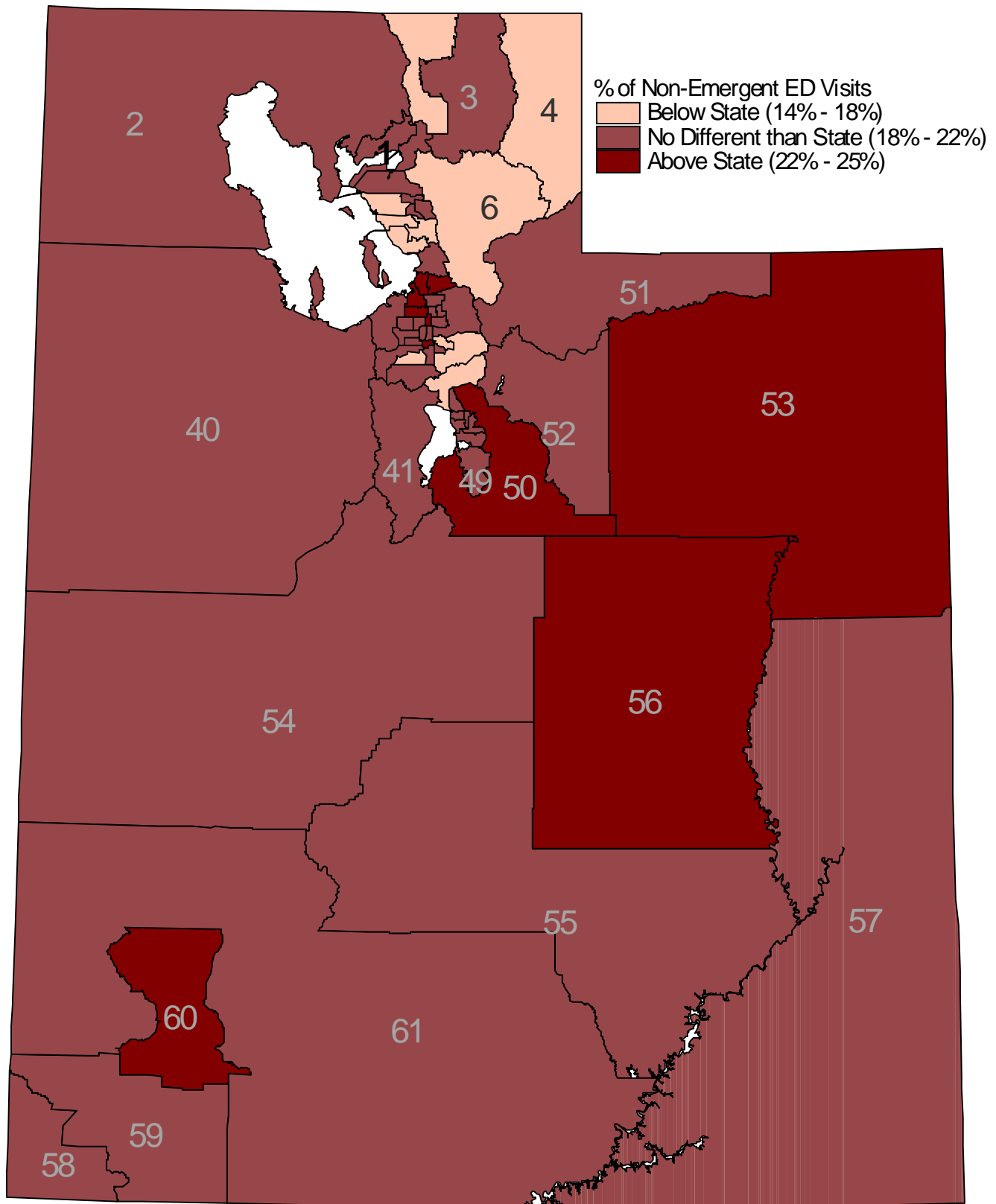
Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Map 1b. Emergency Department Utilization Rate, Outpatient Visits per 100 persons by Small Area: Utah, Wasatch Front, 2001



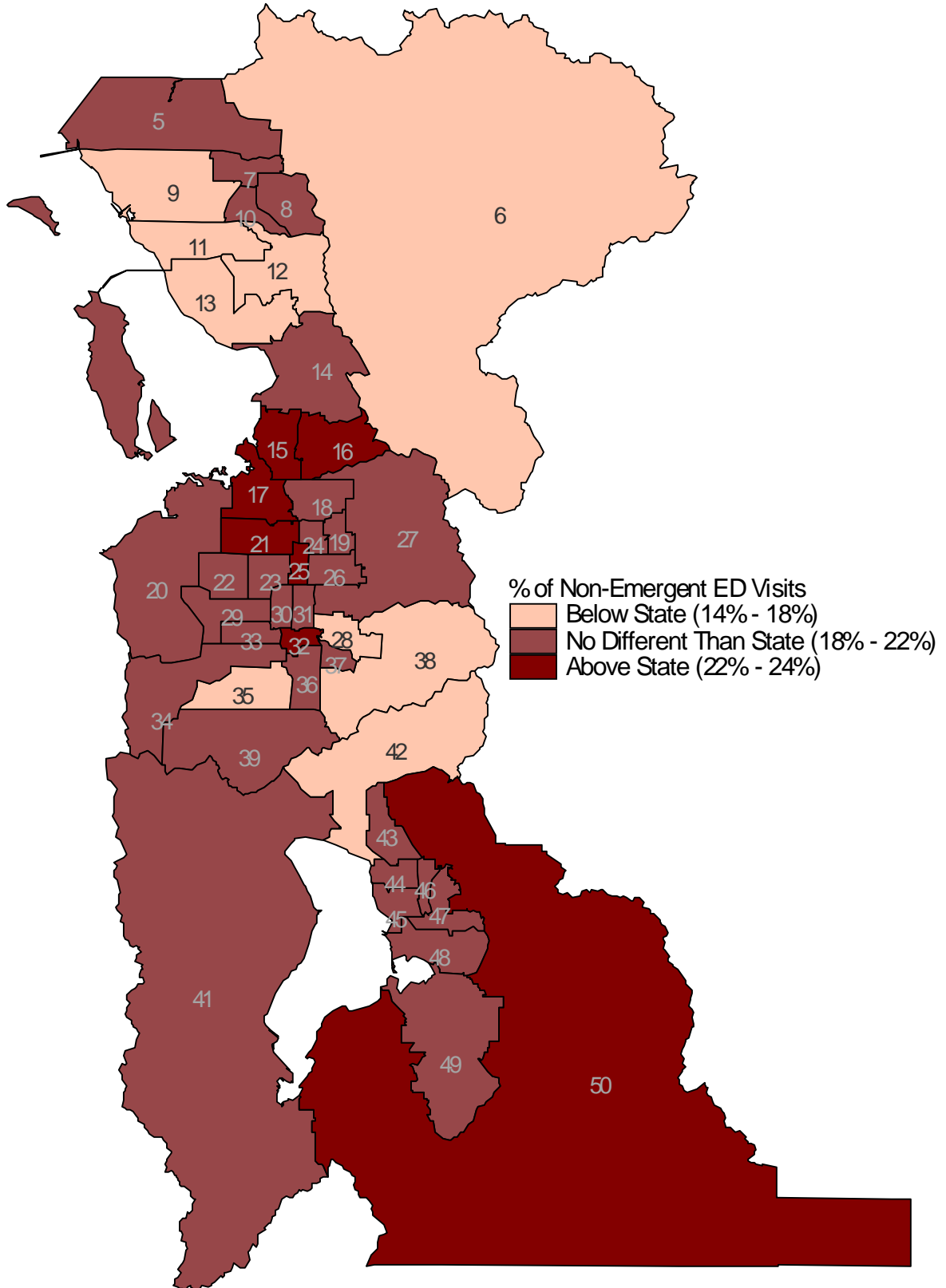
Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Map 2a. Percentage of Non-Emergent Visits to the Emergency Departments by Small Area: Utah, 2001



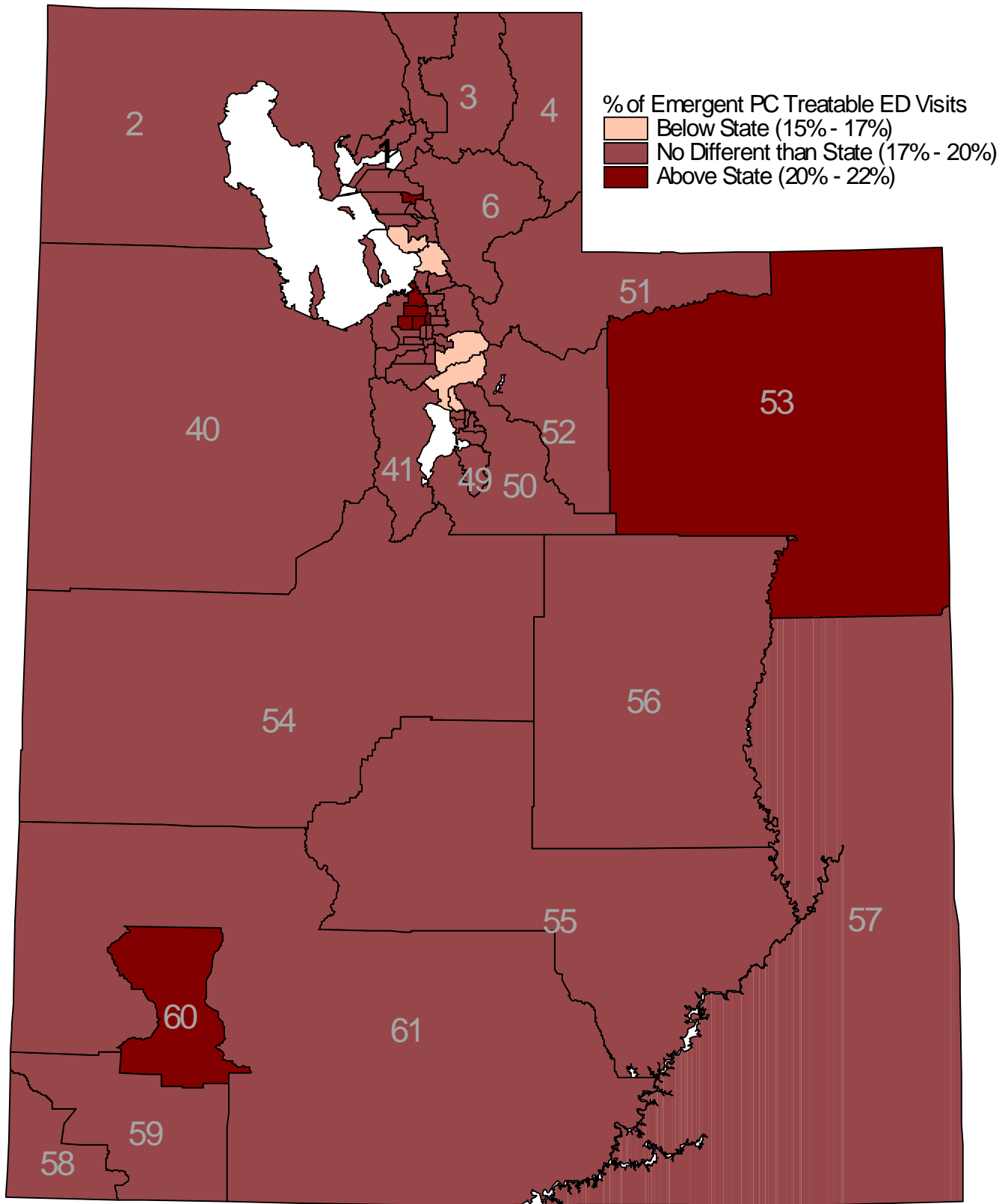
Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Map 2b. Percentage of Non-Emergent Visits to the Emergency Departments by Small Area: Utah, Wasatch Front, 2001



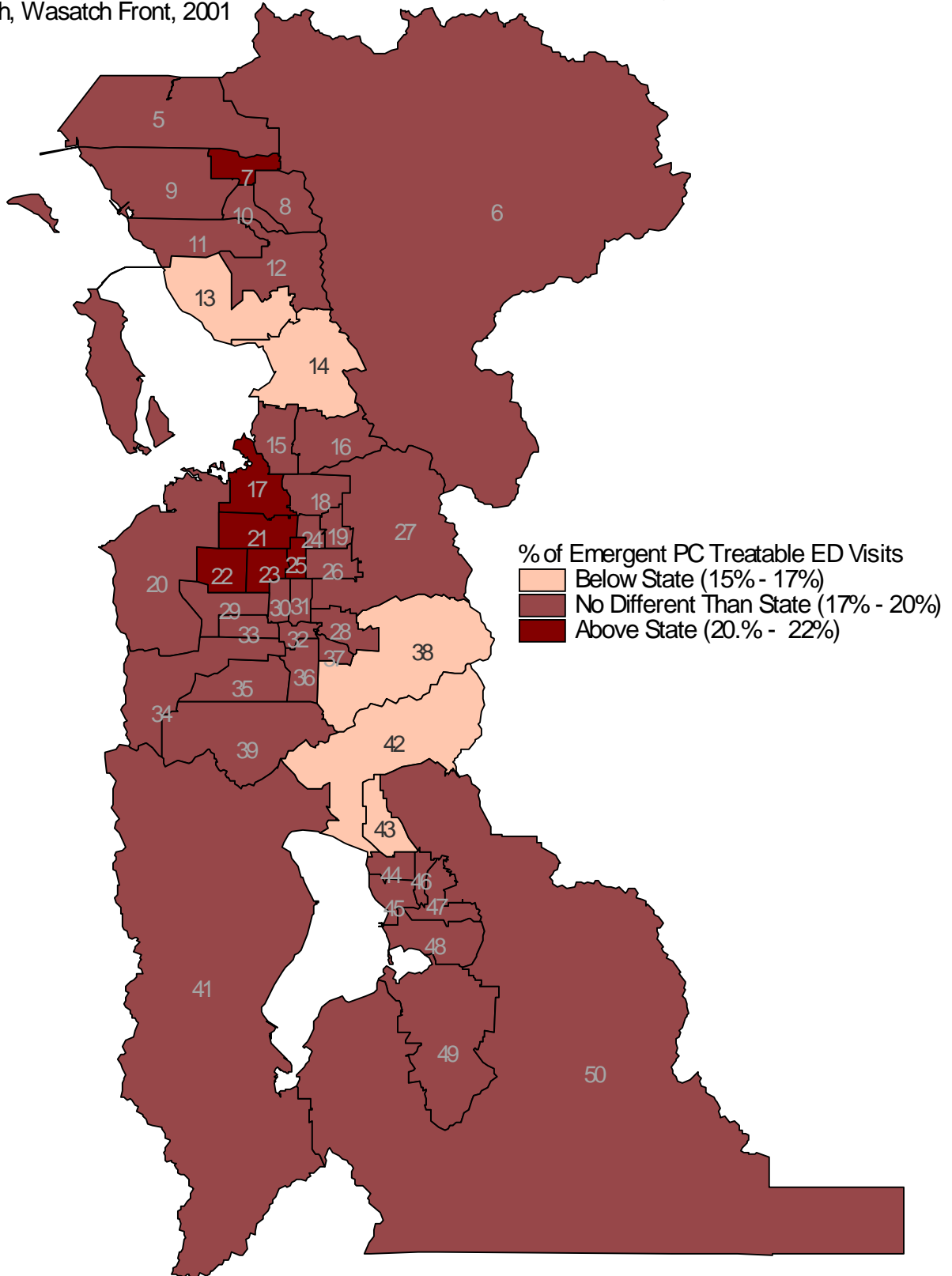
Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Map 3a. Percentage of Emergent, Primary Care Treatable Visits to the Emergency Departments by Small Area: Utah, 2001



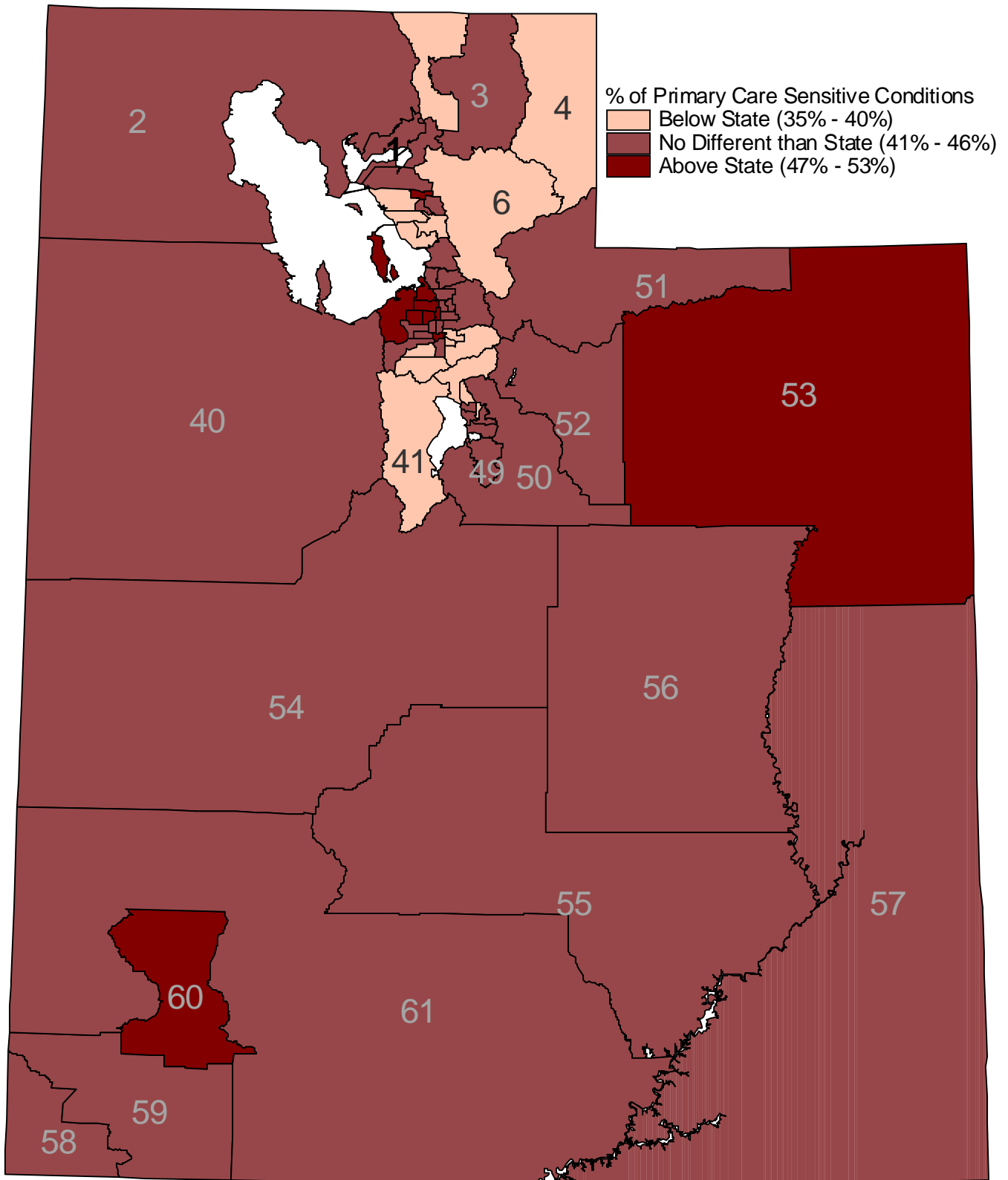
Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Map 3b. Percentage of Emergent, Primary Care Treatable Visits to the Emergency Departments by Small Area: Utah, Wasatch Front, 2001



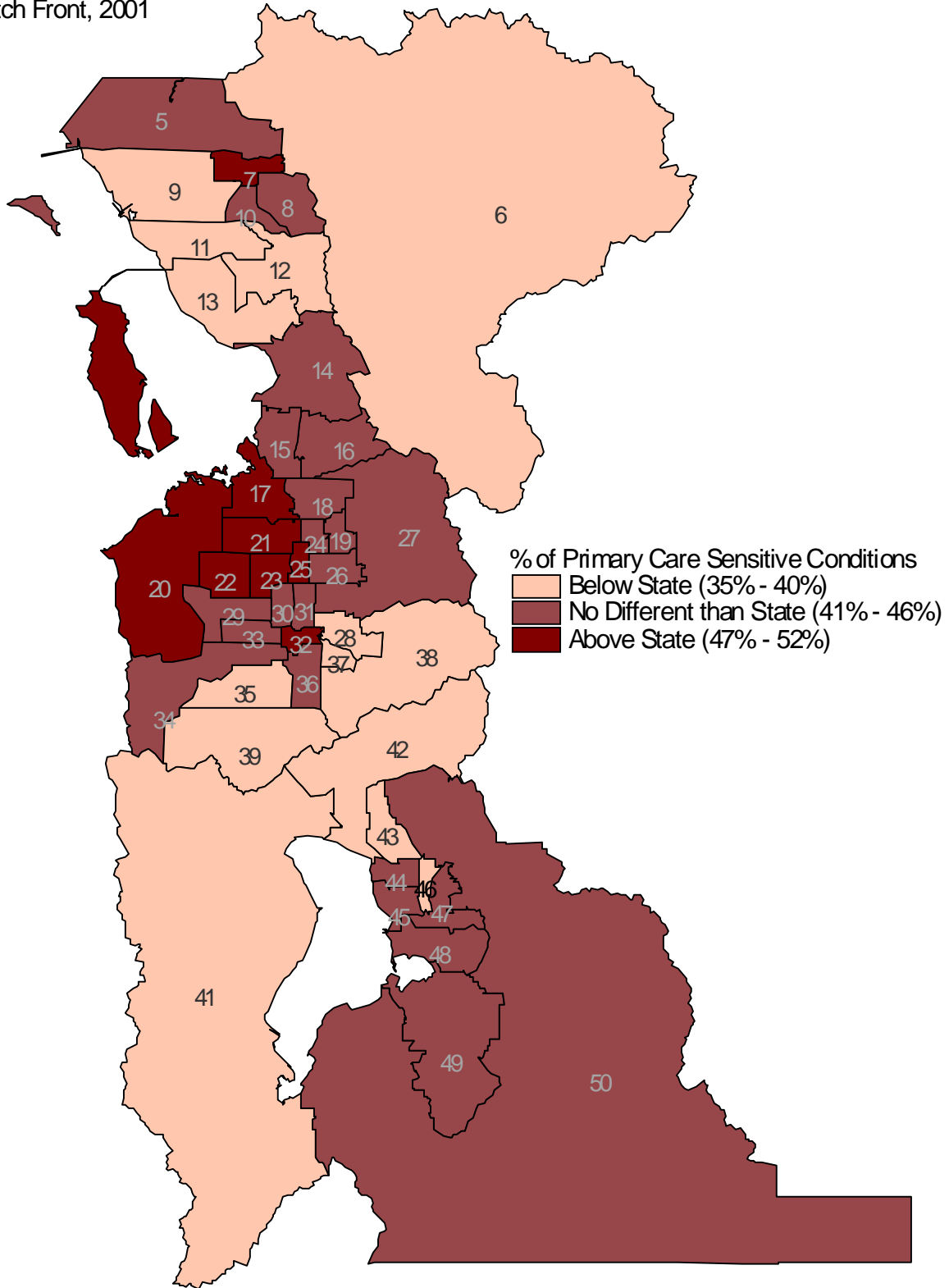
Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Map 4a. Percentage of Primary Care Sensitive Conditions Visits to the Emergency Departments by Small Area: Utah, 2001



Source: Utah Hospital Emergency Outpatient Encounter Data, 2001

Map 4b. Percentage of Primary Care Sensitive Conditions Visits to the Emergency Departments by Small Area: Utah, Wasatch Front, 2001



Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

Small Area Reference Tables

Table 6. Emergency Department Utilization Rate per 100 Residents: Utah, 2001

Table 7. Profile of Emergency Department Visits: Utah Residents, 2001

Table 6. Emergency Department Utilization Rate per 100 Residents: Utah, 2001

Residential Small Area	# of Visits to the ED	2001 Population, Utah	Crude Rate per 100 Residents	95% Confidence Interval	
				Lower Limit	Upper Limit
0 All	571,040	2,295,977	24.9%	24.8%	25.0%
1 Brigham City	5,999	21,306	28.2%	27.0%	29.3%
2 Other Box Elder Co.	5,376	21,939	24.5%	23.4%	25.7%
3 Logan	13,711	59,769	22.9%	22.2%	23.6%
4 Other Cache/Rich Co.	8,704	35,586	24.5%	23.6%	25.4%
5 Ben Lomond	12,168	45,130	27.0%	26.2%	27.8%
6 Morgan/E Weber Co.	4,527	33,391	13.6%	12.6%	14.6%
7 Downtown Ogden	11,625	28,254	41.1%	40.3%	42.0%
8 South Ogden	8,929	34,795	25.7%	24.8%	26.6%
9 Roy/Hooper	8,183	40,861	20.0%	19.2%	20.9%
10 Riverdale	6,464	25,432	25.4%	24.4%	26.5%
11 Clearfield/Hill AFB	11,018	52,442	21.0%	20.2%	21.8%
12 Layton	10,971	63,252	17.3%	16.6%	18.1%
13 Syracuse/Kaysville	5,313	37,105	14.3%	13.4%	15.3%
14 Farmington/Centerville	4,916	27,855	17.6%	16.6%	18.7%
15 Woods Cross/No SL	4,878	19,348	25.2%	24.0%	26.4%
16 Bountiful	10,405	44,847	23.2%	22.4%	24.0%
17 Rose Park	10,002	32,475	30.8%	29.9%	31.7%
18 Avenues	5,479	22,007	24.9%	23.8%	26.0%
19 Foothill/U of U	3,725	23,304	16.0%	14.8%	17.2%
20 Magna	7,294	23,378	31.2%	30.1%	32.3%
21 Glendale	9,947	26,659	37.3%	36.4%	38.3%
22 West Valley I	18,227	67,172	27.1%	26.5%	27.8%
23 West Valley II	15,276	48,758	31.3%	30.6%	32.1%
24 Downtown Salt Lake	14,529	50,744	28.6%	27.9%	29.4%
25 South Salt Lake	9,717	24,651	39.4%	38.4%	40.4%
26 Millcreek	13,387	57,426	23.3%	22.6%	24.0%
27 Holladay	9,919	44,985	22.0%	21.2%	22.9%
28 Cottonwood	8,350	43,653	19.1%	18.3%	20.0%
29 Kearns	17,340	65,588	26.4%	25.8%	27.1%

Primary Care Sensitive Emergency Department Visits in Utah, 2001

30	Taylorsville	10,090	38,253	26.4%	25.5%	27.2%
31	Murray	9,666	31,033	31.1%	30.2%	32.1%
32	Midvale	9,676	28,675	33.7%	32.8%	34.7%
33	West Jordan No.	11,614	44,841	25.9%	25.1%	26.7%
34	West Jordan, Copperton	9,837	41,901	23.5%	22.6%	24.3%
35	South Jordan	5,271	31,786	16.6%	15.6%	17.6%
36	Sandy Center	13,225	52,038	25.4%	24.7%	26.2%
37	Sandy, NE	4,929	25,232	19.5%	18.4%	20.6%
38	Sandy, SE	5,756	30,695	18.8%	17.7%	19.8%
39	Riverton/Draper	11,761	63,026	18.7%	18.0%	19.4%
40	Tooele Co.	12,773	44,430	28.7%	28.0%	29.5%
41	Lehi/Cedar Valley	6,205	26,629	23.3%	22.2%	24.4%
42	American Fork/Alpine	8,521	39,890	21.4%	20.5%	22.2%
43	Pleasant Grove/Lindon	8,110	38,152	21.3%	20.4%	22.1%
44	North Orem	10,397	36,042	28.8%	28.0%	29.7%
45	West Orem	6,655	29,756	22.4%	21.4%	23.4%
46	East Orem	3,853	22,307	17.3%	16.1%	18.5%
47	Provo/BYU	7,680	48,786	15.7%	14.9%	16.6%
48	Provo South	15,351	57,816	26.6%	25.9%	27.3%
49	Springville/Spanish Fork	14,709	59,715	24.6%	23.9%	25.3%
50	Utah Co. South	8,731	26,604	32.8%	31.8%	33.8%
51	Summit Co.	2,696	31,278	8.6%	7.6%	9.7%
52	Wasatch Co.	4,619	15,947	29.0%	27.7%	30.3%
53	Tri-county LHD	20,273	41,640	48.7%	48.0%	49.4%
54	Juab/Millard/Sanpete Co.	13,386	44,114	30.3%	29.6%	31.1%
55	Sevier/Piute/Wayne Co.	6,822	23,093	29.5%	28.5%	30.6%
56	Carbon/Emery Co.	12,710	30,331	41.9%	41.0%	42.8%
57	Grand/San Juan Co.	3,767	22,486	16.8%	15.6%	17.9%
58	St. George	11,865	53,983	22.0%	21.2%	22.7%
59	Other Washington Co.	7,676	41,601	18.5%	17.6%	19.3%
60	Cedar City	8,970	29,952	29.9%	29.0%	30.9%
61	Other Southwest Dist.	7,067	21,833	32.4%	31.3%	33.5%

Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

*Source: Utah Department of Health, Office of Public Health Assessment (Derived from US Census Bureau and Utah Governor's Office of Planning and Budget Population estimates).

Table 7. Profile of Emergency Department Visits: Utah Residents, 2001

Area #	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
	All	All	571,040	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	251,074	44.0%	43.8%	44.2%
		Non-Emergent	112,976	19.8%	19.6%	20.0%
		Emergent, Primary Care Treatable	107,587	18.8%	18.6%	19.1%
		Emergent, ED Needed, Preventable/Avoidable	30,511	5.3%	5.1%	5.6%
		Emergent, ED Needed, Not Preventable or Avoidable	63,347	11.1%		
		Mental, Alcohol, Substance Abuse Related	15,286	2.7%		
		Injury	204,924	35.9%		
		Unclassified	36,409	6.4%		
1	Brigham City	All	5,999	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,686	44.8%	42.9%	46.7%
		Non-Emergent	1,267	21.1%	18.9%	23.4%
		Emergent, Primary Care Treatable	1,087	18.1%	15.8%	20.4%
		Emergent, ED Needed, Preventable/Avoidable	332	5.5%	3.1%	8.0%
		Emergent, ED Needed, Not Preventable or Avoidable	674	11.2%		
		Mental, Alcohol, Substance Abuse Related	141	2.4%		
		Injury	2,159	36.0%		
		Unclassified	339	5.7%		
2	Other Box Elder Co.	All	5,376	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,285	42.5%	40.5%	44.5%
		Non-Emergent	1,047	19.5%	17.1%	21.9%
		Emergent, Primary Care Treatable	973	18.1%	15.7%	20.5%
		Emergent, ED Needed, Preventable/Avoidable	265	4.9%	2.3%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	609	11.3%		
		Mental, Alcohol, Substance Abuse Related	95	1.8%		
		Injury	2,141	39.8%		
		Unclassified	246	4.6%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
3	Logan	All	13,711	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,961	43.5%	42.2%	44.7%
		Non-Emergent	2,618	19.1%	17.6%	20.6%
		Emergent, Primary Care Treatable	2,545	18.6%	17.1%	20.1%
		Emergent, ED Needed, Preventable/Avoidable	798	5.8%	4.2%	7.4%
		Emergent, ED Needed, Not Preventable or Avoidable	1,551	11.3%		
		Mental, Alcohol, Substance Abuse Related	233	1.7%		
		Injury	5,138	37.5%		
		Unclassified	828	6.0%		
4	Other Cache/Rich Co.	All	8,704	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,505	40.3%	38.6%	41.9%
		Non-Emergent	1,510	17.3%	15.4%	19.3%
		Emergent, Primary Care Treatable	1,491	17.1%	15.2%	19.0%
		Emergent, ED Needed, Preventable/Avoidable	504	5.8%	3.8%	7.8%
		Emergent, ED Needed, Not Preventable or Avoidable	895	10.3%		
		Mental, Alcohol, Substance Abuse Related	120	1.4%		
		Injury	3,669	42.2%		
		Unclassified	515	5.9%		
5	Ben Lomond	All	12,168	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,214	42.9%	41.5%	44.2%
		Non-Emergent	2,240	18.4%	16.8%	20.0%
		Emergent, Primary Care Treatable	2,361	19.4%	17.8%	21.0%
		Emergent, ED Needed, Preventable/Avoidable	613	5.0%	3.3%	6.8%
		Emergent, ED Needed, Not Preventable or Avoidable	1,411	11.6%		
		Mental, Alcohol, Substance Abuse Related	340	2.8%		
		Injury	4,568	37.5%		
		Unclassified	635	5.2%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
6 Morgan/E Weber Co.						
	All		4,527	100.0%	100.0%	100.0%
	Primary Care Sensitive Visits		1,615	35.7%	33.3%	38.0%
	Non-Emergent		695	15.4%	12.7%	18.0%
	Emergent, Primary Care Treatable		751	16.6%	13.9%	19.3%
	Emergent, ED Needed, Preventable/Avoidable		169	3.7%	0.9%	6.6%
	Emergent, ED Needed, Not Preventable or Avoidable		578	12.8%		
	Mental, Alcohol, Substance Abuse Related		125	2.8%		
	Injury		1,966	43.4%		
	Unclassified		243	5.4%		
7 Downtown Ogden						
	All		11,625	100.0%	100.0%	100.0%
	Primary Care Sensitive Visits		5,617	48.3%	47.0%	49.6%
	Non-Emergent		2,409	20.7%	19.1%	22.3%
	Emergent, Primary Care Treatable		2,530	21.8%	20.2%	23.4%
	Emergent, ED Needed, Preventable/Avoidable		678	5.8%	4.1%	7.6%
	Emergent, ED Needed, Not Preventable or Avoidable		1,193	10.3%		
	Mental, Alcohol, Substance Abuse Related		422	3.6%		
	Injury		3,717	32.0%		
	Unclassified		676	5.8%		
8 South Ogden						
	All		8,929	100.0%	100.0%	100.0%
	Primary Care Sensitive Visits		3,985	44.6%	43.1%	46.2%
	Non-Emergent		1,779	19.9%	18.1%	21.8%
	Emergent, Primary Care Treatable		1,758	19.7%	17.8%	21.6%
	Emergent, ED Needed, Preventable/Avoidable		448	5.0%	3.0%	7.0%
	Emergent, ED Needed, Not Preventable or Avoidable		986	11.0%		
	Mental, Alcohol, Substance Abuse Related		255	2.9%		
	Injury		3,194	35.8%		
	Unclassified		509	5.7%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
9	Roy/Hooper	All	8,183	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,203	39.1%	37.4%	40.8%
		Non-Emergent	1,338	16.4%	14.4%	18.3%
		Emergent, Primary Care Treatable	1,475	18.0%	16.1%	20.0%
		Emergent, ED Needed, Preventable/Avoidable	390	4.8%	2.6%	6.9%
		Emergent, ED Needed, Not Preventable or Avoidable	991	12.1%		
		Mental, Alcohol, Substance Abuse Related	244	3.0%		
		Injury	3,252	39.7%		
		Unclassified	493	6.0%		
10	Riverdale	All	6,464	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,656	41.1%	39.2%	43.0%
		Non-Emergent	1,168	18.1%	15.9%	20.3%
		Emergent, Primary Care Treatable	1,159	17.9%	15.7%	20.1%
		Emergent, ED Needed, Preventable/Avoidable	330	5.1%	2.7%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	761	11.8%		
		Mental, Alcohol, Substance Abuse Related	224	3.5%		
		Injury	2,444	37.8%		
		Unclassified	379	5.9%		
11	Clearfield/Hill AFB	All	11,018	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,135	37.5%	36.1%	39.0%
		Non-Emergent	1,697	15.4%	13.7%	17.1%
		Emergent, Primary Care Treatable	1,913	17.4%	15.7%	19.1%
		Emergent, ED Needed, Preventable/Avoidable	525	4.8%	2.9%	6.6%
		Emergent, ED Needed, Not Preventable or Avoidable	1,332	12.1%		
		Mental, Alcohol, Substance Abuse Related	361	3.3%		
		Injury	4,526	41.1%		
		Unclassified	664	6.0%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
12	Layton	All	10,971	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,226	38.5%	37.1%	40.0%
		Non-Emergent	1,762	16.1%	14.3%	17.8%
		Emergent, Primary Care Treatable	1,885	17.2%	15.5%	18.9%
		Emergent, ED Needed, Preventable/Avoidable	580	5.3%	3.5%	7.1%
		Emergent, ED Needed, Not Preventable or Avoidable	1,345	12.3%		
		Mental, Alcohol, Substance Abuse Related	349	3.2%		
		Injury	4,475	40.8%		
		Unclassified	576	5.3%		
13	Syracuse/Kaysville	All	5,313	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,872	35.2%	33.1%	37.4%
		Non-Emergent	766	14.4%	11.9%	16.9%
		Emergent, Primary Care Treatable	856	16.1%	13.7%	18.6%
		Emergent, ED Needed, Preventable/Avoidable	250	4.7%	2.1%	7.3%
		Emergent, ED Needed, Not Preventable or Avoidable	665	12.5%		
		Mental, Alcohol, Substance Abuse Related	160	3.0%		
		Injury	2,356	44.3%		
		Unclassified	260	4.9%		
14	Farmington/Centerville	All	4,916	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,016	41.0%	38.9%	43.2%
		Non-Emergent	1,042	21.2%	18.7%	23.7%
		Emergent, Primary Care Treatable	773	15.7%	13.2%	18.3%
		Emergent, ED Needed, Preventable/Avoidable	201	4.1%	1.3%	6.8%
		Emergent, ED Needed, Not Preventable or Avoidable	592	12.0%		
		Mental, Alcohol, Substance Abuse Related	127	2.6%		
		Injury	1,895	38.5%		
		Unclassified	286	5.8%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
15	Woods Cross/No SL	All	4,878	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,215	45.4%	43.3%	47.5%
		Non-Emergent	1,150	23.6%	21.1%	26.0%
		Emergent, Primary Care Treatable	861	17.7%	15.1%	20.2%
		Emergent, ED Needed, Preventable/Avoidable	204	4.2%	1.4%	6.9%
		Emergent, ED Needed, Not Preventable or Avoidable	524	10.7%		
		Mental, Alcohol, Substance Abuse Related	131	2.7%		
		Injury	1,692	34.7%		
		Unclassified	316	6.5%		
16	Bountiful	All	10,405	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,722	45.4%	44.0%	46.8%
		Non-Emergent	2,328	22.4%	20.7%	24.1%
		Emergent, Primary Care Treatable	1,823	17.5%	15.8%	19.3%
		Emergent, ED Needed, Preventable/Avoidable	570	5.5%	3.6%	7.4%
		Emergent, ED Needed, Not Preventable or Avoidable	1,196	11.5%		
		Mental, Alcohol, Substance Abuse Related	260	2.5%		
		Injury	3,563	34.2%		
		Unclassified	664	6.4%		
17	Rose Park	All	10,002	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,222	52.2%	50.9%	53.6%
		Non-Emergent	2,373	23.7%	22.0%	25.4%
		Emergent, Primary Care Treatable	2,247	22.5%	20.7%	24.2%
		Emergent, ED Needed, Preventable/Avoidable	603	6.0%	4.1%	7.9%
		Emergent, ED Needed, Not Preventable or Avoidable	1,206	12.1%		
		Mental, Alcohol, Substance Abuse Related	270	2.7%		
		Injury	2,692	26.9%		
		Unclassified	612	6.1%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
<hr/>						
18	Avenues	All	5,479	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,313	42.2%	40.2%	44.2%
		Non-Emergent	1,089	19.9%	17.5%	22.2%
		Emergent, Primary Care Treatable	956	17.5%	15.1%	19.9%
		Emergent, ED Needed, Preventable/Avoidable	268	4.9%	2.3%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	594	10.8%		
		Mental, Alcohol, Substance Abuse Related	304	5.5%		
		Injury	1,895	34.6%		
		Unclassified	373	6.8%		
19	Foothill/U of U	All	3,725	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,510	40.5%	38.1%	43.0%
		Non-Emergent	661	17.7%	14.8%	20.7%
		Emergent, Primary Care Treatable	668	17.9%	15.0%	20.8%
		Emergent, ED Needed, Preventable/Avoidable	181	4.9%	1.7%	8.0%
		Emergent, ED Needed, Not Preventable or Avoidable	441	11.8%		
		Mental, Alcohol, Substance Abuse Related	91	2.4%		
		Injury	1,422	38.2%		
		Unclassified	261	7.0%		
20	Magna	All	7,294	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,463	47.5%	45.8%	49.1%
		Non-Emergent	1,523	20.9%	18.8%	22.9%
		Emergent, Primary Care Treatable	1,438	19.7%	17.7%	21.8%
		Emergent, ED Needed, Preventable/Avoidable	501	6.9%	4.7%	9.1%
		Emergent, ED Needed, Not Preventable or Avoidable	836	11.5%		
		Mental, Alcohol, Substance Abuse Related	208	2.9%		
		Injury	2,314	31.7%		
		Unclassified	473	6.5%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
21	Glendale	All	9,947	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,020	50.5%	49.1%	51.9%
		Non-Emergent	2,239	22.5%	20.8%	24.2%
		Emergent, Primary Care Treatable	2,158	21.7%	20.0%	23.4%
		Emergent, ED Needed, Preventable/Avoidable	623	6.3%	4.4%	8.2%
		Emergent, ED Needed, Not Preventable or Avoidable	1,124	11.3%		
		Mental, Alcohol, Substance Abuse Related	421	4.2%		
		Injury	2,740	27.5%		
		Unclassified	642	6.5%		
22	West Valley I	All	18,227	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	8,535	46.8%	45.8%	47.9%
		Non-Emergent	3,656	20.1%	18.8%	21.4%
		Emergent, Primary Care Treatable	3,710	20.4%	19.1%	21.7%
		Emergent, ED Needed, Preventable/Avoidable	1,169	6.4%	5.0%	7.8%
		Emergent, ED Needed, Not Preventable or Avoidable	2,128	11.7%		
		Mental, Alcohol, Substance Abuse Related	477	2.6%		
		Injury	5,963	32.7%		
		Unclassified	1,124	6.2%		
23	West Valley II	All	15,276	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	7,334	48.0%	46.9%	49.2%
		Non-Emergent	3,119	20.4%	19.0%	21.8%
		Emergent, Primary Care Treatable	3,216	21.1%	19.6%	22.5%
		Emergent, ED Needed, Preventable/Avoidable	1,000	6.5%	5.0%	8.1%
		Emergent, ED Needed, Not Preventable or Avoidable	1,755	11.5%		
		Mental, Alcohol, Substance Abuse Related	457	3.0%		
		Injury	4,753	31.1%		
		Unclassified	977	6.4%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
24	Downtown Salt Lake	All	14,529	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	6,671	45.9%	44.7%	47.1%
		Non-Emergent	3,040	20.9%	19.5%	22.4%
		Emergent, Primary Care Treatable	2,817	19.4%	17.9%	20.8%
		Emergent, ED Needed, Preventable/Avoidable	814	5.6%	4.0%	7.2%
		Emergent, ED Needed, Not Preventable or Avoidable	1,585	10.9%		
		Mental, Alcohol, Substance Abuse Related	722	5.0%		
		Injury	4,612	31.7%		
		Unclassified	939	6.5%		
25	South Salt Lake	All	9,717	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,794	49.3%	47.9%	50.8%
		Non-Emergent	2,112	21.7%	20.0%	23.5%
		Emergent, Primary Care Treatable	2,074	21.3%	19.6%	23.1%
		Emergent, ED Needed, Preventable/Avoidable	609	6.3%	4.3%	8.2%
		Emergent, ED Needed, Not Preventable or Avoidable	1,128	11.6%		
		Mental, Alcohol, Substance Abuse Related	390	4.0%		
		Injury	2,747	28.3%		
		Unclassified	658	6.8%		
26	Millcreek	All	13,387	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,647	42.2%	40.9%	43.5%
		Non-Emergent	2,488	18.6%	17.1%	20.1%
		Emergent, Primary Care Treatable	2,424	18.1%	16.6%	19.6%
		Emergent, ED Needed, Preventable/Avoidable	735	5.5%	3.8%	7.1%
		Emergent, ED Needed, Not Preventable or Avoidable	1,613	12.0%		
		Mental, Alcohol, Substance Abuse Related	466	3.5%		
		Injury	4,686	35.0%		
		Unclassified	975	7.3%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
27	Holladay	All	9,919	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,085	41.2%	39.7%	42.7%
		Non-Emergent	1,772	17.9%	16.1%	19.7%
		Emergent, Primary Care Treatable	1,788	18.0%	16.2%	19.8%
		Emergent, ED Needed, Preventable/Avoidable	525	5.3%	3.4%	7.2%
		Emergent, ED Needed, Not Preventable or Avoidable	1,190	12.0%		
		Mental, Alcohol, Substance Abuse Related	346	3.5%		
		Injury	3,564	35.9%		
		Unclassified	734	7.4%		
28	Cottonwood	All	8,350	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,374	40.4%	38.8%	42.1%
		Non-Emergent	1,514	18.1%	16.2%	20.1%
		Emergent, Primary Care Treatable	1,465	17.5%	15.6%	19.5%
		Emergent, ED Needed, Preventable/Avoidable	395	4.7%	2.6%	6.8%
		Emergent, ED Needed, Not Preventable or Avoidable	1,031	12.3%		
		Mental, Alcohol, Substance Abuse Related	262	3.1%		
		Injury	3,100	37.1%		
		Unclassified	583	7.0%		
29	Kearns	All	17,340	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	7,878	45.4%	44.3%	46.5%
		Non-Emergent	3,426	19.8%	18.4%	21.1%
		Emergent, Primary Care Treatable	3,395	19.6%	18.2%	20.9%
		Emergent, ED Needed, Preventable/Avoidable	1,056	6.1%	4.6%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	2,019	11.6%		
		Mental, Alcohol, Substance Abuse Related	518	3.0%		
		Injury	5,834	33.6%		
		Unclassified	1,091	6.3%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
30	Taylorsville	All	10,090	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,541	45.0%	43.6%	46.5%
		Non-Emergent	1,995	19.8%	18.0%	21.5%
		Emergent, Primary Care Treatable	1,984	19.7%	17.9%	21.4%
		Emergent, ED Needed, Preventable/Avoidable	563	5.6%	3.7%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	1,249	12.4%		
		Mental, Alcohol, Substance Abuse Related	290	2.9%		
		Injury	3,346	33.2%		
		Unclassified	664	6.6%		
31	Murray	All	9,666	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,231	43.8%	42.3%	45.3%
		Non-Emergent	1,918	19.8%	18.1%	21.6%
		Emergent, Primary Care Treatable	1,806	18.7%	16.9%	20.5%
		Emergent, ED Needed, Preventable/Avoidable	507	5.2%	3.3%	7.2%
		Emergent, ED Needed, Not Preventable or Avoidable	1,092	11.3%		
		Mental, Alcohol, Substance Abuse Related	312	3.2%		
		Injury	3,339	34.5%		
		Unclassified	692	7.2%		
32	Midvale	All	9,676	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,612	47.7%	46.2%	49.1%
		Non-Emergent	2,106	21.8%	20.0%	23.5%
		Emergent, Primary Care Treatable	1,955	20.2%	18.4%	22.0%
		Emergent, ED Needed, Preventable/Avoidable	551	5.7%	3.8%	7.6%
		Emergent, ED Needed, Not Preventable or Avoidable	1,069	11.0%		
		Mental, Alcohol, Substance Abuse Related	285	2.9%		
		Injury	3,071	31.7%		
		Unclassified	639	6.6%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
33 West Jordan No.						
	All		11,614	100.0%	100.0%	100.0%
	Primary Care Sensitive Visits		5,057	43.5%	42.2%	44.9%
	Non-Emergent		2,212	19.0%	17.4%	20.7%
	Emergent, Primary Care Treatable		2,220	19.1%	17.5%	20.7%
	Emergent, ED Needed, Preventable/Avoidable		625	5.4%	3.6%	7.2%
	Emergent, ED Needed, Not Preventable or Avoidable		1,367	11.8%		
	Mental, Alcohol, Substance Abuse Related		352	3.0%		
	Injury		4,175	35.9%		
	Unclassified		663	5.7%		
34 West Jordan, Copperton						
	All		9,837	100.0%	100.0%	100.0%
	Primary Care Sensitive Visits		4,303	43.7%	42.3%	45.2%
	Non-Emergent		1,809	18.4%	16.6%	20.2%
	Emergent, Primary Care Treatable		1,957	19.9%	18.1%	21.7%
	Emergent, ED Needed, Preventable/Avoidable		537	5.5%	3.5%	7.4%
	Emergent, ED Needed, Not Preventable or Avoidable		1,225	12.5%		
	Mental, Alcohol, Substance Abuse Related		266	2.7%		
	Injury		3,487	35.4%		
	Unclassified		556	5.7%		
35 South Jordan						
	All		5,271	100.0%	100.0%	100.0%
	Primary Care Sensitive Visits		2,095	39.7%	37.6%	41.8%
	Non-Emergent		888	16.8%	14.4%	19.3%
	Emergent, Primary Care Treatable		959	18.2%	15.8%	20.6%
	Emergent, ED Needed, Preventable/Avoidable		247	4.7%	2.1%	7.3%
	Emergent, ED Needed, Not Preventable or Avoidable		647	12.3%		
	Mental, Alcohol, Substance Abuse Related		113	2.1%		
	Injury		2,066	39.2%		
	Unclassified		350	6.6%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
36	Sandy Center	All	13,225	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,643	42.7%	41.4%	44.0%
		Non-Emergent	2,624	19.8%	18.3%	21.4%
		Emergent, Primary Care Treatable	2,367	17.9%	16.4%	19.4%
		Emergent, ED Needed, Preventable/Avoidable	652	4.9%	3.3%	6.6%
		Emergent, ED Needed, Not Preventable or Avoidable	1,492	11.3%		
		Mental, Alcohol, Substance Abuse Related	381	2.9%		
		Injury	4,827	36.5%		
		Unclassified	882	6.7%		
37	Sandy, NE	All	4,929	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,916	38.9%	36.7%	41.1%
		Non-Emergent	868	17.6%	15.1%	20.1%
		Emergent, Primary Care Treatable	814	16.5%	14.0%	19.1%
		Emergent, ED Needed, Preventable/Avoidable	235	4.8%	2.0%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	560	11.4%		
		Mental, Alcohol, Substance Abuse Related	115	2.3%		
		Injury	2,025	41.1%		
		Unclassified	313	6.4%		
38	Sandy, SE	All	5,756	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,131	37.0%	35.0%	39.1%
		Non-Emergent	950	16.5%	14.2%	18.9%
		Emergent, Primary Care Treatable	946	16.4%	14.1%	18.8%
		Emergent, ED Needed, Preventable/Avoidable	235	4.1%	1.5%	6.6%
		Emergent, ED Needed, Not Preventable or Avoidable	652	11.3%		
		Mental, Alcohol, Substance Abuse Related	159	2.8%		
		Injury	2,466	42.8%		
		Unclassified	348	6.0%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
39	Riverton/Draper	All	11,761	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,708	40.0%	38.6%	41.4%
		Non-Emergent	2,136	18.2%	16.5%	19.8%
		Emergent, Primary Care Treatable	2,028	17.2%	15.6%	18.9%
		Emergent, ED Needed, Preventable/Avoidable	545	4.6%	2.9%	6.4%
		Emergent, ED Needed, Not Preventable or Avoidable	1,310	11.1%		
		Mental, Alcohol, Substance Abuse Related	241	2.0%		
		Injury	4,738	40.3%		
		Unclassified	764	6.5%		
40	Tooele Co.	All	12,773	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,438	42.6%	41.3%	43.9%
		Non-Emergent	2,413	18.9%	17.3%	20.5%
		Emergent, Primary Care Treatable	2,283	17.9%	16.3%	19.4%
		Emergent, ED Needed, Preventable/Avoidable	742	5.8%	4.1%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	1,279	10.0%		
		Mental, Alcohol, Substance Abuse Related	237	1.9%		
		Injury	5,055	39.6%		
		Unclassified	764	6.0%		
41	Lehi/Cedar Valley	All	6,205	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,403	38.7%	36.8%	40.7%
		Non-Emergent	1,091	17.6%	15.3%	19.8%
		Emergent, Primary Care Treatable	1,027	16.5%	14.3%	18.8%
		Emergent, ED Needed, Preventable/Avoidable	286	4.6%	2.2%	7.0%
		Emergent, ED Needed, Not Preventable or Avoidable	686	11.1%		
		Mental, Alcohol, Substance Abuse Related	98	1.6%		
		Injury	2,655	42.8%		
		Unclassified	363	5.9%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
42	American Fork/Alpine	All	8,521	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,237	38.0%	36.3%	39.7%
		Non-Emergent	1,454	17.1%	15.1%	19.0%
		Emergent, Primary Care Treatable	1,400	16.4%	14.5%	18.4%
		Emergent, ED Needed, Preventable/Avoidable	383	4.5%	2.4%	6.6%
		Emergent, ED Needed, Not Preventable or Avoidable	984	11.5%		
		Mental, Alcohol, Substance Abuse Related	177	2.1%		
		Injury	3,618	42.5%		
		Unclassified	505	5.9%		
43	Pleasant Grove/Lindon	All	8,110	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,204	39.5%	37.8%	41.2%
		Non-Emergent	1,500	18.5%	16.5%	20.5%
		Emergent, Primary Care Treatable	1,312	16.2%	14.2%	18.2%
		Emergent, ED Needed, Preventable/Avoidable	391	4.8%	2.7%	6.9%
		Emergent, ED Needed, Not Preventable or Avoidable	885	10.9%		
		Mental, Alcohol, Substance Abuse Related	144	1.8%		
		Injury	3,407	42.0%		
		Unclassified	470	5.8%		
44	North Orem	All	10,397	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,514	43.4%	42.0%	44.9%
		Non-Emergent	2,038	19.6%	17.9%	21.3%
		Emergent, Primary Care Treatable	1,936	18.6%	16.9%	20.4%
		Emergent, ED Needed, Preventable/Avoidable	540	5.2%	3.3%	7.1%
		Emergent, ED Needed, Not Preventable or Avoidable	1,069	10.3%		
		Mental, Alcohol, Substance Abuse Related	274	2.6%		
		Injury	3,947	38.0%		
		Unclassified	593	5.7%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
45	West Orem	All	6,655	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	2,816	42.3%	40.5%	44.1%
		Non-Emergent	1,256	18.9%	16.7%	21.0%
		Emergent, Primary Care Treatable	1,218	18.3%	16.1%	20.5%
		Emergent, ED Needed, Preventable/Avoidable	342	5.1%	2.8%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	726	10.9%		
		Mental, Alcohol, Substance Abuse Related	155	2.3%		
		Injury	2,592	38.9%		
		Unclassified	366	5.5%		
46	East Orem	All	3,853	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,543	40.0%	37.6%	42.5%
		Non-Emergent	687	17.8%	15.0%	20.7%
		Emergent, Primary Care Treatable	655	17.0%	14.1%	19.9%
		Emergent, ED Needed, Preventable/Avoidable	200	5.2%	2.1%	8.3%
		Emergent, ED Needed, Not Preventable or Avoidable	473	12.3%		
		Mental, Alcohol, Substance Abuse Related	99	2.6%		
		Injury	1,502	39.0%		
		Unclassified	236	6.1%		
47	Provo/BYU	All	7,680	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,127	40.7%	39.0%	42.4%
		Non-Emergent	1,414	18.4%	16.4%	20.4%
		Emergent, Primary Care Treatable	1,354	17.6%	15.6%	19.7%
		Emergent, ED Needed, Preventable/Avoidable	360	4.7%	2.5%	6.9%
		Emergent, ED Needed, Not Preventable or Avoidable	846	11.0%		
		Mental, Alcohol, Substance Abuse Related	191	2.5%		
		Injury	3,009	39.2%		
		Unclassified	507	6.6%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
48	Provo South	All	15,351	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	6,902	45.0%	43.8%	46.1%
		Non-Emergent	3,219	21.0%	19.6%	22.4%
		Emergent, Primary Care Treatable	2,930	19.1%	17.7%	20.5%
		Emergent, ED Needed, Preventable/Avoidable	754	4.9%	3.4%	6.5%
		Emergent, ED Needed, Not Preventable or Avoidable	1,514	9.9%		
		Mental, Alcohol, Substance Abuse Related	367	2.4%		
		Injury	5,521	36.0%		
		Unclassified	1,047	6.8%		
49	Springville/Spanish Fork	All	14,709	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	6,111	41.5%	40.3%	42.8%
		Non-Emergent	3,052	20.7%	19.3%	22.2%
		Emergent, Primary Care Treatable	2,475	16.8%	15.4%	18.3%
		Emergent, ED Needed, Preventable/Avoidable	584	4.0%	2.4%	5.6%
		Emergent, ED Needed, Not Preventable or Avoidable	1,512	10.3%		
		Mental, Alcohol, Substance Abuse Related	279	1.9%		
		Injury	5,774	39.3%		
		Unclassified	1,033	7.0%		
50	Utah Co. South	All	8,731	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,833	43.9%	42.3%	45.5%
		Non-Emergent	1,947	22.3%	20.5%	24.1%
		Emergent, Primary Care Treatable	1,544	17.7%	15.8%	19.6%
		Emergent, ED Needed, Preventable/Avoidable	342	3.9%	1.9%	6.0%
		Emergent, ED Needed, Not Preventable or Avoidable	782	9.0%		
		Mental, Alcohol, Substance Abuse Related	156	1.8%		
		Injury	3,164	36.2%		
		Unclassified	796	9.1%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
51	Summit Co.	All	2,696	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,116	41.4%	38.5%	44.3%
		Non-Emergent	477	17.7%	14.3%	21.1%
		Emergent, Primary Care Treatable	515	19.1%	15.7%	22.5%
		Emergent, ED Needed, Preventable/Avoidable	124	4.6%	0.9%	8.3%
		Emergent, ED Needed, Not Preventable or Avoidable	384	14.2%		
		Mental, Alcohol, Substance Abuse Related	63	2.3%		
		Injury	948	35.2%		
		Unclassified	185	6.9%		
52	Wasatch Co.	All	4,619	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,992	43.1%	41.0%	45.3%
		Non-Emergent	947	20.5%	17.9%	23.1%
		Emergent, Primary Care Treatable	847	18.3%	15.7%	20.9%
		Emergent, ED Needed, Preventable/Avoidable	198	4.3%	1.5%	7.1%
		Emergent, ED Needed, Not Preventable or Avoidable	430	9.3%		
		Mental, Alcohol, Substance Abuse Related	122	2.6%		
		Injury	1,857	40.2%		
		Unclassified	218	4.7%		
53	Tri-county LHD	All	20,273	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	10,786	53.2%	52.3%	54.1%
		Non-Emergent	4,977	24.5%	23.4%	25.7%
		Emergent, Primary Care Treatable	4,534	22.4%	21.2%	23.6%
		Emergent, ED Needed, Preventable/Avoidable	1,276	6.3%	5.0%	7.6%
		Emergent, ED Needed, Not Preventable or Avoidable	1,598	7.9%		
		Mental, Alcohol, Substance Abuse Related	408	2.0%		
		Injury	6,176	30.5%		
		Unclassified	1,305	6.4%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
54	Juab/Millard/Sanpete Co.	All	13,386	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,847	43.7%	42.4%	44.9%
		Non-Emergent	2,612	19.5%	18.0%	21.0%
		Emergent, Primary Care Treatable	2,570	19.2%	17.7%	20.7%
		Emergent, ED Needed, Preventable/Avoidable	665	5.0%	3.3%	6.6%
		Emergent, ED Needed, Not Preventable or Avoidable	1,305	9.8%		
		Mental, Alcohol, Substance Abuse Related	261	1.9%		
		Injury	5,011	37.4%		
		Unclassified	962	7.2%		
55	Sevier/Piute/Wayne Co.	All	6,822	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,014	44.2%	42.4%	46.0%
		Non-Emergent	1,298	19.0%	16.9%	21.2%
		Emergent, Primary Care Treatable	1,337	19.6%	17.5%	21.7%
		Emergent, ED Needed, Preventable/Avoidable	379	5.6%	3.3%	7.9%
		Emergent, ED Needed, Not Preventable or Avoidable	656	9.6%		
		Mental, Alcohol, Substance Abuse Related	145	2.1%		
		Injury	2,562	37.6%		
		Unclassified	445	6.5%		
56	Carbon/Emery Co.	All	12,710	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,839	45.9%	44.7%	47.2%
		Non-Emergent	2,836	22.3%	20.8%	23.8%
		Emergent, Primary Care Treatable	2,348	18.5%	16.9%	20.0%
		Emergent, ED Needed, Preventable/Avoidable	655	5.2%	3.5%	6.8%
		Emergent, ED Needed, Not Preventable or Avoidable	1,360	10.7%		
		Mental, Alcohol, Substance Abuse Related	194	1.5%		
		Injury	4,419	34.8%		
		Unclassified	898	7.1%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
57	Grand/San Juan Co.	All	3,767	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	1,654	43.9%	41.5%	46.3%
		Non-Emergent	714	19.0%	16.1%	21.8%
		Emergent, Primary Care Treatable	733	19.5%	16.6%	22.3%
		Emergent, ED Needed, Preventable/Avoidable	206	5.5%	2.4%	8.6%
		Emergent, ED Needed, Not Preventable or Avoidable	342	9.1%		
		Mental, Alcohol, Substance Abuse Related	55	1.5%		
		Injury	1,364	36.2%		
		Unclassified	352	9.3%		
58	St. George	All	11,865	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	5,485	46.2%	44.9%	47.6%
		Non-Emergent	2,442	20.6%	19.0%	22.2%
		Emergent, Primary Care Treatable	2,360	19.9%	18.3%	21.5%
		Emergent, ED Needed, Preventable/Avoidable	684	5.8%	4.0%	7.5%
		Emergent, ED Needed, Not Preventable or Avoidable	1,404	11.8%		
		Mental, Alcohol, Substance Abuse Related	277	2.3%		
		Injury	3,798	32.0%		
		Unclassified	901	7.6%		
59	Other Washington Co.	All	7,676	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,423	44.6%	42.9%	46.3%
		Non-Emergent	1,484	19.3%	17.3%	21.3%
		Emergent, Primary Care Treatable	1,477	19.2%	17.2%	21.3%
		Emergent, ED Needed, Preventable/Avoidable	462	6.0%	3.9%	8.2%
		Emergent, ED Needed, Not Preventable or Avoidable	974	12.7%		
		Mental, Alcohol, Substance Abuse Related	156	2.0%		
		Injury	2,577	33.6%		
		Unclassified	546	7.1%		

Continued...

Primary Care Sensitive Emergency Department Visits in Utah, 2001

#	Residential Small Area	Emergency Department Category	Number of visits	Percent of all visits	95% Confidence Interval	
					Lower Limit	Upper Limit
60	Cedar City	All	8,970	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	4,585	51.1%	49.7%	52.6%
		Non-Emergent	2,252	25.1%	23.3%	26.9%
		Emergent, Primary Care Treatable	1,831	20.4%	18.6%	22.3%
		Emergent, ED Needed, Preventable/Avoidable	502	5.6%	3.6%	7.6%
		Emergent, ED Needed, Not Preventable or Avoidable	817	9.1%		
		Mental, Alcohol, Substance Abuse Related	258	2.9%		
		Injury	2,905	32.4%		
		Unclassified	405	4.5%		
61	Other Southwest Dist.	All	7,067	100.0%	100.0%	100.0%
		Primary Care Sensitive Visits	3,207	45.4%	43.7%	47.1%
		Non-Emergent	1,533	21.7%	19.6%	23.8%
		Emergent, Primary Care Treatable	1,268	17.9%	15.8%	20.1%
		Emergent, ED Needed, Preventable/Avoidable	406	5.7%	3.5%	8.0%
		Emergent, ED Needed, Not Preventable or Avoidable	707	10.0%		
		Mental, Alcohol, Substance Abuse Related	137	1.9%		
		Injury	2,446	34.6%		
		Unclassified	570	8.1%		

Source: Utah Hospital Emergency Department Outpatient Encounter Data, 2001

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Appendix A

**Summary Results of Expert Panel Subjective Review Rating Scores on the
NYU ICD-9-CM Classification of Emergency Department Use**

Summary Results of Expert Panel Subjective Review Rating Scores on the NYU ICD-9-CM Classification of Emergency Department Use

The codes in this table represent top 10 frequencies of the ICD-9-CM codes in each of the four ED emergency statuses for Utah ED Outpatient Visits: Utah, 2000

Primary Diagnosis	Code's weight used for the one on Column 2*	Description for Primary Diagnosis ICD-9 Codes in Column 2	Code fully reimbursed by HCF	Non-Emergent	Emergent, Primary Care Treatable	Emergent, E.D. Needed, Preventable/Avoidable	Emergent, E.D. Needed, Not Preventable/Avoidable	Number of cases reviewed by NYU	Weighted Number of ED visits in Utah, 2000	Mean of Panel Rating, 5=Very Confident About NYU's Weight Order	Range of Panel Rating Score
1	5589	Other & unspecified noninfectious gastroenteritis & colitis	No	0.4615	0.3736	0.1648	0.0000	91	2976	3.67	3
2	7242	7248 Lumbago	No	0.7361	0.1528	0.0000	0.1111	n.a.	4020	4.00	3
3	7248	Other symptoms referable to back	No	0.7361	0.1528	0.0000	0.1111	72	n.a.	4.00	3
4	V583	Attention to surgical dressings and sutures	No	0.8947	0.0526	0.0000	0.0526	38	7105	4.00	3
5	V6759	Following other treatment, other	No	0.8000	0.2000	0.0000	0.0000	5	4416	3.33	3
6	7840	Headache	No	0.7792	0.0909	0.0000	0.1299	77	8269	2.67	2
7	78039	Other convulsions	Yes	0.0000	0.2500	0.7500	0.0000	48	2621	3.67	3
8	2765	Volume depletion	Yes	0.0000	0.1053	0.8947	0.0000	19	2666	4.33	1
9	3829	Unspecified otitis media	No	0.3713	0.5907	0.0380	0.0000	237	6400	4.00	2
10	4280	Congestive heart failure	Yes	0.0000	0.0400	0.9600	0.0000	25	884	4.00	2
11	462	Acute pharyngitis	No	0.6579	0.2842	0.0579	0.0000	190	4645	4.00	2
12	4644	Croup	Yes	0.2381	0.1905	0.0000	0.5714	21	1913	4.00	2
13	4659	4660 Acute upper respiratory infection of unspecified site	No	0.0000	0.8226	0.1774	0.0000	310	5789	4.00	2
14	4660	Acute bronchitis	Yes	0.0000	0.8226	0.1774	0.0000	310	4144	4.33	1
15	493	Asthma	Yes	0.0000	0.0189	0.9811	0.0000	424	n.a.	3.67	1
16	49390	493 Asthma, unspecified	Yes	0.0000	0.0189	0.9811	0.0000	n.a.	4035	3.67	1
17	5920	Calculus of kidney	Yes	0.0000	0.0588	0.0000	0.9412	17	2178	4.67	1
18	5921	5920 Calculus of ureter	Yes	0.0000	0.0588	0.0000	0.9412	17	2851	4.67	1
19	5990	Urinary tract infection, site not specified	No	0.4615	0.2967	0.2418	0.0000	91	2839	3.67	1
20	7802	Syncope and collapse	Yes	0.0000	0.3333	0.0000	0.6667	30	2253	4.00	2
21	7806	Fever	Yes	0.4314	0.3726	0.0000	0.1961	51	2803	4.00	2
22	78650	Chest pain, unspecified	Yes	0.0000	0.3239	0.0000	0.6761	71	5675	4.67	1
23	34690	7840 Migraine, unspecified	Yes	0.7792	0.0909	0.0000	0.1299	77	4964	2.33	3
24	486	485 Pneumonia, organism unspecified	Yes	0.0926	0.2407	0.6667	0.0000	n.a.	2863	2.67	2
25	78652	Painful respiration	Yes	0.0000	0.8235	0.0000	0.1765	17	2644	2.67	1
26	78659	Other chest pain	Yes	0.0000	0.6111	0.0000	0.3889	18	3001	2.33	1
27	78900	7890 Abdominal pain	Yes	0.0000	0.6697	0.0000	0.3303	n.a.	6429	2.33	1
28	78903	7890 Abdominal pain, right lower quadrant	Yes	0.0000	0.6697	0.0000	0.3303	n.a.	2469	2.00	2
29	78909	7890 Abdominal pain, other specified site	Yes	0.0000	0.6697	0.0000	0.3303	n.a.	4134	2.33	1
30	59010	Acute pyelonephritis w/o lesion of renal medullary necrosis	Yes	0.0000	0.0000	1.0000	0.0000	1	1823	2.33	1

Definitions for the Four Emergency Statuses:

Non-emergent - The patient's initial complaint, presenting symptoms, vital signs, medical history, and age indicated that immediate medical care was not required within 12 hours;

Emergent/Primary Care Treatable - Based on information in the record, treatment was required within 12 hours, but care could have been provided effectively and safely in a primary care setting. The complaint did not require continuous observation, and no procedures were performed or resources used that are not available in a primary care setting (e.g., CAT scan or certain lab tests);

Emergent - E.D. Care Needed - Preventable/Avoidable - Emergency department care was required based on the complaint or procedures performed/resources used, but the emergent nature of the condition was potentially preventable/avoidable if timely and effective ambulatory care had been received during the episode of illness (e.g., the flare-ups of asthma, diabetes, congestive heart failure, etc.); and

Emergent - E.D. Care Needed - Not Preventable/Avoidable - Emergency department care was required and ambulatory care treatment could not have prevented the condition (e.g., trauma, appendicitis, myocardial infarction, etc.). In this report we use "E.D. Warranted" as an alternative reference to this category.

Notes:

- * NYU Reviewed ICD-9-CM code the weight of that code is assigned to another ICD-9-CM code:
- * Reviewer's confident score (5=Very confident about the priority order of BYU weights, 1=Not confident at all)
- * The physician review panel include one practice physician of emergency medicine in a teaching hospital; one practice physician of family practice in a rural clinic who is also on-call for a rural hospital ED on weekend; and a physician researcher. Each reviewer reviewed the spreadsheet and rated the confident score independently.

Appendix B

**Key to Small Area Boundary Designations by Local Health District for the
State of Utah**

Small Area Boundary Designation By Local Health Districts

#	Area Name	County	ZIP Code Designation	2001 Population*
Bear River				
1	Brigham City	Box Elder County	ZIP Code 84302	21,306
2	Other Box Elder Co.	Box Elder County	Box Elder County except ZIP code 84302	21,939
3	Logan	Cache County	ZIP Codes 84321, 84332, 84341	59,769
4	Other Cache/Rich Co.	Cache and Rich Counties	Cache and Rich Counties except ZIP Codes 83421, 84332, 84341	35,586
Weber-Morgan				
5	Ben Lomond	Weber County	ZIP Code 84404	45,130
6	Morgan/E Weber Co.	Weber County	ZIP Codes 84018, 84050, 84310, 84317, 84414	33,391
7	Downtown Ogden	Weber County	ZIP Codes 84401, 84402	28,254
8	South Ogden	Weber County	ZIP Code 84403	34,795
9	Roy/Hooper	Weber County	ZIP Codes 84067, 84315	40,861
10	Riverdale	Weber County	ZIP Codes 84405j, 84409	25,432
Davis				
11	Clearfield/Hill AFB	Davis County	ZIP Codes 84015, 84016, 84056	52,442
12	Layton	Davis County	ZIP Codes 84040, 84041	63,252
13	Syracuse/Kaysville	Davis County	ZIP Codes 84037, 84075	37,105
14	Farmington/Centerville	Davis County	ZIP Codes 84014, 84025	27,855
15	Woods Cross/No Salt Lake	Davis County	ZIP Codes 84054, 84087	19,348
16	Bountiful	Davis County	ZIP Codes 84010, 84011	44,847
Salt Lake Valley				
17	Rose Park	Salt Lake County	ZIP Code 84116	32,475
18	Avenues	Salt Lake County	ZIP Codes 84103, 84114	22,007
19	Foothill/U of U	Salt Lake County	ZIP Codes 84108, 84112, 84113	23,304
20	Magna	Salt Lake County	ZIP Code 84044	23,378
21	Glendale	Salt Lake County	ZIP Codes 84101, 84104, 84110, 84152	26,659
22	West Valley I	Salt Lake County	ZIP Codes 84120, 84128, 84170	67,172
23	West Valley II	Salt Lake County	ZIP Codes 84119, 84199	48,758
24	Downtown Salt Lake	Salt Lake County	ZIP Codes 84102, 84105, 84111	50,744
25	South Salt Lake	Salt Lake County	ZIP Codes 84115, 84165	24,651
26	Millcreek	Salt Lake County	ZIP Codes 84106, 84109, 84151	57,426
27	Holladay	Salt Lake County	ZIP Codes 84117, 84124	44,985
28	Cottonwood	Salt Lake County	ZIP Code 84121	43,653
29	Kearns	Salt Lake County	ZIP Code 84118	65,588
30	Taylorsville	Salt Lake County	ZIP Code 84123	38,253
31	Murray	Salt Lake County	ZIP Codes 84107, 84157	31,033
32	Midvale	Salt Lake County	ZIP Code 84047	28,675
33	West Jordan No.	Salt Lake County	ZIP Code 84084	44,841
34	W. Jordan, Copperton	Salt Lake County	ZIP Codes 84006, 84088	41,901
35	South Jordan	Salt Lake County	ZIP Code 84095	31,786

Primary Care Sensitive Emergency Department Visits in Utah, 2001

36	Sandy Center	Salt Lake County	ZIP Code 84070, 84091, 84094	52,038
37	Sandy, NE	Salt Lake County	ZIP Codes 84090, 84093	25,232
38	Sandy, SE	Salt Lake County	ZIP Code 84092	30,695
39	Riverton/Draper	Salt Lake County	ZIP Codes 84020, 84065	63,026
Tooele County				
40	Tooele Co.	Tooele County	Tooele County	44,430
Utah County				
41	Lehi/Cedar Valley	Utah County	ZIP Codes 84013, 84043	26,629
42	American Fork/Alpine	Utah County	ZIP Codes 84003, 84004	39,890
43	Pleasant Grove/Lindon	Utah County	ZIP Codes 84042, 84062	38,152
44	North Orem	Utah County	ZIP Codes 84057, 84059	36,042
45	West Orem	Utah County	ZIP Code 84058	29,756
46	East Orem	Utah County	ZIP Code 84097	22,307
47	Provo/BYU	Utah County	ZIP Codes 84602, 84604	48,786
48	Provo South	Utah County	ZIP Codes 84601, 84603, 84605, 84606	57,816
49	Springville/Spanish Fork	Utah County	ZIP Codes 84653, 84660, 84663, 84664	59,715
50	Utah Co. South	Utah County	ZIP Codes 84626, 84633, 84651, 84655	26,604
Summit County				
51	Summit Co.	Summit County	Summit County	31,278
Wasatch County				
52	Wasatch Co.	Wasatch County	Wasatch County	15,947
Tri-County				
53	Tri-county LHD	Dagget, Duchesne, and Uintah Counties	Dagget, Duchesne, and Uintah Counties	41,640
Central Utah				
54	Juab/Millard/Sanpete Co.	Juab, Millard, and Sanpete Counties	Juab, Millard, and Sanpete Counties	44,114
55	Sevier/Piute/Wayne Co.	Piute, Sevier, and Wayne Counties	Piute, Sevier, and Wayne Counties	23,093
Southeastern Utah				
56	Carbon/Emery Co.	Carbon and Emery Counties	Carbon and Emery Counties	30,331
57	Grand/San Juan Co.	Grand and San Juan Counties	Grand and San Juan Counties	22,486
Southwest Utah				
58	St. George	Washington County	ZIP Codes 84770, 84771, 84790 Washington County except ZIP Codes 84770, 84771, 84790	53,983
59	Other Washington Co.	Washington County	84790	41,601
60	Cedar City	Iron County	ZIP Code 84720	29952
61	Other Southwest Dist.	Beaver, Garfield, Iron, and Kane Counties	Beaver, Garfield, Iron, and Kane Counties except ZIP Code 84720	21833

Source: Utah Department of Health, Office of Public Health Assessment (Derived from US Census Bureau and Utah Governor's Office of Planning and Budget Population estimates).

Code #	Small Area Name
1	Brigham City
2	Other Box Elder Co.
3	Logan
4	Other Cache/Rich Co.
5	Ben Lomond
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7	Downtown Ogden
8	South Ogden
9	Roy/Hooper
10	Riverdale
11	Clearfield/Hill AFB
12	Layton
13	Syracuse/Kaysville
14	Farmington/Centerville
15	Woods Cross/No SL
16	Bountiful
17	Rose Park
18	Avenues
19	Foothill/U of U
20	Magna
21	Glendale
22	West Valley I
23	West Valley II
24	Downtown Salt Lake
25	South Salt Lake
26	Millcreek
27	Holladay
28	Cottonwood
29	Kearns
30	Taylorsville
31	Murray
32	Midvale
33	West Jordan No.
34	West Jordan, Copperton
35	South Jordan
36	Sandy Center
37	Sandy, NE
38	Sandy, SE
39	Riverton/Draper
40	Tooele Co.
41	Lehi/Cedar Valley
42	American Fork/Alpine
43	Pleasant Grove/Lindon
44	North Orem
45	West Orem
46	East Orem
47	Provo/BYU
48	Provo South
49	Springville/Spanish Fork
50	Utah Co. South
51	Summit Co.
52	Wasatch Co.
53	Tri-county LHD
54	Juab/Millard/Sanpete Co.
55	Sevier/Piute/Wayne Co.
56	Carbon/Emery Co.
57	Grand/San Juan Co.
58	St. George
59	Other Washington Co.
60	Cedar City
61	Other Southwest Dist.