

Nebraska Hospitalization and Ambulatory Care Sensitive Conditions, 1995-2001

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Summary

Overall, Nebraska's total hospital discharge rate increased between 1995 and 2000 but decreased between 2000 and 2001. Nebraska's hospital discharge due to ambulatory care sensitive conditions (ACSCs) rate increased between 1995 and 1999 and decreased between 2000 and 2001.

In 2001:

- \$ Women accounted for 60 percent of total hospital discharges and 54 percent of hospital discharges due to ACSCs.
- \$ People aged 65 years and older accounted for 38 percent of total hospital discharges but 63 percent of hospital discharges due to ACSCs.
- \$ Most total hospital discharges were billed to a commercial payer, but most hospital discharges due to ACSCs were billed to Medicare.
- \$ Childbirth was the most frequent reason for all hospitalizations (about 16 percent); bacterial pneumonia was the most frequent reason for hospitalizations due to ACSCs (about 28 percent).
- \$ The Southwest Health Planning Region had the highest rate for total hospital discharges; the Central Health Planning Region had the highest rate for hospital discharges due to ACSCs. The Eastern Health Planning Region had the lowest rate for both total hospital discharges and hospital discharges due to ACSCs.
- \$ Rural areas had a consistently higher hospital discharge rate than did urban areas for each ACSC. These rural/urban differences may have been due to differences in access to primary care, financial factors that inhibit use of routine care, and/or differences in prevalence of specific diseases. A detailed multivariate analysis is recommended to further explore the difference.

Purpose

This report will describe the trends in Nebraska between 1995 and 2001 for total hospital discharge rates and hospital discharge rates due to ambulatory care sensitive conditions (ACSCs) and will examine the rural/urban difference in hospital discharge rates due to ACSCs.

Nebraska Hospital Discharge Data

A hospital discharge database is a powerful tool used to extract, compare, and analyze statistics on hospital utilization. Nebraska hospital discharge data used in this report were compiled by the Nebraska Hospital Association.* Nebraska hospital discharge data for 2001 were underreported and cover about 87 percent of total hospital discharges in Nebraska.

During 2001:

- \$ A total of 176,825 resident hospital discharges were reported to the Nebraska Hospital Association data archives.
- \$ Commercial payers were billed for nearly 48 percent of all hospital stays.
- \$ The most frequent hospital discharges statewide were those related to the birth and delivery of newborns (16 percent).
- \$ The average estimated length of hospital stay (ALOS) was 4.2 days.
- \$ The average estimated total statewide hospital charge was \$11,449.
- \$ The average age of hospitalized patients was 48 years.
- \$ Women accounted for nearly 60 percent of all hospital stays.

Ambulatory Care Sensitive Conditions

ACSCs are defined as “diagnoses for which timely and effective outpatient care can help to reduce the risks of hospitalization by either preventing the onset of an illness or condition, controlling an acute episodic illness or condition (such as bacterial pneumonia), or managing a chronic disease or condition (such as asthma and hypertension)” (Billings, Zeitel, Lukomnik, Carey, & Blank, 1993).

In 2001:

- \$ 13.2 percent (N = 22,610) of total Nebraska hospitalizations were due to conditions that can be classified as ambulatory care sensitive.
- \$ Hospitalizations due to ACSCs occurred most frequently among the elderly population. In 2001, about 63 percent (N = 14,185) of preventable hospitalizations were for patients 65 years or older.
- \$ Medicare was billed for 62 percent of hospital stays due to ACSCs.
- \$ Most of the hospital admissions due to ACSCs (about 77 percent) were through emergency departments or were urgent care visits.
- \$ Bacterial pneumonia was the most frequent reason for hospitalization due to ACSCs, accounting for 28 percent.

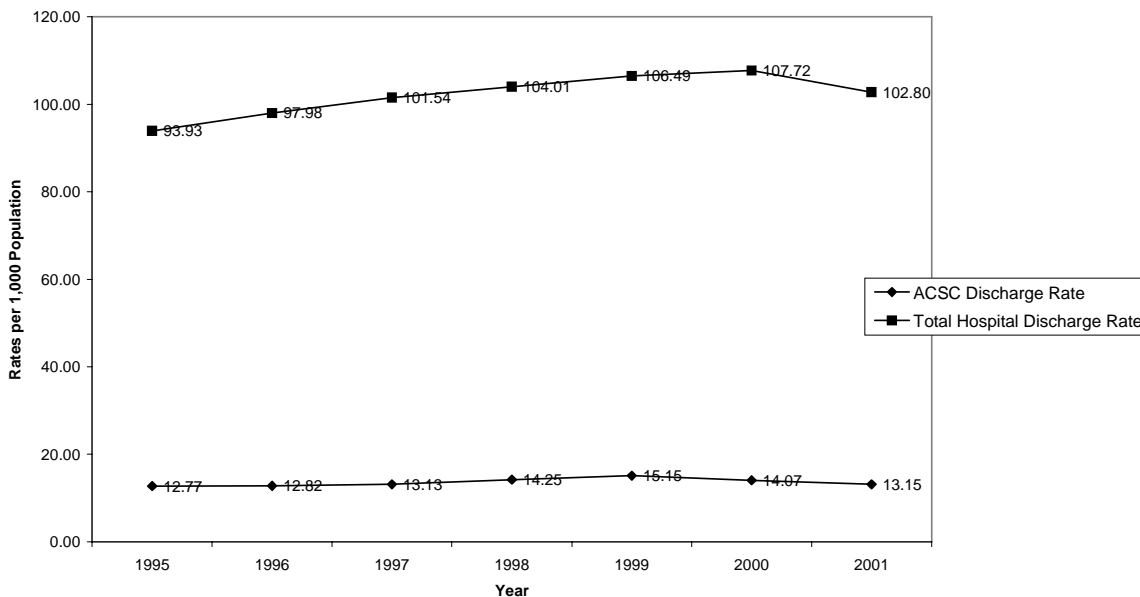
Trends for Total Hospital Discharges and Hospital Discharges Due to ACSCs

As **Figure 1** indicates, the total hospital discharge rate increased annually in Nebraska from 1995 to 2000, as did the hospital discharge rate due to ACSCs from 1995 to 1999. From 1995 to 2001,

*At the time the data in this Reporter were received, the name of the Nebraska Hospital Association was the Nebraska Association of Hospitals and Health Systems.

the total Nebraska hospital discharge rate was highest in 2000 at 107.72 per 1,000 population and lowest in 1995 at 93.93 per 1,000 population. The hospital discharge due to ACSCs rate was highest in 1999 at 15.15 per 1,000 population and lowest in 1995 at 12.77 per 1,000 population.

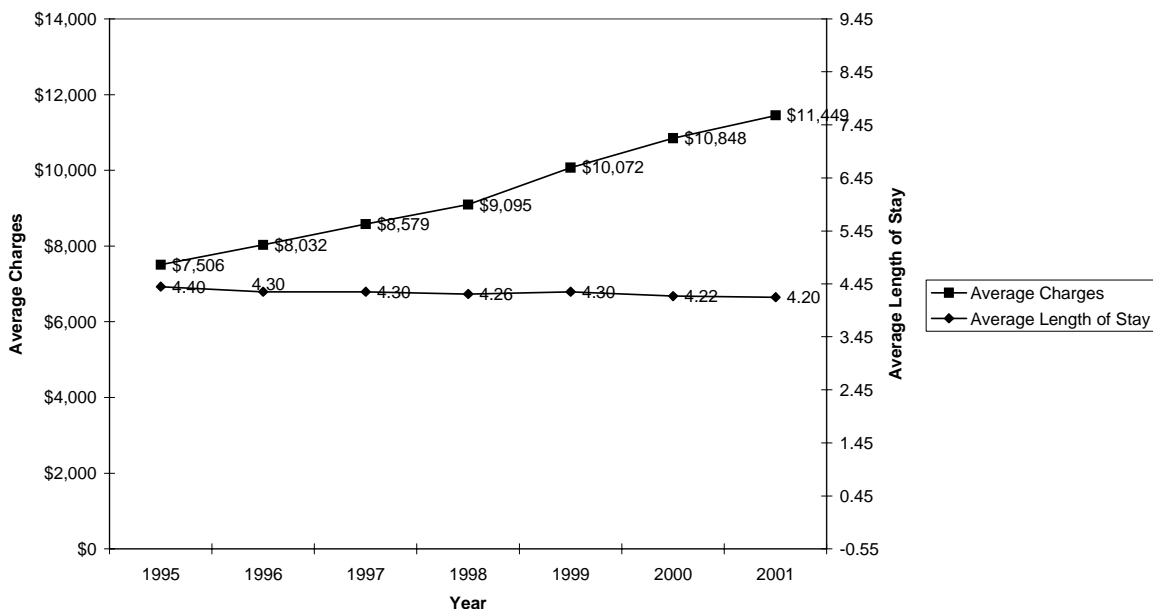
Figure 1. Total Hospital Discharge Rate and Hospital Discharge Due to ACSCs Rate per 1,000 Population, Nebraska 1995 to 2001



Source: Nebraska Hospital Association, 1995 to 2001.

Figure 2 shows that average hospital charges increased from \$7,506 in 1995 to \$11,449 in 2001. The ALOS was about four days throughout 1995 to 2001.

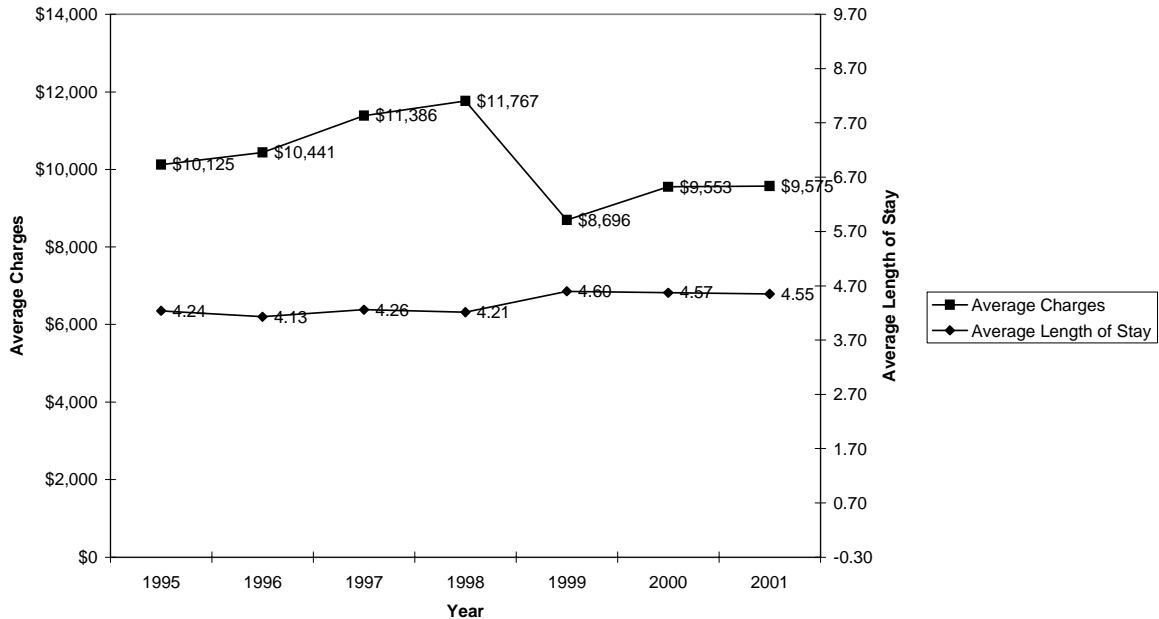
Figure 2. Average Hospital Charges and Average Length of Stay for All Hospitalizations, Nebraska 1995 to 2001



Source: Nebraska Hospital Association, 1995 to 2001.

For hospitalization due to ACSCs from 1995 to 2001, the highest average charge was \$11,767 in 1998, the lowest average charge was \$8,696 in 1999, and the highest ALOS (4.6 days) was also in 1999. **Figure 3** shows the detailed trends.

Figure 3. Average Hospital Charges and Average Length of Stay for Hospitalization Due to ACSCs, Nebraska 1995 to 2001

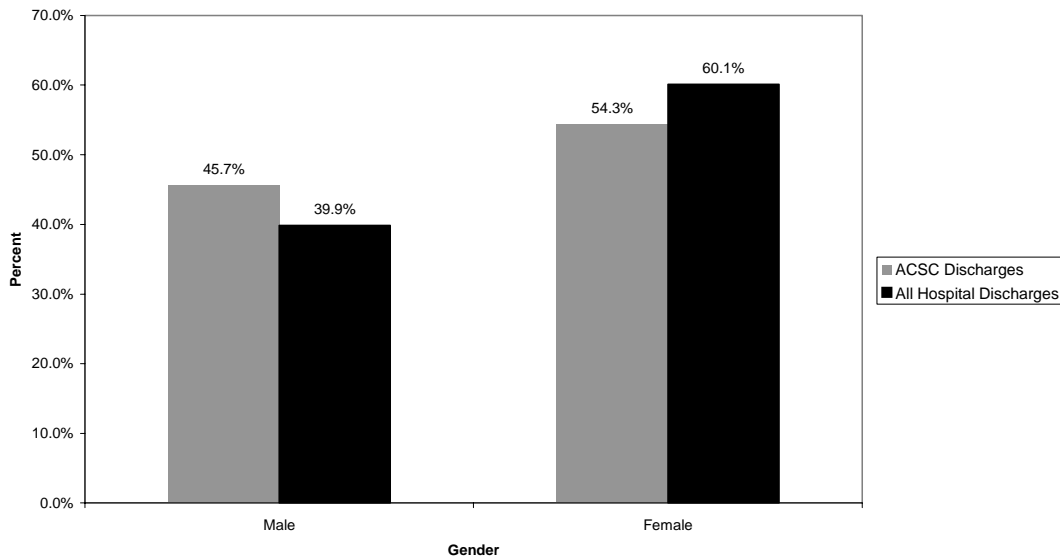


Source: Nebraska Hospital Association, 1995 to 2001.

Patient Characteristics for Total Hospital Discharges and Hospital Discharges Due to ACSCs

As shown in **Figure 4**, in 2001, about 60 percent of all patients discharged were female, as were about 54 percent of patients discharged due to ACSCs.

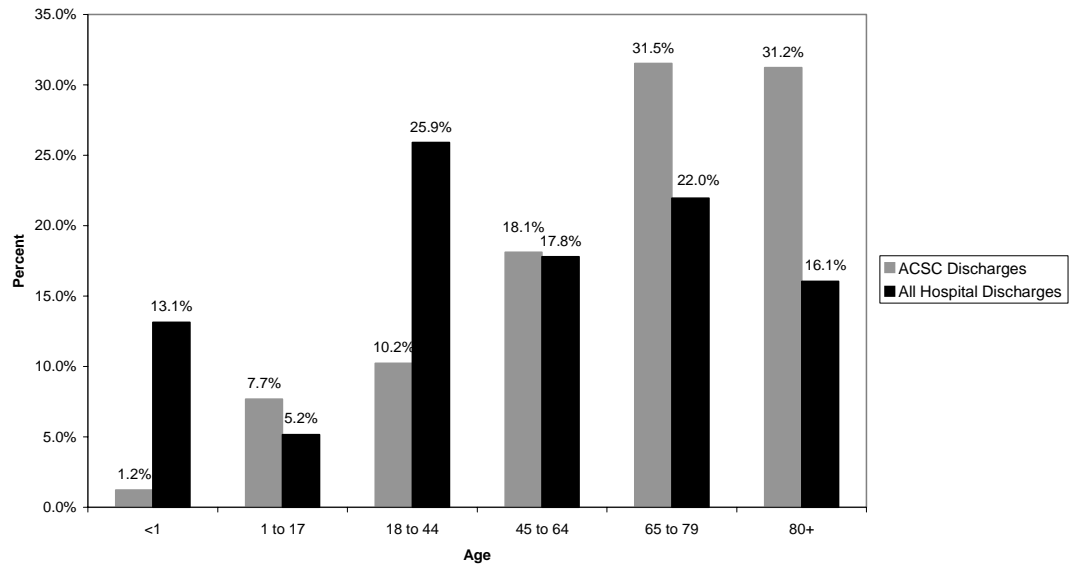
Figure 4. Gender Distribution for All Hospital Discharges and Hospital Discharges Due to ACSCs, Nebraska 2001



Source: Nebraska Hospital Association, 2001.

As shown in **Figure 5**, in 2001, people aged 18 to 44 years accounted for more than 25 percent of **all** hospital discharges, while people aged 65 years or older accounted for 62.7 percent of hospital discharges due to ACSCs.

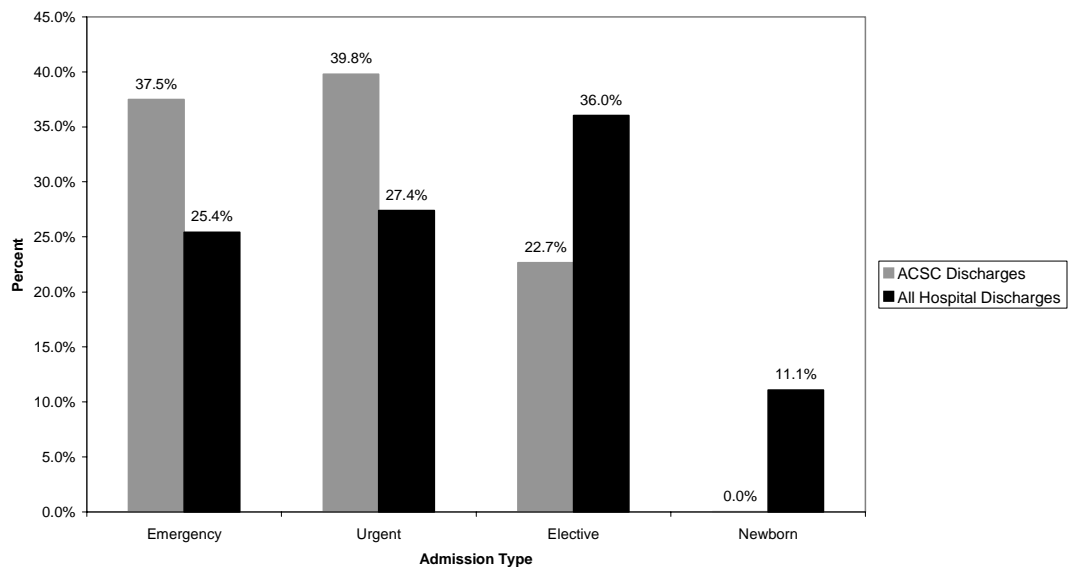
Figure 5. Age Distribution for All Hospital Discharges and Hospital Discharges Due to ACSCs, Nebraska 2001



Source: Nebraska Hospital Association, 2001.

As shown in **Figure 6**, in 2001, the hospital admission type for about 77 percent of hospital discharges due to ACSCs was classified as emergency or urgent, compared to 53 percent of **total** hospital discharges for those admission types.

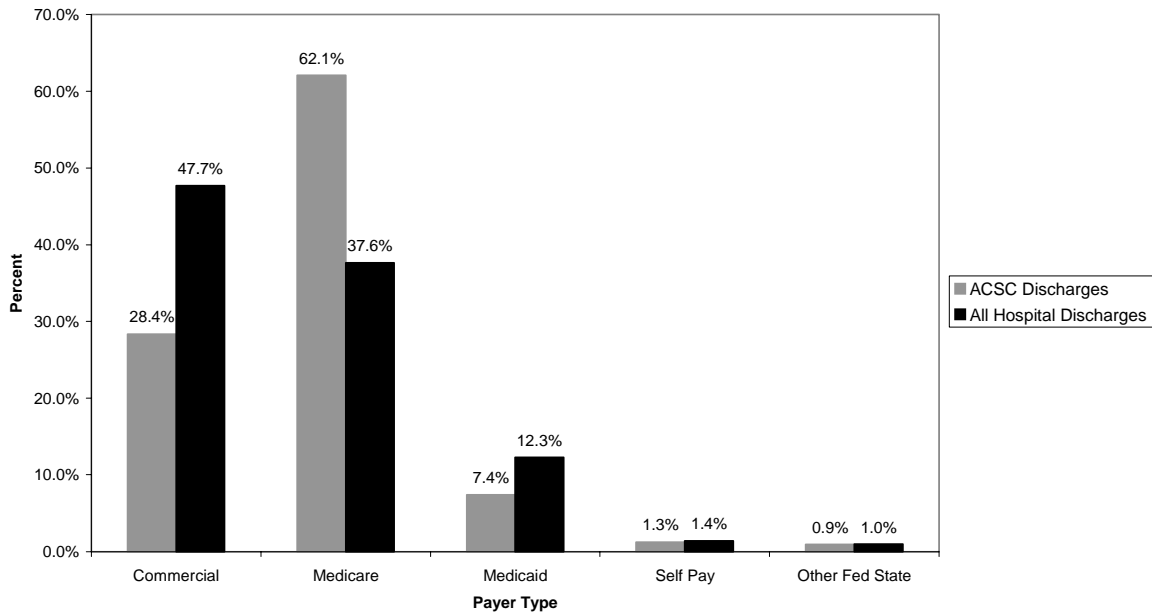
Figure 6. All Hospital Discharges and Hospital Discharges Due to ACSCs by Admission Type, Nebraska 2001



Source: Nebraska Hospital Association, 2001.

As shown in **Figure 7**, in 2001, the majority (62 percent) of hospital discharges due to ACSCs were billed to Medicare, while the majority (48 percent) of **all** hospital discharges were billed to commercial payers.

Figure 7. All Hospital Discharges and Hospital Discharges Due to ACSCs by Payer Type, Nebraska 2001



Source: Nebraska Hospital Association, 2001.

Frequent Reasons for Total Hospital Discharges and Hospital Discharges Due to ACSCs

Table 1 shows the total cases, average charge, and ALOS, by age group, for the leading 25 acute inpatient hospital discharge diagnoses by DRG. The most frequent discharge diagnosis in 2001 was related to childbirth.

Table 1. Leading Acute Inpatient Hospital Discharges by DRG, Age, Average Length of Stay (ALOS), and Average Charge, All Discharges, Including Out-of-State Patients, 2001⁽¹⁾

Rank	DRG Description	All Ages			64 and Under			65 and Over		
		Total Cases	Average Charge	ALOS All Ages	Total Cases	Average Charge	ALOS <65	Total Cases	Average Charge	ALOS 65+
1	391 Normal newborn	16,390	\$995	2.1	16,390	\$995	2.1	~	~	~
2	373 Vaginal delivery with complicating diagnoses	13,802	\$3,508	2.1	13,802	\$3,508	2.1	~	~	~
3	430 Psychoses	6,418	\$7,262	7.1	6,418	\$6,788	6.7	558	\$12,712	12.2
4	209 Major joint and limb reattachment procedures of lower extremity	5,293	\$21,829	4.5	1,400	\$22,855	4.1	3,893	\$21,460	4.7
5	89 Simple pneumonia and pleurisy age >17 with complications	4,798	\$9,639	5.1	995	\$10,477	4.7	3,803	\$9,420	5.2
6	371 Cesarean section without complications	4,196	\$6,997	3.5	4,196	\$6,997	3.5	~	~	~
7	127 Heart failure and shock	4,035	\$9,478	4.7	584	\$11,651	4.6	3,451	\$9,110	4.7
8	116 Other permanent cardiac pacemaker implant or PTCA with coronary artery stent	3,551	\$27,989	2.7	1,283	\$29,020	2.3	2,268	\$27,405	2.9
9	359 Uterine and adnexa proc for non-malignancy without complications	3,406	\$8,253	2.4	3,150	\$8,262	2.4	256	\$8,131	2.9
10	143 Chest pain	3,113	\$5,149	1.5	1,635	\$5,279	1.4	1,478	\$5,005	1.7
11	182 Esophagitis, gastroenteritis, and misc digest disorders age >17 with complications	2,951	\$6,973	3.6	1,253	\$6,810	3.2	1,698	\$7,092	3.9
12	88 Chronic obstructive pulmonary disease	2,676	\$9,197	4.4	729	\$9,373	4.1	1,947	\$9,130	4.6
13	14 Specific cerebrovascular disorders except TIA	2,603	\$12,367	6.1	484	\$14,705	5.2	2,119	\$11,834	6.3
14	390 Neonate with other significant problems	2,071	\$1,994	2.5	2,071	\$1,994	2.5	~	~	~
15	174 G.I. hemorrhage with complications	1,807	\$8,967	4.0	402	\$9,481	3.5	1,405	\$8,820	4.1
16	183 Esophagitis, gastroenteritis, and misc digest disorders age >17 w/o complications	1,762	\$4,914	2.5	1,112	\$5,066	2.3	650	\$4,655	2.7
17	372 Vaginal delivery with complicating diagnoses	1,759	\$4,797	2.6	1,759	\$4,797	2.6	~	~	~
18	500 Back and neck procs except spinal fusion without complications	1,699	\$10,265	2.1	1,154	\$9,958	1.8	545	\$10,917	2.8
19	296 Nutritional and miscellaneous metabolic disorders age >17 with complications	1,699	\$8,114	4.2	495	\$9,190	3.9	1,204	\$7,672	4.4
20	138 Cardiac arrhythmia and conduction disorders with complications	1,578	\$8,638	3.4	309	\$7,826	2.7	1,269	\$8,835	3.6
21	148 Major small and large bowel procedures with complications	1,478	\$35,318	11.2	546	\$36,475	10.6	932	\$34,640	11.5
22	243 Medical back problems	1,448	\$6,397	4.1	646	\$5,711	3.1	802	\$6,950	4.9
23	139 Cardiac arrhythmia and conduction disorders without complications	1,245	\$4,952	2.0	406	\$5,236	1.8	839	\$4,815	2.1
24	320 Kidney and urinary tract infections age >17 with complications	1,199	\$7,177	4.1	342	\$7,468	3.6	857	\$7,061	4.3
25	125 Circulatory disorders except AMI with card cath without complex diagnosis	1,185	\$13,488	2.2	659	\$13,618	2.0	526	\$13,326	2.5
	Subtotal	92,720	\$7,983	3.5	62,220	\$5,769	3.0	30,500	\$12,499	4.6
	All Other DRGs	96,511	\$16,059	5.0	56,330	\$15,229	4.6	41,181	\$17,174	5.6
	Grand Total	189,231	\$12,102	4.3	117,550	\$10,222	3.7	71,681	\$15,185	5.1

Source: Nebraska Hospital Association, 2001.

(1) Calendar year. Reflects an estimated inpatient discharge contribution rate statewide of 87% for 2001.

Table 2 shows hospital discharge rates per 1,000 population by individual ACSCs. In 2001, among all hospital discharges due to ACSCs, bacterial pneumonia ranked first for both all ages and those under age 65.

Table 2. Hospital Discharge Due to ACSCs Rate per 1,000 Population, Nebraska Residents, 2001⁽¹⁾

	Total			Under 65 years		
	Number	Percent	Rate	Number	Percent	Rate
All ACSC Hospitalizations	22,610	100.0%	13.15	8,425	37.3%	5.57
Bacterial pneumonia	6,270	27.7%	3.65	1,941	23.0%	1.28
Congestive heart failure	4,134	18.3%	2.40	629	7.5%	0.42
Chronic obstructive pulmonary disease	2,402	10.6%	1.40	621	7.4%	0.41
Cellulitis	2,620	11.6%	1.52	1,499	17.8%	0.99
Dehydration	1,677	7.4%	0.97	807	9.6%	0.53
Asthma	416	1.8%	0.24	312	3.7%	0.21
Kidney/Urinary tract infections	1,429	6.3%	0.83	464	5.5%	0.31
Diabetes (all types)	1,228	5.4%	0.71	800	9.5%	0.53
Gastroenteritis	869	3.8%	0.51	531	6.3%	0.35
Angina	672	3.0%	0.39	236	2.8%	0.16
Hypertension	345	1.5%	0.20	138	1.6%	0.09
Ear, nose, and throat (ENT) infections	246	1.1%	0.14	211	2.5%	0.14
Grand mal status/Convulsions	178	0.8%	0.10	153	1.8%	0.10
Dental conditions	84	0.4%	0.05	60	0.7%	0.04
Hypoglycemia	22	0.1%	0.01	7	0.1%	0.00
Immunizable & preventable conditions	17	0.1%	0.01	15	0.2%	0.01
Congenital syphilis	*	*	*	*	*	*

Source: Nebraska Hospital Association, 2001.

(1) Calendar years. Reflects an estimated inpatient discharge contribution rate of 87% for 2001.

*Fewer than five cases

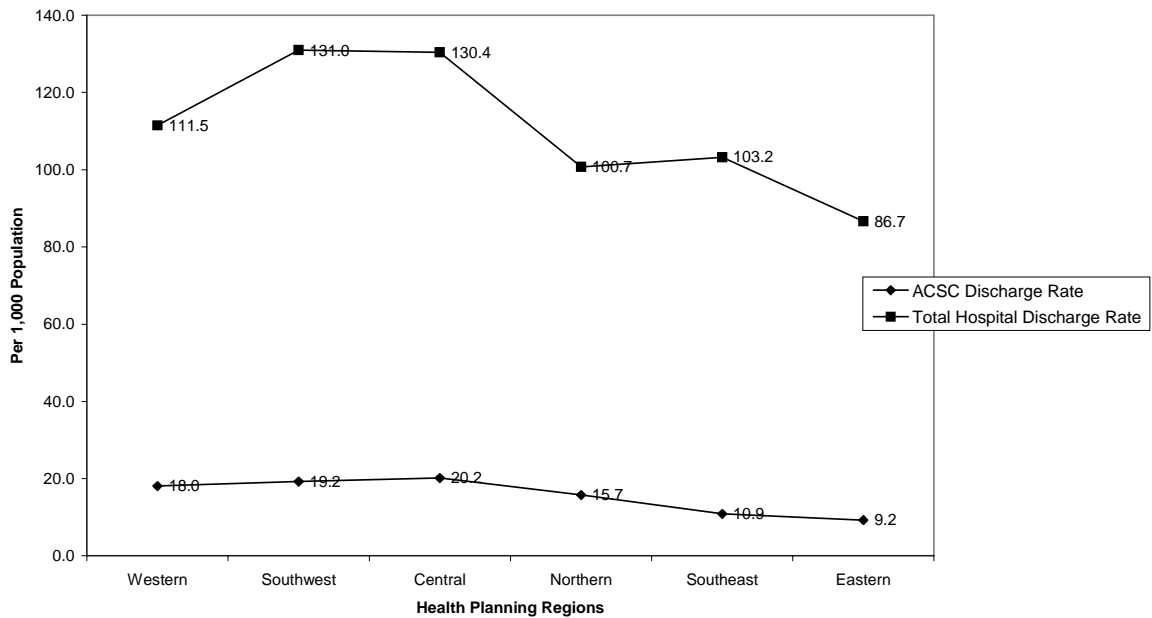
Hospital Discharges and Hospital Discharges by ACSCs for Health Planning Regions*

As shown in **Figure 8**, in 2001, the Southwest Health Planning Region had the highest rate for total hospital discharges (131.0 per 1,000 population); the Central Health Planning Region had the highest rate for hospital discharges due to ACSCs (20.2 per 1,000 population). The Eastern Health Planning Region had the lowest rates for both total hospital discharges (86.7 per 1,000 population) and hospital discharges due to ACSCs (9.2 per 1,000 population). Figure 8 indicates that across all Health Planning Regions, the rate differences for total hospital discharges are larger than the rate differences for hospital discharges due to ACSCs.

*As of February 1, 2002, Nebraska has three health service areas—Western, Central, and Eastern. In this Data Reporter, we further divide these three areas into six areas to more finely differentiate the data we present (see Appendix, page 11). Historically, we have gathered and analyzed data for six Health Planning Regions, and continuing to do so enables us to make trend comparisons.



Figure 8. Total Hospital Discharge Rate and Hospital Discharge Due to ACSCs Rate per 1,000 Population, by Health Planning Region, Nebraska 2001



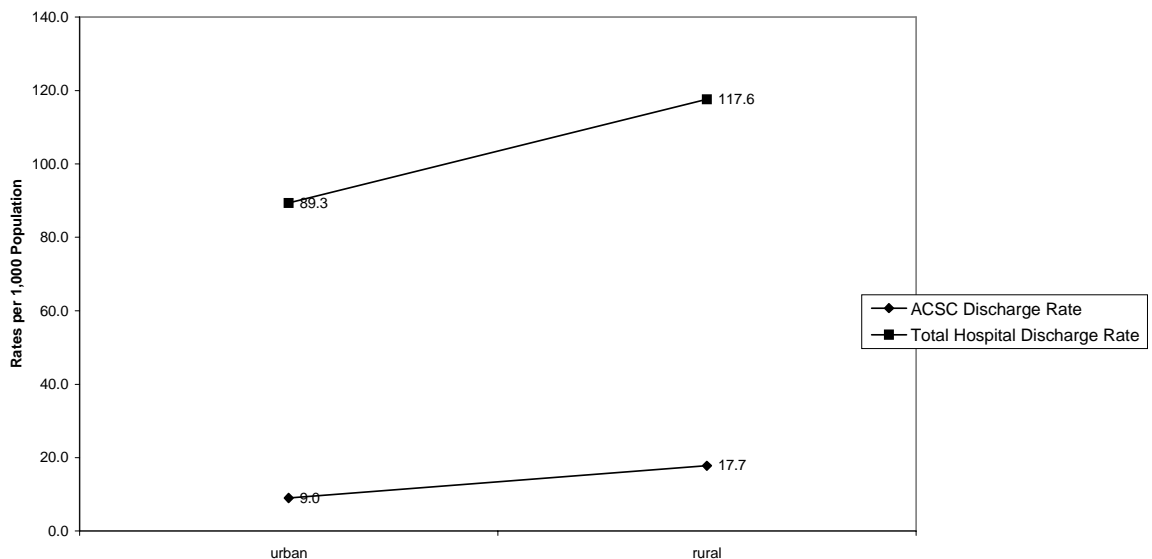
Source: Nebraska Hospital Association, 2001.

Note: Nebraska Health Planning Regions defined by Nebraska Health and Human Services System, 2001

Rural and Urban Differences in Hospital Discharges Due to ACSCs

Figure 9 shows that in 2001, rural areas had higher rates than urban areas per 1,000 population for both total hospital discharges and hospital discharges due to ACSCs.

Figure 9. Total Hospital Discharge Rate and Hospital Discharge Due to ACSCs Rate, per 1,000 Population, Rural vs. Urban Areas, Nebraska 2001



Source: Nebraska Hospital Association, 2001.

Note: Metropolitan area boundaries and names are those defined by the Federal Office of Management and Budget on June 30, 1993. In Nebraska, metropolitan boundaries correspond with county boundaries. Metropolitan counties include Cass, Dakota, Douglas, Lancaster, Sarpy, and Washington.

Table 3 presents the rural vs. urban hospital discharge rate ratio for individual ACSCs. The total rural and urban rate ratio for ACSCs is 1.97 (95% CI, 1.94-1.99) for 2001. The highest rate ratio is for angina (rate ratio 5.59, 95% CI, 5.17-6.01) and the lowest rate ratio is for immunizable and preventable conditions (rate ratio 0.47, 95% CI, 0.24-0.69).

Table 3. Rural-Urban Hospital Discharge Rate Ratio for ACSCs, Nebraska 2001

ACSCs	Rural Rate*	Urban Rate*	Rate Ratio (95% CI)
Angina	0.689	0.123	5.59(5.17-6.01)
Gastroenteritis	0.771	0.268	2.88(2.69-3.07)
Severe ENT infections	0.211	0.083	2.55(2.23-2.87)
Bacterial pneumonia	5.170	2.281	2.27(2.21-2.32)
Congestive heart failure	3.398	1.514	2.25(2.18-2.31)
Kidney/urinary tract infections	1.141	0.553	2.06(1.96-2.17)
Hypertension	0.268	0.140	1.92(1.72-2.12)
Chronic obstructive pulmonary disease	1.789	1.045	1.71(1.64-1.78)
Cellulitis	1.891	1.194	1.58(1.52-1.64)
Dental conditions	0.060	0.039	1.56(1.23-1.90)
Diabetes A, B, and C	0.837	0.604	1.39(1.31-1.46)
Dehydration as primary diagnosis	1.139	0.828	1.37(1.31-1.44)
Asthma	0.275	0.213	1.29(1.17-1.42)
Hypoglycemia	0.014	0.012	1.12(0.65-1.58)
Grand mal status	0.106	0.101	1.04(0.89-1.20)
Immunizable & preventable conditions	0.006	0.013	0.47(0.24-0.69)
Congenital syphilis	~	0.00	~
Total	17.736	9.012	1.97(1.94-1.99)

Source: Nebraska Hospital Association, 2001.

*Rates are per 1,000 population

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Appendix

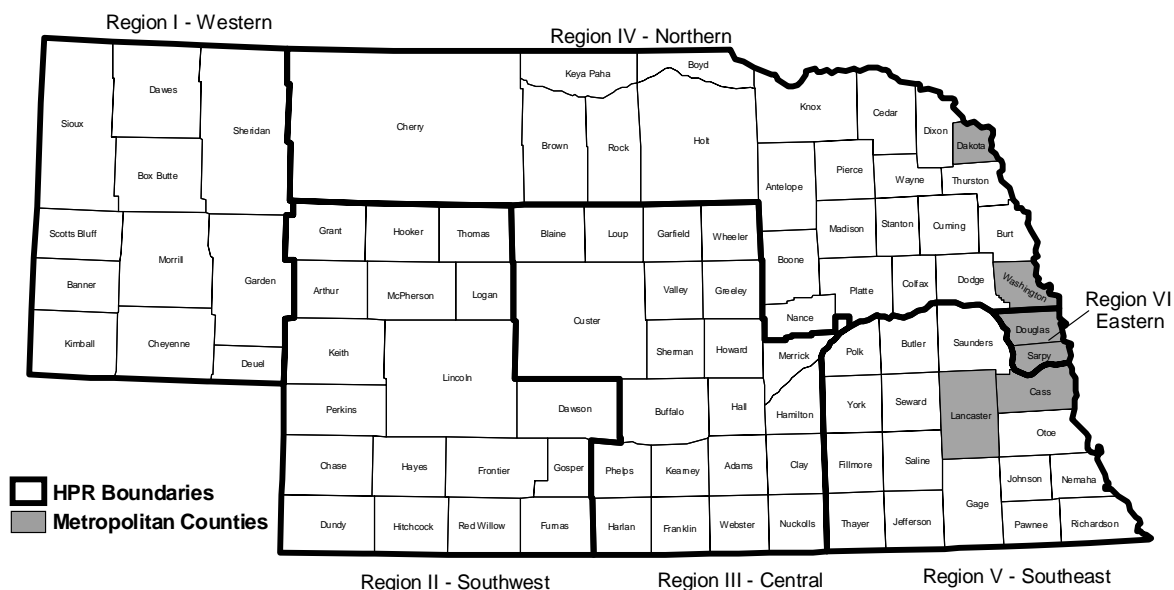
ICD-9 Codes Used for Ambulatory Care Sensitive Conditions

ACSCs	ICD9 Codes
Angina	4111, 4118, 413
Gastroenteritis	5589
Severe ENT infections	2001, 382, 3820, 3821, 3822, 3823, 3824, 3829, 462, 463, 465, 4721
Bacterial pneumonia	481, 4822, 4823, 4829, 483, 4830, 4838, 485, 486
Congestive heart failure	3601, 3602, 3603, 3605, 361, 375, 377, 428, 40201, 40211, 40291, 5184
Kidney/urinary tract infections	590
Hypertension	4010, 4019, 40200, 40210, 40290
Chronic obstructive pulmonary disease	491, 4910, 4911, 4912, 4918, 4919, 492, 4920, 4928, 494, 496, 466
Cellulitis	681, 682, 683, 686
Dental conditions	521, 522, 523, 525, 528
Diabetes A, B, and C	2500, 2501, 2502, 2503, 2508, 2509
Dehydration as primary diagnosis	2765
Asthma	493, 4930, 4931, 4932, 4939
Hypoglycemia	2512
Grand mal status	345, 3450, 3451, 3452, 3453, 3454, 3455, 3456, 3457, 3458, 3459
Immunizable & preventable conditions	033, 0330, 00331, 0338, 0339, 037, 045, 320, 390, 391, 3910, 3911, 3912, 3918, 3919
Congenital syphilis	090, 0901, 0902, 0903, 0904, 0905, 0906, 0907, 0909

Health Planning Regions. As of February 1, 2002, Nebraska has three Health Service Areas—Western, Central, and Eastern. In this Data Reporter, we further divide these three areas into six areas to more finely differentiate the data we present. Historically, we have gathered and analyzed data for six Health Planning Regions, and continuing to do so enables us to make trend comparisons.

Metropolitan Counties. Metropolitan area boundaries and names are those defined by the Federal Office of Management and Budget on June 30, 1993.

Nebraska Health Planning Regions and Metropolitan Counties 2001



Source: U.S. Census Bureau, Census 2000.

About the Nebraska Health Information Project

The Nebraska Health Information Project is a partnership project made possible with the financial support of the State of Nebraska and through additional personal and other resources provided by the University of Nebraska Medical Center. While initiated by Nebraska Unicameral, the ongoing success of the project results from cooperation and collaboration among a number of organizations and individuals, particularly those involved in delivering health care services, financing health care and analyzing health related data.

Other reports have been published by the Nebraska Health Information Project, including biennial databooks which present Nebraska health and demographic data at the county, area and state levels. To find out more about these reports and future reports visit our homepage at: <http://www.unmc.edu/nebraska>

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