



Facts and Figures: Inpatient Hospitalizations in Oklahoma 2006



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HIGHLIGHTS

This publication includes information extracted from the Oklahoma hospital inpatient discharge database. Inpatient records used in the development of this report represent discharges for all Oklahoma resident patients treated in-hospital during calendar year 2006 at state-licensed short-term acute care hospitals. Inpatient care provided by federal (i.e., Veterans Affairs), tribal (i.e., Indian Health Service), psychiatric and substance abuse facilities is not reflected by the data in this report.

Overall hospital statistics

- For 2006, there were 137 acute care hospitals submitting discharge data to the Oklahoma State Department of Health.
- There were a total of 510,542 hospitalizations in those reporting hospitals
- The average charge per hospital stay was \$15,726 with the aggregate charges for all stays totaling approximately \$8 billion.
- The average length of stay was 4.8 days and nearly 2.5 million total days of care in 2006.
- There were approximately 143 hospitalizations per 1,000 population in Oklahoma.
- Routine (54 percent) and emergency department (39 percent) admissions accounted for the bulk of all hospital admissions.

- Nearly 3 in 4 (73 percent) hospital admissions experienced a routine discharge.
- Medicare and Medicaid accounted for the payment of over 60 percent of all hospital stays.

Children

- Roughly 1 in 6 Oklahoma hospitalizations were to children under the age of 18 years.
- Hospital stays for pregnancy, childbirth, or infants accounted for 21 percent of all hospitalizations.
- Ninety-six percent of infant discharges were classified as newborn infants.
- Cesarean section (C-section) deliveries made up 35 percent of all childbirth admissions.
- Pneumonia (8.2 percent) was the leading principal diagnosis for children ages 1-17 years.
- Among children ages 1-17 years, Mood disorders (depression and bipolar disorders) were the second leading reason for hospitalization.

Young adults and middle age

- Individuals 18-64 years of age accounted for 47 percent of all hospital stays.

- Among adults aged 18-44 years, childbirth-related conditions were the leading reasons for hospitalizations.
- Cardiovascular conditions were the most common principal diagnosis for adults aged 45-64 years old.
- Half of all discharges for alcoholism were to middle age patients aged 45-64 years.

Elderly

- Thirty-six percent of hospital discharges were to patients 65 years and older.
- There were 599 hospital stays for every 1,000 elderly individuals 85 years and older.
- Pneumonia (6.3 percent) and rehabilitative care (6.1 percent) were the top two reasons for hospitalization among the elderly.
- Nearly 5 in 10 (47 percent) of diabetes-related hospital stays were to Oklahoma adults aged 64 and older.

Specific diagnoses and procedures

- Coronary atherosclerosis had the highest aggregate costs for hospital stays at \$201 million, representing 5.6 percent of all hospital costs.

- Men had nearly 3 times as many alcohol-related hospital stays as did women and while only 6 percent of all hospital stays were uninsured more than 33 percent of alcohol-related hospital stays were not covered by a health care plan.
- Hospital admissions for spinal cord injuries had the highest average charge per hospital stay (\$109,243 per stay).
- There were more than 25,000 hospital stays for which a blood transfusion was administered, representing 4.6 percent of all discharges.
- Admissions to hospital for developmental disorders experienced the longest average length of stay (41 days) with average charges of \$32,000 per stay.

Cardiovascular conditions and procedures

- Circulatory conditions accounted for nearly 16 percent of all hospital stays. These conditions included coronary atherosclerosis, congestive heart failure, heart attack, and irregular heart beat.
- Five of the top 20 most costly conditions were cardiac-related diseases, including coronary atherosclerosis, congestive heart failure, heart attack, irregular heart beat, and stroke.
- The distribution of circulatory disease discharges was evenly split by gender; however, males and females did differ in the specific conditions for which they were hospitalized.

- Percutaneous transluminal coronary angioplasty (PTCA) had the highest volume of use among all cardiovascular procedures, accounting for 66 percent or 11,664 procedures.

Diabetes

- Hospital admissions for diabetes accounted for 23 percent of all hospital stays.
- The overwhelming majority of diabetes hospitalizations occurred to those aged 45 and older.

Mental health

- Mental illness or substance abuse was the principal diagnosis for 24,257 hospital stays in 2006.
- Mood disorders (depression and bipolar conditions) were the leading reason for mental health-related hospitalization for persons under 65 years of age.

Injuries

- There were 25,162 hospital stays for treatment of injuries and the average length of stay for these cases was 4.9 days.
- Hip fracture was the most common type of injury making up 17 percent of injury-related hospital stays.

- Spinal cord injuries had the highest associated costs (\$34,600), the longest average length of stay (18.2 days), and the highest in-hospital death rate (8.2 percent).

Musculoskeletal conditions and orthopedic procedures

- Spinal fusion was the leading orthopedic procedure performed on patients aged 18-64 years. For those aged 18-44 years undergoing an orthopedic surgery, 24 percent was for a spinal fusion. For those aged 45-64 years, the comparable percentage was 21 percent.
- For the elderly aged 85 and older who had a procedure, 36 percent received treatment for a hip fracture.

INTRODUCTION

Quality hospital discharge data are essential to the improvement in the quality of care provided by Oklahoma hospitals. These data can be used by diverse groups to obtain the necessary information to evaluate treatment and surgical outcomes, to quantify the number of diagnoses and procedures of a certain type, to monitor trends in hospital admissions, and to inform patients regarding the performance of hospitals in the provision of health care services. The primary purpose of this document is to report hospital-based health statistics and, by doing so, support the improvement of health care through the use of objective, understandable data on inpatient stays at Oklahoma hospitals.

The Health Care Information Division (HCI), Center for Health Statistics (CHS) is responsible for collecting, processing, and disseminating hospital health care data for the state's public health agency, the Oklahoma State Department of Health (OSDH). The Oklahoma Health Care Information Act¹ compels Oklahoma state-licensed hospitals and ambulatory surgery centers to submit a uniform set of data characterizing patient discharges occurring in those facilities. The HCI discharge program collects three types of administrative data: 1) in-patient discharges from hospitals, 2) outpatient surgery discharges from hospitals, and 3) outpatient surgery discharges from free-standing ambulatory surgery centers. For this report, only inpatient hospital discharges for calendar year 2006 were used.

Oklahoma inpatient hospital discharge data include patient demographics, diagnoses, procedures, discharge status, and hospital charges. From these elements and those from other

sources (e.g., U.S. Census Bureau, Centers for Medicare and Medicaid, and the Agency for Healthcare Research and Quality), it is possible to derive information relative to the quality, expenditure, and volume of services utilized to provide care to Oklahoma residents. This information can then be used in the development of public health programs and health policy to yield improved outcomes in Oklahoma population health.

This report provides an overview of hospitalizations in Oklahoma for 2006. Along with a brief summary of characteristics of hospitals and demographics for inpatient stays (Section 1), hospital discharges are examined by the most frequently occurring diagnoses and procedures (Section 2 and 3, respectively). Basic hospital charges for Oklahoma hospital stays are set out in Section 4. Lastly, Section 5 gives some simple figures on uninsured hospital admissions. *Facts and Figures: Inpatient Hospitalizations in Oklahoma, 2006* is intended for anyone interested in understanding and improving the health care services provided by Oklahoma hospitals.

¹ 63 O.S. (Supp. 1994) §1-115 et seq.

SECTION 1

OVERVIEW STATISTICS FOR INPATIENT HOSPITAL STAYS

EXHIBIT 1.1 Hospital Stays, Charges and Length of Stay

EXHIBIT 1.2 Reasons for Hospital Stays

EXHIBIT 1.3 Admission Source

EXHIBIT 1.4 Discharge Status

EXHIBIT 1.5 Patient Age

EXHIBIT 1.6 Expected Primary Payer

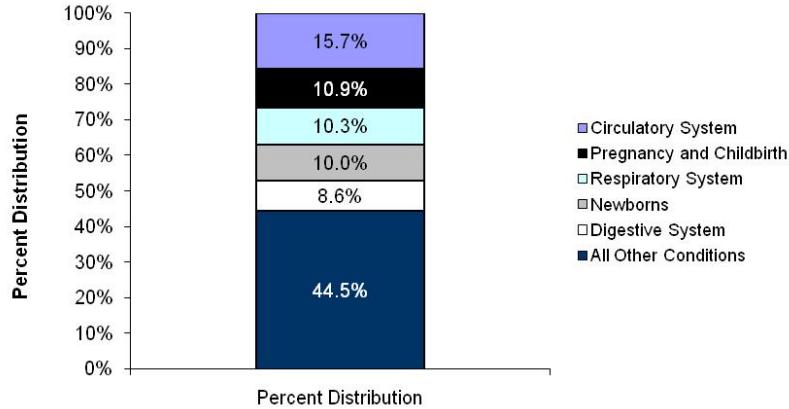
EXHIBIT 1.1 Hospital Stays, Charges and Length of Stay

Number of discharges, charges, and length of stay, 2006

Total discharges	510,542
Discharges per 1,000 population	142.6
Average charge per stay	\$15,726
Aggregate charges in millions	\$8,028
Average length of stay in days	4.8
Total days of care	2,433,282
Average hospital charge per day	\$3,276

EXHIBIT 1.2 Reasons for Hospital Stays

Percent Distribution of Discharges by Major Reason² for Hospital Stay, 2006



² Based on principal diagnosis

For year 2006, there were approximately a half million discharges from Oklahoma’s acute care medical facilities.

- There were approximately 143 discharges per 1,000 population.
- The average charge for a hospital stay was \$15,726 with the sum of all charges amounting to more than \$8 billion.
- The average length of stay for acute care hospitals was 4.8 days with the average daily charge equaling \$3,276.

Circulatory conditions were the most common causes of hospitalization.

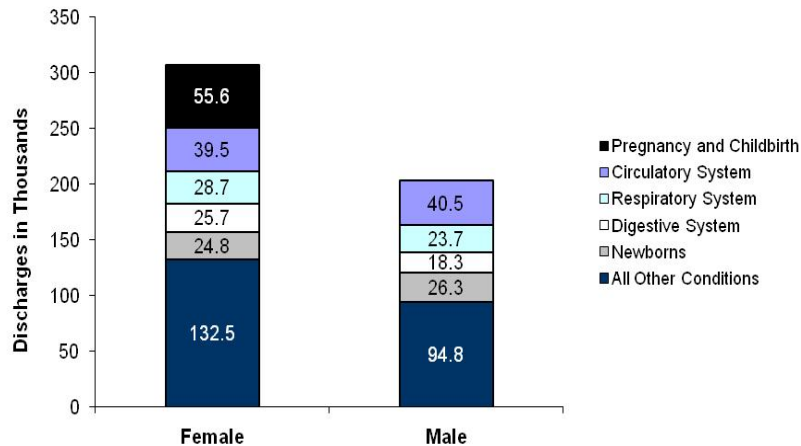
- Circulatory conditions made up 15.7 percent of all hospital stays in 2006. These hospitalizations were for diagnoses such as atherosclerosis (coronary artery disease), congestive heart failure, heart attack, and irregular heart beat.
- Conditions surrounding pregnancy and childbirth (10.9 percent) were ranked second among reasons for hospitalizations. Combined with newborn hospital stays (10 percent), pregnancy and childbirth stays comprised nearly 21 percent of all hospital discharges.
- Conditions involving the respiratory system and the digestive system made up 10.3 percent and 8.6 percent of all hospital stays respectively.

Conditions of the circulatory system accounted for a larger percentage hospital stays for men (19.9 percent) than for women (12.9 percent).

- Females accounted for 306,848 hospital stays, or 60 percent of all hospital stays in 2006.
 - Eighteen percent of female hospital stays were for pregnancy and childbirth conditions.
 - A smaller percentage of hospital stays for women than for men were due to conditions of the circulatory system, respiratory system, and digestive system.
 - Circulatory system and respiratory system conditions made up 12.9 percent and 9.3 percent of all female hospital stays respectively.

- Hospital stays for males totaled 203,639 stays, representing 40 percent of all hospital stays for 2006.
 - Males (12.9 percent) had a higher percentage of hospital stays for newborns than did females (8.1 percent).
 - Respiratory system conditions accounted for 11.7 percent of male stays.
 - The leading conditions (circulatory system, newborns, respiratory system, digestive system) accounted for 53.4 percent of all male hospital stays in 2006.

Number of Hospital Stays for Males and Females by Major Reason, 2006



Percent of Discharges for Males and Females by Major Reason, 2006

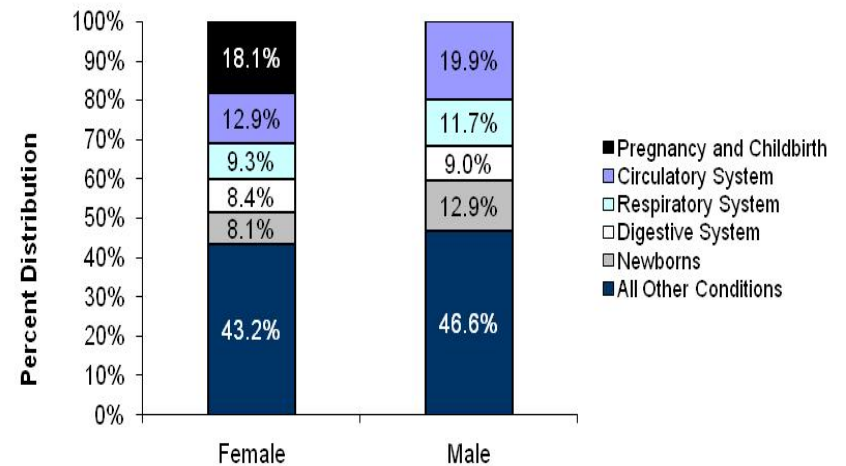
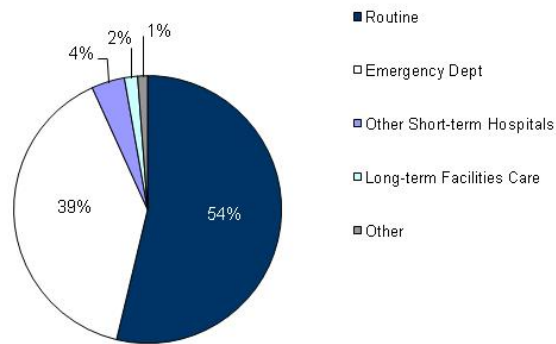


EXHIBIT 1.3 Admission Source

Distribution of Hospital Inpatient Stays by Admission Source, 2006

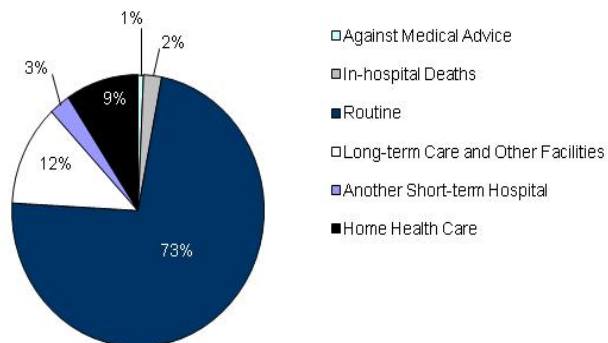


Admission source indicates the location or setting in which a patient might enter the hospital for medical treatment.

- In 2006, more than half (54 percent) of all admissions to hospitals were routine admissions.
- Emergency department accounted for the second largest percentage of hospital admissions (39 percent).
- Less than 10 percent of hospital admissions come from other short-term hospitals (4 percent) and long-term care facilities (2 percent).

EXHIBIT 1.4 Discharge Status

Distribution of Hospital Inpatient Stays by Discharge Status, 2006

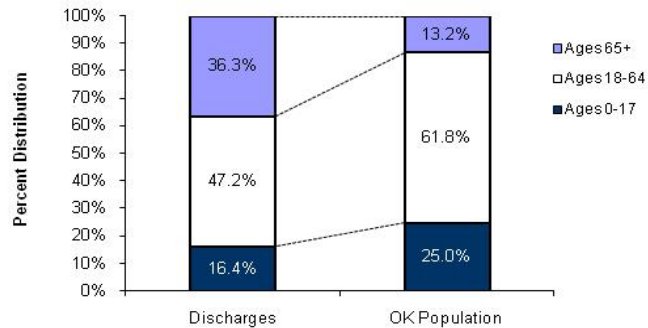


Discharge status reflects where the patient went after being discharged from the hospital.

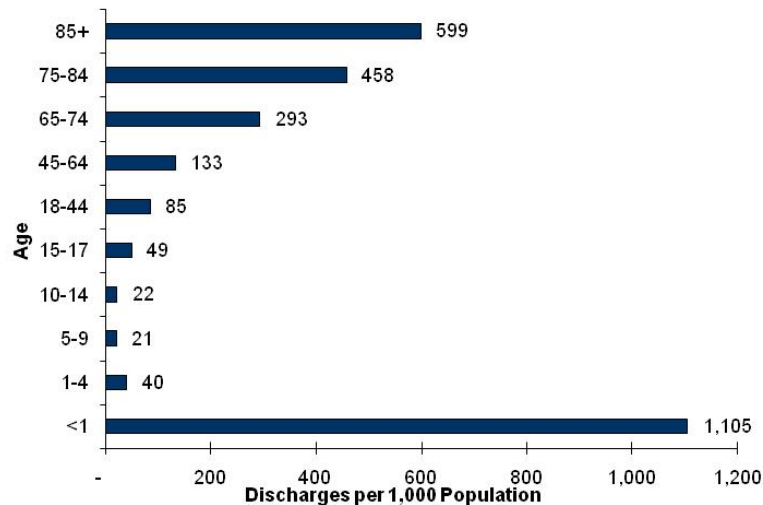
- By far, the most common patient discharge status was routine with nearly 3 in 4 discharges (73 percent) having been sent home without supervised health care.
- Long-term facilities were the destination of 12 percent of hospital discharges in 2006.
- Home health care accounted for 9 percent of all discharges.
- The remaining discharge status categories (e.g., against medical advice, in-hospital death, another short-term hospital) each accounted for less than 3 percent.

EXHIBIT 1.5 Patient Age

Distribution of Oklahoma Population and Hospital Discharges by Age, 2006



Discharges per 1,000 Population by Age Group, 2006



Persons aged 65 and older account for a larger percentage of Oklahoma hospitalizations.

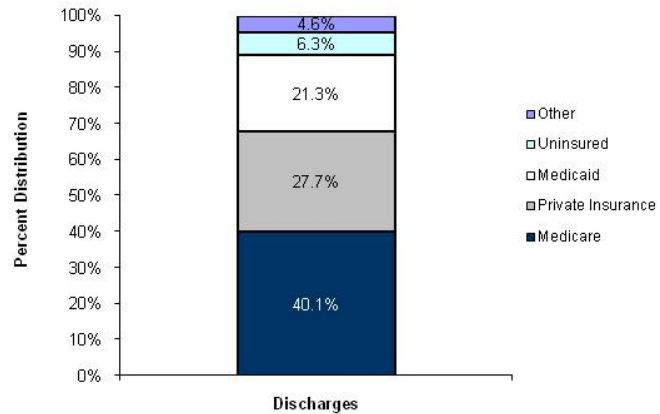
- In 2006, individuals aged 65 and older comprised 13.2 percent of the Oklahoma population but contributed 36.3 percent of all hospital admissions.
- Both of the younger age groups had a smaller percentage of hospitalizations relative to their percentage of the Oklahoma population.
 - Patients aged 18-64 years, representing nearly 62 percent of the population, accounted for 47 percent of hospital stays.
 - Likewise, those under the age of 18 made up 25 percent of the Oklahoma population but accounted for just 16.4 percent of hospitalizations.

As age increases there is an increased likelihood of hospitalization.

- For the 1-4 age group, there were 40 discharges per 1,000 population in that age group, while in the oldest age group, those 85 and older, there were 599 discharges per 1,000 population.
- The highest discharge rate was found in the infant age group (1,105 hospitalizations per 1,000 infants), while the lowest discharge rate was found in the 5-9 age group (21 discharges per 1,000 population).

EXHIBIT 1.6 Expected Primary Payer

Percent Distribution of Discharges by Expected Primary Payer, 2006



The expected primary payer holds the primary payment responsibility for a hospital stay. Partial payment of the costs of hospitalization may be borne by others payers, including the patient.

- In 2006, Medicare and Medicaid accounted for more than 60 percent of the primary financial responsibility for hospital stays.
 - Medicare was the expected primary payer for 40.1 percent of all inpatient hospital discharges.
 - Medicaid was the expected primary payer for 1 out of every 5 hospital stays in 2006.
- Private insurance was the expected primary payer for 27.7 percent of all discharges.
- Six percent of all hospital stays were recorded as uninsured stays.

SECTION 2

HOSPITAL INPATIENT STAYS BY DIAGNOSIS

EXHIBIT 2.1 Most Frequent Principal Diagnoses

EXHIBIT 2.2 Most Frequent Diagnoses by Age

EXHIBIT 2.3 Most Frequent Diagnoses by Gender

EXHIBIT 2.4 Average Length of Stay and Average Charges

EXHIBIT 2.5 Circulatory Conditions

EXHIBIT 2.6 Diabetes

EXHIBIT 2.7 Alcoholism

EXHIBIT 2.8 Mental Health

EXHIBIT 2.9 Injuries

EXHIBIT 2.10 Influenza

EXHIBIT 2.1 Most Frequent Principal Diagnosis

Number of Discharges and Percent Distribution of Most Frequent Principal Diagnoses for Inpatient Hospital Stays, 2006

Principal Diagnosis	Number of Discharges	Percent of Discharges
All discharges	510,513	
Pregnancy, childbirth, and infants	106,366	20.8
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	20,458	4.0
Coronary atherosclerosis and other heart disease	16,277	3.2
Rehabilitation care, fitting of prostheses, and adjustment of devices	14,585	2.9
Congestive heart failure, nonhypertensive	13,686	2.7
Nonspecific chest pain	12,701	2.5
Spondylosis, intervertebral disc disorders, and other back problems	11,667	2.3
Mood disorders	9,566	1.9
Osteoarthritis	9,507	1.9
Chronic obstructive pulmonary disease and bronchiectasis	9,338	1.8
Septicemia (except in labor)	8,800	1.7
Cardiac dysrhythmias	8,544	1.7
Acute myocardial infarction	8,434	1.7
Fluid and electrolyte disorders	8,264	1.6
Complication of device, implant or graft	7,814	1.5

The top 15 most common principal diagnoses made up more than half (52.2 percent) of all hospital discharges in 2006.

Among all discharges:

- Pregnancy, childbirth, and infant-related conditions were the predominant reasons for hospital stays. These conditions accounted for 1 in 5 of all hospital stays in 2006.
- The second leading principal diagnosis was pneumonia, accounting for 20,458 discharges or 4 percent of all stays.
- Circulatory diseases accounted for 5 of the top 15 most frequent principal diagnoses. Leading the way were coronary atherosclerosis, nonhypertensive congestive heart failure, and nonspecific chest pain, accounting for 3.2 percent, 2.7 percent and 2.5 percent of all discharges, respectively.
- Rehabilitation care, prosthetic fittings, and adjustments for medical devices accounted for 2.9 percent of all discharges.

Number and Percent of Discharges for the Most Frequent Principal Diagnoses for Maternal and Infant Discharges, 2006

Principal Diagnosis	Number of Discharges	Percent of Discharges
All maternal discharges	55,163	
Other complications of birth, puerperium affecting management of mother	8,223	14.9
OB-related trauma to perineum and vulva	7,729	14.0
Previous cesarean section	6,586	11.9
Other complications of pregnancy	6,454	11.7
Normal pregnancy and/or delivery	4,323	7.8
Hypertension complicating pregnancy, childbirth and the puerperium	3,319	6.0
Early or threatened labor	2,898	5.3
Fetal distress and abnormal forces of labor	2,467	4.5
Prolonged pregnancy	2,381	4.3
Umbilical cord complication	2,364	4.3
All infant discharges	51,203	
Liveborn	49,091	95.9
Other perinatal conditions	1,163	2.3
Hemolytic jaundice and perinatal jaundice	440	0.9
Respiratory distress syndrome	271	0.5
Short gestation, low birth weight, and fetal growth retardation	224	0.4

Among maternal discharges:

- The top 10 leading principal diagnoses for maternal discharges accounted for 84.7 percent of all maternal hospital stays.
- Other birth complications and puerperium affecting management of mother was the top principal diagnosis, accounting for 14.9 percent of maternal hospital stays.
- The principal diagnoses for previous cesarean section and normal pregnancy and/or delivery accounted for 11.9 percent and 7.8 percent, respectively, of maternal discharges.

- Obstetric-related trauma to perineum and vulva accounted for 14 percent of maternal discharges, while other complications of pregnancy made up 11.7 percent of all such discharges.

Among infant discharges:

- Far and away the leading principal diagnosis for infants was that for newborn infants (95.9 percent).
- A much small fraction of infant discharges was accounted for by other perinatal conditions (2.3 percent).

EXHIBIT 2.2 Most Frequent Diagnoses by Age

Number and Percent of Discharges for the Most Frequent Principal Diagnoses by Age, 2006

Age Group and Principal Diagnosis	Number of Discharges	Percent of Total Discharges	Percent of Age-Specific Discharges
All ages			
<1 year			
Liveborn	49,091	9.6	84.8
Acute bronchitis	1,195	0.2	2.1
Other perinatal conditions	1,145	0.2	2.0
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	844	0.2	1.5
Hemolytic jaundice and perinatal jaundice	440	0.1	0.8
1-17 years			
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	2,167	0.4	8.2
Mood disorders	2,114	0.4	8.0
Asthma	1,615	0.3	6.1
Fluid and electrolyte disorder	1,036	0.2	3.9
Appendicitis and other appendiceal conditions	921	0.2	3.5
18-44 years			
Other complications of birth, puerperium affecting management of mother	7,720	1.5	6.3
Obstetric-related trauma to perineum and vulva	7,341	1.4	6.0
Previous cesarean section	6,554	1.3	5.3
Other complications of pregnancy	6,125	1.2	5.0
Normal pregnancy and/or delivery	4,131	0.8	3.4
45-64 years			
Coronary atherosclerosis and other heart disease	6,736	1.3	5.7
Nonspecific chest pain	6,167	1.2	5.2
Spondylosis, intervertebral disc disorders, and other back problems	5,116	1.0	4.3
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	4,180	0.8	3.5
Osteoarthritis	3,527	0.7	3.0
Congestive heart failure, nonhypertensive	3,274	0.6	2.8
65+ years			
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	11,669	2.3	6.3
Rehabilitation care, fitting of prostheses, and adjustment of devices	11,317	2.2	6.1
Congestive heart failure, nonhypertensive	9,799	1.9	5.3
Coronary atherosclerosis and other heart disease	8,666	1.7	4.7
Cardiac dysrhythmias	5,877	1.2	3.2

The principal diagnoses varied by patient age. The youngest patients were more frequently hospitalized for infections and childbirth-related conditions, young adults were more likely to be hospitalized for pregnancy- and childbirth-related conditions, while other patients were more commonly admitted for chronic conditions like heart disease.

- With the one exception of ages 18-44, pneumonia was a leading principal diagnosis for each of the age groups. It was the top condition for hospitalization among ages 1-17 and ages 65 and older.
- Mood disorders (depression and bipolar disorders) were the second leading cause of hospitalization for ages 1-17, accounting for 8 percent of hospital stays in this age group.
- Asthma accounted for 6.1 percent of pediatric hospital stays.
- Each of the top 5 leading conditions for hospitalization among adults 18-44 was related to pregnancy or childbirth conditions.
- Normal pregnancy and/or delivery accounted for 3.4 percent of hospital stays in the 18-44 age group.
- Cardiovascular conditions were the most common diagnoses for adults aged 45 or older.
 - For those aged 45-64 years, coronary atherosclerosis, nonspecific chest pain, and congestive heart failure

accounted for 5.7 percent, 5.2 percent, and 3.0 percent, respectively, of all hospital stays.

- Those age 65 and older, congestive heart failure (5.3 percent), coronary atherosclerosis (4.7 percent), and cardiac dysrhythmias (3.2 percent) were the leading cardiovascular conditions leading to hospital admission.
- Spondylosis and osteoarthritis accounted for 4.3 percent and 3.0 percent of hospitalizations for those aged 45-64 years.

EXHIBIT 2.3 Most Frequent Diagnoses by Gender

Number of Discharges, Percent Distribution, and Rank of Most Frequent Diagnoses for Inpatient Hospital Stays by Gender, 2006

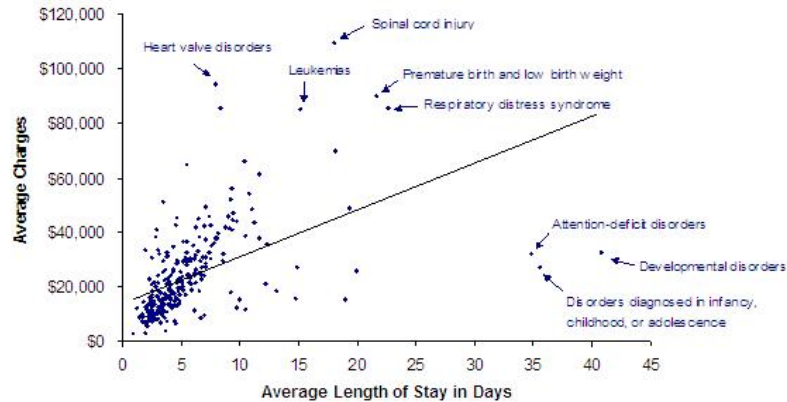
Principal Diagnosis	Males			Females		
	Number of Discharges	Percent of Male Discharges	Rank	Number of Discharges	Percent of Female Discharges	Rank
All diagnoses	203,660	100.0		306,828	100.0	
Pregnancy and childbirth	-	-	-	55,159	18.0	1
Liveborn	25,076	12.3	1	23,976	7.8	2
Coronary atherosclerosis	9,611	4.7	2	6,666	2.2	7
Pneumonia (except that cause by tuberculosis or sexually transmitted disease)	9,302	4.6	3	11,154	3.6	3
Congestive heart failure, nonhypertensive	6,519	3.2	4	7,167	2.3	6
Spondylosis, intervertebral disc disorders, other back problems	5,435	2.7	5	6,232	2.0	8
Nonspecific chest pain	5,294	2.6	6	7,407	2.4	5
Rehabilitation care, fitting of prostheses, adjustment of devices	5,205	2.6	7	9,380	3.1	4
Acute myocardial infarction	5,047	2.5	8	3,387	1.1	20
Septicemia (except in labor)	3,953	1.9	9	4,847	1.6	14
Complication of device, implant or graft	3,949	1.9	10	3,865	1.3	16
Osteoarthritis	3,586	1.9	15	5,921	1.9	9
Mood disorders	3,706	1.8	13	5,860	1.9	10

Setting aside pregnancy and childbirth, a majority of the most frequent diagnoses are common to both males and females.

- Women accounted for 60 percent of all hospital stays in 2006, representing 306,828 hospital discharges. Eighteen percent of female hospital stays were for pregnancy and childbirth.
- Liveborn hospital stays accounted for 12.3 percent of male discharges and 7.8 percent of female discharges.
- Pneumonia was the third leading cause of hospitalization for both males and females.
- Cardiovascular conditions accounted for 13 percent of male hospital stays but just 8 percent of female hospital stays.
- Acute myocardial infarction ranked 8th among males (2.5 percent of male stays) as a leading cause for hospitalization, yet ranked just 20th among females as a cause for hospital admission (1.1 percent of female stays).
- Osteoarthritis and mood disorders were ranked 9th and 10th, respectively, as frequent diagnoses of female hospitalizations.

EXHIBIT 2.4 Average Length of Stay and Average Charges

Inpatient Hospital Stays for Principal Diagnosis: Average Length of Stay and Average Charges, 2006



- As expected, longer lengths of hospital stay are associated with higher average charges.
- The average length for premature birth and low birth weight was 21.7 days with associated average charges of \$89,748. Premature birth and low birth weight had the 5th highest average length of stay but had the 3rd highest value for average charges.
- Spinal cord injury averaged 18.1 hospital days and posted the highest average charges, \$109,243.
- Developmental disorders (40.8 days); disorders diagnosed in infancy, childhood, or adolescence (35.6 days); and attention-deficit disorders (34.9 days) were recorded having the longest lengths of stay.
- Hospital stays for abortion averaged 1.5 days with associated average costs of \$8,374 for spontaneous abortions and \$8,965 for induced abortion.
- The median values for the average length of stay and average charges were 4.0 days and \$19,320, respectively.

EXHIBIT 2.5 Circulatory Conditions

Number and Percent of Discharges for the Most Frequent Principal Diagnoses of Circulatory Conditions by Gender, 2006

Principal Diagnosis	Total Discharges	Males		Females	
		Percent Male	Rank	Percent Female	Rank
All circulatory disease discharges	88,161	49.0		51.0	
Coronary atherosclerosis	12,277	59.0	1	41.0	3
Congestive heart failure, nonhypertensive	13,686	47.6	2	52.4	2
Nonspecific chest pains	12,701	41.7	3	58.3	1
Cardiac dysrhythmias	8,544	46.1	5	53.9	4
Acute myocardial infarction	8,434	59.8	4	40.2	6
Acute cerebrovascular disease	6,520	43.5	6	56.5	5
Peripheral and visceral atherosclerosis	2,766	47.9	7	52.1	8
Transient cerebral ischemia	2,664	37.8	9	62.2	7
Occlusion or stenosis of precerebral arteries	2,199	53.9	8	46.1	12
Hypertension with complications and secondary hypertension	2,119	42.2	11	57.8	9
Phlebitis, thrombophlebitis, and thromboembolism	2,034	45.2	10	54.8	10

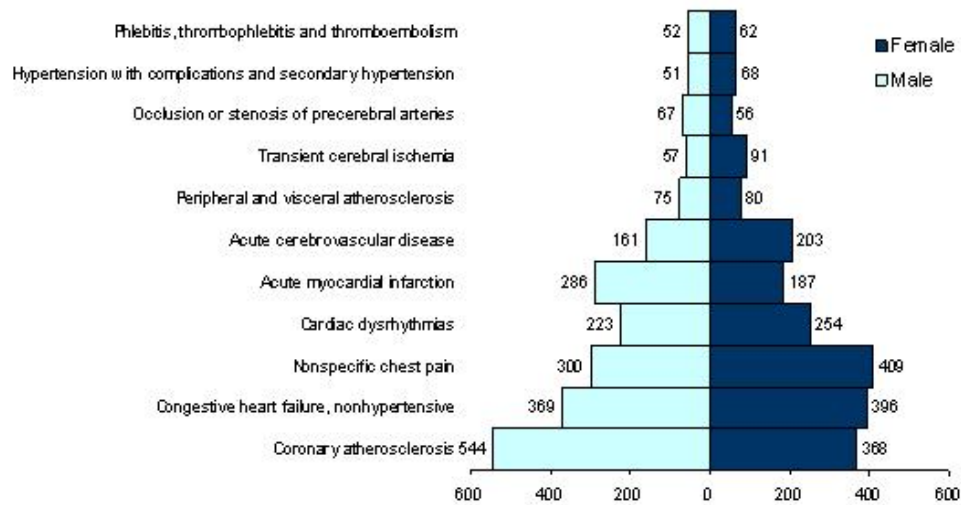
The proportion of all circulatory disease discharges was roughly equal by gender with males accounting for 49 percent and females, 51 percent.

- Males were more likely to be discharged with a diagnosis of acute myocardial infarction (59.8 percent), coronary atherosclerosis (59 percent), and occlusion or stenosis of precerebral arteries (53.9 percent).
- Females accounted for a larger percentage of discharges for transient cerebral ischemia (62.2 percent); nonspecific chest pain (58.3 percent); hypertension (57.8 percent); acute cerebrovascular disease (56.5 percent); phlebitis, thrombophlebitis, and thromboembolism (54.8 percent); cardiac dysrhythmias (53.9 percent); congestive heart

failure (52.4 percent); and peripheral and visceral atherosclerosis (52.1 percent).

- Both males and females share the leading conditions for circulatory disease hospitalization, although they occur with different frequency by gender.

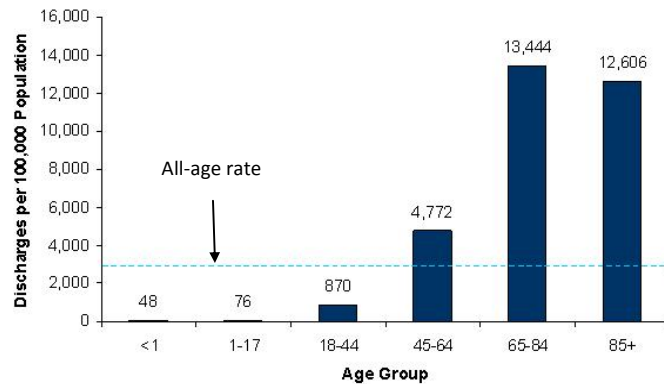
Discharges per 100,000 Population for the Most Frequent Principal Diagnoses of Circulatory Conditions by Gender, 2006



- Among men, in 2006, the rate of hospitalization for coronary atherosclerosis was 544 per 100,000 population. For women, the rate was 368 per 100,000 female population.
- The likelihood for hospitalization was higher among males for coronary atherosclerosis, acute myocardial infarction, and occlusion or stenosis of precerebral arteries.
- For women, the rate of hospitalization (409 per 100,000 female population) was highest for nonspecific chest pain. The comparable rate for men was 300 per 100,000 male population.
- Women were more likely to be hospitalized for nonspecific chest pain, congestive heart failure, cardiac dysrhythmias, acute cerebrovascular disease, peripheral and visceral atherosclerosis, transient cerebral ischemia, hypertension, and phlebitis.

EXHIBIT 2.6 Diabetes

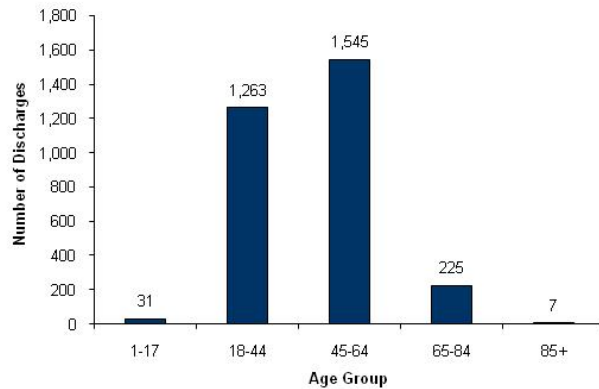
Discharge Prevalence for All-Listed Diabetes by Patient Age, 2006



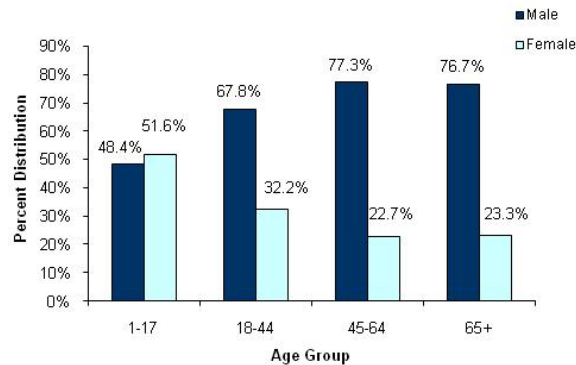
- In 2006, diabetes accounted for 23.1 percent of all hospital stays in Oklahoma.
- The rate of diabetes hospitalization varied by age. The highest rate of hospitalization occurred among Oklahomans aged 65-84 years (13,444 discharges per 100,000 population).
- Diabetes hospitalization was 2.8 times higher for Oklahomans aged 65 and older than for those aged 45-64 years.
- Nearly 9 in 10 of Oklahomans hospitalized for diabetes were aged 45 or older. The bulk of these was reported in the age groups 45-64 years (36.1 percent) and 65-84 years (46.6 percent).
- Less than 1 percent of hospitalizations due to diabetes occurred among infants and children.

EXHIBIT 2.7 Alcoholism

Number of Discharges with a Principal Diagnosis of Alcoholism by Age, 2006

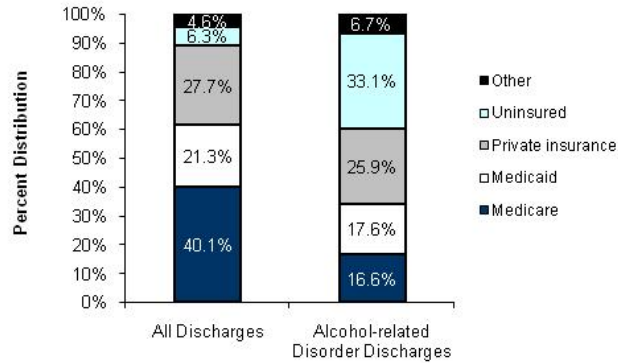


Distribution of Discharges with a Principal Diagnosis of Alcoholism by Gender and Age, 2006



- For 2006, there were a total of 3,071 discharges with the principal diagnosis of alcoholism.
- Fifty percent of discharges for alcoholism were to adults aged 45-64 years.
- Only 1 percent of discharges with a principal diagnosis of alcoholism occurred to children less 18 years of age.
- For the adult patients, males make up the dominant proportion of those admitted to hospital for alcoholism. For ages 18 or older, more than 70 percent of hospital discharges due to alcoholism occur to males.
- Only in the youngest age group did females account for a slightly higher percentage of hospital stays for which alcoholism was the principal diagnosis. Here caution is warranted given the small number of discharge events in this age group.

Distribution of Discharges with a Principal Diagnosis of Alcoholism by Expected Payer, 2006

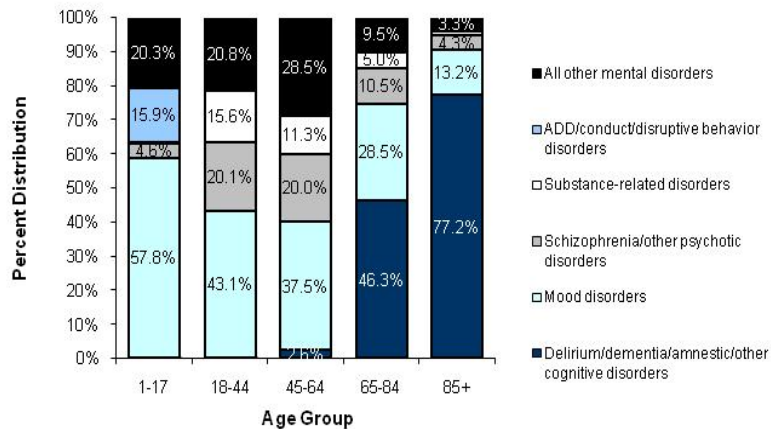


The primary payer for all hospital discharges differed from the expected primary payer for discharges related to alcoholism.

- Uninsured patients accounted for 33.1 percent of alcohol-related discharges but only 6.3 percent of hospital stays in general.
- Among all discharges Medicare was 2.4 times more likely to be the primary payer when compared to alcohol-related discharges (40.1 percent vs. 16.6 percent).
- A higher percentage of all discharges had Medicare (40.1 percent), private insurance (27.7 percent), and Medicaid (21.3 percent) as the expected primary payer than did alcohol-related discharges.

EXHIBIT 2.8 Mental Health

Distribution of Discharges by Age for Stays with a Principal Diagnosis of a Mental Health Condition, 2006



Unmarked segments equal 2% or less

Hospital discharge data used in this report exclude discharges from mental health and substance abuse facilities. However, mood disorders (depression and bipolar conditions) were the eighth leading principal diagnosis in 2006. There were a number of mental health conditions for which Oklahomans were hospitalized. Mental health conditions vary by age of patient.

- In 2006, there were 24,257 hospital stays for which mental illness or substance abuse was listed as the principal diagnosis.

Ages 1-17 years:

- Mood disorders (depression and bipolar disorders) were the leading principal mental health diagnosis, accounting for 57.8 percent of all mental health diagnoses in this age group.
- Attention deficit disorder (ADD), conduct, and disruptive behavior disorders accounted for 15.9 percent of mental health discharges for this age group.

Ages 18-44 years:

- Mood disorders were the most frequently diagnosed mental health condition among adults 18-44 years, accounting for 43.1 percent of mental health discharges.
- Schizophrenia and other psychotic disorders (20.1 percent) and substance-related disorders (15.6 percent) were the other two leading mental health diagnoses in this age group.
- A small percentage of adults (2.6 percent) in this age group were admitted to hospital for delirium, dementia, amnestic, and other cognitive disorders.

Ages 45-64 years:

- As with the two younger age groups, mood disorders were the most commonly diagnosed mental health condition for this age group, making up 37.5 percent of mental health stays.

- Similar to the 18-44 age group, albeit at slightly lower percentages, schizophrenia and other psychotic disorders (20.0 percent) and substance-related disorders (11.3 percent) were the next two most commonly diagnosed mental health conditions for adults aged 45-64 years.

Ages 65 or older:

- For adults aged 65 or older, delirium, dementia, amnestic, and other cognitive disorders were the most frequently diagnosed mental health condition. For adults aged 65-84, 46.3 percent had these conditions as their principal diagnosis, while 77.2 percent of adults in the 85 or older age group had this same diagnosis.
- Mood disorders were the second leading principal mental health diagnosis for these two age groups, accounting for 28.5 percent and 13.2 percent, respectively, of hospital stays for adults aged 65-84 years and adults aged 85 or older.

EXHIBIT 2.9 Injuries

Number of Stays, Average Cost per Stay, Average Length of Stay, and In-hospital Death Rate for Discharges with an Injury Diagnosis, 2006

Principal Diagnosis	Total Number of Stays	Average Costs per Stay	Average Length of Stay	In-Hospital Death Rate (Percent)
All injuries	25,162	\$8,805	4.9	2.2
Spinal cord injury	159	\$34,600	18.1	8.2
Burns	467	\$15,321	9.3	3.9
Crushing injury or internal injury	1,416	\$13,737	7.0	3.8
Intracranial injury	2,288	\$12,294	6.6	7.8
Fracture of neck of femur (hip fracture)	4,283	\$11,493	6.3	2.7
Fracture of lower limb	3,029	\$9,797	4.7	0.7
Other fractures	2,809	\$9,219	6.3	1.4
Skull and face fractures	664	\$7,767	3.5	0.6
Fracture of upper limb	1,722	\$7,660	3.6	0.8
Joint disorders and dislocations, trauma-related	446	\$7,636	2.8	0.0
Open wound of extremities	575	\$6,592	4.0	0.5
Open wounds of head, neck, and trunk	523	\$5,909	3.1	0.6
Poisoning by nonmedicinal substances	520	\$5,242	2.4	1.2
Other injuries and conditions due to external causes	1,485	\$4,617	3.3	3.2
Sprains and strains	572	\$4,589	2.6	0.0
Superficial injury, contusion	731	\$3,994	3.2	0.7
Poisoning by psychotropic agents	1,517	\$3,685	2.2	0.9
Poisoning by other medications and drugs	1,956	\$3,667	2.3	1.3

In 2006, approximately 5 percent (25,162 injuries) of all hospital stays to Oklahomans were for treatment for an injury. Costs, duration of stay, and hospital death rates showed variation by injury type.

- Spinal cord injuries had the highest average cost per stay (\$34,600), the longest length of stay (18.1 days), and the highest in-hospital death rate (8.2 percent), but recorded the fewest number of hospital stays (159), representing less than 1 percent of all injury-related hospitalizations.
- The most frequent injury-related hospitalization was for hip fracture (4,283 hospital stays), lower limb fractures (3,029 hospital stays), other fractures (2,809 hospital stays), intracranial injury (2,288 hospital stays), and poisoning by other medications and drugs (1,956 hospital stays). These five injuries accounted for 57 percent of all injury-related hospitalizations.
- Hospitalizations for burns were second highest for average cost (\$15,321) and mean length of stay (9.3 days).

EXHIBIT 2.10 Influenza

Characteristics of All Hospital Stays and Stays with a Principal Diagnosis of Influenza, 2006

Characteristics	All Hospital Stays	Hospital Stays for Influenza
Total number of discharges	510,513	683
Mean length of stay in days	4.8	3.8
Mean cost of hospitalizations	\$6,919	\$4,137
Mean hospital cost per day	\$1,441	\$1,088
Aggregate costs for Oklahoma	\$3,531,003,891	\$2,825,379
Percent admissions through emergency department	39%	63%
Percent died in hospital	2.3%	1.6%
Percent <1 year (excluding newborns)	1.7%	13.2%
Percent 1-64 years	52%	41%
Percent 65 years and older	36%	45%

- In 2006, there were 683 hospital stays with the principal diagnosis for influenza. This represents less than 1 percent of all hospital stays for that year.
- The length of hospital stays for influenza, when compared to all hospital stays, was on average 20 percent shorter (3.8 versus 4.8 days) and 40 percent less costly (\$4,137 versus \$6,919).
- Influenza hospital stays were more than 1.5 times more likely to originate in the emergency department than were all hospital stays.
- Infants (13.2 percent) and the elderly (45 percent) made up larger percentages of hospital stays for influenza when compared to all hospital stays.

SECTION 3

HOSPITAL INPATIENT STAYS BY PROCEDURE

EXHIBIT 3.1 Most Frequent All-Listed Procedures

EXHIBIT 3.2 Most Frequent All-Listed Procedures by Age

EXHIBIT 3.3 Childbirth

EXHIBIT 3.4 Cardiovascular Procedures

EXHIBIT 3.5 Bariatric Surgery

EXHIBIT 3.6 Orthopedic Procedures

EXHIBIT 3.1 Most Frequent All-Listed Procedures

Number and Percent Distribution of Discharges for the Most Frequent All-listed Inpatient Hospital Procedures, 2006

All-listed Procedures	Number of Stays with Procedure	Percent of Discharges with Procedure
All discharges	510,513	
All discharges with procedure	280,112	100.0
Blood transfusion	25,337	4.6
Other procedures to assist delivery	23,061	4.2
Diagnostic cardiac catheterization coronary arteriography	20,372	3.7
Other vascular catheterization, not heart	18,744	3.4
Other OR procedures on vessels other than head and neck	18,341	3.4
Circumcision	18,208	3.3
Cesarean section	16,811	3.1
Respiratory intubation and mechanical ventilation	14,736	2.7
Other therapeutic procedures	13,874	2.5

The top 10 most frequently performed procedures as based on all-listed procedures.

- More than half (54.8 percent) of all hospital stays included at least one performed procedure.
- Blood transfusion was the procedure most commonly used during hospital stays in 2006, accounting for 4.6 percent of all performed procedures.
- Procedures assisting delivery (4.2 percent of all procedures) were the second most commonly performed procedures.
- Diagnostic cardiac catheterization and coronary arteriography accounted for 20,372 (3.7 percent) performed procedures; combining to be the third most commonly performed procedures.
- Among the top 10 commonly used procedures, those related to pregnancy and childbirth hospitalizations (other procedures assisting delivery, circumcisions, and cesarean sections) accounted for 10.6 percent of all hospital stays that included a procedure.

EXHIBIT 3.2 Most Frequent All-listed Procedures by Age

Number and Percent Distribution of Discharges for the Most Frequent All-listed Inpatient Hospital Procedures by Age Group, 2006

Age Group and All-Listed Procedures	Number of Discharges	Percent of All Discharges	Percent of Age-Specific Discharges
All discharges, all ages	274,172	100.0	
<1 year, all discharges	26,535	9.6	100.0
Circumcision	18,176	6.6	68.5
Prophylactic vaccinations and inoculations	5,858	2.1	22.1
Respiratory intubation and mechanical ventilation	2,288	0.8	8.6
Other therapeutic procedures	1,818	0.7	6.9
Other vascular catheterization, not heart	1,215	0.4	4.6
1-17 years, all discharges	9,524	0.4	100.0
Other procedures to assist delivery	1,104	0.4	11.6
Appendectomy	1,015	0.4	10.7
Repair of current obstetric laceration	730	0.3	7.7
Cancer chemotherapy	636	0.2	6.7
Blood transfusion	596	0.2	6.3
18-44 years, all discharges	85,122	31.0	100.0
Other procedures to assist delivery	21,938	8.0	25.8
Cesarean section	16,267	5.9	19.1
Repair of current obstetric laceration	12,215	4.5	14.3
Artificial rupture of membranes to assist delivery	11,581	4.2	13.6
Episiotomy	4,591	1.7	5.4
45-64 years, all discharges	65,747	24.0	100.0
Diagnostic cardiac catheterization, coronary arteriography	9,030	3.3	13.7
Other OR procedures on vessels other than head and neck	6,956	2.5	10.6
Blood transfusion	6,852	2.5	10.4
Other vascular catheterization, not heart	5,931	2.2	9.0
Other non-OR therapeutic cardiovascular procedures	5,667	2.1	8.6
65+ years, all discharges	87,244	31.8	100.0
Blood transfusion	14,160	5.2	16.2
Other OR procedures on vessels other than head and neck	10,020	3.7	11.5
Diagnostic cardiac catheterization, coronary arteriography	9,615	3.5	11.0
Other vascular catheterization, not heart	8,400	3.1	9.6
Upper gastrointestinal endoscopy	7,358	2.7	8.4

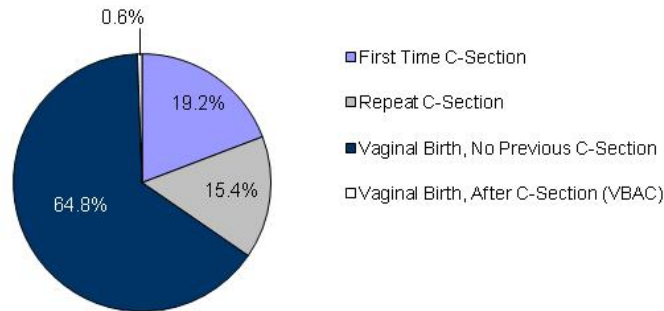
In general, the most frequently used procedures differed by age group, although the older two age groups did share many of the most commonly used procedures.

- Circumcision was the most commonly used procedure for the infant age group, accounting for 68.5 percent of procedures among infants and 6.6 percent of procedures for all discharges for which a procedure was performed.
- Vaccinations, the second most frequently used procedure, accounted for 22.1 percent of procedures performed on infants.
- Among children aged 1-17, other procedures to assist delivery (11.6 percent) and appendectomy (10.7 percent) were the two most commonly used procedures.
- The top five most frequently used procedures for adults aged 18-44 years were all pregnancy- and childbirth-related procedures.
- Heart-related measures, such as coronary arteriography and other non-OR therapeutic cardiovascular procedures, were two of the most frequently performed procedures in the age group 45-64 years. These two procedures accounted for 13.7 percent and 8.6 percent, respectively.
- The age groups for ages 45-64 years and those 65 or older share the top 4 of 5 commonly used procedures, albeit in different order of frequency. Those shared by the two age groups include blood transfusion, other OR procedures on vessels other than head and neck, coronary arteriography,

and other non-heart vascular catheterization. Combined these four procedures accounted for 43.8 percent of procedures performed on those aged 45-64 years and 48.4 percent on those aged 65 or older.

EXHIBIT 3.3 Childbirth

Percent of Childbirth Stays by Birth Type, 2006

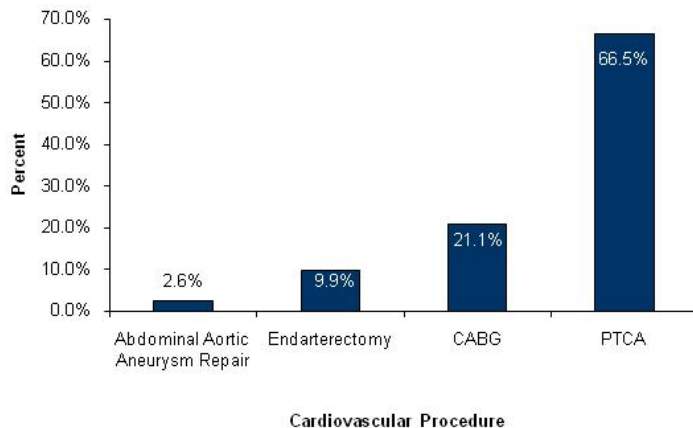


Pregnancy and childbirth is the second leading reason for hospitalization.

- In 2006, vaginal births with no prior history of cesarean section (C-section) accounted for 31,365 hospitalizations, or nearly two-thirds (64.8 percent) of childbirth-related stays.
- Cesarean section deliveries made up 34.7 percent of childbirth hospital stays. First time C-sections accounted for 19.2 percent, while repeat C-sections added 15.4 percent of childbirth stays.
- Vaginal birth after cesarean section (VBAC) accounted for the smallest percentage of childbirth stays, accounting for less than 1 percent of such stays.

EXHIBIT 3.4 Cardiovascular Procedures

Number of Inpatient Hospital Cardiovascular Procedures, 2006

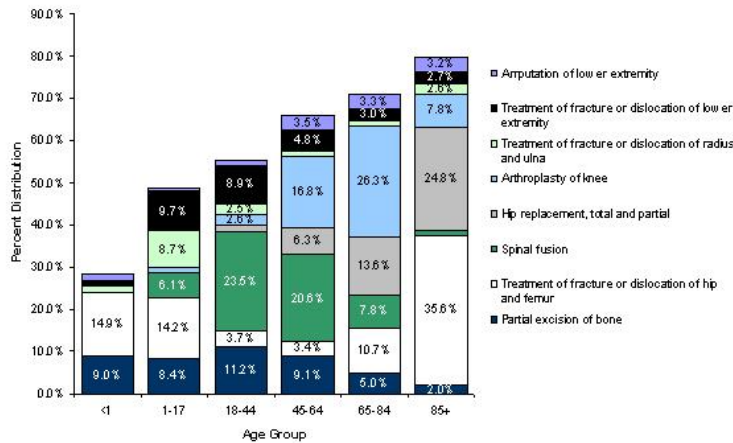


Setting aside pregnancy and childbirth, cardiovascular procedures to treat heart disease and stroke are the most common reasons for hospitalization.

- There were a total of 17,545 cardiovascular procedures performed in 2006.
- The majority of hospital admissions for cardiovascular procedures can be attributed to percutaneous transluminal coronary angioplasty (PCTA), 66.5 percent.
- The second most commonly performed cardiovascular procedure was coronary artery bypass graft (CABG), which accounted for just over 1 in 5 cardiovascular procedures.

EXHIBIT 3.5 Orthopedic Procedures

Percent Distribution of the Most Frequent Musculoskeletal All-listed Procedures within Age Groups, 2006



Unmarked bar segments equal one percent or less.

The most frequent musculoskeletal procedures increase with patient age. Yet the distribution of musculoskeletal procedures differed within each age group.

Infants and children:

- The most common musculoskeletal procedure for children under 18 years of age was treatment of fracture or dislocation of hip and femur.
- For both infants and children between the ages of 1 and 17, the second most frequently performed musculoskeletal procedure was the partial excision of bone.

Adults aged 18-44:

- Spinal fusion was the leading musculoskeletal procedure for this age group.
- Partial excision of bone accounted for more than ten percent of musculoskeletal procedures, and another nine percent went to the treatment of fracture or dislocation of a lower extremity.

Adults aged 45-64:

- Similar to the younger group of adults, spinal fusion (20.6 percent) was the leading performed musculoskeletal procedure for this age group.
- Arthroplasty of the knee was the second most common musculoskeletal procedure, making up roughly 1 in 6 musculoskeletal procedures.
- Partial excision of bone accounted for nine percent of musculoskeletal-related discharges in this age group.

Seniors aged 65-84:

- Arthroplasty of the knee was the leading musculoskeletal procedure performed on patients aged 65-84 years, accounting for more than one-fourth (26.3 percent) of all musculoskeletal procedures for persons in this age category.

- Replacement of hip (13.6 percent) was the second leading musculoskeletal procedure for this age group, while treatment of fracture or dislocation of hip and femur was ranked third (10.7 percent).

Seniors 85 years or older:

- The number one musculoskeletal procedure performed on the elderly aged 85 years or older was treatment of fracture or dislocation of hip and femur, making up 36 percent of orthopedic procedures.
- For this age group, roughly 25 percent of musculoskeletal procedures were those for hip replacement.

SECTION 4

SPENDING FOR HOSPITAL INPATIENT STAYS

EXHIBIT 4.1 Costs for the Most Frequent Diagnoses

EXHIBIT 4.2 Average Charges for the Most Frequent Conditions

EXHIBIT 4.1 Costs for the Most Frequent Diagnoses

Top 20 Inpatient Principal Diagnoses with the Highest Aggregate Costs, 2006

Principal Diagnosis	Total Inflation-Adjusted Hospital Costs	Percent of Total Costs
All diagnoses	\$3,627,215,754	100.0
Coronary atherosclerosis (coronary artery disease)	\$201,722,315	5.6
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	\$138,159,395	3.8
Spondylosis, intervertebral disc disorders, other back problems (disorders of intervertebral discs and bones on spinal column)	\$133,512,740	3.7
Acute myocardial infarction (heart attack)	\$129,791,017	3.6
Congestive heart failure, nonhypertensive	\$123,734,498	3.4
Rehabilitation care, fitting of prostheses, and adjustment of devices	\$119,478,051	3.3
Septicemia (blood infection)	\$114,289,079	3.2
Liveborn (newborn infant)	\$109,027,114	3.0
Osteoarthritis (degenerative joint disease)	\$107,784,024	3.0
Respiratory failure	\$102,717,931	2.8
Complication of medical device, implant or graft	\$96,565,400	2.7
Cardiac dysrhythmias (irregular heart beat)	\$73,979,255	2.0
Complications of surgical procedures or medical care	\$58,188,295	1.6
Acute cerebrovascular disease (stroke)	\$57,348,929	1.6
Chronic obstructive pulmonary disease and bronchiectasis	\$54,880,243	1.5
Fracture of neck of femur (hip fracture)	\$50,502,591	1.4
Biliary tract disease (gall bladder disease)	\$45,566,320	1.3
Nonspecific chest pain	\$45,006,783	1.2
Mood disorders	\$42,513,220	1.2
Diabetes mellitus with complications	\$42,085,275	1.2
Total for top 20 conditions	\$1,846,852,475	50.9

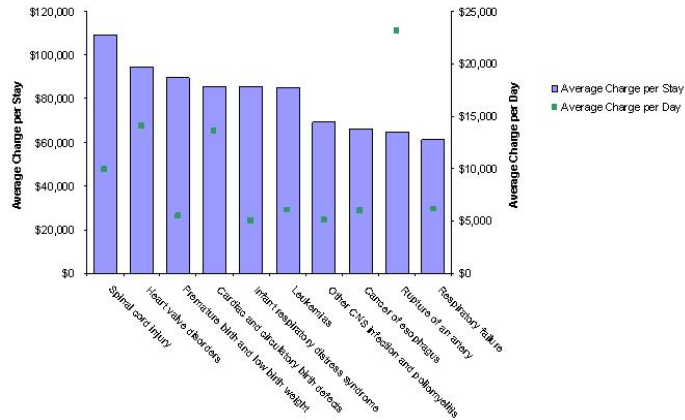
The top 20 principal diagnoses with the highest aggregate inpatient hospital costs accounted for 50.9 percent of the \$3.6 billion total cost for all hospital stays in Oklahoma in 2006.

The most costly diagnoses:

- The number one costly condition for Oklahoma hospitals in 2006 was coronary atherosclerosis, which accounted for 5.6 percent of all hospital costs.
- Of the top 20 conditions with the highest aggregate costs, four conditions, three of which were in the top 5, were related to conditions of the heart: coronary atherosclerosis (5.6 percent), acute myocardial infarction (3.6 percent), congestive heart failure (3.4 percent), and cardiac dysrhythmias (2.0 percent). Combined this group of heart conditions amounted to more \$500 million in hospital costs.
- Hospital stays for pneumonia accounted for approximately \$138 million or 3.8 percent of all Oklahoma hospital costs in 2006.
- Two of the top 20 most costly conditions were related to complications of medical care: complication of medical device, implant or graft and complications of surgical procedures or medical care.

EXHIBIT 4.2 Average Charges for the Most Frequent Conditions

Average Charge per Stay and per Day for the Top 10 Principal Diagnoses with Highest Charges per Stay, 2006



Hospital charges are reflected in the dollar amounts seen by patients when they receive a hospital bill. Because of negotiated discounts, these charges are rarely the amounts paid by patients for medical services. Nonetheless, charges may provide a rudimentary benchmark for examining relative expenditures for medical conditions.

- Diagnoses related to infants made up three of the top ten diagnoses with the highest charges per stay for 2006.
- The condition with the highest average charge per stay does not have to be the same condition with the highest average charge per day. This can be seen in the above graph where spinal cord injury has the highest average charge per stay (\$1,092,430), while rupture of an artery has the highest average charge per day (\$23,073). This likely reflects differences by condition in the length and complexity of hospital stays.
- Hospitalizations for premature birth and low birth weight were found to have the third highest average cost per stay (\$89,748), but fell to near the bottom of the top 10 in terms of the highest average cost per day (\$5,509).
- Only two conditions held the same position in the top 10 for highest charges per stay and per day: heart valve disorders (2nd highest) and leukemias (6th highest).

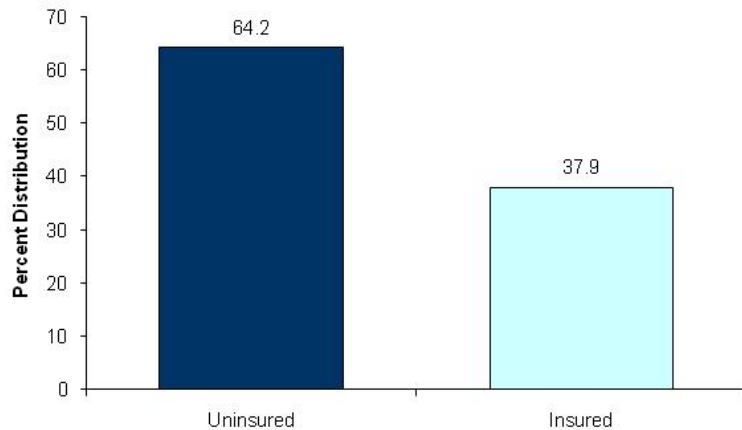
SECTION 5

UNINSURED INPATIENT HOSPITAL STAYS

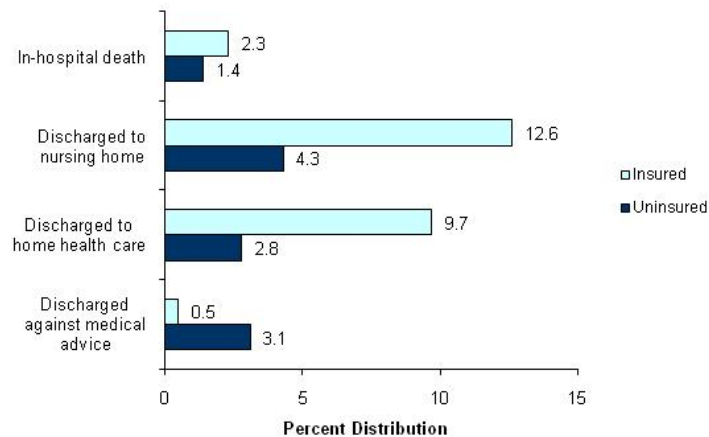
EXHIBIT 5.1 Admission Source and Discharge Status

EXHIBIT 5.1 Admission Source and Discharge Status

Share of Uninsured and Insured Stays Admitted through the Emergency Department, 2006



Share of Uninsured and Insured Stays by Discharge Status, 2006



In 2006, uninsured hospital discharges, those not covered by private insurance or public programs, accounted for more than six percent (approximately 32,000) of Oklahoma hospital discharges.

Admission source:

- Nearly two-thirds (64 percent) of uninsured hospital stays are admitted through emergency departments, compared to 38 percent of insured hospital stays that are admitted to hospital in this manner.

Discharge status:

- A larger percentage of insured admissions (12.6 percent) than uninsured admissions (4.3 percent) were discharged to a nursing home.
- Hospital patients who were uninsured were 6 times more likely than insured patients to leave the hospital against medical advice.
- Nearly 28 percent of all discharges that left the hospital against medical advice were uninsured.
- Patients having health insurance were 3.5 times more likely to be discharged to home health services than were those patients lacking health insurance.
- Uninsured patients (1.4 percent) were less likely than insured patients (2.3 percent) to die in the hospital.

SOURCES AND METHODS

Statistical Software

All data were prepared and analyzed using the SAS Version 9.1.3 statistical software. The SAS programs used to produce this report were obtained by request from the Agency for Healthcare Research and Quality (AHRQ), Rockville, MD. All SAS programs were modified to meet requirements of Oklahoma state-level data.

Unit of Analysis

In this report, the hospital stay, rather than the individual patient, is the unit of analysis. Statistics reported in the document reflect state-level data for hospital discharges occurring in calendar year 2006.

Coding Diagnoses and Procedures

The diagnosis and procedure codes for inpatient hospitalizations can be classified by a number of medical coding classification systems. The SAS programs used to produce this report incorporate four classification systems to identify diagnoses and procedures: International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM), Clinical Classifications Software (CCS), Diagnosis Related Groups (DRGs), and Major Diagnostic Categories (MDCs).

The SAS software uses these four classification systems in combination to produce meaningful categories of diagnoses and procedures. These grouped categories make data analyses and data presentation more manageable. Codes used in this report have been grouped by section.

Section 2 – Diagnoses

Maternal CCS categories:

- 183 Hypertension complicating pregnancy, childbirth, and the puerperium (high blood pressure during pregnancy)
- 184 Early or threatened labor
- 185 Prolonged pregnancy
- 189 Previous C-section
- 190 Fetal distress and abnormal forces of labor
- 191 Polyhydramnios and other problems of amniotic cavity (excess amniotic fluid and other problems of amniotic cavity)
- 192 Umbilical cord complication
- 193 Trauma to external female genitals (vulva) and area between anus and vagina (perineum)
- 196 Normal pregnancy and/or delivery

Other maternal CCS categories:

- 176 Contraceptive and procreative management (birth control or helping with conception)
- 177 Spontaneous abortion
- 178 Induced abortion
- 179 Postabortion complications (complications following abortion)
- 180 Ectopic pregnancy (abdominal or tubal pregnancy)
- 181 Other complications of pregnancy
- 182 Hemorrhage during pregnancy, abruption placenta, placenta previa (bleeding and placenta disorders during pregnancy)
- 186 Diabetes or abnormal glucose tolerance complicating pregnancy, childbirth, or the puerperium (diabetes or high blood glucose during pregnancy)
- 187 Malposition, malpresentation (breech birth and other disorders of baby's position during birth)
- 188 Obstructed labor or fetopelvic disproportion
- 194 Forceps delivery
- 195 Other maternal complications of birth, puerperium affecting management of mother (other maternal complications of birth and period after childbirth)

Infant CCS categories:

- 218 Liveborn (newborn infant)
- 219 Short gestation, low birth weight, and fetal growth retardation (premature birth and low birth weight)
- 220 Intrauterine hypoxia and birth asphyxia (lack of oxygen to baby in uterus or during birth)
- 221 Infant respiratory distress syndrome
- 222 Hemolytic jaundice and perinatal jaundice (infant jaundice following birth)
- 223 Birth trauma
- 224 Other perinatal conditions (other conditions occurring around the time of birth)

Exhibit 2.5

Circulatory CCS categories:

- 99 Hypertension with complications and secondary hypertension (high blood pressure with complications)
- 100 Acute myocardial infarction (heart attack)
- 101 Coronary atherosclerosis (coronary artery disease)
- 102 Non-specific chest pain
- 106 Cardiac dysrhythmias (irregular heart beat)
- 108 Congestive heart failure, nonhypertensive
- 109 Acute cerebrovascular disease (stroke)
- 110 Occlusion or stenosis of precerebral arteries (blockage of arteries before brain)
- 112 Transient cerebral ischemia (mini-stroke)
- 114 Peripheral and visceral atherosclerosis (hardening of arteries outside heart)
- 118 Phlebitis, thrombophlebitis, and thromboembilism (inflammation and blood clots in the veins)

Other circulatory CCS categories:

- 96 Heart valve disorders
- 97 Peri-, endo-, and myocarditis, cardiomyopathy (disorders of heart muscle and surrounding tissue, except that caused by tuberculosis or sexually transmitted disease)
- 98 Essential hypertension (high blood pressure)
- 103 Pulmonary heart disease (heart disease due to lung disorders)
- 104 Other and ill-defined heart disease
- 105 Conduction disorders (disturbance of electrical activity of heart)
- 107 Cardiac arrest and ventricular fibrillation (uncoordinated contraction of heart)
- 111 Other and ill-defined cerebrovascular disease (other blockage of brain blood supply)
- 113 Late effects of cerebrovascular disease (late effects of stroke)
- 115 Aortic, peripheral, and visceral artery aneurysms (ballooning or rupture of an artery)
- 116 Aortic and peripheral arterial embolism or thrombosis (arterial blood clots)
- 117 Other circulatory disease (other blood vessel disease)
- 119 Varicose veins of lower extremity (varicose veins in leg)
- 120 Hemorrhoids
- 121 Other diseases of veins and lymphatics (lymph system)

Exhibit 2.6

Diabetes CCS categories:

- 49 Diabetes mellitus without complication
- 50 Diabetes mellitus with complications

Exhibit 2.7

Alcoholism and alcohol abuse ICD-9-CM codes:

291.0	Alcohol withdrawal delirium
291.1	Alcohol-induced persisting amnesic disorder
291.2	Alcohol-induced persisting dementia
291.3	Alcohol-induced psychotic disorder with hallucinations
291.4	Idiosyncratic alcohol intoxication
291.5	Alcohol-induced psychotic disorder with delusions
291.8	Other specified alcohol-induced mental disorders
291.81	Alcohol withdrawal
291.82	Alcohol-induced sleep disorders
291.89	Other
291.9	Unspecified alcohol-induced mental disorders
303.00	Acute alcoholic intoxication, unspecified
303.01	Acute alcoholic intoxication, continuous
303.02	Acute alcoholic intoxication, episodic
303.03	Acute alcoholic intoxication, in remission
303.90	Other and unspecified alcohol dependence, unspecified
303.91	Other and unspecified alcohol dependence, continuous
303.92	Other and unspecified alcohol dependence, episodic
303.93	Other and unspecified alcohol dependence, in remission
305.00	Alcohol abuse, unspecified
305.01	Alcohol abuse, continuous
305.02	Alcohol abuse, episodic
305.03	Alcohol abuse, in remission
357.5	Alcoholic polyneuropathy
425.5	Alcoholic cardiomyopathy
535.3	Alcoholic gastritis
535.31	Alcoholic gastritis, with hemorrhage
571.0	Alcoholic fatty liver
571.1	Acute alcoholic hepatitis
571.2	Alcoholic cirrhosis of liver
571.3	Alcoholic liver damage, unspecified
760.71	Noxious influences affecting fetus or newborn via placenta or breast milk, alcohol
790.3	Excessive blood level of alcohol
V11.3	Personal history of mental disorder, alcoholism
V79.1	Special screening for mental disorders and developmental handicaps, alcoholism

Exhibit 2.8

Mental health CCS categories:

650	Adjustment disorders
652	Attention-deficit, conduct, and disruptive behavior disorders
653	Delirium, dementia, and amnesic and other cognitive disorders
657	Mood disorders
659	Schizophrenia and other psychotic disorders
660	Substance-related disorders

Other mental health CCS categories:

651	Anxiety disorders
654	Developmental disorders
655	Disorders usually diagnosed in infancy, childhood, or adolescence
656	Impulse control disorders, not elsewhere classified
658	Personality disorders
661	Miscellaneous mental disorders

Exhibit 2.9

Injury CCS categories:

225	Joint disorders and dislocations, trauma-related
226	Fracture of neck of femur (hip fracture)
227	Spinal cord injury
228	Skull and face fractures
229	Fracture of upper limb (arm)
230	Fracture of lower limb (leg)
231	Other fractures
232	Sprains and strains
233	Intracranial injury (brain injury)
234	Crushing injury or internal injury
235	Open wounds of head, neck, and trunk
236	Open wounds of extremities (arms and legs)
239	Superficial injury, contusion (bruise)
240	Burns
241	Poisoning by psychotropic agents
242	Poisoning by other medications and drugs

- 243 Poisoning by nonmedicinal substances (substances other than medicine)
- 244 Other injuries and conditions due to external causes

Exhibit 2.11

Influenza CCS category:

- 123 Influenza

Section 3 – Procedures

Exhibit 3.3

Childbirth DRG categories:

- 370 Cesarean section with complications and comorbidities
- 371 Cesarean section without complications and comorbidities
- 372 Vaginal delivery with complicating diagnoses
- 373 Vaginal delivery without complicating diagnoses
- 374 Vaginal delivery with sterilization and/or dilation and curettage
- 375 Vaginal delivery with operating room procedure except sterilization and/or dilation and curettage

Within DRG 370-371 and 372-375, all-listed diagnoses were also subsetted using the following CCS diagnosis category:

- 189 Previous C-section

Exhibit 3.5

Cardiovascular CCS categories:

- 44 CABG (coronary artery bypass graft, procedure to restore blood supply to the heart muscle)
- 45 PTCA (percutaneous transluminal coronary angioplasty, procedure involving use of a balloon-tipped catheter to enlarge a narrowed artery)
- 51 Endarterectomy (surgical removal of an obstructing clot from the arteries of the neck and head)

In addition, abdominal aortic aneurysm repair was defined using the following ICD-9-CM procedures and diagnoses:

Any one of the following ICD-9-CM procedures:

- 38.34 Resection of aorta with anastomosis
 - 38.44 Resection of abdominal aorta with replacement
 - 38.64 Other excision of aorta
 - 39.71 Endovascular implantation of graft in abdominal aorta
- AND

Any one of the following ICD-9-CM diagnoses:

- 441.3 Abdominal aneurysm, ruptured
- 441.4 Abdominal aneurysm without mention of rupture

Exhibit 3.6

Bariatric surgery procedures were identified using these steps:

1) identify likely bariatric procedures using ICD-9-CM procedure codes; 2) identify additional likely stays for bariatric surgeries using a combination of DRG and ICD-9-CM categories; 3) remove stays where the procedures were performed because of cancer; and 4) eliminate cases where an obesity diagnosis was not present.

1) Bariatric procedures using ICD-9-CM procedure codes:

- 44.31 High gastric bypass
- 44.38 Laparoscopic gastroenterostomy
- 44.39 Other gastroenterostomy
- 44.68 Laparoscopic gastroplasty
- 44.69 Other
- 44.95 Laparoscopic gastric restrictive procedure
- 44.96 Laparoscopic revision of gastric restrictive procedure
- 44.97 Laparoscopic removal of gastric restrictive device(s)
- 44.98 (Laparoscopic) adjustment of size of adjustable gastric restrictive device

2) Additional likely stays for bariatric surgeries. If the DRG was equal to 288 (O.R. procedures for obesity), additional bariatric surgery procedures were defined using the following ICD-9-CM categories:

- 44.5 Revision of gastric anastomosis
- 44.99 Other operations on the stomach
- 45.91 Small-to-small intestinal anastomosis

3) For all cases above, exclude cancer cases defined by the following ICD-9-CM diagnosis categories:

- 150.0-159.9 Malignant neoplasm of digestive organs and peritoneum
- 230.1-230.9 Carcinoma in situ of digestive organs

4) Exclude cases without one of the following ICD-9-CM diagnostic codes for obesity:

- 278.0 Obesity
- 278.00 Obesity, unspecified
- 278.01 Morbid obesity
- V77.8 Obesity

Exhibit 3.7

Orthopedic procedure CCS categories:

- 142 Partial excision of bone
- 145 Treatment of fracture or dislocation of radius and ulna (lower arm)
- 146 Treatment of fracture or dislocation of hip and femur
- 147 Treatment of fracture or dislocation of lower extremity (leg, other than hip or femur)
- 152 Arthroplasty of knee (surgical reconstruction or replacement of knee)
- 153 Hip replacement, total and partial
- 157 Amputation of lower extremity (leg, foot, or toe)
- 158 Spinal fusion (correction of an unstable part of the spine by joining two or more vertebrae)

Other orthopedic procedure CCS categories:

- 143 Bunionectomy (repair of toe deformities)
- 144 Treatment of facial fracture or dislocation
- 148 Other fracture and dislocation procedure
- 149 Arthroscopy (procedure to view the inside of a joint through a lighted tube and to diagnose and treat problems)
- 150 Division of joint capsule, ligament or cartilage
- 151 Excision of semilunar cartilage of knee
- 154 Arthroplasty other than hip or knee (surgical reconstruction or replacement of other joints)
- 155 Arthrocentesis (procedure that involves introducing a needle into a joint to remove joint fluid)
- 156 Injections and aspirations of muscles, tendons, bursa, joints, and soft tissue
- 159 Other diagnostic procedures on musculoskeletal system
- 160 Other therapeutic procedures on muscles and tendons
- 161 Other operating room therapeutic procedures on bone
- 162 Other operating room therapeutic procedures on joints
- 163 Other non-operating room therapeutic procedures on musculoskeletal system
- 164 Other operating room therapeutic procedures on musculoskeletal system

DEFINITIONS

Admission source

Admission source indicates where the patient was located prior to admission to the hospital.

Routine admission: Patient was admitted to the hospital from home, via physician or clinic referral, or due to birth (i.e., newborns). It does not include patients who were admitted from the emergency department or any other health care facility.

Emergency department admission: Patient was admitted to the hospital through the emergency department.

Long-term health care facility admission: Patient was admitted to the hospital from a long-term health care facility.

Other hospital admission: Patient was admitted to the hospital from another hospital.

Other admissions: Patient was admitted through court/law enforcement or other admission sources.

Adjusted for inflation

Cost can be adjusted for economy-wide inflation by removing increases that reflect the effect of changing average prices for all goods and services. In this report, the U.S. Bureau of Economic Analysis Gross Domestic Product Price Index is used to remove economy-wide inflation. Additional inflation that is specific to the hospital sector is not removed in this calculation. Data shown in Exhibit 1.1 and 4.1 are adjusted for economy-wide inflation.

Aggregate costs

These costs reflect the sum of all costs for hospital stays.

Charges

Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional fees. The charge is generally more than the amount paid to the hospital by payers for the hospitalization and is also generally more than the hospital's costs of care.

Acute care hospitals

An acute care hospital is characterized as a short-term medical facility containing the services, medical staff and personnel to provide diagnosis and treatment of a disease or condition. Acute care is defined over a short time period for which the patient is treated for a brief but severe episode of illness.

Costs

Costs are derived from total hospital charges using cost-to-charge ratios based on hospital accounting reports from the Centers for Medicare and Medicaid Services (CMS). Costs will tend to reflect the actual costs to produce hospital services, while charges represent what the hospital billed for the case. For each hospital, a hospital-wide cost-to-charge ratio is used to transform charges into costs.

Diagnoses

Principal diagnosis: The condition established after study to be chiefly responsible for the patient's admission to the hospital.

All-listed diagnoses: The principal diagnosis plus secondary conditions.

Discharge

Discharge refers to the hospital stay. The unit of analysis for this report is the hospital discharge, not a person or patient. This means that person who is admitted to the hospital multiple times in one year will be counted each time as a separate discharge from the hospital.

Discharge status

Discharge status indicates the disposition of the patient at the time of discharge from the hospital, and includes the following six categories: routine (to home), transfer to another short-term hospital, other transfers (including skilled nursing facility, intermediate care, rehabilitation care, swing bed, and another type of facility such as a nursing home), home health care, against medical advice (AMA), or died in the hospital.

Discharge per population

Discharge per population is the hospital discharge rate of a particular procedure, diagnosis, or event per 100,000 individuals. This measure indicates the prevalence of hospitalizations, procedures or diagnoses within the population.

In-hospital deaths

In-hospital deaths refer to hospitalizations in which the patient died during his or her hospital stay.

Infant discharges

Infant discharges are hospital stays during which a child is born.

Length of stay

Length of stay is the number of nights the patient remained in the hospital for his or her stay. A patient admitted and discharged on the same day has a length of stay equal to 0.

Maternal discharges

Maternal discharges are hospital stays for females who are pregnant or gave birth.

Median income

Median income is the median household income of the patient's ZIP Code of residence. This is a proxy measure of a patient's socioeconomic status.

Morbid obesity

Morbid obesity is defined as at least twice a person's ideal weight, 100 pounds overweight, or a body mass index (BMI) that is greater than 39.

Neonates

Neonates are newborns and infants 30 days of age or less.

Ownership/control

Ownership/control information was obtained from the Oklahoma Hospital Association (OHA). This information includes categories for government non-Federal (public), private not-for-profit (voluntary), and private investor-owned (proprietary). These types of hospitals tend to have different missions and different responses to government regulations and policies.

Patient age

Patient age in years, calculated based on the patient's date of birth and admission date to the hospital.

Payers

Payer is the expected payer for the hospital stay. To make coding uniform, Payer combines detailed categories into more general groups:

Medicare includes fee-for-service and managed care Medicare patients.

Medicaid includes fee-for-service and managed care Medicaid patients. Patients covered by the State Children's Health Insurance Program (SCHIP) may be included here. Because most state do not identify SCHIP patients specifically, it is not possible to present this information separately.

Private insurance includes Blue Cross, commercial carriers, and private HMOs and PPOs.

Other includes Worker's Compensation.

TRICARE/CHAMPUS, CHAMPVA, Title V, and other government programs.

Uninsured includes an insurance status of "self-pay" and "no charge."

When more than one payer is listed for a hospital discharge, the first-listed payer is used.

Procedures

Principal procedure is the procedure that was performed for definitive treatment rather than one performed for diagnostic or exploratory purposes (i.e., the procedure that was necessary to take care of a complication). If two procedures appear to meet this definition, the procedure

most related to the principal diagnosis is selected as the principal procedure.

All-listed procedures include all procedures performed during the hospital stay.

Stays

The unit of analysis for Oklahoma inpatient discharge data is the hospital stay (i.e., the hospital discharge), not a person or patient. This means that a person who is admitted to the hospital multiple times in one year will be counted each time as a separate "discharge" from the hospital.

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