



Facts and Figures:

Statistics on Hospital-Based Care in

Arizona

2004 - 2006



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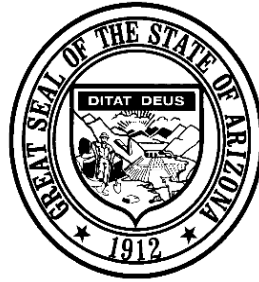
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Acknowledgment

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The digital version of this publication is located at <http://azdhs.gov/plan/crr/crrreports/index.htm>

INTRODUCTION

The growing demand for reliable hospital information -- by consumers/patients seeking to make informed decisions about hospital care; researchers and providers investigating treatment outcomes or seeking to establish or improve best practices; public health practitioners investigating health-related trends within populations; and hospital executives conducting cost analysis -- prompted the compilation of this publication.

The Arizona Department of Health Services (ADHS), in its continued mission of *Leadership for a Healthy Arizona*, collects audits and analyzes administrative discharge data from more than 87 state-licensed community hospitals throughout Arizona.

The data submitted at six-month intervals, contains demographic, clinical and charge information for each inpatient hospital stay. The data is audited to insure compliance with specifications outlined in administrative rule. The data is then analyzed for hospital and health trends within Arizona and is compared with regional and national trends.

Arizona participates in the Healthcare Cost and Utilization Project (HCUP), a national data project sponsored by the Agency for Healthcare Research and Quality (AHRQ). The HCUP partnership consists of state data organizations, hospital associations, and private data organizations from 39 states.

The AHRQ is the healthcare research agency organized under the U.S. Department of Health and Human Services and is a sister-agency of the Centers for Medicare and Medicaid Services (CMS). AHRQ staff conduct extensive research on administrative hospital discharge data, reporting on various aspects of health and trends.

The AHRQ also provide statistical tools and technical support to partner organizations. Additional reports and statistics may be obtained from the HCUPnet website at <http://hcupnet.ahrq.gov>.

Facts and Figures: Statistics on Hospital-Based Care in Arizona presents information and descriptive statistics derived from the ADHS hospital discharge data and the HCUP State Inpatient Data (SID) for Arizona.

Presented are aggregate, descriptive statistics from **inpatient** discharge data for hospital stays from **2004 – 2006**. Treatment occurred in one or more of the 87 state-licensed, community hospitals within Arizona. Community hospitals include all non-federal/tribal, short-term acute care hospitals and exclude psychiatric and substance abuse facilities.

Beginning with brief Highlights of key statistics, each section that follows focuses on a specific aspect of hospital stays and includes data tables and graphs. Where appropriate, comparisons are made to the region and/or the nation. Analyses are not intended to be epidemiological or exhaustive in nature.

Please see the *For More Information* section at the end of the report for information on how to contact us or obtain additional reports.

Thank you.
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HIGHLIGHTS

Overall hospital statistics

- From 2004 to 2006 the number of state-licensed hospitals remained about the same. During this period however, the **volume of hospital stays** increased 7.2 percent or by 51,520 discharges (See Exhibit 1.1).
- From 2004 to 2006 the **average length of stay** remained constant at 4 days (See Exhibit 1.2).
- The **average cost** per hospital stay in 2004 was \$6,787, increasing 9.8 percent to \$7,457 in 2005 and another 6.2 percent or \$7,926 in 2006 (See Exhibit 1.1).
- **MEDICARE and MEDICAID (AHCCCS)** combined, were the primary payers for over half (58 percent) of all hospital stays from 2004 -2006 (See Exhibit 1.7).
- From 2004 to 2006, for every 100 inpatient hospital stays, 3 were patients without insurance (**uninsured**).
- From 2004 to 2006, Banner Good Samaritan, Tucson Medical Center, St Joseph's Hospital and Medical Center (Phoenix), and Scottsdale Healthcare (Shea) ranked as the top four **teaching hospitals** in Arizona by discharge volume, with over 57 percent of the discharges among teaching hospitals (See Exhibit 1.1).



HIGHLIGHTS

Childbirth and newborns

- From 2004 to 2006, the most frequent reasons for hospital stays were associated with mothers (pregnancy and delivery) and babies (birth). Combined, these accounted for an average 27 percent of all hospital stays (See Exhibit 2.1).
- **Cesarean deliveries** (C-sections, Exhibit 3.1) comprised 24 percent of all maternal discharges, increasing 22 percent from 2004 to 2006. Previous Cesarean deliveries (See Exhibit 2.1) comprised 10 percent of all maternal discharges.
- Between 2004 to 2006, the number of hospital stays for **prolonged pregnancies**, increased 19.8 percent, from 4766 to 5712 discharges respectively (See Exhibit 2.1, page 22).
- Among the five most common reasons for hospital stays among **infants under one year of age**, **acute bronchitis** ranked 2nd only to birth, an annual average of 2,221 discharges or 3 out of 10 patients under one year of age (See Exhibit 2.2).
- **Infant respiratory distress syndrome and premature birth and low birth weight** were the two conditions with the longest lengths of stay. Patients with either condition averaged 10 days longer than patients with the third longest stay diagnosis (leukemia). Generally, longer lengths of stay are associated with higher average charges (See Exhibit 4.3).

Children

- **Asthma** diagnoses ranked first for children **1-17 years** of age, 2,674 discharges in 2004; 2,474 discharges in 2005 and 2,589 discharges in 2006 (See Exhibit 2.2).
- In 2004, **mood disorders** (depression and bipolar disorders) were the 5th most common reasons for hospitalizations for children **1- 17 years** of age. During 2005 and 2006 the number of discharges decreased further from 725 and 607 respectively.
- **Appendectomy** was the most common procedure for children **ages 1-17**, comprising 12 percent of discharges for the age group (See Exhibit 3.2).

Young adults and middle age

- **Pregnancy and delivery-related conditions** were the most common reasons for hospitalizations among **18 - 44 year olds** (See Exhibit 2.2).
- **Cardiovascular conditions** were the most common reason for hospitalization among **45– 64 year olds**, accounting for 11 percent of the discharges for that age group between 2004 and 2006.

Elderly

- People **65 and over** represent 13 percent of Arizona's population but comprise 31 percent of hospital stays. (See Exhibit 1.6)
- From 2004 to 2006, there were 299 hospitalizations for every 1000 adults **ages 65 and over** and 452 hospitalizations for every 1000 adults **ages 80 and over**.

HIGHLIGHTS

Specific Diagnoses

- From 2004 to 2006, **pneumonia**, averaged 3 percent of all discharges per year, ranking either in the 2nd and 3rd position during this period ([See Exhibit 2.1](#)).
- **Circulatory diseases** accounted for 5 of the top 10 most frequent principal diagnoses. They included coronary atherosclerosis, congestive heart failure, nonspecific chest pain, cardiac dysrhythmias, and acute myocardial infarction ([See Exhibit 2.1](#)).
- **Biliary tract disease**, are conditions effecting the gall bladder and components of the bile duct system. This diagnosis is specific to Arizona populations ranking 19th among males and 7th among females, accounting for 32,742 discharges from 2004 to 2006 ([See Exhibit 2.1](#)).
- The number of hospital stays during which **pressure sores** were noted (in other than the principal diagnosis field) increased by 5.2 percent from 2004 to 2006 ([See Exhibit 2.6](#)).

Specific Procedures

- Between 2004 – 2006, **diagnostic cardiac catheterization** and **coronary arteriography**, ranked as the most commonly performed procedures ([See Exhibit 3.1](#)).
- **Prophylactic vaccination** reported the largest increase (480 percent) from 2004 to 2006. This is attributed to new vaccine requirements for newborns and electronic reporting ([See Exhibit 3.1](#)).

- **Blood transfusions** were the 2nd most common procedure performed, increasing by 12,041 discharges or 61 percent from 2004 to 2006.

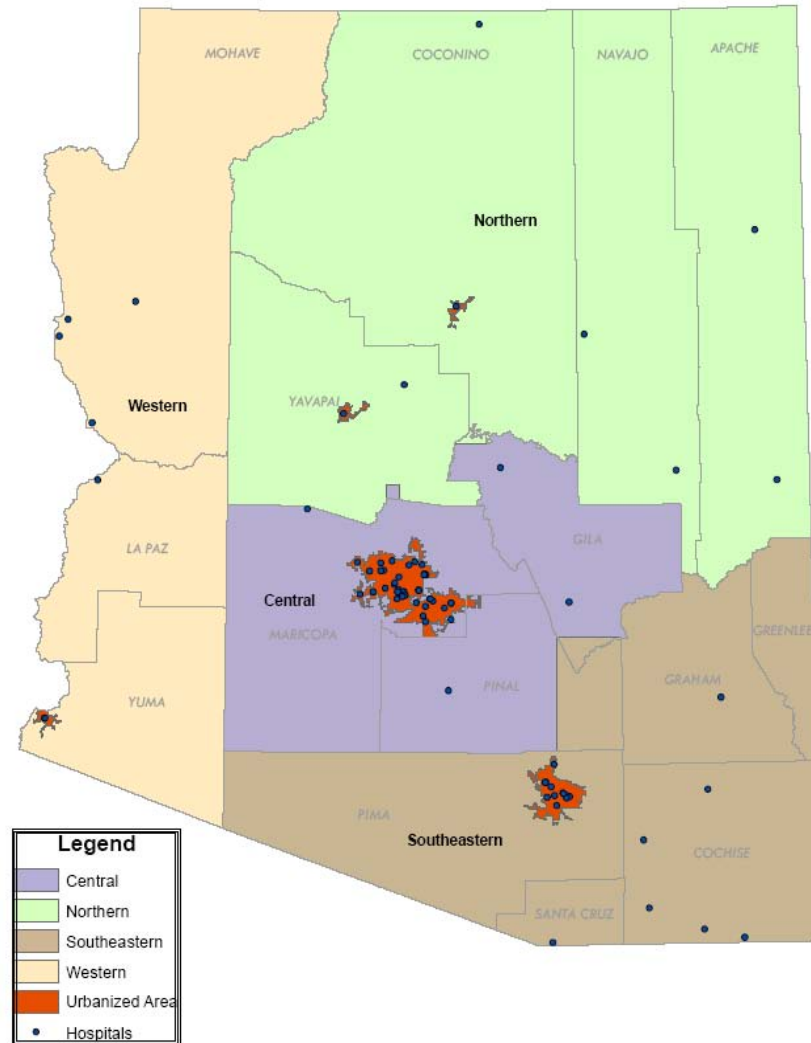
Injuries

- **Intracranial injuries (brain injuries)** reported the highest percentage of in-hospital death rates between 2004 and 2006 ([See Exhibit 2.9](#)).
- Between 2004 and 2006, **open wounds of extremities (arms and legs)** reported 18 percent growth in the number of discharges, ranking first among all injuries ([See Exhibit 2.9, chart on page 38](#)).

Cost

- Between 2004 to 2006, **spinal cord injuries** were the most expensive type of injury with an average hospital cost of \$39,220 and a mean length of stay of 13 days ([Exhibit 2.9](#)).
- Of the top 20 most costly inpatient diagnoses, **blood infections (septicemia)** reported a substantial increase in inflation-adjusted costs, rising from \$84 million in 2004 to \$158 million in 2006, an 88 percent increase for the period ([Exhibit 4.1](#)).
- Costs attributed to **complications of medical devices, implants or grafts and complications of surgical procedures or medical care** accounted for \$811.7 million from 2004 to 2006, showing a 28.5 percent increase during the period ([Exhibit 4.1](#)).

ARIZONA HOSPITALS BY REGION



Sources and Methods

Data Source

The data used to compile this report is the Hospital Discharge Data (HDD) collected and audited by the Arizona Department of Health Services (ADHS), Cost Reporting and Discharge Data Review (CR/DDR) section. The ADHS collects inpatient and emergency department discharge records from state-licensed, non-psychiatric, non-federal and non-tribal community hospitals in accordance with Arizona Revised Statutes (A.R.S.) 36-125.05 and Arizona Administrative Code (A.A.C.) Title 9, Chapter 11, Articles 3 and 4.

The Cost Reporting and Discharge Data Review (CD/DDR) section is responsible for: 1) establishing data collection rules and reporting specifications; 2) data collection and auditing; and 3) analyzing and reporting the discharge data. Each record contains administrative and demographic data about a single hospital stay and the disposition of the patient upon *discharge*. The terms "discharge", "hospitalization", "hospital stay" and "inpatient stay" are used synonymously throughout this report and represent the time spent in a hospital within specific admission and discharge dates.

By statute, data elements and specifications are based on the Center for MEDICAID and MEDICARE Services (CMS) Uniform Billing (UB) format. Between 2006 and 2007, the uniform billing system underwent major revisions to make it more compatible with electronic medical/health records. Currently, the Uniform Billing 2004 (UB04) is in effect. The changes were incorporated in the ADHS rules and will be reflected in data sets beginning 2008.

Data Availability

Arizona hospital discharge public datasets are available for purchase. Protected health information is removed from the datasets in compliance with privacy guidelines outlined in the Health Insurance Portability and Accounting Act (HIPAA) . Order forms are located at <http://www.azdhs.gov/plan/crr/ddr/rel/orderform.htm> .

Datasets from 1997 to present are also available from the Agency for Healthcare Research and Quality (AHRQ), through the Healthcare Cost and Utilization Project (H*CUP) at http://www.hcup-us.ahrq.gov/tech_assist/centdist.jsp .

Methods

Standard methods for rounding and calculating descriptive statistics (i.e., rates and percentages) are applied. Counts and percentages are rounded up as appropriate.

Many of the tables in this report can be duplicated using the HCUPnet on-line query system located at <http://hcupnet.ahrq.gov> .

Unit of Analysis

The unit of analysis for this report is hospital stay (discharge record) rather than the patient. Case counts and percentages reflect hospital stay not individual patients. For example, a patient admitted to and released from a hospital three times will have 3 hospital stays (discharge records) in the dataset. Therefore, an individual patient can account for more than one hospital stay in a given calendar .

Preliminary conclusions may be inferred about the prevalence of certain conditions in the general population but should be confirmed by more in-depth statistical analysis. Specific programmatic analyses and contact information may be found on the ADHS agency web site, <http://www.azdhs.gov/index.htm> .

Coding

Each discharge record is coded using the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). Hospital coding practices are generally uniform and, as a standard practice, adhere to ICD-9-CM Official Coding Guidelines. Attending physicians and nursing care teams determine specific diagnoses. Skilled coding professionals assign the numeric codes. Assigned codes for both diagnoses and procedures are for the *entire* hospital stay and encompass a clinically significant group of diagnosis and procedure codes rather than only those assigned upon admission.

Clinically significant groupings were compiled using the Clinical Classification Software (CCS) tool designed by the Agency for Healthcare Research and Quality (AHRQ). This tool aggregates similar diagnoses or procedures into clinically meaningful categories which allows the reader to quickly and easily recognize patterns and trends in broad categories of hospital utilization.

The CCS categories for Mental Health and Substance Abuse (MHSA) were used as subsets to identify inpatients with mental health principal diagnoses. These are based on ICD-9 CM codes and were not correlated with DSM-IV codes.

A listing of CCS categories with associated ICD-9 codes may be found at:
<http://www.hcupus.ahrq.gov/toolsssoftware/ccs/AppendixASingleDX.txt>

Diagnostic Related Groups (DRGs) categorize patients into groups that are clinically coherent and homogeneous with respect to resource use. DRG's categorize patients according to diagnosis, procedure, age and other relevant criteria. Each hospital stay has one DRG assigned to it. DRG's change annually; a new version is implemented each October 1st. Consequently, DRG information for the last quarter of each year differs from the DRG's in the first three quarters, but in most years this is an incremental change.

Major Diagnostic Categories (MDCs) are broad groupings of DRGs such as Diseases and Disorders of the Nervous System. Each hospital stay has one MDC assigned to it.

Unless otherwise noted, diagnoses frequencies and rankings *exclude* discharges for which the principal diagnosis is coded Liveborn Infants According to Type of Birth (ICD-9-CM codes V30 –V39.9) or Complications of Pregnancy, Childbirth, and the Puerperium (ICD-9-CM codes 630 – 677.9).

All frequencies and rankings of diagnoses and procedures, unless otherwise indicated, are based on the principal/primary or first-listed diagnosis code.

Section 1: HOSPITALS AND INPATIENTS HOSPITAL STAYS

EXHIBIT 1.1 Number and Characteristics of State-Licensed Hospitals

EXHIBIT 1.2 Inpatient Hospital Stays and Average Length of Stay

EXHIBIT 1.3 Reasons for Hospital Stays

EXHIBIT 1.4 Admission Source

EXHIBIT 1.5 Discharge Status

EXHIBIT 1.6 Patient Age

EXHIBIT 1.7 Expected Primary Payer

EXHIBIT 1.1 Number and Characteristics of State-Licensed Hospitals

Number of Arizona Hospitals and Characteristics of Community Hospitals 2004 to 2006

Hospital Categories and Characteristics	2004	2005	2006
Number of Arizona Hospitals*	81	83	87
Community Hospitals [†]	73	75	79
Not-for-profit hospitals	51	52	55
For-profit hospitals	30	31	32
Urban hospitals	57	59	62
Rural hospitals	24	24	25
Share of all state-licensed hospitals	90%	90%	91%
Discharges:			
Total Discharges	717,024	745,581	768,544
Discharges per 1,000 population [‡]	124.7	125.2	124.6
Total days of care in millions	2.9	3.1	3.2
Average length of stay in days	4.1	4.2	4.2
Percent of Discharges from:			
Metropolitan hospitals	70.3%	71.0%	71.2%
Teaching hospitals	34.4%	34.3%	34.0%
Population in millions [‡]	5.7	5.9	6.1

* Indicates state-licensed hospitals, excluding federal, tribal and psychiatric hospitals.

† Community hospitals are defined by the AHA as all non-federal, short term general and special hospitals whose facilities and services are available to the public.

‡ Calculated using U.S. Census Bureau Annual Estimate released May 17,2007

- Between 2004 and 2006, Arizona's total population increased 7.2 percent (407,332 persons). The largest average annual increase occurred between 2004 to 2005.
- Predictably, the **number of discharges** increased annually by 3.5 percent in 2005 and 3.4 percent in 2006, keeping pace with population growth.
- The number of **state-licensed hospitals** increased 7.4 percent during this period, community hospitals accounting for 90 percent.
- Arizona has thirteen (13) **teaching hospitals**, eleven (11) ranked among the state's top twenty-five hospitals for discharge volume.
- The Arizona Department of Health Services (ADHS) designated seven (7) hospitals as Level I **trauma centers** during this period.

Charges and Costs for Community Hospital Stays, 2004 - 2006

Hospital Categories and Characteristics	2004	2005	2006
Charges[†]			
Average charges per stay	\$22,030	\$24,026	\$26,288
Costs[‡]			
Total aggregate costs in billions	\$4.80	\$5.50	\$6.10
Average costs per stay	\$6,787	\$7,457	\$7,926

[†] Charges represent amounts billed by hospitals. Insurers rarely pay these amounts in full.

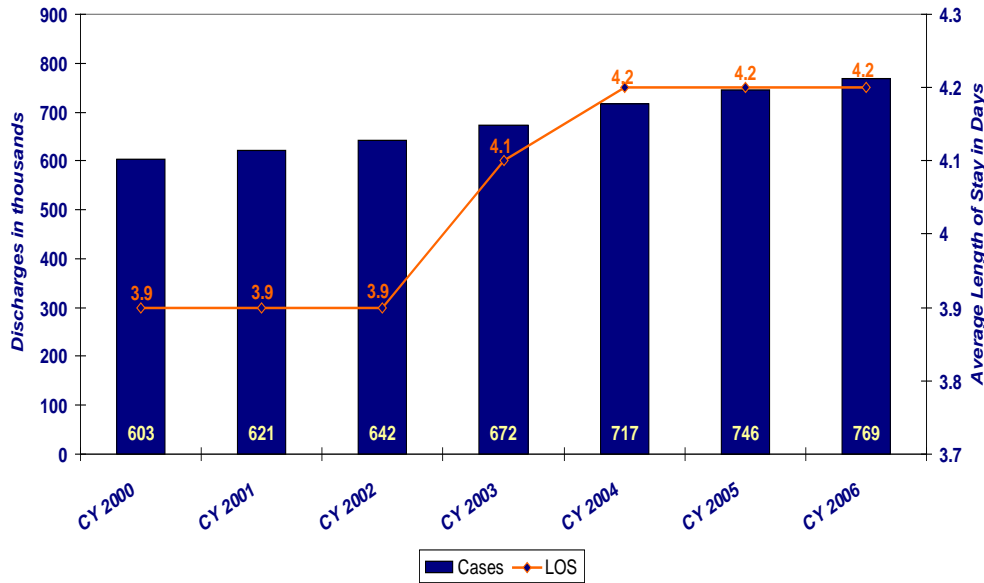
[‡] Costs are calculated from charges using reported cost-to-charge ratios calculated from information on Medicare Cost Reports, reported by hospitals to the Centers for Medicare and Medicaid Services (CMS).

- The hospital/nursing and residential care facilities portion of **Arizona's GDP** experienced an increase of 14 percent between 2000 and 2005.*
- The **average charge** of a typical community hospital bill increased 19.2 percent. The actual amount paid by insurers is generally less and substantially discounted.
- The **aggregate cost** for all hospital stays in Arizona rose \$1.3 billion from 2004 to 2006, representing a 27 percent increase.
- **Average cost per stay** increased 16.7 percent during this period, representing an average cost per stay of \$7,439 for the period.

* **Source:** *Arizona Gross Domestic Product By Industry*, Arizona Department of Economic Security, Research Administration, July 12, 2007, www.workforce.az.gov/?PAGEID=67&SUBID=143.

EXHIBIT 1.2 Inpatient Hospital Stays and Average Length of Stay

Number of Inpatient Stays and Average Length of Stay, 2000 - 2006



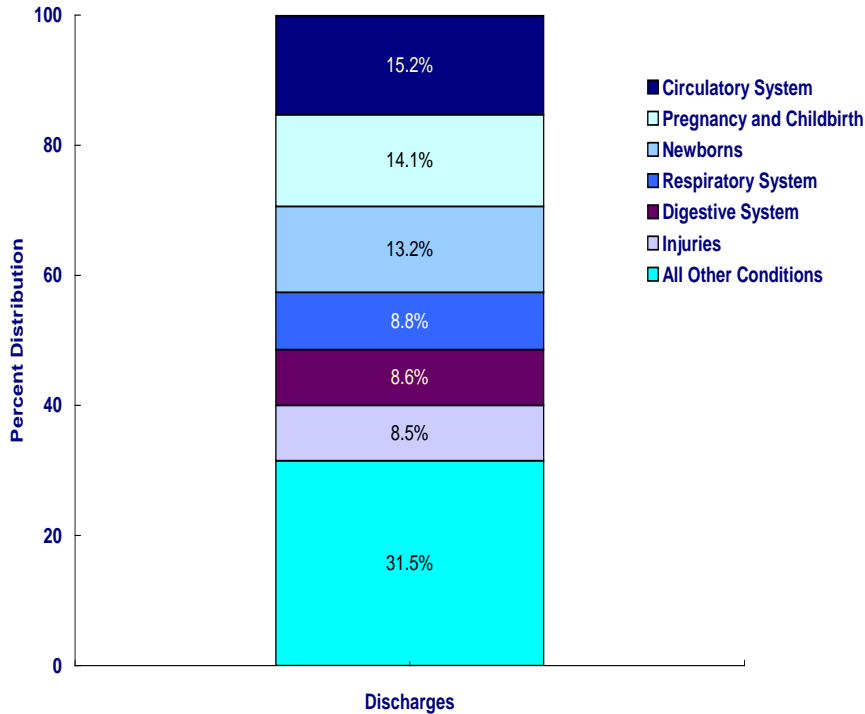
Nationally, the average length of stay consistently decreased and stabilized in 2000. However, in Arizona the average length of stay has increased since 2000.

- Between 2004 and 2006 the average length of stay (ALOS) in Arizona stabilized at 4.2 days, slightly less than the national average of 4.6 days*.
- From 2000 to 2006 the number of discharges increased annually by just over 3 percent, from 603,354 in 2000 to 768,544 in 2006, a total increase of 27.3 percent.

* HCUP Facts and Figures: Statistics on Hospital-Based Care in the United States, 2005. Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality

EXHIBIT 1.3 Reasons for Hospital Stays

Percent Distribution of Discharges by Major Reason* for Hospital Stay, 2004 - 2006



Circulatory conditions were the most frequent causes for hospital stays from 2004 to 2006.

- **Circulatory conditions** accounted for 15.2 percent of all hospital stays. The diagnoses included coronary atherosclerosis (coronary artery disease), congestive heart failure, heart attack, and irregular heart beat.
- Consistent with national statistics, these **top five conditions** accounted for 60 percent of all hospital stays. **Injury diagnoses** accounted for 8.5 percent (189,385 discharges) of all hospital stays.
- During this period pregnancy, childbirth and newborns accounted for more than 1 in 4 hospital stays, totaling 27.3 percent of all discharges.

*Based on principal diagnosis

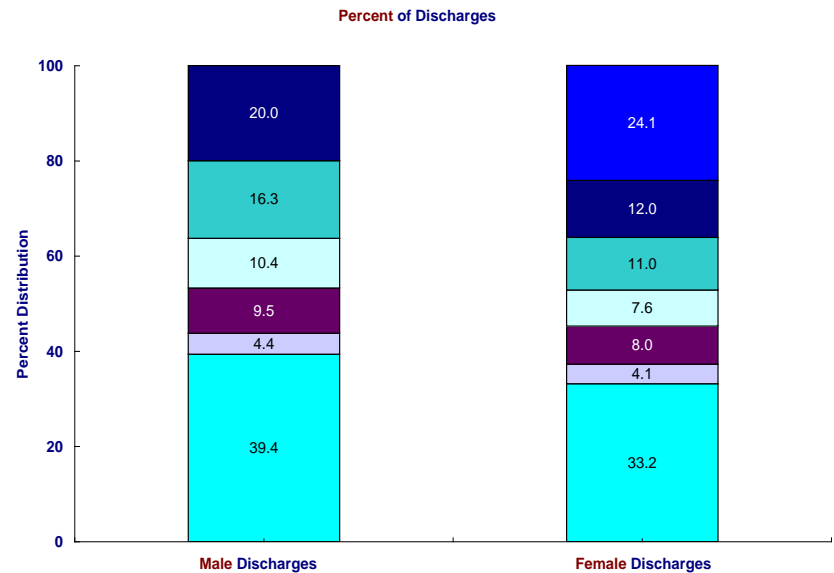
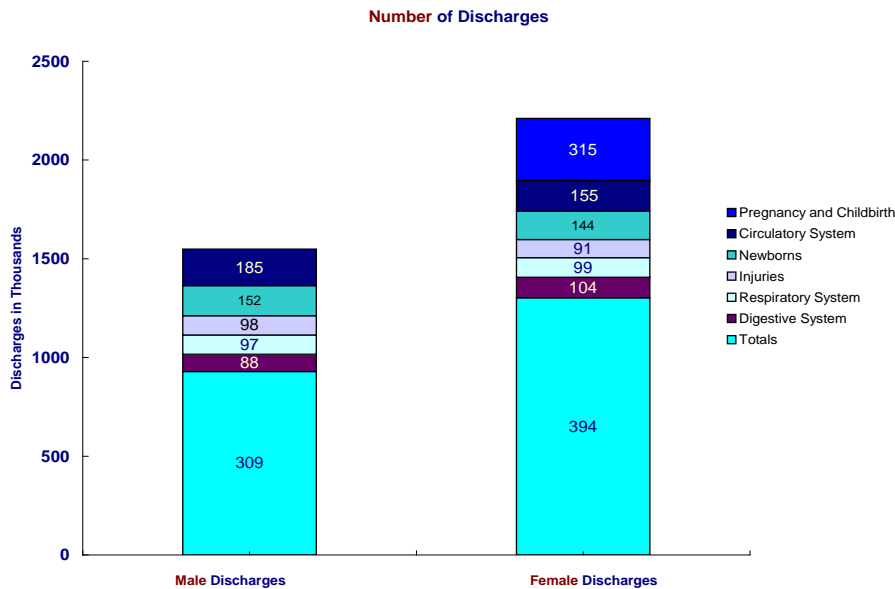
Hospital Stays for Males and Females by Major Reasons* 2004 - 2006

Males accounted for 928,705 hospital stays or 41.6 percent of all hospitalizations during this period.

- Of these stays, 20 percent were for circulatory conditions, 16 percent for newborns (birth), 10 percent for respiratory conditions, 10 percent for digestive conditions and 4 percent for injuries.
- Together these four conditions accounted for 60 percent of all hospitalizations for males during this period.

Females accounted for 1.3 million hospital stays or 58.4 percent of all hospitalizations during this period.

- Of these stays, 24 percent were related to pregnancy and childbirth and 11 percent were for female newborns (birth).
- Hospital stays for circulatory conditions comprised a smaller percentage (12 percent) of all hospitalizations for females.
- Collectively, circulatory conditions (12 percent), newborns (11 percent), respiratory conditions (8 percent), digestive conditions (8 percent) and injuries (4.1 percent) accounted for 43 percent of all hospitalizations for females during this period.

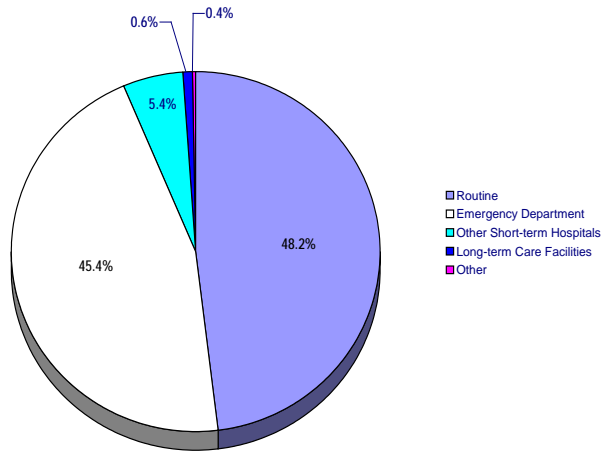


Source: Bureau of Public Health Statistics, Arizona Department of Health Services

*Based on principal diagnosis

EXHIBIT 1.4 Admission Source

Distribution of Hospital Inpatient Stays by Admission Source, 2004 - 2006

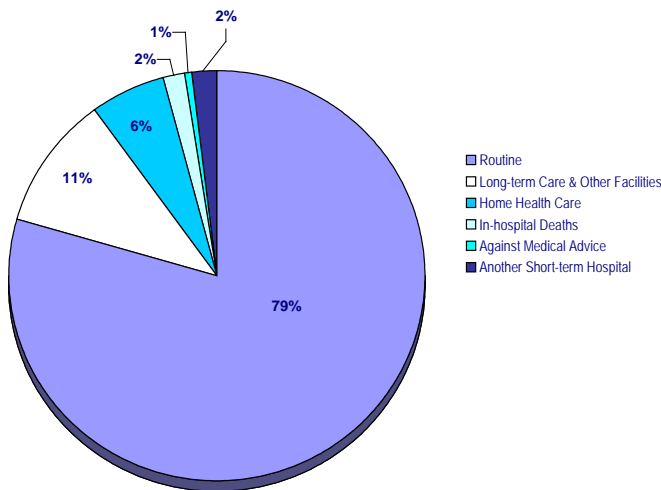


Admission Source indicates routine admission and other settings from which the patient might enter the hospital.

- During this period, about half (48 percent) of all hospital admissions were routine admissions referred by health professionals.
- Emergency department admissions accounted for the second largest source of admissions (45 percent) followed by other short-term hospitals (5 percent).
- The remainder of admissions were from long term care facilities originating from court/law enforcement sources or an unknown source.

EXHIBIT 1.5 Discharge Status

Distribution of Hospital Inpatient Stays by Discharge Status, 2004 - 2006

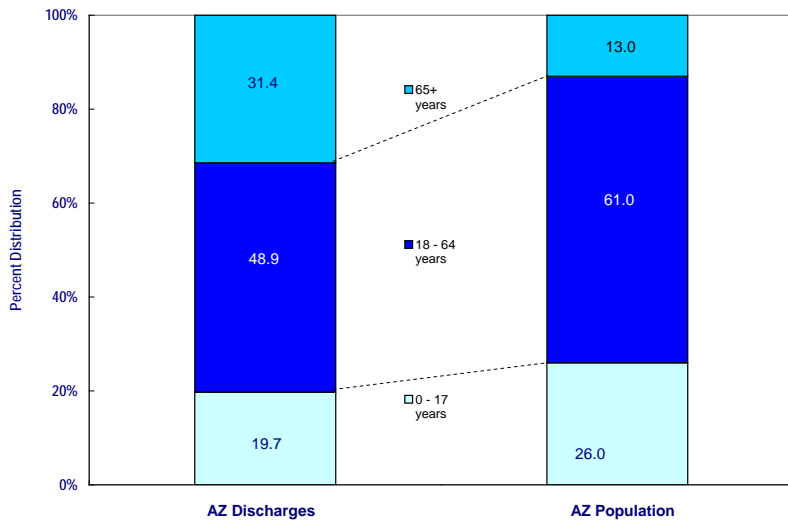


Discharge Status indicates where a patient went after being discharged from the hospital or the circumstance surrounding the discharge.

- During this period, the most common patient discharge status was "routine" (79 percent), the patient being sent home without closely supervised care.
- Discharge to a long-term care facility was the second most common type of discharge, accounting for 11 percent of discharges.
- Discharges to the home with home health care supervision accounted for 6 percent of discharges.
- The remaining 5 percent of discharge circumstances were to short-term hospitals, the patient left against medical advise, or in-hospital death.

EXHIBIT 1.6 Patient Age

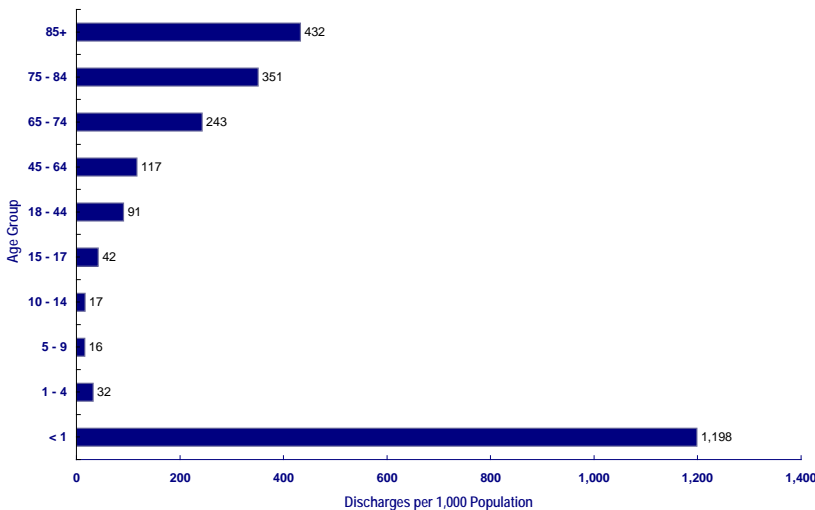
Distribution of Hospital Discharges and Arizona Population by Age, 2004 -2006



Older people account for the largest share of hospital stays.

- During this period, people **aged 65 and over** represented 13 percent of Arizona’s population yet accounted for 31.4 percent of hospital stays.
- Younger patient age groups had a lower proportion of hospitalizations relative to their representation in the population.
 - Persons **18-64 years of age**, comprised 61 percent of the population and accounted for nearly 49 percent of hospitalizations.
 - Persons **under age 18**, comprised 26 percent of the population and accounted for nearly 20 percent of hospitalizations.

Discharges per 1,000 Population by Age Group 2004 -2006

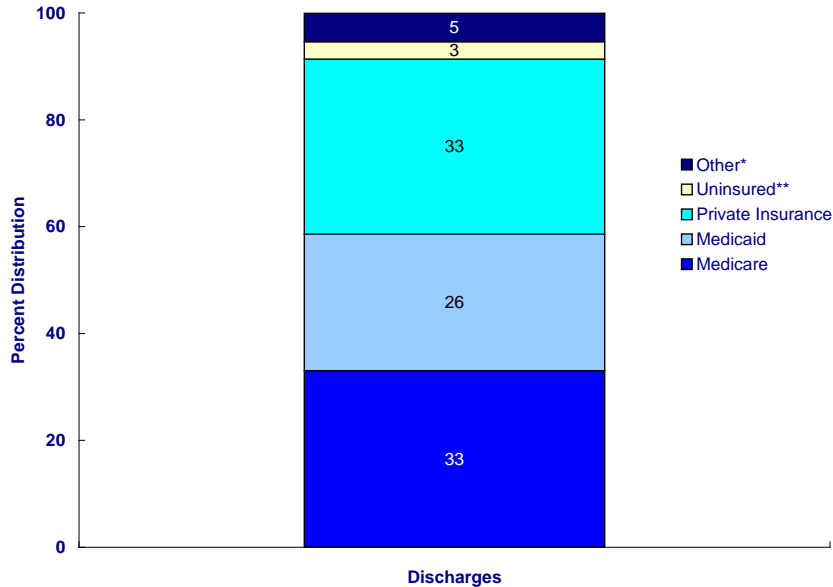


Consistent with the nation, discharges for a specific age group divided by the number of patients in that age group (**discharges per 1,000 population**) indicates increased age is often associated with a greater likelihood of hospitalization.

- During this period, there were 32 hospital stays for every 1,000 children ages 1 to 4 , there were 432 stays for every 1,000 adults ages 85 and over.
- One exception to this pattern was for **neonates**, patients less than 1 month old. This group experienced 1,198 hospital stays during this period because nearly all births occur in the hospital and some infants require additional hospitalization following birth.

EXHIBIT 1.7 Expected Primary Payer

Percent Distribution of Discharges by Expected Primary Payer, 2004 - 2006



*Includes other payers such as Workers Compensation, TRICARE, CHAMPUS/VA, Title V, and other government programs.

** Includes Discharges classified as self-pay or no charge.

The **expected primary payer** bears the major financial responsibility for a hospital stay. Other payers, including patients themselves, may also bear a portion of the cost.

- **Medicare and Medicaid (AHCCCS)** combined, assumed primary financial responsibility for over half of all hospital stays during this period.
 - **Medicare** was the expected primary payer for 33 percent of all hospital stays (700,534 discharges). Medicare patients are 65 years of age and older or disabled.
 - **Medicaid (AHCCCS)** was the expected primary payer for 1 out of 4 hospital stays (568,905 discharges). Arizona Health Care Cost Containment System (AHCCCS) includes fee-for-service and managed care patients. These are patients with income under the national poverty level and certain self-employed groups.
- **Private insurance** was the expected primary payer for 33 percent of all hospital stays (731,768 discharges). These stays were primarily for employed persons and their families who receive health insurance coverage through their employers.
- Approximately 3 percent of all stays (66,930 discharges) were listed as **uninsured**.
- A combination of **other payers** accounted for 5 percent of all hospital stays.

Section 2: 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 Circulatory Conditions

EXHIBIT 2.5 Diabetes

EXHIBIT 2.6 Pressure Sores

EXHIBIT 2.7 Alcoholism

EXHIBIT 2.8 Mental Health

EXHIBIT 2.9 Injuries

EXHIBIT 2.1 Most Frequent Principal Diagnoses

Number of Discharges, Percent Distribution, and Rank of Most Frequent Principal Diagnoses for Inpatient Hospital Stays, 2004 - 2006

Principal Diagnosis	NUMBER OF			PERCENT OF			RANK		
	2004	2005	2006	2004	2005	2006	2004	2005	2006
All discharges	717,024	745,581	768,544	100.0	100.0	100.0			
Pregnancy, childbirth, and infants	194,073	201,623	214,934	27.1	27.0	28.0	1	1	1
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	20,592	24,171	22,359	2.9	3.2	2.9	3	2	3
Coronary atherosclerosis (hardening of the heart arteries and other heart disease)	23,050	21,888	22,735	3.2	2.9	3.0	2	3	2
Congestive heart failure, nonhypertensive	14,631	15,159	14,616	2	2.0	1.9	5	6	6
Nonspecific chest pain	19,434	18,664	17,612	2.7	2.5	2.3	4	4	4
Osteoarthritis (degenerative joint disease)	14,565	15,630	16,376	2	2.1	2.1	6	5	5
Biliary tract disease	10,861	10,568	11,313	1.5	1.4	1.5	11	12	10
Cardiac dysrhythmias (irregular heart beat)	12,521	13,180	13,853	1.7	1.8	1.8	8	8	7
Acute myocardial infarction (heart attack)	11,213	10,816	10,643	1.6	1.8	1.4	10	11	12
Spondylosis, intervertebral disc disorders, other back problems (disorders of intervertebral discs and bones in spinal column)	11,256	11,155	10,708	1.6	1.5	1.4	9	10	11
Complication of medical device, implant or graft	12,638	13,224	13,247	1.3	1.8	1.7	7	7	8
Skin and subcutaneous tissue infections	9,913	11,746	12,368	1.4	1.6	1.6	13	9	9
Acute cerebrovascular disease	10,125	10,048	9,702	1.4	1.3	1.3	12	13	14
Complications of surgical procedures or medical care	9,331	9,939	10,331	1.3	1.3	1.3	14	14	13
Mood disorders	9,199	8,423	8,281	1.3	1.1	1.1	15	19	18
Urinary tract infections	9,184	9,416	9,486	1.3	1.3	1.2	16	15	15
Diabetes mellitus with complications	8,308	8,760	9,051	1.2	1.2	1.2	17	18	17
Fluid and electrolyte disorders	8,121	8,813	7,674	1.1	1.2	1.0	18	17	22
Chronic obstructive pulmonary disease and bronchiectasis (chronic obstructive lung disease)	7,440	9,216	8,123	1.0	1.2	1.1	19	16	19
Appendicitis and other appendiceal conditions	7,133	7,281	7,717	1.0	1.0	1.0	20	22	21

(Continued on next page)

Number of Discharges, Percent Distribution, and Rank of Most Frequent Principal Diagnoses for Inpatient Hospital Stays, 2004 - 2006

Principal Diagnosis	NUMBER OF DISCHARGES			PERCENT OF DISCHARGES			RANK		
	2004	2005	2006	2004	2005	2006	2004	2005	2006
All maternal discharges	99,791	104,255	110,768	100.0	100.0	100.0			
Trauma to external female genitals (vulva) and area between anus and vagina (perineum)	16,335	17,275	19,561	16.4	16.6	17.7	1	1	1
Previous C-section	9,364	10,070	11,111	9.4	9.7	10.0	2	2	2
Normal pregnancy and/or delivery	8,774	8,801	9,131	8.8	8.4	8.2	3	3	3
Early or threatened labor	5,456	5,800	5,831	5.5	5.6	5.3	5	4	4
Umbilical cord complication	5,726	5,481	5,792	5.7	5.3	5.2	4	5	5
Prolonged pregnancy	4,766	5,155	5,712	4.8	4.9	5.2	6	6	6
Fetal distress and abnormal forces of labor	3,991	4,253	4,445	4.0	4.1	4.0	7	7	7
Hypertension complicating pregnancy, childbirth and the puerperium (high blood pressure during pregnancy)	3,949	4,237	4,336	4.0	4.1	3.9	8	8	8
Polyhydramnios and other problems of amniotic cavity (excess amniotic fluid and other problems of amniotic cavity)	3,778	3,955	3,528	3.8	3.8	3.2	9	9	10
Malposition; malpresentation	3,504	3,640	3,869	3.5	3.5	3.5	10	10	9
All infant discharges	94,282	97,368	104,166	100.0	100.0	100.0			
Liveborn (newborn infant)	90,218	92,860	99,341	95.7	95.4	95.4	1	1	1
Other perinatal conditions (other conditions occurring around the time of birth)	1,817	2,098	2,647	1.9	2.2	2.5	2	2	2
Hemolytic jaundice and perinatal jaundice (infant jaundice following birth)	1,081	1,308	1,045	1.1	1.3	1	3	3	3
Short gestation, low birth weight, and fetal growth retardation (premature birth and low birth weight)	914	769	781	1.0	0.8	0.7	4	4	4
Infant respiratory distress syndrome	225	307	329	0.2	0.3	0.3	5	5	5
Birth trauma	19	19	16	0.0	0	0	6	6	6
Intrauterine hypoxia and birth asphyxia (lack of oxygen to baby in uterus or during birth)	8	7	7	0.0	0	0	7	7	7

During this period the top 20 most frequently occurring principal diagnoses accounted for 58 percent of all discharges each year. In 2004 and 2005, 14 of the top 20 most frequently reported diagnoses were also among the top 15 reported for the nation.

Following are notable changes occurring within Arizona during this period:

All discharges:

- Conditions related to pregnancy, childbirth and infants were consistently the most frequent reasons for hospitalization, averaging 27 percent, this ranking remained unchanged each year.
- Pneumonia, averaged 3 percent of all discharges annually, ranking third most common principal diagnosis in 2004. There was a slight rise in rank during 2005 but it returned to the third position in 2006.
- Circulatory diseases accounted for 5 of the top 10 most frequent principal diagnoses. Four of the five conditions showed a noticeable decrease during this period.
 - The volume of stays for coronary artery disease (coronary atherosclerosis); congestive heart failure; and heart attack (acute myocardial infarction), decreased.
 - Hospitalizations for heart attack (acute myocardial infarction) dropped from the 10th position to 12th position.
 - The volume of stays for irregular heart beat (cardiac dysrhythmias) increased 10.6 percent during this period however the overall ranking dropped to 7th position.
- Consistent with the nation, diagnoses of degenerative joint disease (osteoarthritis) increased more than 12 percent in volume during this period, moving from 6th to 5th rank
- Diagnoses of diseases effecting the gallbladder and bile ducts (biliary tract disease) increased just over 4 percent and rose from 11th to 10th position. Biliary disease conditions did not rank among the most frequent diagnoses for the nation. However, three populations reported a higher incidence in Arizona; Native American Indians, Mexican-Americans and European-Americans.
- Diagnoses of infections of the skin and tissue underneath the skin (subcutaneous tissue) increased 25 percent and from 13th to 9th position, representing an overall increase of 2,455 discharges for the period.
- Unlike the national ranking, diagnoses for mood disorders among Arizonans showed a marked decrease in volume and rank order. The largest annual percent decrease in volume (8.4 percent), occurred from 2004 to 2005, moving from 15th to 19th position in that year and up slightly to the 18th position in 2006.
- During this period, hospital stays for acute cerebrovascular disease (stroke) have consistently decreased in volume while chronic obstructive pulmonary disease (COPD) and diabetes mellitus consistently ranked in the lower five positions. These decreases can be attributed in part to successful health education programs, treatment protocols and patient compliance.
- Arizonans experienced an increased number of hospital stays for complications of surgical procedures or medical care and urinary tract infections. Nationally, cost analysis and research findings from both the Agency for Healthcare Research and Quality (AHRQ) and the Centers for Medicare and Medicaid Services (CMS), indicate various levels of preventability for these and similar conditions.

Maternal and infant discharges

From 2004 through 2006, the 10 most frequent principal diagnoses for maternal and infant discharges remained unchanged.

- Consistent with the nation, [trauma to external female genital area](#) and [previous cesarean section delivery](#) ranked first and second, respectively, among maternal discharges while [liveborn \(newborn infant\)](#) ranked first among infant discharges.
- Hospitalizations for [normal pregnancy and/or delivery](#) consistently ranked 3rd most frequent principal maternal diagnosis, showing a 4 percent increase in volume of discharges. Similarly, [fetal distress](#) and [abnormal forces of labor](#) also consistently ranked 7th while showing an 11 percent increase in volume of discharges during this period.
- Prolonged pregnancy increased 19.8 percent (946 discharges), an average 4.9 percent of all discharges and ranked 6th for all [maternal discharges](#).
- During this period, an annual average of 95.5 percent of all infant discharges had a principal diagnosis of [newborn infant](#), indicating a 10 percent increase in volume for the period.
- The remaining 4.5 percent of infant discharges were distributed among [perinatal conditions](#), infant jaundice, [premature birth/low birth weight](#), and infant respiratory distress syndrome.



EXHIBIT 2.2 Most Frequent Principal Diagnoses by Age

Number of Discharges and Percent Distribution of the Most Frequent Principal Diagnoses by Age, 2004-2006

AGE GROUP AND PRINCIPAL DIAGNOSIS	Number of Discharges			Percent of Total Discharges			Percent of Age-Specific Total Discharges		
	2004	2005	2006	2004	2005	2006	2004	2005	2006
All ages*	717,024	745,581	768,544						
< 1 year	104,818	108,745	115,461	14.6	14.6	15.0	100.0	100.0	100.0
Liveborn (newborn infant)	90,215	92,859	99,341	12.6	12.5	12.9	86.1	85.4	86
Acute bronchitis	2,177	2,055	2,431	0.3	0.3	0.3	2.1	1.9	2.1
Hemolytic jaundice and perinatal jaundice (infant jaundice following birth)	1,081	1,308	1,045	0.2	0.2	0.1	1	1.2	0.9
Short gestation, low birth weight, and fetal growth retardation (premature birth and low birth weight)	914	769	781	0.1	0.1	0.1	0.9	0.7	0.7
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	792	806	966	0.1	0.1	0.1	0.8	0.7	0.8
1-17 years	35,667	37,911	37,541	5.0	5.1	4.9	100.0	100.0	100.0
Asthma	2,647	2,474	2,589	0.4	0.3	0.3	7.4	6.5	6.9
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	2,097	2,713	2,410	0.3	0.4	0.3	5.9	7.2	6.4
Appendicitis and other appendiceal conditions	2,057	2,174	2,293	0.3	0.3	0.3	5.8	5.7	6.1
Fluid and electrolyte disorders (primarily dehydration or fluid overload)	1,250	1,546	974	0.2	0.2	0.1	3.5	4.1	2.6
Mood disorders	959	725	607	0.1	0.1	0.1	2.7	1.9	1.6
18-44 years	200,586	205,817	214,634	28.0	27.6	27.9	100.0	100.0	100.0
Trauma to external female genitals (vulva) and area between anus and vagina (perineum)	15,471	16,380	18,530	2.2	2.2	2.4	7.7	8	8.6
Previous C-section	9,321	10,006	11,045	1.3	1.3	1.4	4.6	4.9	5.1
Normal pregnancy and/or delivery	8,368	8,409	8,718	1.2	1.1	1.1	4.2	4.1	4.1
Umbilical cord complication	5,450	5,244	5,560	0.8	0.7	0.7	2.7	2.5	2.6
Early or threatened labor	5,114	5,393	5,445	0.7	0.7	0.7	2.5	2.6	2.5
45-64 years	149,349	156,500	163,722	20.8	21.0	21.3	100.0	100.0	100.0
Non-specific chest pain	9,309	8,809	8,485	1.3	1.2	1.1	6.2	5.6	5.2
Coronary atherosclerosis (hardening of the heart arteries and other heart disease)	8,864	8,448	8,839	1.2	1.1	1.2	5.9	5.4	5.4
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	4,393	5,187	5,079	0.6	0.7	0.7	2.9	3.3	3.1
Osteoarthritis (degenerative joint disease)	4,332	4,952	5,583	0.6	0.7	0.7	2.9	3.2	3.4
Spondylosis, intervertebral disc disorders, other back problems (disorders of intervertebral discs and bones in spinal column)	4,189	4,212	4,182	0.6	0.6	0.5	2.8	2.7	2.6
65+ years	226,567	236,555	237,127	31.6	31.7	30.9	100.0	100.0	100.0
Coronary atherosclerosis (hardening of the heart arteries and other heart disease)	13,317	12,684	13,120	1.9	1.7	1.7	5.9	5.4	5.5
Congestive heart failure, nonhypertensive	11,124	11,094	10,708	1.6	1.5	1.4	4.9	4.7	4.5
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	11,040	12,912	11,558	1.5	1.7	1.5	4.9	5.5	4.9
Osteoarthritis (degenerative joint disease)	9,914	10,350	10,443	1.4	1.4	1.4	4.4	4.4	4.4
Cardiac dysrhythmias (irregular heart beat)	8,624	9,034	9,285	1.2	1.2	1.2	3.8	3.8	3.9

*Includes 149 discharge records without age reported ("missing").

During this period, principal diagnoses for hospitalizations varied by **age group**. Older patients were more frequently admitted with cardiovascular and musculoskeletal conditions while younger patients were more frequently admitted for chronic or pregnancy and childbirth-related conditions.

- **Pneumonia** was the third most frequently occurring principal diagnosis for 4 out of 5 age groups during the three year period – specifically, infants under 1 year of age, children and young adults ages 1-17, adults ages 45-64, and adults 65 and above.
- **Asthma** was the most common reason for hospital stays among children and young adults 1-17 years of age.
- In 2004, **mood disorders** (depression and bipolar disorders) ranked 5th most common diagnosis among children and young adults ages 1-17, accounting for 959 discharges or 2.7 percent of discharges for that age group. In 2005, the number of these discharges decreased to 725 or 1.9 percent of discharges for that age group. Nationally, the percentage was higher for this age group reporting 4.7 (2004) and 3.6 (2005).
- **Childbirth-related** diagnoses were the top five reasons for hospital stays among adults (primarily females) ages 18-44. The number of discharges reported having a previous cesarean section increased 18.5 percent during this period.

- **Cardiovascular conditions** were the most common diagnoses among adults 45 and over. Specific diagnoses differed slightly between age groups.
 - **Non-specific chest pain** was the most frequent cardiac condition for adults **ages 45 to 64** followed by **coronary atherosclerosis**. Together, they represented 11.2 percent of all discharges for this age group and showed a decrease in overall hospital stays by 8.5 percent.
 - **Coronary atherosclerosis** was the most frequent cardiac condition for adults **ages 65 and over** followed by **congestive heart failure** and **cardiac dysrhythmias**. These three conditions represented 14 percent of all discharges for this age group.
- **Osteoarthritis**, a degenerative joint disease, ranked 4th among adults ages **45 and over**.
- The number of discharges for adults age **45 to 64** experiences a 9.6 percent (14,373 discharges), increase during the three year period.
- The number of discharges for adults **65 and over** increased 4.6 percent (10,560 discharges) from 226,567 in 2004 to 237,127 in 2006.

EXHIBIT 2.3 Most Frequent Principal Diagnoses by Gender

Number of Discharges, Percent Distribution, and Rank of Most Frequent Principal Diagnoses for Inpatient Hospital Stays by Gender, 2004 - 2006

	Number of Discharges	Percent of Male Discharges	Rank	Number of Discharges	Percent of Female Discharges	Rank
All Diagnoses	928,705	100.0		1,302,212	100.0	
Pregnancy and childbirth				314,812	24.2	1
Liveborn	144,334	15.5	1	137,956	10.6	2
Coronary atherosclerosis (hardening of the heart arteries and other heart disease)	42,975	4.6	2	24,695	1.9	6
Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	33,690	3.6	3	33,432	2.6	3
Nonspecific chest pain	24,770	2.7	4	30,937	2.4	4
Congestive heart failure, nonhypertensive	23,765	2.6	5	20,640	1.6	8
Complication of device; implant or graft	20,549	2.2	6	18,559	1.4	11
Acute myocardial infarction (heart attack)	20,451	2.2	7	12,220	0.9	21
Cardiac dysrhythmias (irregular heart beat)	20,245	2.2	8	19,308	1.5	10
Skin and subcutaneous tissue infections	19,227	2.1	9	14,800	1.1	16
Osteoarthritis (degenerative joint disease)	19,013	2	10	27,557	2.1	5
Spondylosis, intervertebral disc disorders, other back problems (disorders of intervertebral discs and bones in spinal column)	16,094	1.7	11	17,023	1.3	12
Acute cerebrovascular disease	14,549	1.6	12	15,325	1.2	14
Diabetes mellitus with complications	14,085	1.5	13	12,034	0.9	23
Complications of surgical procedures or medical care	14,015	1.5	14	15,583	1.2	13
Appendicitis and other appendiceal conditions	12,713	1.4	15	9,417	0.7	28
Septicemia (except in labor)	11,239	1.2	16	12,126	0.9	22
Chronic obstructive pulmonary disease and bronchiectasis (chronic obstructive lung disease)	11,235	1.2	17	13,544	1	19
Mood disorders	11,093	1.2	18	14,810	1.1	15
Biliary tract disease	10,725	1.2	19	22,017	1.7	7
Fluid and electrolyte disorders	10,361	1.1	20	14,246	1.1	17
Intracranial injury	10,251	1.1	21	5,402	0.4	53
Respiratory failure; insufficiency; arrest (adult)	10,004	1.1	22	9,551	0.7	27
Acute and unspecified renal failure	9,796	1.1	23	8,527	0.7	32
Gastrointestinal hemorrhage	9,792	1.1	24	8,380	0.6	33
Fracture of lower limb	9,018	1	25	7,835	0.6	34
Asthma	8,566	0.9	26	12,326	0.9	20
Pancreatic disorders (not diabetes)	8,565	0.9	27	8,704	0.7	29
Urinary tract infections	8,209	0.9	28	19,876	1.5	9
Fracture of neck of femur (hip)	6,230	0.7	35	13,837	1.1	18

Source: Bureau of Public Health Statistics, Arizona Department of Health Services

During this period, **males and females** had 15 diagnoses in common. Diagnoses occurring more frequently in either gender are primarily; 1) gender-specific, 2) attributed to behavior or 3) attributed to differences in health-seeking behaviors.

- Two diagnoses held the same ranking for **both genders**; **pneumonia** (3rd) and **non-specific chest pain** (4th).
 - **Osteoarthritis** also ranked among the top ten most frequent diagnoses for both genders, accounting for slightly above 2 percent of all discharges.
 - **Biliary tract disease**, are conditions effecting the gall bladder and bile duct system. These diagnoses are specific to Arizona populations and ranked 19th among males and 7th among females, accounting for 32,742 discharges.
 - **Complications of surgical procedures or medical care** ranked 14th among males and 13th among females and is a diagnosis under review by CMS.

- **Females** accounted for 1,302,212 discharges during this period – nearly 6 out of 10 hospital stays. **Pregnancy and childbirth** accounted for 25 percent of female hospitalizations.
 - Four **heart-related** diagnoses were among the top ten most frequent diagnoses among females: nonspecific chest pain (4th), coronary atherosclerosis (6th), cardiac dysrhythmias (10th); and congestive heart failure (8th), accounting for 95,580 discharges or slightly over 7 percent of all female hospital stays.
 - **Urinary tract infections**, a diagnosis common among older patients and young children, ranked 9th among female diagnoses. This is one of several conditions under review by the Centers for Medicare and Medicaid (CMS).
-
- **Males** accounted for 928,705 hospitalizations during this period. Males ranked 1 to 3 percent higher than females in four heart-related diagnoses.
 - Five **heart-related** diagnoses were among the top ten most frequent diagnoses among males: coronary atherosclerosis (2nd); nonspecific chest pain (4th); congestive heart failure (5th); acute myocardial infarction (7th) and cardiac dysrhythmias (8th), accounting for 132,206 discharges or 14 percent of all male hospital stays.
 - Other conditions that were closely ranked for both genders were: **Spondylosis/ intervertebral disc disorders**; **acute cerebrovascular disease**, and **chronic obstructive pulmonary disease/bronchiectasis**.

EXHIBIT 2.4 Circulatory Conditions

Number of Discharges, Percent Distribution, and Rank for the Most Frequent Principal Diagnoses of Circulatory Conditions by Gender, 2004 - 2006

Principal Diagnosis	Total Number of Discharges	Percent Male	Rank among Male Discharges	Percent Female	Rank among Female Discharges
All circulatory disease discharges	371,086	53		47	
Coronary atherosclerosis (hardening of heart arteries)	67,673	64	1	37	2
Nonspecific chest pain	55,710	45	2	56	1
Congestive heart failure; nonhypertensive	44,406	54	3	47	3
Cardiac dysrhythmias (irregular heart beat)	39,554	51	5	49	4
Acute myocardial infarction (heart attack)	32,672	63	4	37	6
Acute cerebrovascular disease (stroke)	29,875	49	6	51	5
Peripheral and visceral atherosclerosis (hardening of arteries outside the heart)	13,379	48	7	53	7
Transient cerebral ischemia (mini-stroke)	10,976	42	9	58	8
Pulmonary heart disease (heart disease due to lung disorders)	9,539	47	10	54	9
Hypertension with complications and secondary hypertension (high blood pressure with complications)	8,842	48	12	52	10
Occlusion or stenosis of precerebral arteries (blockage of arteries before brain)	8,551	58	8	42	13
Phlebitis; thrombophlebitis and thromboembolism (inflammation and blood clots in the veins)	8,444	48	13	52	11

Circulatory diseases were the most frequent diagnoses among Arizona inpatients. Although the total share of discharges for these varied minimally between male (53 percent) and female (47 percent), other gender share differences varied by condition.

- Males comprised the majority share of discharges with diagnoses of; coronary atherosclerosis (64 percent), acute myocardial infarction (63 percent), stenosis of precerebral arteries (58 percent) and congestive heart failure (54 percent).

- Females comprised the majority share of discharges for; transient cerebral ischemia (58 percent), non-specific chest pain (56 percent), pulmonary heart disease (54 percent), peripheral and visceral atherosclerosis (53 percent), high blood pressure (52 percent), and phlebitis, thrombophlebitis and thromboembolism (52 percent).

- Two diagnoses reporting similar shares for males and females were stroke (acute cerebrovascular disease) and irregular heartbeat (cardiac dysrhythmias).

- From 2004 through 2006, 481 out of 100,000 males discharged were diagnosed with coronary artery disease (coronary atherosclerosis). This was the most prevalent circulatory condition for hospitalizations among Arizona's male population.

- Males were more likely than females to be hospitalized for:

- coronary atherosclerosis
- congestive heart failure
- acute myocardial infarction (heart attack)
- cardiac dysrhythmias (irregular heart beat)
- occlusion of precerebral arteries

- From 2004 through 2006, 346 out of 100,000 females discharged were diagnosed with non-specific chest pain. This was the most prevalent circulatory condition for hospitalizations among Arizona's female population.

- Females were more likely than males to be hospitalized for:

- non-specific chest pain
- stroke and mini stroke
- peripheral and visceral atherosclerosis
- pulmonary heart disease
- hypertension
- phlebitis

Coronary atherosclerosis (coronary artery disease)
 Nonspecific chest pain
 Congestive heart failure; nonhypertensive
 Acute myocardial infarction (heart attack)
 Cardiac dysrhythmias (irregular heart beat)
 Acute cerebrovascular disease (stroke)
 Peripheral and visceral atherosclerosis
 Occlusion or stenosis of precerebral arteries
 Transient cerebral ischemia (mini-stroke)
 Pulmonary heart disease
 Hypertension with complications and secondary hypertension
 Phlebitis; thrombophlebitis and thromboembolism

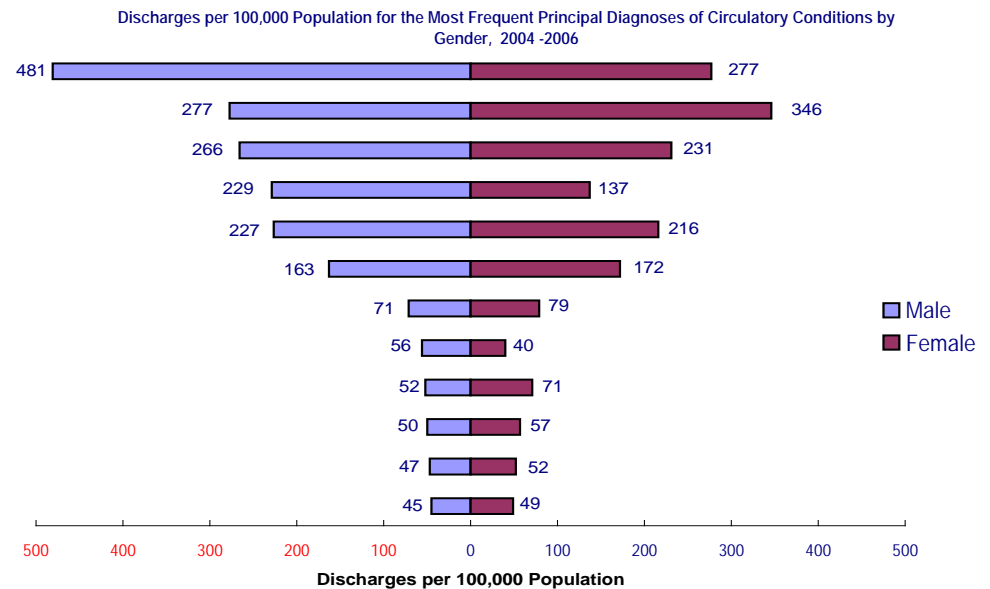
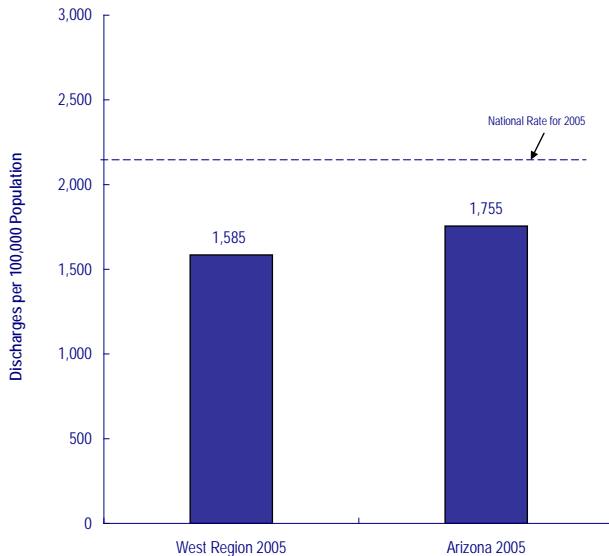


EXHIBIT 2.5 Diabetes

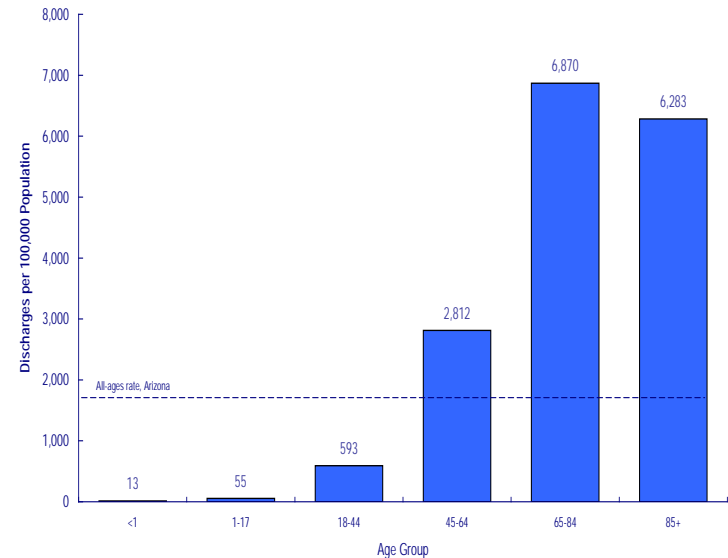
- **Diabetes mellitus** is a chronic condition characterized by high levels of blood glucose that can result in serious complications, including lower limb amputations.
- During this period, about 14 percent of all hospitalizations included a diabetes diagnosis.
- During this period, there were 1,745 **diabetes-related** hospital stays per 100,000 people in Arizona. The prevalence of diabetes-related discharges, however, varied across states in the western region and by age.

- The twelve remaining **western region** states reported an annual average of 1,585 diabetes-related hospital stays per 100,000 population in 2005. This was the lowest rate for the nation when compared to the three remaining regions. (See Definitions for a list of states within regions)
- **Arizona** reported 1,755 diabetes-related hospital stays per 100,000 population in 2005, 170 more discharges than the annual average for the western region.
- Among patients **65 and older**, there were more than twice as many hospital stays with a diagnosis of diabetes than those 45 to 64 years of age. These older patients had nearly four times the number of hospital stays per 100,000 population as the state average.

Discharge Prevalence for All-Listed Diabetes 2005



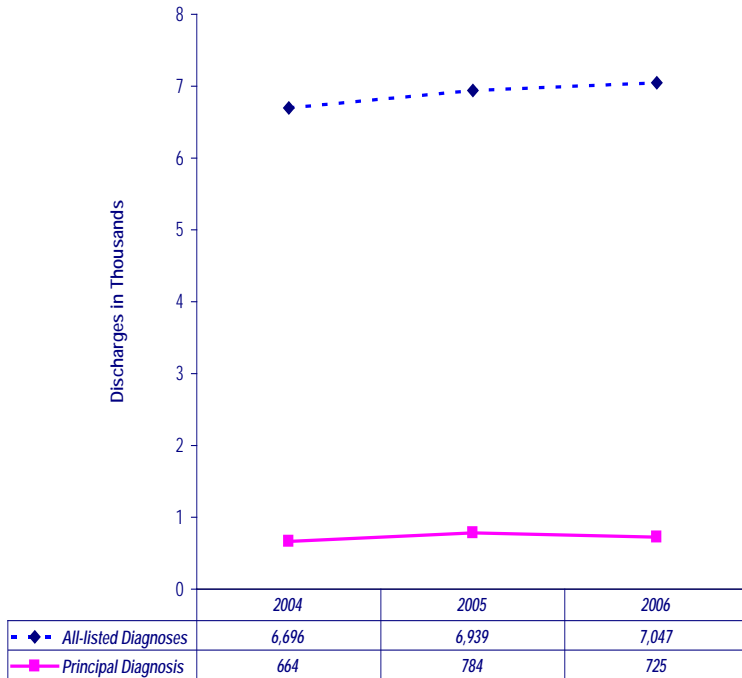
Discharge Prevalence for All-Listed Diabetes by Patient Age, Arizona 2004-2006



Source: Bureau of Public Health Statistics, Arizona Department of Health Services

EXHIBIT 2.6 Pressure Sores

Number of Discharges for Pressures Sores, 2004 - 2006

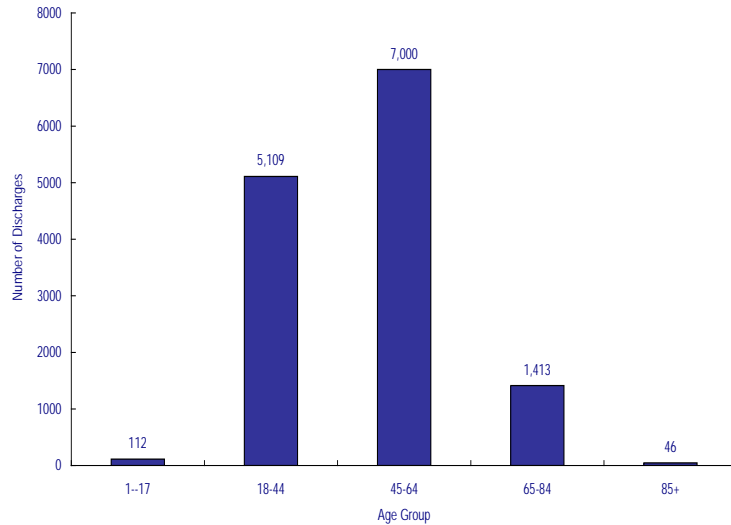


Pressure sores (decubitus ulcer or bed sore) typically result from prolonged periods of uninterrupted pressure on the skin, soft tissue, muscle, and bone. This often occurs in wheelchair or bedridden-patients whose positions are not changed regularly. The presence of pressure sores for patients in the hospital increases their length of stay and total costs.

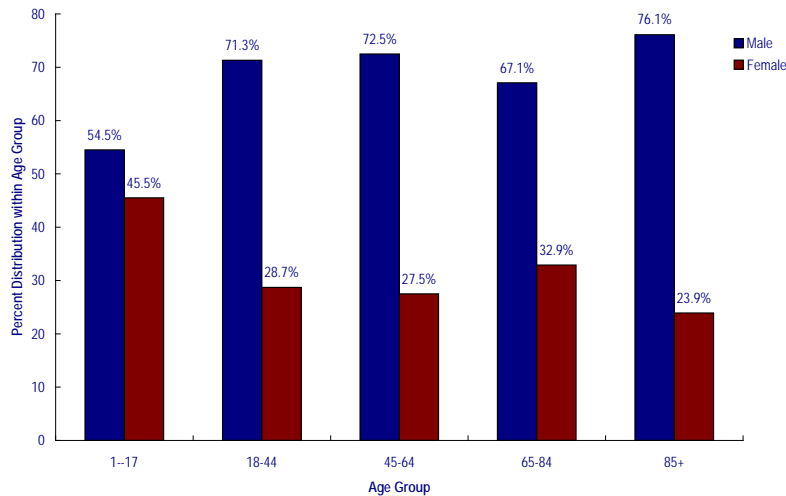
- From 2004 to 2006, 22,855 hospital stays involved a diagnosis of pressure sores.
- The number of hospital stays during which pressure sores were noted (all listed diagnoses) increased by 5.2 percent during this period.
- During this period, hospital stays for which pressure sore was the **principal diagnosis** increased 9.2 percent. This may be an indirect result of nursing staff shortages.
- The incidence and prevalence of pressure sore diagnoses are under close review by the Centers for Medicare and Medicaid Services (CMS).

EXHIBIT 2.7 Alcoholism

Number of Discharges with a Principal Diagnosis of Alcoholism by Age, 2004 - 2006



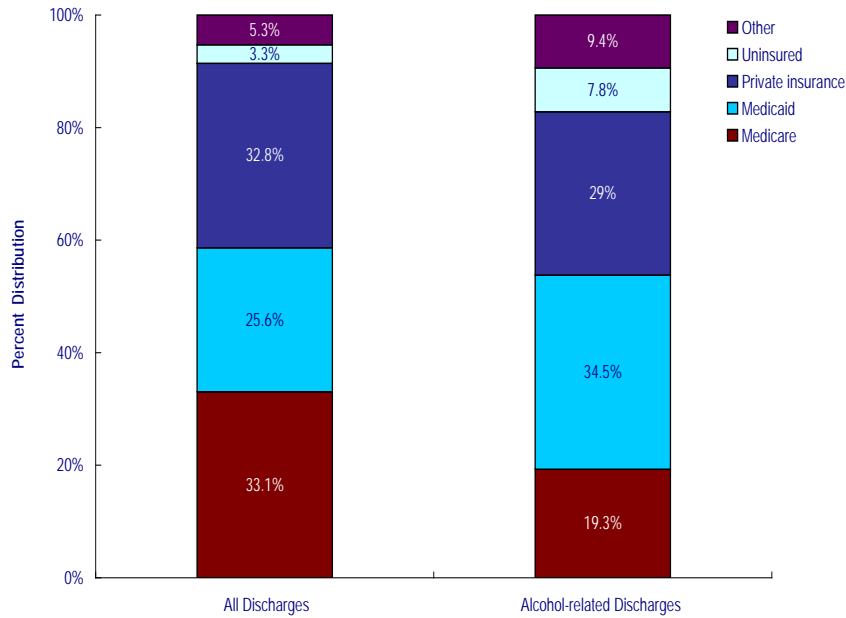
Distribution of Discharges with a Principal Diagnosis of Alcoholism by Gender and Gender, 2004 - 2006



Alcohol abuse and dependence may result in illness (physical and mental), chronic conditions, disability, harm to unborn babies, birth defects and death. Millions of Americans abuse or are dependent on alcohol (alcoholism). In the *Tenth Special Report to Congress on the Health Risks and Benefits of Alcohol Consumption, 2000* over half of American adults have a close family member who suffers from alcoholism.

- From 2004 to 2006, there were 13,682 discharges from Arizona state-licensed, community hospitals with a principal diagnosis of alcoholism.
- Youth, ages 1 to 17 years, accounted for less than one percent of all discharges with a principal diagnosis of alcoholism. However, this age group experienced less gender difference in the percent of hospitalizations than other age groups.
- Among adults in Arizona, males accounted for more discharges in which alcoholism was the principal diagnosis.
 - Similar to the nation, 3 out of 4 hospital stays for males 18-44, 45-64 and 85 and older had an alcohol-related principal diagnosis.
 - The proportion of alcohol-related hospital stays for males was higher for adult males over 85 years of age. Males also accounted for more than 3 out of 4 hospital stays for alcohol abuse among the oldest patients.

Distribution of Discharges with a Principal Diagnosis of Alcoholism by Expected Payer, 2004 - 2006



- The expected **primary payer** for **alcoholism-related** hospital stays differed from typical hospital stays.

 - Among major payers, **MEDICAID (AHCCCS)** had the highest share (34.5%) of alcoholism-related discharges but among the lowest share of all discharges .
 - Private insurers** and **MEDICARE** both had larger shares of all discharges, but were less likely to be primary payers for alcoholism-related stays.
 - MEDICARE** patients who are alcohol-dependent may have other complications listed as the principal diagnosis which may account for why these patients have the smallest share of alcoholism-related discharges.
- Uninsured** patients accounted for 7.8 percent of alcohol-related stays, but only 3.3 percent of hospitalizations in general.

EXHIBIT 2.8 Mental Health

Between 2004 and 2006, mood disorders ranked 17th among all discharges (see Exhibit 2.1). Mood disorders represented only one of many mental health conditions for which people were hospitalized. Generally, these conditions differed with age (see Exhibit 2.8).*

- During this period, there were 62,115 hospital stays with a principal diagnosis of mental illness or substance abuse.
- Hospital stays with a substance-related principal diagnosis accounted for 10 percent or less in each age group.

Youth less than 18 years of age:

- Mood disorders (depression and bipolar disorders) accounted for 59.2 percent of mental disorders for which patients in this age group were hospitalized.
- Attention deficit disorder (ADD) and conduct /disruptive behavior disorders, accounted for 14.5 percent of all mental health discharges for this age group.

Patients 18 -44 years of age:

- Mood disorders were the most common mental disorder for which adults ages 18-44 were hospitalized. Mood disorders accounted for a smaller share (45.4 percent) of hospital stays in this age group than among younger patients.

Patients 18 - 44 years of age, cont'd:

- Other common mental health conditions for this age group were schizophrenia and other psychotic disorders (24.5 percent) and substance-related disorders (10 percent), both were more common in this age group than among younger patients.

Patients 45 - 64 years of age:

- Mood disorders were also the most common mental disorder for this age group, representing 40.1 percent of all mental health hospital stays for patients ages 45 to 64.
- Schizophrenia and other psychotic disorders (22.1 percent) were the second most common mental disorder for this group while substance-related disorders (7.2 percent) were fourth.

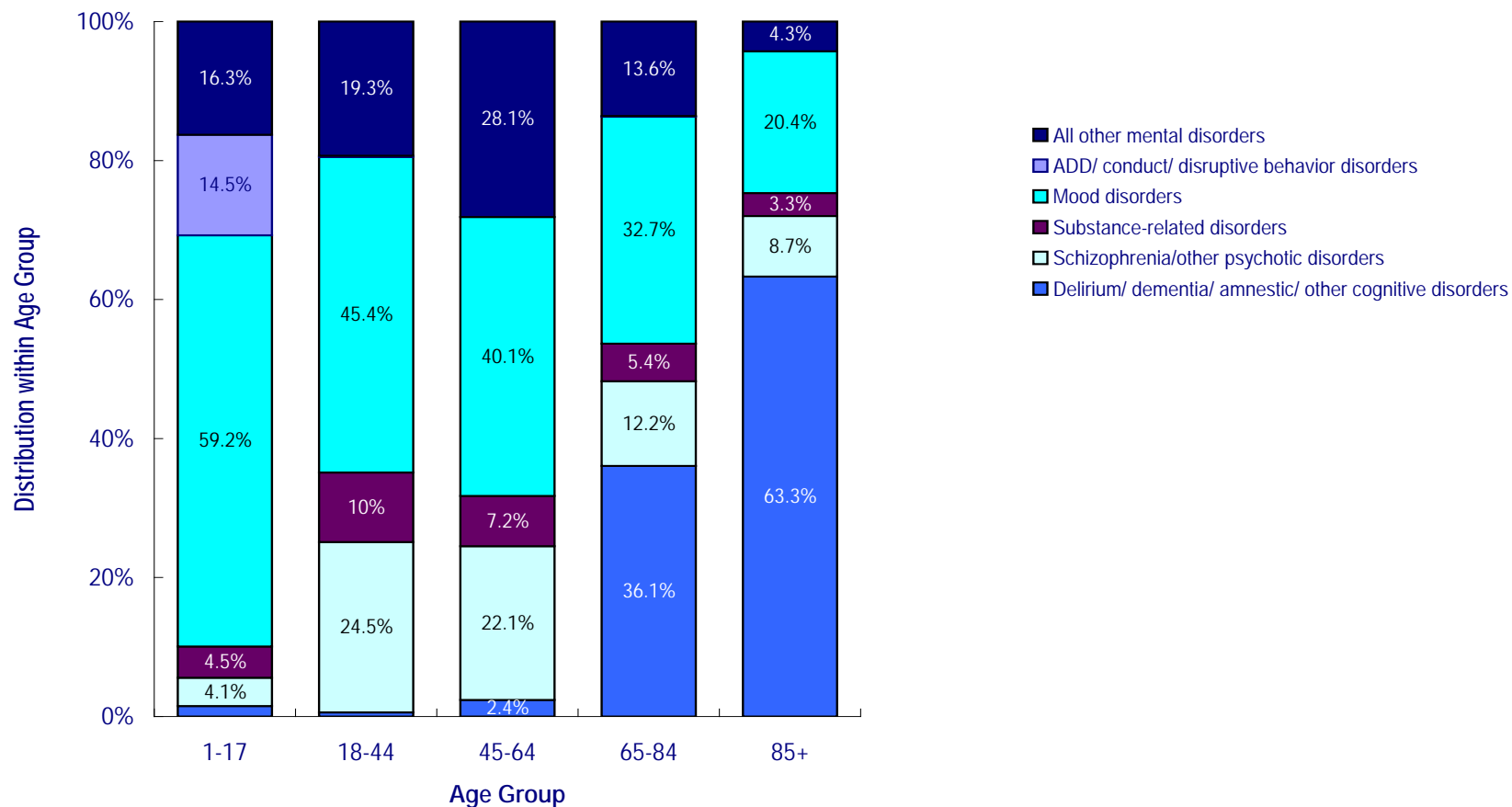
Patients 65 – 84 years and age 85 years and older:

- Delirium, dementia, amnesic and other cognitive disorders were the most frequent mental health conditions for patients 65 to 84 years of age (36.1 percent) and ages 85 and older (63.3 percent).
- Mood disorders were the second most common mental health condition for hospitalization for these age groups, accounting for 32.7 percent for patients 65 to 84 years of age and 20.4 percent for patients 85 years and older.

* The data for this report does not include patients discharged from mental health or substance abuse facilities.

EXHIBIT 2.8 Mental Health

Distribution* of Discharges by Age Group with a Principal Diagnosis of a Mental Health Condition, 2004 -2006



*Unmarked bar segments reported values two percent or less.

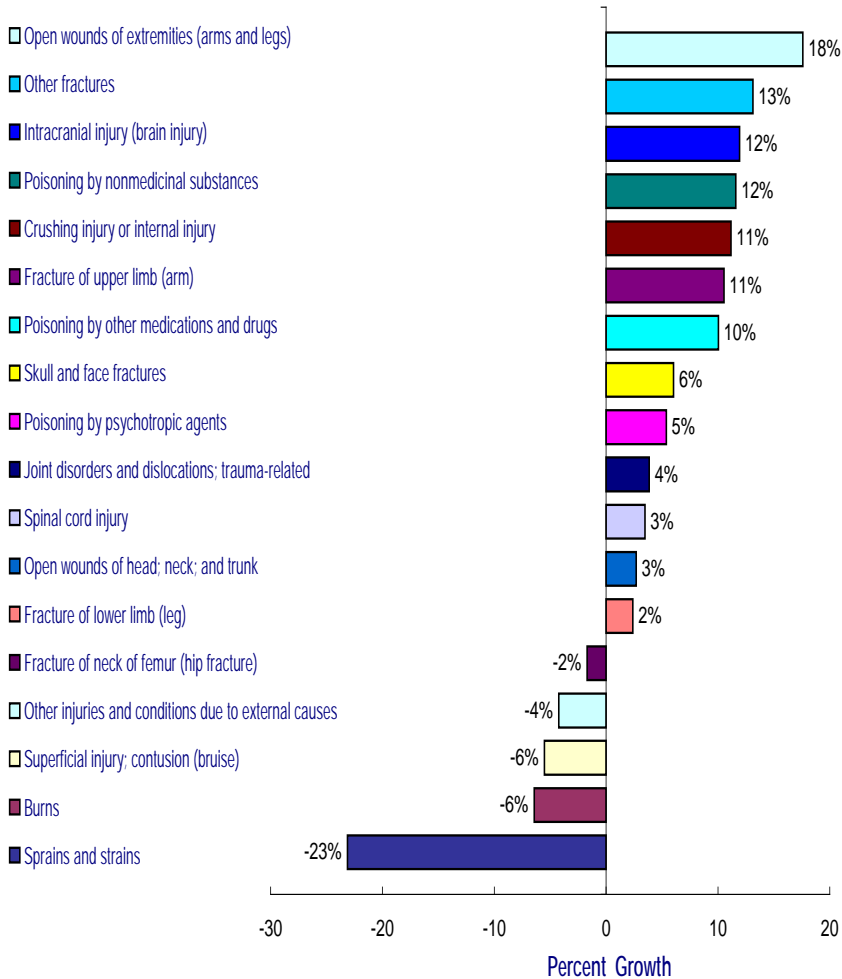
EXHIBIT 2.9 Injuries

Number of Stays, Average Cost per Stay, Average Length of Stay, and In-hospital Death Rate for Discharges with an Injury Diagnosis, 2004 - 2006

Principal Diagnosis	TOTAL NUMBER OF STAYS			AVERAGE COST PER STAY			RANK			AVERAGE LENGTH OF STAY (DAYS)			IN-HOSPITAL DEATH RATE (PERCENT)		
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004	2005	2006
All Injuries	43,081	44,990	45,267	\$9,551	\$10,438	\$11,664				4.7	4.7	4.7	1.8	1.8	1.9
Fracture of neck of femur (hip fracture)	6,667	6,847	6,554	\$10,853	\$11,805	\$12,855	1	1	1	6.8	7	6.7	1.7	1.8	1.9
Fracture of lower limb (leg)	5,532	5,657	5,664	\$9,976	\$10,918	\$12,393	2	2	2	4.7	4.6	4.6	0.5	0.3	0.3
Intracranial injury (brain injury)	4,918	5,232	5,505	\$14,046	\$15,106	\$17,021	3	3	3	6	5.9	6.2	6.9	7.4	6.8
Other fractures	3,961	4,336	4,481	\$9,996	\$10,518	\$11,959	4	4	4	5.6	5.5	5.5	0.7	0.9	0.8
Fracture of upper limb (arm)	3,720	4,007	4,112	\$7,391	\$8,159	\$8,994	5	5	5	3.1	3	3.1	0.2	0.2	0.4
Poisoning by other medications and drugs	3,116	3,275	3,429	\$4,642	\$5,320	\$5,970	6	6	6	2.6	2.8	2.9	1.1	1.3	1.6
Other injuries and conditions due to external causes	2,904	2,914	2,781	\$5,104	\$5,917	\$6,690	7	7	7	2.6	2.7	2.8	2	2.3	2.3
Crushing injury or internal injury	2,428	2,579	2,699	\$15,700	\$17,744	\$18,108	8	8	8	6.7	6.7	6.2	3.6	3.3	3.4
Poisoning by psychotropic agents	1,599	1,666	1,685	\$4,508	\$4,898	\$5,434	9	9	9	2.4	2.6	2.7	0.7	0.7	0.7
Skull and face fractures	1,344	1,359	1,425	\$8,457	\$9,461	\$10,597	10	11	11	3.2	3.3	3.4	0.1	0.1	0.5
Open wounds of extremities (arms and legs)	1,233	1,415	1,450	\$6,287	\$6,823	\$7,541	11	10	10	3.1	2.3	3.1	0.1	0.1	0.1
Superficial injury; contusion (bruise)	1,160	1,169	1,096	\$4,292	\$4,971	\$5,322	12	13	13	2.8	2.7	2.8	0.3	0.3	0.4
Open wounds of head; neck; and trunk	1,152	1,198	1,183	\$6,114	\$6,823	\$7,450	13	12	12	2.3	2.3	2.3	0.3	0.2	0.1
Burns	903	848	845	\$19,230	\$20,453	\$23,782	14	14	14	10.2	9.6	10	2.1	1.9	2.5
Sprains and strains	839	711	645	\$4,759	\$5,275	\$5,893	15	16	17	2.5	2.4	2.4	0	0	0
Joint disorders and dislocations; trauma-related	676	693	702	\$8,061	\$9,198	\$10,360	16	17	15	3	3.2	3	0.1	0	0.4
Poisoning by nonmedicinal substances (substances other than medicines)	612	733	683	\$6,171	\$5,524	\$7,852	17	15	16	2.5	2.1	2.3	0.8	0.7	0.9
Spinal cord injury	317	351	328	\$36,429	\$36,827	\$44,403	18	18	18	13.4	12.6	12.9	5.7	5.1	3.4

Injuries

Growth in Number of Discharges with a Principal Diagnosis of Injuries, 2004 - 2006



Between 2004 and 2006, 133,338 hospitalizations resulted from injuries, representing 5.1 percent of all hospital stays.

Cost, length of stay and hospital death rate varied by type of injury (see Exhibit 2.9 table).

- Four of the top five most common injuries were consistent with national trends, they were: hip fracture (20,068 stays), leg fracture (16,853 stays), brain injury (15,655 stays), and other fractures (12,778 stays). Arm fractures (11,839 stays) ranked fifth in Arizona.
- The highest in-hospital death rates were for brain injuries (7 percent) and spinal cord injuries (4.7 percent).
- Spinal cord injury was the most expensive type of injury, with an average hospital cost per stay of \$39,220 and a mean length of stay of 13 days. This type of hospitalization accounted for less than 1 percent of all injury-related stays.

During this period, the number of hospitalizations associated with each injury changed (see Exhibit 2.9 chart to the left).

- Admissions for open wounds of extremities (arms and legs) increased by 18 percent.
- Hospitalizations for intracranial injuries (brain injuries) and poisoning by non-medicinal substances both rose 12 percent.
- Admissions for sprains and strains decreased by 23 percent likely indicating increased outpatient treatment.

Section 3: 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 Most Frequent All-Listed Procedures by Gender

EXHIBIT 3.1 Most Frequent All-Listed Procedures

Number, Percent Distribution, and Rank of Discharges for the Most Frequent All-listed Inpatient Hospital Procedures, 2004 - 2006

All-Listed Procedures	Number of Stays with the Procedure in Thousands			Percent of Discharges with Procedures			Rank			Growth 2004 - 2006
	2004	2005	2006	2004	2005	2006	2004	2005	2006	
All Discharges	717,024	745,581	768,544	-	-	-	-	-	-	7%
All Discharges with procedure(s)	416,291	438,379	463,390	100	100	100	-	-	-	11%
Percent of all discharges with a procedure	58	59	60	-	-	-	-	-	-	-
Diagnostic cardiac catheterization, coronary arteriography (diagnostic procedure to explore the functioning of the heart)	35,761	34,846	36,457	4.4	4	3.9	1	1	1	2%
Blood transfusion	19,648	22,914	31,689	2.4	2.7	3.4	6	4	2	61%
Repair of obstetric laceration	27,597	29,149	31,438	3.4	3.4	3.3	2	2	3	14%
Cesarean section (C-section)	22,733	24,876	27,735	2.8	3.4	2.9	3	3	4	22%
Artificial rupture of membranes to assist delivery	18,098	18,869	24,757	2.2	2.2	2.6	8	7	5	37%
Respiratory intubation and mechanical ventilation	20,930	22,749	24,106	2.6	2.6	2.6	4	5	6	15%
Prophylactic vaccinations and inoculations	3,701	8,290	21,448	1	1	2.3	64	21	7	480%
Upper gastrointestinal endoscopy (procedure to view and biopsy the esophagus, stomach and first portion of intestine through a lighted tube)	20,332	20,061	20,257	2.5	2.3	2.2	5	6	8	0%
Percutaneous transluminal coronary angioplasty (PTCA)	18,482	18,165	19,778	2.3	2.1	2.1	7	8	9	7%
Hemodialysis	12,712	13,829	14,150	1.6	1.6	1.5	9	9	10	11%

Source: Bureau of Public Health Statistics, Arizona Department of Health Services

From 2004 to 2006, 6 out of 10 hospital stays involved the performance of one or more [procedures](#). During this period, the number of discharges with procedures increased by 47,099 or 11 percent ([see Exhibit 3.1](#)).

- The top 10 **all-listed procedures** performed accounted for 48 percent of all procedures performed in that time period.
 - [Diagnostic cardiac catheterization](#), the most frequently performed procedure during this period, occurred in 7.6 percent of hospital stays.
- Minimal change was seen in the top 10 procedures. However, two procedures showed significant change within the three-year period.
 - [Prophylactic vaccinations](#) ranked 7th in 2006, up from 64th in 2004 this was the most significant increase in the three year period. This dramatic increase is primarily attributed to the hepatitis B vaccination for newborns. The number will increase as more hospitals transition to electronic reporting.
 - [Blood transfusions](#) ranked 2nd in 2006 up from 6th in 2004 representing 12,041 discharges and a 61 percent increase.

- Four of the most common procedures were performed during pregnancy- and childbirth-related hospitalizations. These included [repair of obstetric laceration](#), cesarean section (c-section), [artificial rupture of membranes to assist delivery](#), and prophylactic vaccinations. Together, discharges with these procedures accounted for 20 percent of all hospitalizations with a procedure during this period.
- [Upper gastrointestinal endoscopy](#) fell from 5th in 2004 to 8th in 2006, representing minimal change in the number of discharges and no significant growth.

EXHIBIT 3.2 Most Frequent All-Listed Procedures by Age

Number, Percent Distribution, and Rank of Discharges for the Most Frequent All-listed Inpatient Hospital Procedures, 2004 - 2006

All-Listed Procedures	Number of Discharges			Percent of All Discharges			Percent of Age-Specific Discharges			Growth 2004 - 2006
	2004	2005	2006	2004	2005	2006	2004	2005	2006	
All Discharges, All Ages	717,024	745,581	768,544	100.0	100.0	100.0				7%
< 1 year, all discharges	104,818	108,745	115,461	14.6	14.6	15.0	100.0	100.0	100.0	10%
Circumcision	11,459	11,321	11,782	1.6	1.5	1.5	10.9	10.4	10.2	3%
Prophylactic vaccinations and inoculations	3,092	7,500	18,411	0.4	1.0	2.4	2.9	6.9	15.9	495%
Respiratory intubation and mechanical ventilation	3,009	3,119	3,449	0.4	0.4	0.4	2.9	2.9	3.0	15%
Diagnostic spinal tap	2,427	2,964	2,853	0.3	0.4	0.4	2.3	2.7	2.5	18%
Ophthalmologic and otologic diagnosis and treatment	1,353	1,676	1,538	0.2	0.2	0.2	1.3	1.5	1.3	14%
1 - 17 years, all discharges	35,667	37,911	37,541	5.0	5.1	4.9	100.0	100.0	100.0	5%
Appendectomy	2,197	2,277	2,453	0.3	0.3	0.3	6.2	6.0	6.5	12%
Repair of current obstetric laceration	1,578	1,608	1,775	0.2	0.2	0.2	4.4	4.2	4.7	12%
Artificial rupture of membranes to assist delivery	1,014	980	1,189	0.1	0.1	0.2	2.8	2.6	3.2	17%
Diagnostic spinal tap	855	830	837	0.1	0.1	0.1	2.4	2.2	2.2	-2%
Respiratory intubation and mechanical ventilation	844	898	937	0.1	0.1	0.1	2.4	2.4	2.5	11%
18 - 44 years, all discharges	200,586	205,817	214,634	28.0	27.6	27.9	100.0	100.0	100.0	7%
Repair of current obstetric laceration	26,008	27,521	29,320	3.6	3.7	3.8	13.0	13.4	13.7	13%
Cesarean section	22,086	24,110	26,515	3.1	3.2	3.5	11.0	11.7	12.4	20%
Artificial rupture of membranes to assist delivery	17,072	17,878	23,287	2.4	2.4	3.0	8.5	8.7	10.8	36%
Episiotomy	9,874	9,518	8,906	1.4	1.3	1.2	4.9	4.6	4.1	-10%
Hysterectomy, abdominal and vaginal	5,631	10,612	10,419	0.8	1.4	1.4	2.8	5.2	4.9	85%
45 - 64 years, all discharges	149,349	156,500	163,722	20.8	21.0	21.3	100.0	100.0	100.0	10%
Diagnostic cardiac catheterization, coronary arteriography	14,485	14,174	14,679	2.0	1.9	1.9	9.7	9.1	9.0	1%
Percutaneous coronary angioplasty (PTCA)	7,406	7,320	7,799	1.0	1.0	1.0	5.0	4.7	4.8	5%
Upper gastrointestinal endoscopy, biopsy	6,073	6,153	6,202	0.8	0.8	0.8	4.1	3.9	3.8	2%
Respiratory intubation and mechanical ventilation	5,189	5,849	6,345	0.7	0.8	0.8	3.5	3.7	3.9	22%
Blood transfusion	5,158	6,185	8,591	0.7	0.8	1.12	3.5	4.0	5.2	67%
65+ years, all discharges	226,567	236,555	237,127	31.6	31.7	30.9	100.0	100.0	100.0	5%
Diagnostic cardiac catheterization, coronary arteriography	18,859	18,266	18,835	2.6	2.4	2.5	8.3	7.7	7.9	0%
Percutaneous coronary angioplasty (PTCA)	10,339	10,096	10,965	1.4	1.4	1.4	4.6	4.3	4.6	6%
Blood transfusion	10,761	12,611	17,338	1.5	1.7	2.3	4.7	5.3	7.3	61%
Upper gastrointestinal endoscopy, biopsy	10,015	9,659	9,390	1.4	1.3	1.2	4.4	4.1	4.0	-6%
Respiratory intubation and mechanical ventilation	7,814	8,723	8,598	1.1	1.2	1.1	3.4	3.7	3.6	10%

Source: Bureau of Public Health Statistics, Arizona Department of Health Services

During this period, the most frequent procedures also varied by **age group** (see Exhibit 3.2).

- The most common procedures performed on **infants** were those associated with birth;
 - **Circumcision** was the most common procedure for children under 1 year of age. The number performed increased 3 percent.
 - **Prophylactic vaccination**, the second most common procedure, increased significantly from 3,092 in 2004 to 18,411 in 2006. The increase is attributed to the Hepatitis B vaccination to newborns.
- **Appendectomy** was the most common procedure for children **1 – 17 years of age**. Other top procedures included repair of current obstetric laceration, artificial rupture of membranes to assist delivery, diagnostic spinal tap, and respiratory incubation and mechanical ventilation.
- **Pregnancy and childbirth-** related procedures comprised the five most common procedures for individuals **18 – 44 years of age**. These included repair of current obstetric laceration, **cesarean section**, artificial rupture of membranes to assist delivery, episiotomy and hysterectomy.
- The most common procedures for patients **45 years and older** included diagnostic cardiac catheterization/coronary arteriography, **percutaneous coronary angioplasty (PTCA)**, **upper gastrointestinal endoscopy**, respiratory intubation/mechanical ventilation, and **blood transfusion**.

EXHIBIT 3.3 Most Frequent All-Listed Procedures by Gender

Number of Discharges and Percent Distribution, of Most Frequent All-listed Procedures for Inpatient Hospital Stays, Males 2004 - 2006

	Total Male Discharges	Percent of Male Discharges
All Discharges with or without Procedure	928,705	
Total Discharges with Procedure (s)*	522,356	
Diagnostic cardiac catheterization, coronary arteriography	64,729	7.0
Respiratory intubation and mechanical ventilation	36,800	4.0
Percutaneous coronary angioplasty (PTCA)	36,697	4.0
Circumcision	34,693	3.7
Blood transfusion	31,813	3.4
Upper gastrointestinal endoscopy, biopsy	28,260	3.0
Hemodialysis	20,424	2.2
Insertion, revision, replacement, removal of cardiac pacemaker or cardioverter/defibrillator	15,905	1.7
Prophylactic vaccinations and inoculations	15,537	1.7
Appendectomy	14,276	1.5
Diagnostic bronchoscopy and biopsy of bronchus	13,493	1.5
Incision of pleura, thoracentesis, chest drainage	13,408	1.4
Diagnostic spinal tap	13,295	1.4
Arthroplasty knee	13,200	1.4
Coronary artery bypass graft (CABG)	12,813	1.4
Colonoscopy and biopsy	12,705	1.4
Laminectomy, excision intervertebral disc	12,650	1.4
Debridement of wound, infection or burn	11,685	1.3
Diagnostic ultrasound of heart (echocardiogram)	11,661	1.3
Cholecystectomy and common duct exploration	11,436	1.2
Arterio- or venogram (not heart and head)	10,647	1.1

* Counts are only one occurrence of a specific procedure per discharge.

During this period, at least one procedure was performed during 59 percent of all hospital stays for either **gender**. As expected, differences remain between procedures performed on male and female patients.

- **Fifty six (56) percent** of all male discharges included a minimum of one procedure during a hospital stay.
- The most frequent procedures among male inpatients were :
 - **Diagnostic cardiac catheterization/ coronary arteriography** was performed during 7 percent of all male hospital stays. This accounted for 12.4 percent of all discharges with one or more procedures.
 - **Respiratory intubation/ mechanical ventilation and percutaneous coronary angioplasty (PTCA)** were performed during 4 percent of all male hospital stays. This accounted for 5.1 percent of all discharges with one or more procedures, respectively.
- Procedures specific to **newborns** (i.e., **circumcision** and **prophylactic vaccinations**) were performed during 5.4 percent of all male hospital stays.

EXHIBIT 3.3 Most Frequent All-Listed Procedures by Gender

Number of Discharges and Percent Distribution, of Most Frequent All-listed Procedures for Inpatient Hospital Stays, Females 2004 - 2006

	Total Female Discharges	Percent of Female Discharges
All Discharges with or without Procedure	1,302,212	
Total Discharges with Procedure (s)*	795,314	
Repair of current obstetric laceration	87,864	6.7
Cesarean section	74,928	5.8
Artificial rupture of membranes to assist delivery	61,454	4.7
Diagnostic cardiac catheterization, coronary arteriography	41,828	3.2
Blood transfusion	40,594	3.1
Hysterectomy, abdominal and vaginal	32,213	2.5
Upper gastrointestinal endoscopy, biopsy	31,866	2.4
Episiotomy	30,501	2.3
Respiratory intubation and mechanical ventilation	28,605	2.2
Oophorectomy, unilateral and bilateral	24,779	1.9
Cholecystectomy and common duct exploration	23,787	1.8
Percutaneous coronary angioplasty (PTCA)	19,475	1.5
Arthroplasty knee	19,093	1.5
Hemodialysis	18,964	1.5
Insertion of catheter or spinal stimulator and injection into spinal canal	18,708	1.4
Forceps, vacuum, and breech delivery	18,543	1.4
Fetal monitoring	18,001	1.4
Excision, lysis peritoneal adhesions	17,820	1.4
Colonoscopy and biopsy	17,725	1.4
Ligation of fallopian tubes	16,701	1.3
Prophylactic vaccinations and inoculations	16,602	1.3

* Counts are only one occurrence of a specific procedure per discharge.

- During this period, **61 percent** of all female discharges had at least one procedure performed during a hospital stay.
- The most frequent procedures among female inpatients were :
 - Twenty five (25) percent (325,713 discharges), of all female hospital stays were associated with childbirth and newborn procedures, specifically; repair of current obstetric laceration, **cesarean section**, artificial rupture of membranes to assist delivery, **episiotomy**, forceps/vacuum and breech delivery, fetal monitoring, **excision/lysis peritoneal adhesions**, and **prophylactic vaccinations**.
 - Five (5) percent of all female hospital stays were associated with the **female reproductive system** specifically; abdominal and vaginal **hysterectomy**, unilateral and bilateral **oophorectomy**, and ligation of fallopian tubes.
 - **Blood transfusion** was the only procedure which ranked the same, 5th, for females and males.

Section 4: CHARGES AND COSTS FOR INPATIENT STAYS

EXHIBIT 4.1 Costs for the Most Frequent Diagnoses

EXHIBIT 4.2 Average Total Charges Trend, 1997 - 2006

EXHIBIT 4.3 Average Length of Stay and Average Charges

EXHIBIT 4.1 Costs for the Most Frequent Diagnoses

Top 20 Inpatient Hospital Principal Diagnoses with the Highest Aggregate Costs, 2004, 2005, 2006

Principal Diagnosis	Total Inflation-Adjusted [‡] Hospital Costs In Millions (U.S. Dollars)			Percent of Total Costs			Rank			Aggregate Annual Percent Growth
	2004	2005	2006	2004	2005	2006	2004	2005	2006	2004 - 2006
All Diagnoses (billions)	\$4,867	\$5,560	\$6,092	100%	100%	100%				
Coronary atherosclerosis (coronary artery disease) and other heart disease	\$313.8	\$338.2	\$369.0	6.4	6.1	6.1	1	1	1	18%
Acute myocardial infarction (heart attack)	\$183.6	\$202.6	\$210.9	3.8	3.6	3.5	2	2	2	15%
Osteoarthritis (degenerative joint disease)	\$149.6	\$186.3	\$180.0	3.1	3.4	3.0	3	3	4	20%
Complication of medical device; implant or graft	\$154.7	\$180.6	\$194.2	3.2	3.2	3.2	4	4	3	25%
Pneumonia	\$151.7	\$179.4	\$179.1	3.1	3.2	2.9	5	5	5	18%
Congestive heart failure; nonhypertensive	\$128.3	\$160.8	\$160.6	2.6	2.9	2.6	6	6	7	25%
Liveborn (newborn infant)	\$128.1	\$135.9	\$159.0	2.6	2.4	2.6	7	8	8	24%
Adult respiratory failure; insufficiency; arrest	\$103.5	\$143.1	\$177.4	2.1	2.6	2.9	10	7	6	71%
Spondylosis; intervertebral disc disorders; other back problems	\$107.7	\$130.8	\$128.1	2.2	2.4	2.1	8	9	11	19%
Septicemia (blood infection)	\$84.0	\$117.8	\$158.3	1.7	2.1	2.6	13	10	9	88%
Acute cerebrovascular disease (stroke)	\$99.0	\$115.8	\$107.3	2.0	2.1	1.8	9	11	12	8%
Cardiac dysrhythmias (irregular heart beat)	\$97.6	\$112.2	\$128.2	2.0	2.0	2.1	11	12	10	31%
Complications of surgical procedures or medical care	\$79.1	\$96.9	\$106.2	1.6	1.7	1.7	15	13	13	34%
Biliary tract disease (gall bladder diseases)	\$86.2	\$88.0	\$99.4	1.8	1.6	1.6	12	14	14	15%
Nonspecific chest pain	\$78.6	\$84.5	\$80.4	1.6	1.5	1.3	14	15	16	2%
Intracranial injury (brain, sinus or other intracranial head injuries)	\$65.7	\$79.0	\$89.8	1.4	1.4	1.5	17	17	15	37%
Fracture of neck of femur (hip fracture)	\$68.2	\$80.8	\$77.4	1.4	1.5	1.3	16	16	17	14%
Diabetes mellitus with complications	\$60.1	\$70.0	\$76.8	1.2	1.3	1.3	18	18	18	28%
Fracture of lower limb	\$54.8	\$61.7	\$68.3	1.1	1.1	1.1	19	19	19	25%
Skin and subcutaneous tissue infections	\$47.2	\$59.2	\$66.1	1.0	1.1	1.1	23	20	20	40%
Total for top 20 conditions (billions)	\$2,242	\$2,624	\$2,816	46.1	47.2	46.2				26%

‡ Figures for individual diagnoses are in millions and adjusted for inflation using the GDP deflator (<http://www.bea.gov/national/nipaweb/SelectTable.asp#S1>, Table 1.1.4. Price Indices for Gross Domestic Product).

EXHIBIT 4.1 Costs for the Most Frequent Diagnoses

From 2004 through 2006, the highest aggregate hospital costs for the top 20 principal diagnoses accounted for 46.5 percent of the \$16.5 billion total cost for all diagnoses in Arizona community Hospitals (See Exhibit 4.1).

Most costly diagnoses:

- The three most costly conditions were related to the cardiovascular system: coronary artery disease, heart attack, and congestive heart failure. Aggregate costs for these conditions amounted to \$2.1 billion dollars or 12.5 percent of all hospitalization costs.
- The three most costly inpatient diagnoses unrelated to heart disease were osteoarthritis, complications of a medical device, implant or graft, and pneumonia.
- Two of the top 20 most costly inpatient conditions were related to complications of medical care, specifically – complications of medical device/ implants/grafts and complications of surgical procedures or medical care. Blood infections (septicemia) and skin and subcutaneous tissue infections may include patients that experience a complication of treatment.
- Three of the top 20 most costly inpatient conditions were injuries, specifically; intracranial injuries, hip fractures, and fractures lower limbs.

Cost increases:

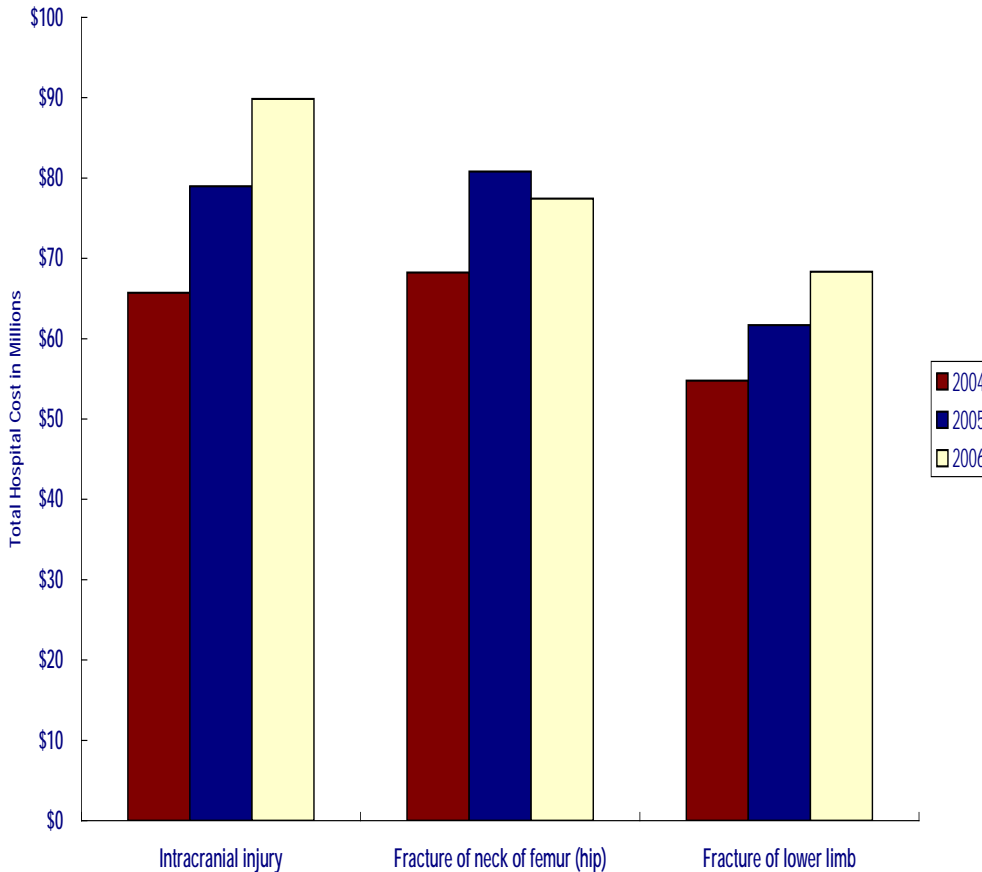
- Of the top 20 most costly inpatient diagnoses, blood infections (septicemia) showed the most dramatic increase in inflation-adjusted costs, rising from \$84 million in 2004 to \$158 million in 2006, an 88 percent increase for the period.
- The cost of hospitalizations for intracranial injuries (brain injuries), increased 37 percent from \$65.7 million in 2004 to \$89.8 million in 2006. This condition was not among the top 20 for the nation.
- Costs attributed to complications of medical devices, implants/grafts and complications of surgical procedures or medical care accounted for \$811.7 million, a 28.5 percent increase during the period.
- The total inflation-adjusted cost for the top 20 most costly inpatient diagnoses increased 26 percent during this period, accounting for 46.5 percent of total costs or an average of \$2.5 billion each year.

Cost stabilization and decrease:

- The cost for hospitalizations for acute cerebrovascular disease (stroke) and non-specific chest pain changed slightly during the period.
- Unfortunately, none of the costs for the top 20 most costly inpatient diagnoses decreased during this period.

EXHIBIT 4.1 Costs for the Most Frequent Diagnoses

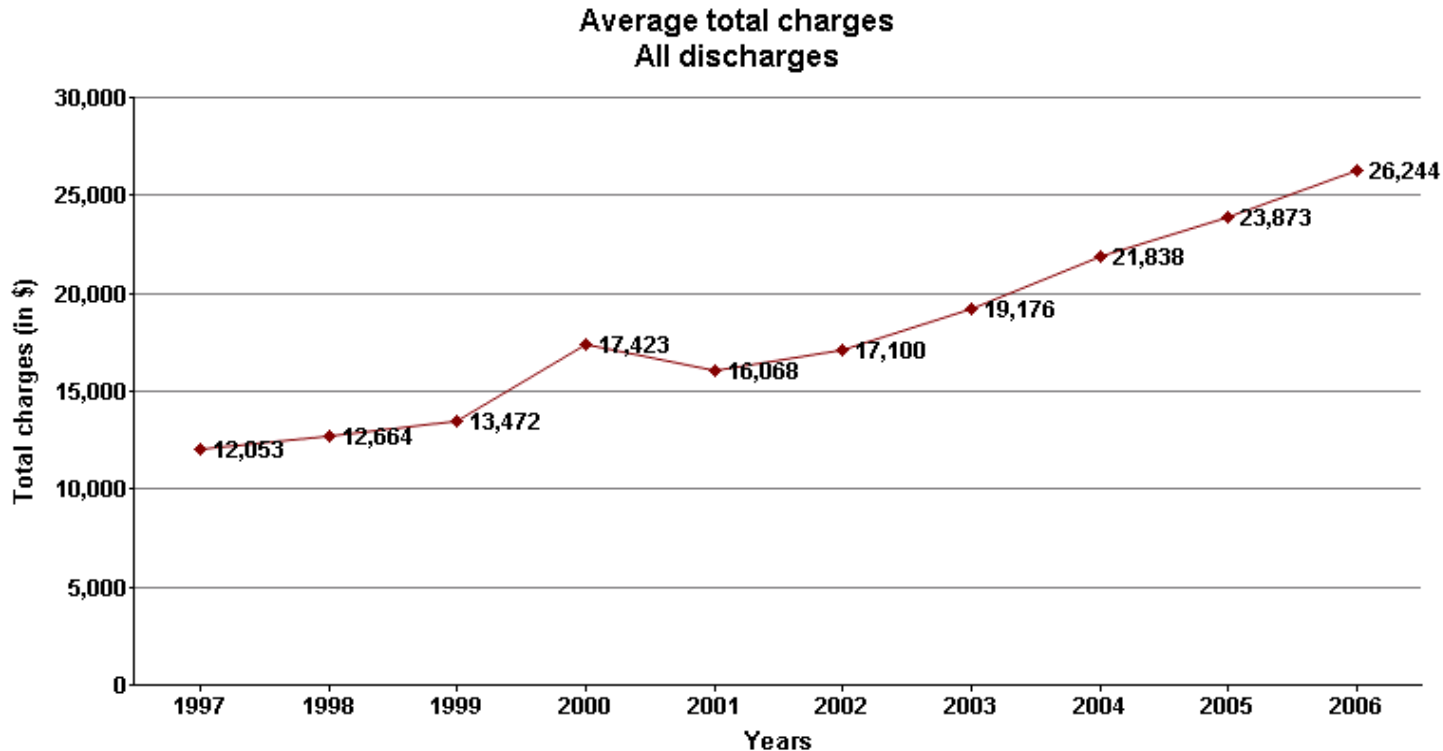
Cost of Most Frequent Injury Diagnoses, 2004 -2006



Each year during this period an injury diagnosis reported as the highest and lowest total hospital costs.

- Intracranial injury (brain injury) reported the highest total annual cost in 2006, of \$89,845,602.
- In 2005, fracture of the neck of the femur (hip fracture) reported the highest total cost of \$80,818,913.
- Fracture of the lower limb reported the lowest total cost for both 2004 (\$54,767,803) and 2005 (\$61,684,189).

EXHIBIT 4.2 Average Total Charges Trend, 1997 - 2006



In the ten year period from 1997 to 2006, average total charges have more than doubled and are expected to increase.

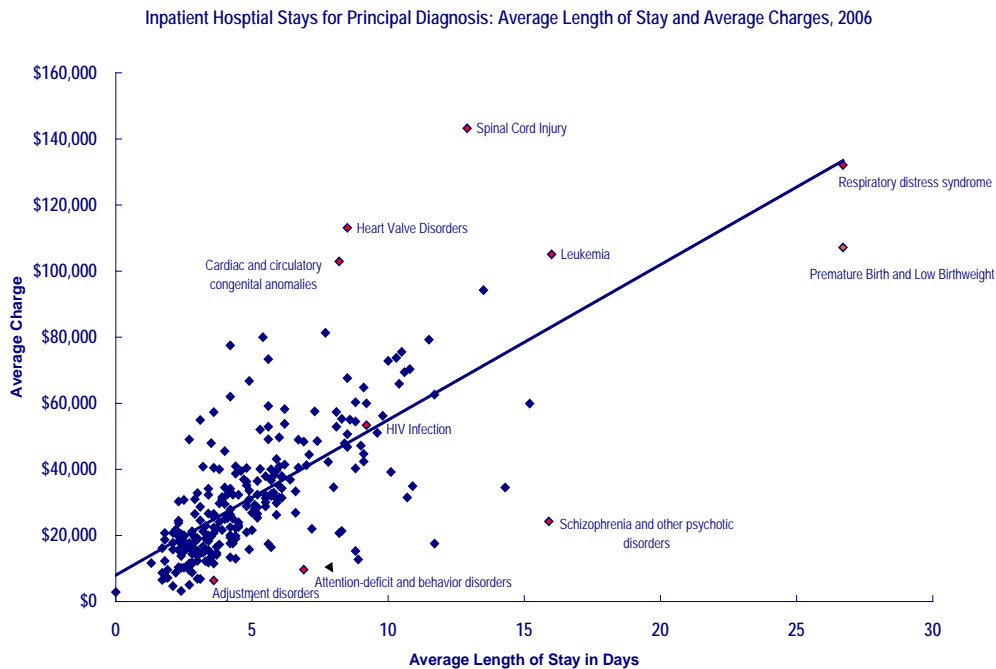
- Annual percent increases were under 10 percent each year from 1997 through 2002. After 2003, annual percent increases were 10 percent and higher.
- Generally, hospital charges are the amounts patients see when they receive their hospital bill. However, charges rarely represent the amount actually paid due to negotiated contract discounts.
- Average charges are used as benchmarks for comparing costliness of different types of hospital stays.

EXHIBIT 4.3 Average Length of Stay and Average Charges

Generally, longer lengths of stay are associated with higher average charges.

Average charges are used as benchmarks for comparing costliness of different types of hospital stays.

- The **average length of stay** in an Arizona community hospital was 4.2 days in 2006 with an **average charge per stay** of \$26,288.



Source: Bureau of Public Health Statistics, Arizona Department of Health Services

- Two diagnoses with the **longest** hospital stays for all patients, were related to infants— **infant respiratory distress syndrome** and **premature birth/low birth weight**.
 - These diagnoses averaged stays of 26 days, 10 days longer than the second longest stay diagnosis – leukemia.
 - Infant respiratory distress syndrome had a higher average charge than premature birth by \$24,967.
- Conditions treated with expensive state-of-the-art medical technology or requiring intensive care, had mean charges significantly higher than expected based on their average length of stay (represented by the trend line in the graph).
 - This is particularly common for **spinal cord injuries**, which reported the highest charge, **\$143,209**, for a 12.9 day stay.
 - Similarly, **heart valve disorders** and **leukemia** both requiring intensive care, reported charges of **\$113,103** and **\$105,061** with 8.5 and 16 day stays, respectively.
- Hospitalizations due to **mental illness** or behavior-related conditions had lower than average charges per average length of stay. Psychotic disorders such as **schizophrenia**, reported an average charge of \$24,252 for a 15.9 day stay. The average charge for **substance-related disorders** and **alcohol-related** conditions were \$13,344 and \$17,575 respectively, for a 4.2 day stay.

DEFINITIONS

For definitions of medical terms go to the MEDLINEPlus website at <http://www.nlm.nih.gov/medlineplus/mpplusdictionary.html>

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 admissions: 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 in Exhibit 1.1 and 4.1 are adjusted for economy-wide inflation.

Aggregate costs

Aggregate costs are the sum of all costs for all hospital stays.

Charges

Hospital charges reflect the amount the hospital billed for the entire hospital stay and do not include professional (physician) 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.

Community Hospitals

Community hospitals are short term, non-Federal, non-Tribal, non-psychiatric, general and special hospitals, excluding hospital units of other institutions (e.g., prisons). Community hospital include OB-GYN, ENT orthopedic, cancer, pediatric, public and academic medical hospitals.

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 to be the primary reason for the patient's admission to the hospital.

All –listed diagnoses: The principal diagnosis plus secondary conditions that coexist at the time the time of admission or that develop during the stay, and which have an effect on the treatment or length of stay in the hospital.

Discharge

Discharge refers to a hospital's termination of hospital services to an inpatient. The unit of analysis for this report is the hospital discharge (a.k.a. hospitalization or hospital stay) 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.

Discharge status

Discharge status indicates the disposition of the patient from the hospital for example, routine(home or self care); transfer to a short-or long-term or other care facility (skilled nursing facility, rehabilitation care, swing bed or nursing home); left against medical advice, or died in the hospital.

Discharges per population

Discharge per population is the hospital discharge rate of particular procedure, diagnosis, or event per 1,000 or 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 patients socioeconomic status.

Neonates

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

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.

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

Medicaid includes fee-for-service and managed care Medicaid patients. Patients covered by the Arizona Health Care Cost Containment System (AHCCCS).

Private insurance includes Blue Cross, commercial carriers, and private HMO's and PPO's.

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. 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. The unit of analysis remains the discharge: if a particular procedure occurs multiple times during the same discharge it is counted only once, this enables analysis by type of procedures rather than enumerating discharges.

Region

Region is one of the four regions defined by the U.S. Bureau of the Census: Northeast, Midwest, South, and West.

Northeast includes Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Midwest includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.

South includes Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

West includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

This report used HCUP SID data. Not all states participate in HCUP therefore not all states are present in the data used to calculate rates and percentages for the nation. However, the statistics representing the nation have been weighted to represent the entire U.S.

Stays

The unit of measure used throughout this report is hospital stay (i.e., the hospital discharge), not the 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.

For More Information

State Information

For additional information about the Arizona Department of Health Services, please visit the agency website at www.azdhs.gov.

For additional information about Arizona Hospital Discharge data, please visit our website at www.azdhs.gov/plan/crr/.

This and other hospital data summary reports are located at www.azdhs.gov/plan/crr/crrreports/index.htm.

If you have specific questions or suggestions about this report please contact the Bureau of Public Health Statistics at (602) 542-1242 or (602) 542- 7333 or email hallb@azdhs.gov.

Federal Information

For more information about the Agency for Healthcare Research and Quality (AHRQ), please visit www.ahrq.gov.

Please visit the HCUPnet website at www.hcupnet.ahrq.gov/. This interactive website allows users to create tables and graphs using data collected by the ADHS and various other state data agencies/organizations.