

# HOSPITAL DISCHARGES



IN ALLEGHENY COUNTY



**Table of Contents**

**Hospital Discharge Data** .....➤ 2

    Patient Demographics ..... 3

**Hospital Discharges by Diagnosis** .....➤ 5

    Circulatory System Related Discharges ..... 6

    Mental Health Related Discharges ..... 7

    Respiratory System Related Discharges ..... 8

    Digestive System Related Discharges ..... 8

    Pregnancy Related Discharges ..... 10

**Hospital Discharges by Age** .....➤ 11

    Discharges - infants ..... 11

    Discharges - young children ..... 12

    Discharges - youth ..... 12

    Discharges - young adults ..... 13

    Discharges - adults 25-44 ..... 13

    Discharges - middle age adults 45-64 ..... 14

    Discharges - the elderly, ages 65 and older ..... 15

**Hospital Discharges by Procedure** .....➤ 16

    Procedures for women ..... 16

**Procedures of special interest to women** ..... 17

    Procedures for men ..... 17

    Procedures of special interest to men ..... 19

    Specific Procedures over time ..... 19

**Costs and insurance coverage** .....➤ 20

**Where do we go from here?** .....➤ 22

    Changes in hospital ownership ..... 22

    Areas for future examination ..... 23

**Data** .....➤ 24



# Chapter 1

## ***Hospital Discharge Data***

**H**ospital discharge data are a consolidation of medical, personal and complete billing information describing each patient, the services received and charges billed for each inpatient stay. Providing a uniform set of data that can be compared over time and across geographic regions of Pennsylvania, hospital discharge data are collected by the PA Health Care Cost Containment Council.

Nationally, the Centers for Disease Control and Prevention provide similar data. CDC's source is a sampling of medical records of inpatients discharged from a national sample of non-Federal short stay hospitals. Because this is a statistically valid sample, comparisons with the PA hospital discharge records are possible.

Hospital discharge data provide information about morbidity - who is admitted to hospitals for what type of health condition.

This report will examine the first listed diagnosis code and up to four listed procedure codes. The hospital discharge form allows up to nine diagnostic codes that provide useful information about underlying conditions, like diabetes or hypertension. We have elected to examine first listed diagnostic codes only, four procedure codes and to omit newborn discharges so that we can compare local rates with national hospital discharge data.

DATA FIELDS	
<b>Diagnostic Codes</b>	<b>Procedure Codes</b>
<b>Physician &amp; Surgeon</b>	<b>Length Of Stay</b>
<b>Charges</b>	<b>Insurance Payer</b>
<b>Hospital</b>	<b>Resident Zip Code</b>
<b>Resident County</b>	<b>Age</b>
<b>Sex</b>	<b>Race Of Patient</b>

## ***Patient Demographics***

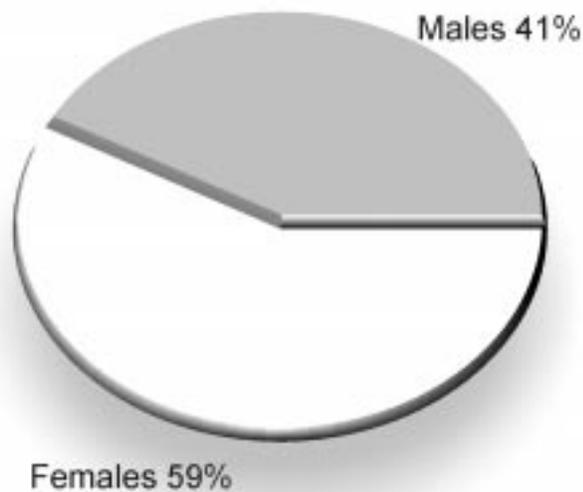
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Allegheny County residents' discharges from Pennsylvania hospitals totaled 203,016 for an age-adjusted rate of 118.3 per 1,000 residents. Nationally the 1995 discharge rate was 117.5 per 1,000.

In sheer numbers, hospital discharges are higher for women. The discharge rate is 173.0 per 1,000 for women versus 134.6 for men. Beginning at age 15, more women are discharged from the hospital than men. Differences are due to child bearing for ages 15 to 44 and to a larger population after age 65.

### **Hospital Discharges 1995**

Allegheny County, PA



Additional information included in the hospital discharge data set provides insight into use of the health care system. If a patient enters the hospital via physician referral, that individual generally has a source of health care and the hospital stay is part of a continuum of care. Emergency room admissions can indicate an acute health condition like a heart attack or severe injury. However, an admission via the emergency room may also indicate a problem with access to primary health care.

As the health care system evolves some changes in patient discharge status have occurred. Routine discharge is the most frequent notation, accounting for 7 out of every 10 discharges. However, in 1992 nearly 8 out of 10 patients were classified routine discharge.

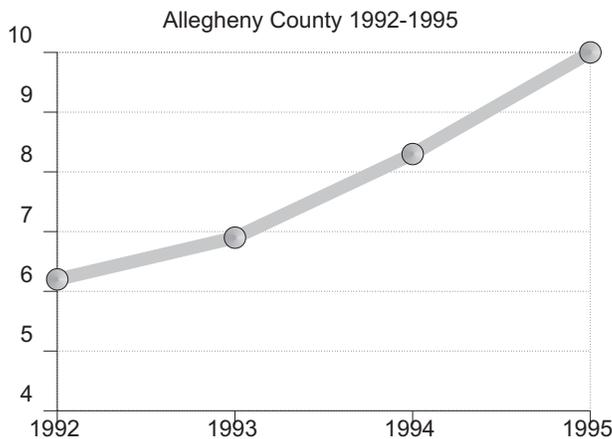
#### ADMISSION SOURCE 1995

<b>Physician referral</b>	<b>42%</b>
<b>Emergency room</b>	<b>38%</b>
<b>Normal delivery</b>	<b>6%</b>
<b>Transfer from hospital</b>	<b>4%</b>
<b>Clinic referral</b>	<b>4%</b>
<b>HMO referral</b>	<b>2%</b>

#### DISCHARGE STATUS 1995

<b>Routine discharge</b>	<b>72%</b>
<b>Discharge to home health</b>	<b>10%</b>
<b>Transfer to other institution</b>	<b>5%</b>
<b>Transfer to skill care facility</b>	<b>6%</b>
<b>Deceased</b>	<b>3%</b>

#### % Discharges to Home Health



Discharge to home health has steadily increased over the past four years rising from 6% in 1992 to 10% in 1995.

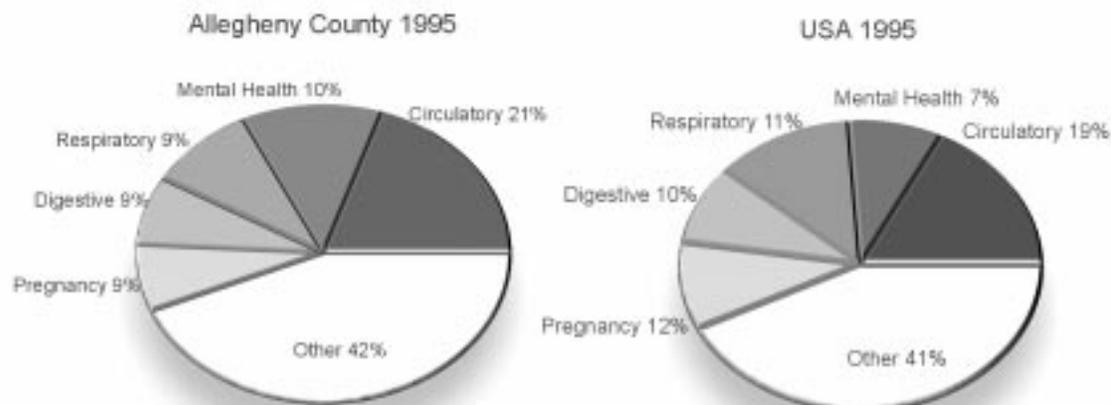


## Chapter 2

### ***Hospital Discharges by Diagnosis***

Five major diagnostic groups accounted for 58% of all discharges from short stay hospitals in Allegheny County during 1995: circulatory system, mental health, respiratory system, digestive system and pregnancy. These same five diagnostic groups accounted for 59% of discharges nationally during 1995.

#### Hospital Discharges by Diagnosis



## Circulatory System Related Discharges

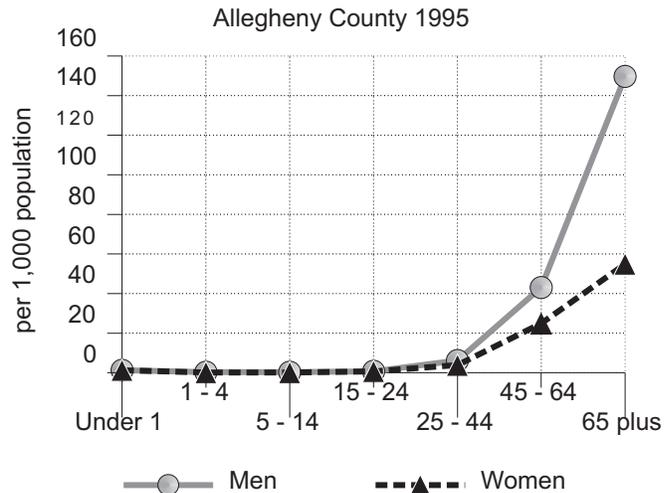
Circulatory system diseases and disorders accounted for the largest single first listed diagnostic grouping. In 1995, nearly 42,700 patients were treated in local hospitals for circulatory system diseases and disorders. Costs for these inpatients totaled about \$730 million and each discharge averaged 6.8 inpatient days.

Discharge rates for men with circulatory system disorders were higher than for women for all ages.

Circulatory system discharges escalate sharply after age 44. All acute myocardial infarction discharges averaged 7.2 days versus 6.6 nationally. Among men ages 45-64, acute myocardial infarction (heart attack) is the most frequently specified cause of admission ( 7.46 per 1,000 men). Heart attack discharge rates for men over age 65 remain high at 18.50 but are exceeded by congestive heart failure (29.56 per 1,000 men ages 65 and older).All congestive heart failure discharges averaged 7.5 days' stay here compared with 6.4 days nationally.

Cerebrovascular related discharges (stroke) averaged 8.6 days in Allegheny County compared with 6.8 days nationally. They are the most frequently specified circulatory system diagnosis among women aged 45 to 64 ( 3.86 per 1,000 women). Stroke discharge rates for women ages 65 and older remain high ( 24.4 per 1,000) but are exceeded by congestive heart failure (26.3 per 1,000).

Circulatory System Diagnoses by Age and Sex



### MAJOR CIRCULATORY SYSTEM DIAGNOSES

<i>Diagnosis</i>	<i># Discharges</i>
<b>Congestive heart failure</b>	<b>7,701</b>
<b>Cerebrovascular disease</b>	<b>7,512</b>
<b>Acute myocardial infarction</b>	<b>5,318</b>
<b>Cardiac dysrhythmia</b>	<b>4,438</b>

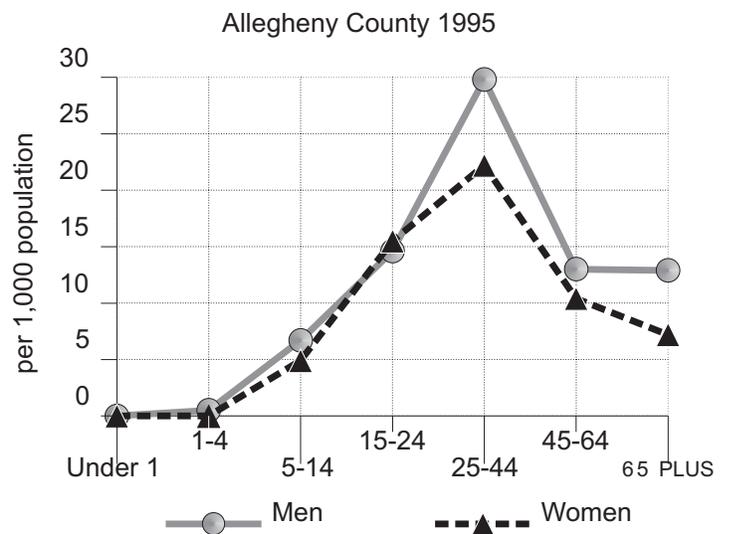
## Mental Health Related Discharges

Mental health related conditions, including alcohol, drug and psychoses disorders as well as more general mental health diagnosis, were the second most frequently listed diagnosis codes. Accounting for 20,173 inpatients, mental health related costs totaled \$223 million with each discharge averaging 10.7 days. Men were admitted more frequently than women for mental health diagnoses.

These figures do not include long term (more than 30 days) admissions for drugs or alcohol.

The number of psychoses discharges is highest among adults aged 25 to 44 (2,361 for males and 2317 for females for a rate of 12.05 per 1,000 adults). Adults aged 65 and older had the second highest number of psychoses discharges (3,022 total) for a rate of 12.8 per 1,000. Patients treated for psychoses spend an average of 13.3 days in Allegheny County hospitals compared with 10.3 nationally.

### Mental Health Diagnoses by Age and Sex



### MENTAL HEALTH DIAGNOSES

<i>Diagnosis</i>	<i># Discharges</i>
<b>Psychoses</b>	<b>10,931</b>
<b>Drug-related</b>	<b>2,282</b>
<b>Alcohol-related</b>	<b>1,960</b>

## Respiratory System Related Discharges

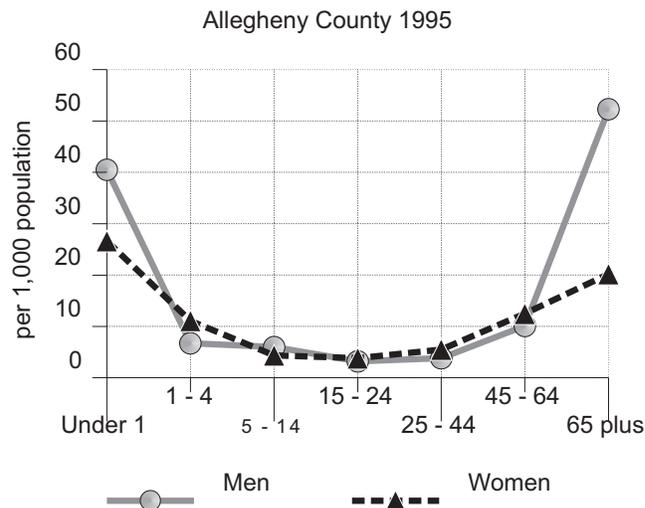
Respiratory system disorders were the third most frequently listed diagnostic code accounting for 19,062 hospital inpatients. Costs for these discharges totaled \$247 million with each discharge averaging 7.0 inpatient days.

Admission rates among males were substantially higher in the infant and 45 and older age groups. Admissions rates among females are similar to men but not quite as high at the extremes of age.

Discharges related to both pneumonia and COPD sharply increase with age. Men ages 65 and older accounted for 2,016 pneumonia discharges (21.98 per 1,000) while women of the same age accounted for 2,423 (16.7 per 1,000). The average length of stay for age 65-plus with pneumonia was 8.8 days versus 7.8 days nationally.

Asthma patients spent an average of 4.1 days in County hospitals compared with a national average of 3.7 days. Boys under age 5 are treated for asthma twice as often as girls under age 5 (6.04 per 1,000 males versus 2.98 per 1,000 females). This gender difference disappears for older children and adults. County patients under age 15 years averaged 2.2 days in the hospital for asthma compared with a national average of 2.7 days.

Respiratory System Diagnoses by Age and Sex



### RESPIRATORY SYSTEM DIAGNOSES

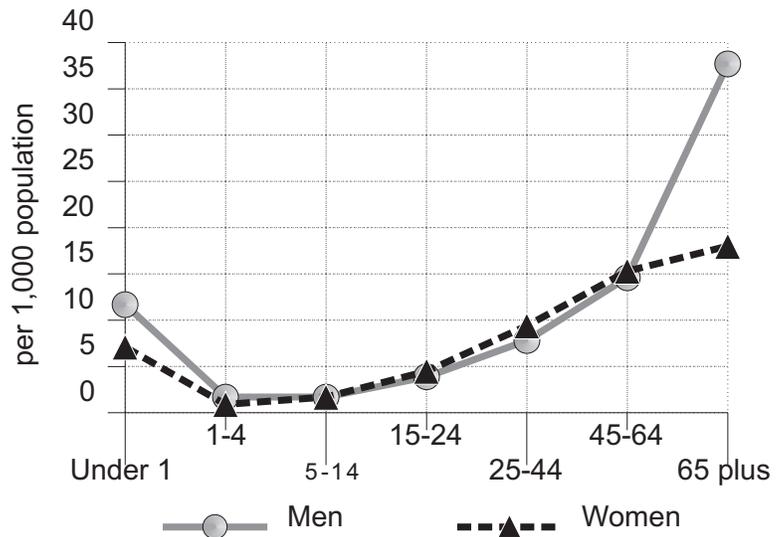
<i>Diagnosis</i>	<i># Discharges</i>
<b>Pneumonia</b>	<b>6,543</b>
<b>COPD excluding asthma</b>	<b>4,407</b>
<b>Asthma</b>	<b>2,837</b>

## Digestive System Related Discharges

Digestive system disorders accounted for 17,906 inpatient discharges with an average cost of \$13,007 per discharge during 1995. Average stay was 6.0 days compared with 5.2 for the US. Generally men were admitted more frequently than women for digestive system diagnoses. The very old and very young had the largest gender differences.

Women were treated for cholelithia (gall stone related disorders) more frequently than men, ( 3.3/ 1,000 women aged 15 and older versus 1.8 / 1,000 men). Cholelithia discharges averaged 4.3 days in the hospital compared with 4.2 nationally. Men generally had longer stays than women (4.8 versus 4.0 for Allegheny County residents).

**Digestive System Diagnoses by Age and Sex**  
Allegheny County 1995



### DIGESTIVE SYSTEM DIAGNOSES

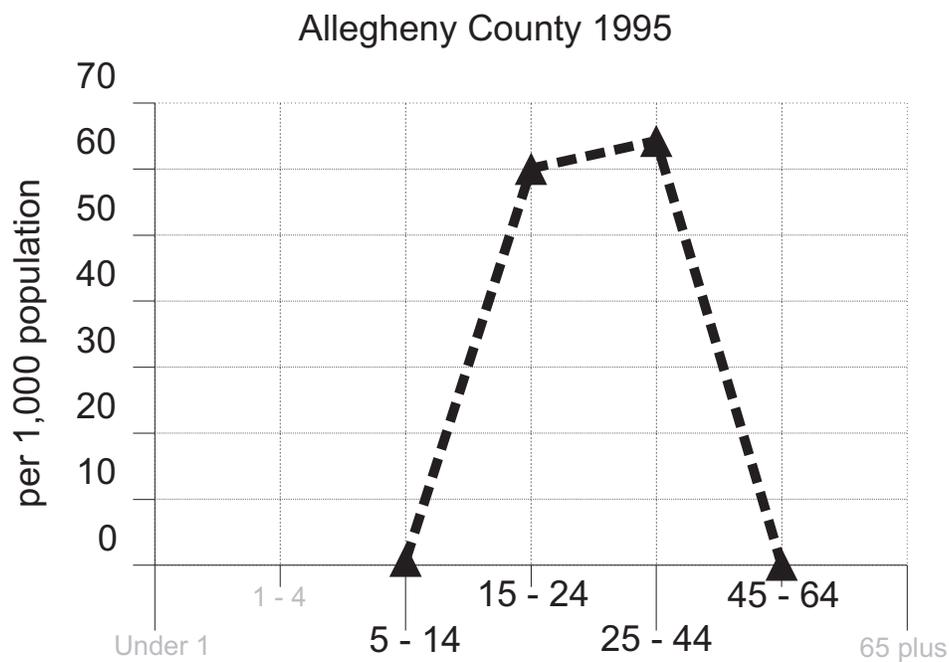
<b>Diagnosis</b>	<b># Discharges</b>
<b>Cholelithia (gall stones)</b>	<b>2,758</b>
<b>Colitis</b>	<b>1,316</b>
<b>Ulcers</b>	<b>1,230</b>

Ulcers diagnoses were similar between men and women until age 65. Men were admitted with an ulcer diagnosis at the rate of 4.2 per 1,000 versus 3.3 per 1,000 for older women. The average stay for ulcers was 6.9 days versus 6.1 nationally.

## ***Pregnancy Related Discharges***

Pregnancy-related conditions accounted for 17,682 inpatients in Allegheny County during 1995. This was the single most frequently first listed diagnostic code for our county. Each discharge averaged 2.3 days and cost \$4,942 per discharge. Within this broad category abortions, molar and ectopic pregnancies accounted for 451 discharges.

### **Pregnancy-Related Diagnoses - Women by Age**



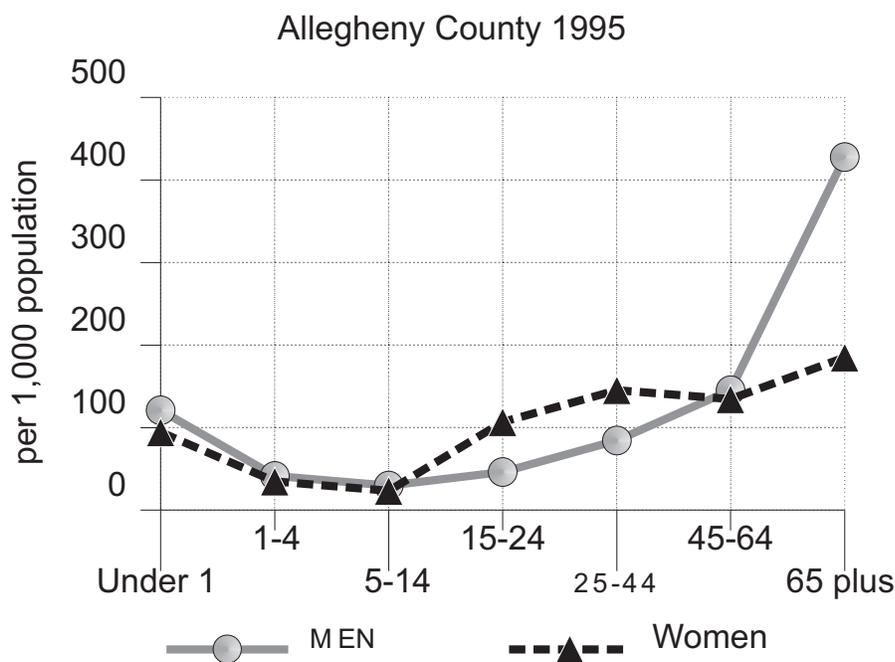


# Chapter 3

## Hospital Discharges by Age

The vast majority of hospital discharges are elderly people. Other than hospitalizations associated with birth, hospital discharge rates move steadily upwards from age five through adulthood, increasing with the higher incidence of chronic diseases and other conditions of aging. Hospital discharge rates for men are higher among the young and old. Women are treated more frequently during the childbearing years.

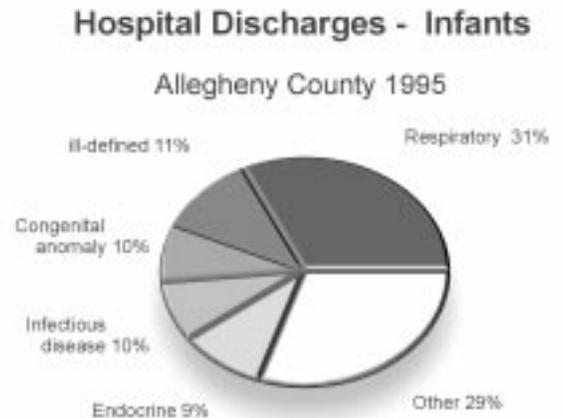
### Hospital Discharges by Age and Sex



## ***Discharges - infants***

Infant hospital discharges, excluding newborn, in 1995 totaled 1,679. Male infants were discharged from area hospitals more frequently than females. (Males 121.1 per 1,000 versus females 94.3 per 1,000)

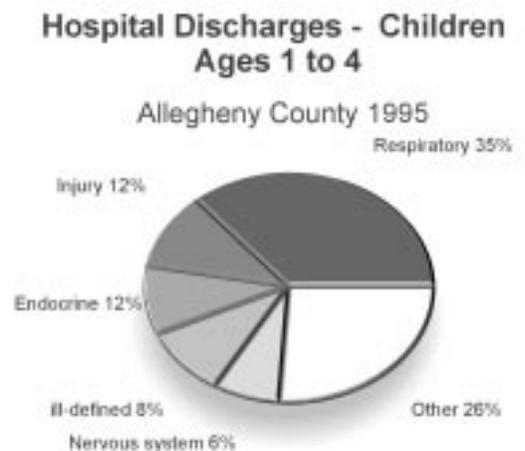
Respiratory system related conditions were the most frequent cause of hospitalization among infants in our county. These patients averaged 4.2 days in the hospital and cost \$8,291 per discharge. The most frequent diagnosis within this category was respiratory infections which accounted for 315 discharges.



## ***Discharges - young children***

Children ages one to four are not hospitalized frequently, receiving most of their health care in an outpatient or emergency room setting. Discharges for young children in 1995 totaled 2,570. Within this age group, males were hospitalized more frequently than females (41.5 per 1,000 versus 34.8 per 1,000).

Respiratory system conditions were the most frequent cause of hospitalizations for young children, accounting for 908 discharges, averaging 2.5 days each and costing \$4,873 per discharge. Asthma (321) and pneumonia (245) accounted for over half of these patients. Injuries were responsible for a significant percentage of discharges.



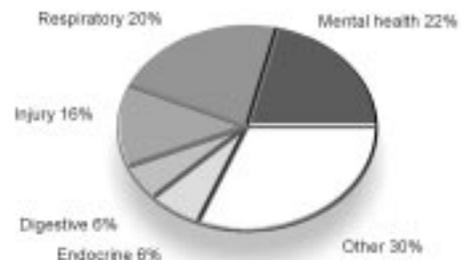
## ***Discharges - youth***

Childhood, between ages five and 14, is a healthy period of life. Hospital discharges for this group totaled 4,258. Males were admitted as inpatients more frequently than girls, leading females in treatments for injury, respiratory system and mental health, in total discharges and rate per 1,000 population (29.8 / 1,000 males versus 23.4 / 1,000 females).

Mental health related conditions were the most frequent cause of hospitalization for youth, accounting for 928 or 22% of all discharges. The average length of stay was 15.7 days and average cost per stay was \$18,857. Psychoses were the most frequently identified diagnosis within this category.

Respiratory system problems and injuries together accounted for more than three out of every 10 discharges (36%). Within these categories the most frequent diagnoses were asthma (450 discharges) and fractures (256 discharges).

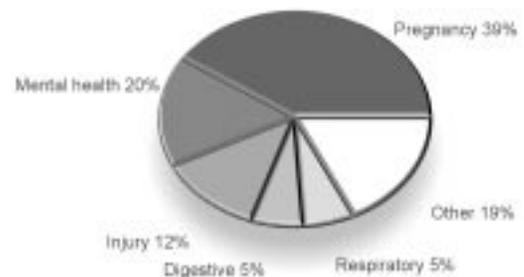
**Hospital Discharges - Youth  
Ages 5 to 14  
Allegheny County 1995**



## ***Discharges - young adults***

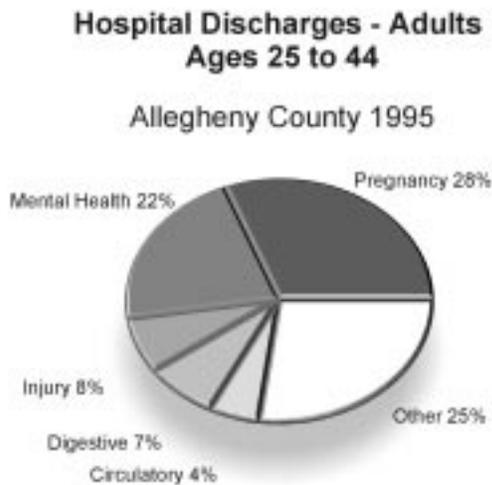
Young adults (ages 15 to 24) totaled 12,202 hospital discharges. Injuries and mental health again were primary causes of hospital admissions among men while pregnancy and mental health were the primary causes for women. Discharges among women exceeded those for men, both in absolute numbers and in rates (106.8 / 1,000 females versus 46.3 / 1,000 males).

**Hospital Discharges - Young Adults  
Ages 15 to 24  
Allegheny County 1995**



Among young adult males psychosis was the most frequently listed first diagnostic code (451 or 13% of all discharges). Among females in this age group pregnancy was the most frequently listed first diagnostic code (4819 or 56% of all discharges).

## ***Discharges - adults 25-44***



Adults in this age range totaled 44,904 discharges. Female discharges exceeded male discharges in both absolute numbers and in rates (145.4 per 1,000 females versus 84.3 / 1,000 males).

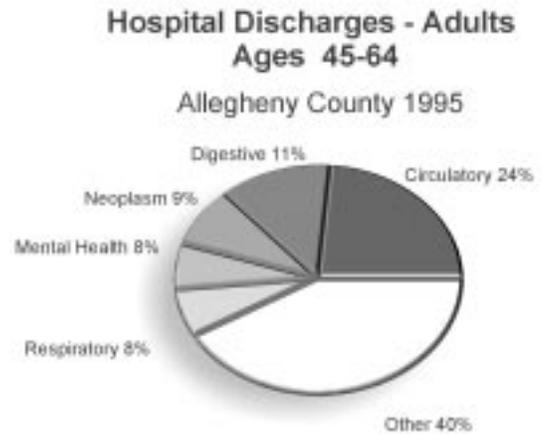
The primary reason for hospital admissions in this age range was pregnancy related conditions (12,792 or 44% of all female discharges). Mental health diagnoses (4,427) ranked second among females. Mental health diagnoses (5,643) and injuries (2,078) accounted for nearly half of all discharges (49%) among men.

## ***Discharges - middle age adults 45-64***

Hospital discharges in this age group totaled 39,594. Male and female discharges were very close in terms of absolute numbers and rates (145.4 for men versus 134.6 for women). Circulatory system related diagnoses were the leading cause of inpatient care for this age group, accounting for more than 9,400 inpatients (24% of all discharges).

Among women, circulatory system related disorders (3,785 for a rate of 24.9 per 1,000 women) replaced pregnancy related disorders as the primary reason for hospital admission. Congestive heart failure (510) and myocardial infarction (465) were the most frequent diagnosis within this grouping. Digestive system related diagnosis accounted for more than 2,300 female discharges, with cholelithia (gall stones) identified most frequently (528 discharges). Cancer with nearly 1,500 discharges was the third most frequently listed first diagnosis (rate 9.8), with breast cancer (311) accounting for one out of every five cancer discharges.

Among men, circulatory system disorders (5,674 for a rate of 43.1 per 1,000 men) replaced mental health as the primary reason for hospital admission. Myocardial infarction (982) and congestive heart failure (537) were the most frequent first listed diagnoses for these discharges. Like women, digestive system diagnosis ranked second with more than 1,900 discharges (rate 14.6 per 1,000). Cholelithia was the first listed diagnosis for 252 of these discharges. Cancer ranked 6th among the broad diagnostic groups with nearly 1,226 discharges (Rate 9.3 per 1,000).

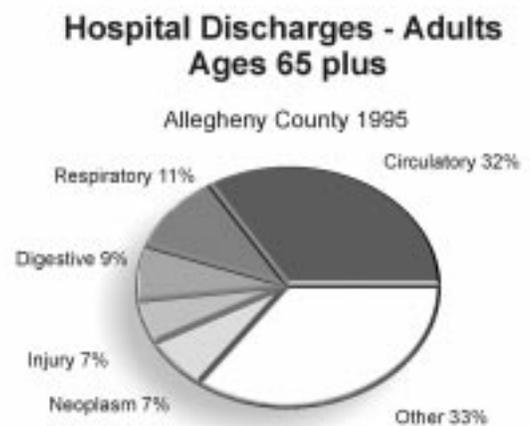


### ***Discharges - the elderly, ages 65 and older***

People 65 and over accounted for 97,809 discharges equaling a rate of 413.4 per 1,000 residents versus 344.6 per 1,000 nationally. In Allegheny County older women accounted for more discharges (58,582 vs. 39,227 for men) but older men had a higher rate per 1,000 (427.7 vs. 404.4 for women). In 1995, the average inpatient hospitalization for adults aged 65 and older cost \$14,615 and lasted 7.7 days.

**Senior citizens are the largest consumers of hospital inpatient services accounting for 48% of all discharges.**

Circulatory system related diagnoses were the primary reason for hospital admission (31,081 or 32% of all discharges). Respiratory system related diagnoses ranked second with 11,198 discharges (11% of total). Digestive system related diagnoses ranked third. Cancer ranked 4th among men but dropped to 7th among women.





## Chapter 4

# ***Hospital Discharges by Procedure***

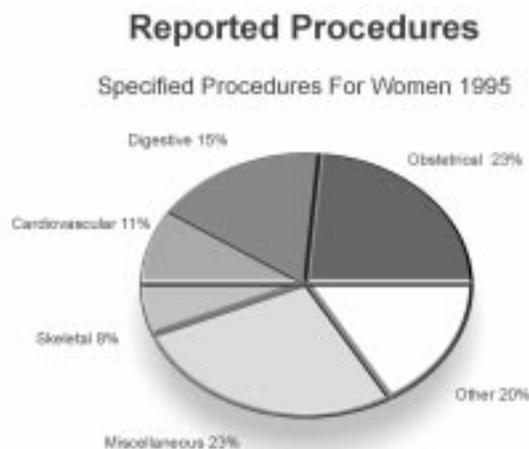
Conforming with the NCHS National Hospital Discharge Survey, upon which this report is modeled, up to four hospital procedures for each resident discharge are included in this section. Hospitals reported 251,211 procedures to HCCCC for County residents. About eight of ten procedures were in five ICD-9 CM chapters: miscellaneous diagnostic and therapeutic procedures, obstetrical procedures, operations on the digestive system, operations on the circulatory system and operations on the musculo-skeletal system.

### ***Procedures for women***

Five major areas account for 80% of the specified procedures reported for female patients.

More than 35,000 obstetrical procedures were reported. Fetal EKG was reported most frequently (8,951); followed by episiotomy (7,215), repair of obstetric laceration(4,178), artificial rupture of membranes (3,259) and cesarean section (2,663).

Digestive system procedures accounted for 15% of specified procedures for all women. Of the more than 22,000 digestive system procedures reported, endoscopic procedures of the small intestine were reported most frequently (4,261 ) followed by endoscope of the large intestine (2,680) and cholecystectomy (2,180).



Cardiovascular system procedures accounted for 11% of all specified procedures among women. Among the nearly 17,000 procedures reported, cardiac catheterization was identified most frequently (3,930) followed by removal of coronary obstruction (1,467) coronary bypass (1,325) and pacemaker insertion (1,295). Hemodialysis, also included in this chapter, accounted for 1,517 procedures.

Skeletal procedures accounted for 8% of specified procedures for women. Of the more than 11,000 reported procedures, open reduction of fracture with internal fixation (1,680) was the most frequent, followed by partial excision of bone (727) and total knee replacement (1,077).

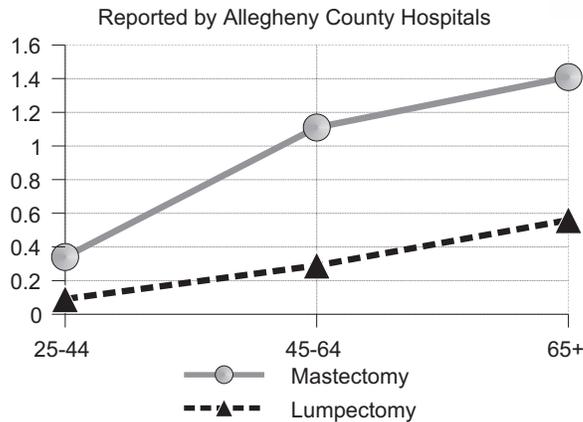
Miscellaneous procedures and testing accounted for 24% of all specified procedures among women. Most frequently reported were arteriography (5,189), computerized axial tomography (4,373), respiratory therapy (3,167) and diagnostic ultrasound (2,599).

### ***Procedures of special interest to women***

Hysterectomy was performed most frequently among women ages 45 to 64 ( 973 procedures for a rate of 6.41 per 1,000 women). The rate among women ages 25 to 44 was substantially lower although the number of procedures was similar ( 1,009 for a rate of 5.09 per 1,000 women).

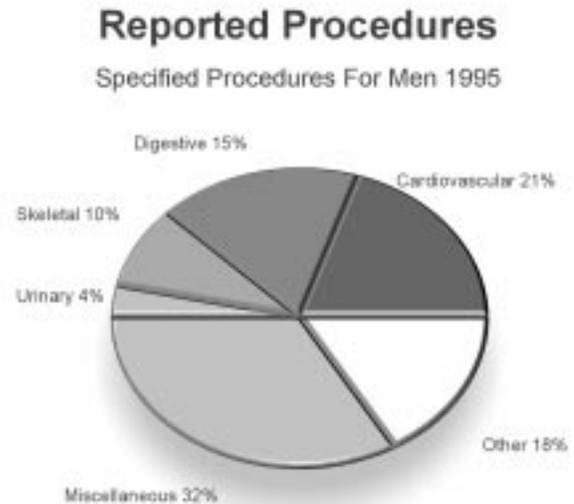
Mastectomies increased with age both in terms of absolute numbers and rates per 1,000.

#### **Mastectomy/Lumpectomy Procedures 1995**



## ***Procedures for men***

Five major areas account for 82% of the specified procedures reported for male patients. Cardiovascular system procedures accounted for 21% of all specified procedures among men. Among the more than 21,000 procedures reported, cardiac catheterization was identified most frequently (5,292 ) followed by coronary bypass (2,924), removal of coronary obstruction (2,368) and pacemaker insertion (1,275). Hemodialysis, also included in this chapter, accounted for 1,342 procedures.



Digestive system procedures accounted for 15% of specified procedures for men. Of the more than 15,000 digestive system procedures reported, endoscopic procedures of the small intestine were reported most frequently (3,213 ) followed by endoscope of the large intestine (1,722) and cholecystectomy (1,037).

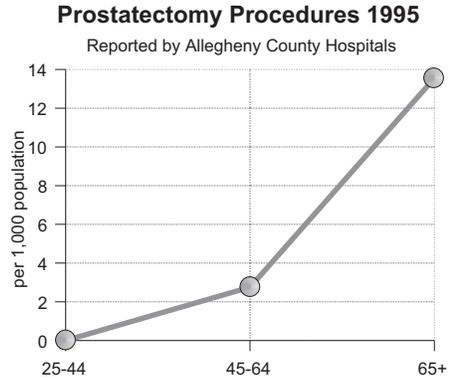
Skeletal procedures accounted for 10% of specified procedures for men. Of the nearly 9,900 reported procedures, excision or destruction of an intervertebral disc was the most frequent (1,082), followed by partial excision of bone (731) and open reduction of fracture with internal fixation (957).

Urinary system procedures, accounting for 4% of specified procedures, totaled almost 4,300. Cystoscopy with or without biopsy accounted for 40% (1,686) of reported procedures from this chapter.

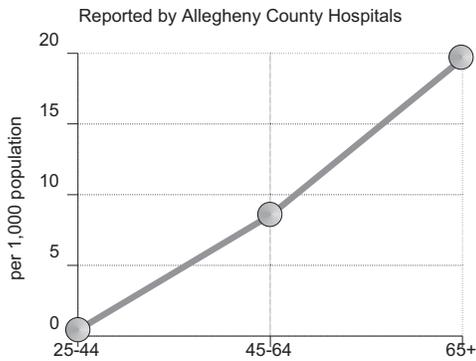
Miscellaneous procedures and testing accounted for 32% of specified procedures among men. Most frequently reported were arteriography (6,326), respiratory therapy (3,222), computerized axial tomography (3,096) and diagnostic ultrasound (1,898).

## Procedures of special interest to men

Prostatectomy increased with age both in terms of absolute numbers and rates per 1,000.



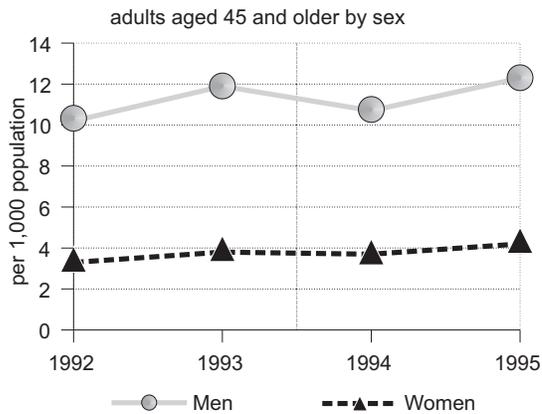
**Coronary Bypass Graft Procedures 1995**



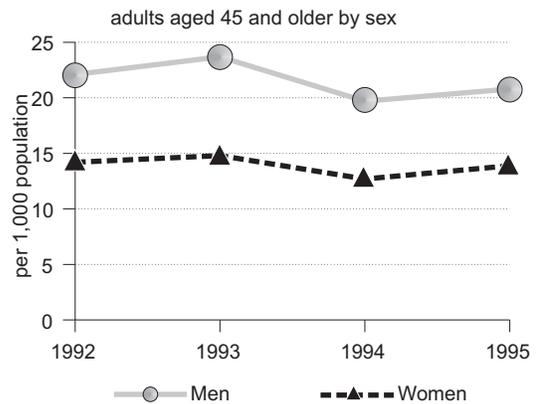
Coronary bypass graft procedures among men increase with age in both absolute numbers and rates.

## Specific Procedures over time

**Coronary Bypass Graft Surgery 1992-1995**



**Arteriography and Angiocardiology 1992-1995**





# Chapter 5

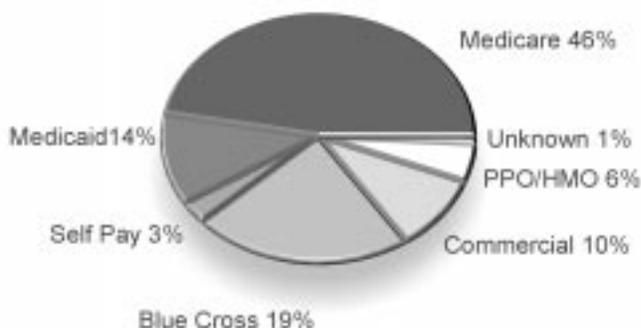
## Costs and insurance coverage

Hospital discharge data list the primary insurance payer for each discharge. Publicly funded insurance paid for 131,380 hospitalizations during 1995:

- ➔ Medicare and Medicare HMO paid for 99,122 of these discharges, equaling 781,094 inpatient days.
- ➔ Medicaid paid for 27,136 discharges.
- ➔ Self pay, which often indicates an uninsured patient, accounted for 5,828 discharges.

### Hospital Discharges 1995

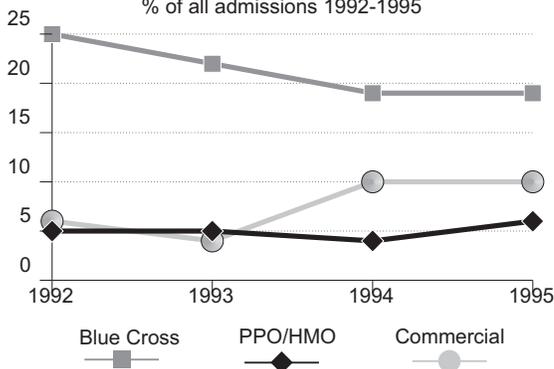
by Insurance Payer



The remaining hospital discharges were paid by private insurance, primarily Blue Cross (34,748).

### Hospital Discharges by Private Insurance

% of all admissions 1992-1995



Some change in market share for private insurers has occurred between 1992 through 1995, showing movement among the payers. Blue Cross's share decreased while other commercial insurers increased.

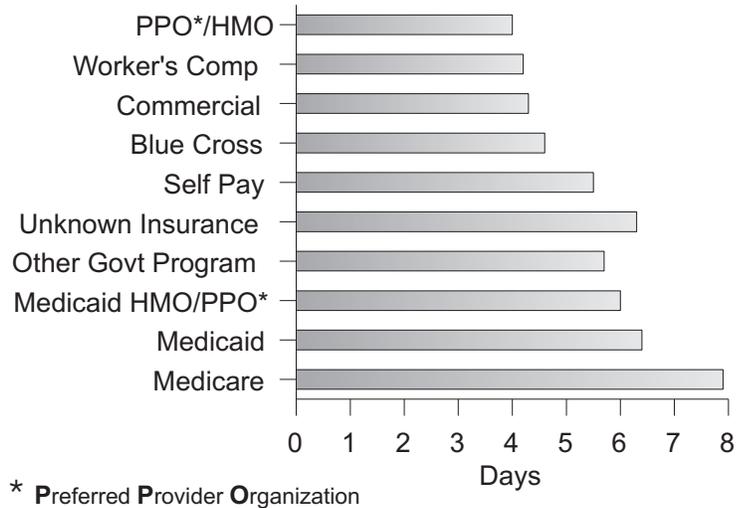
Other insurance coverage changes include the addition of Medicaid HMO as a payer in 1994 and Medicare HMO in 1995.

Medicare paid for nearly half of all discharges but almost six out of every 10 inpatient days. Average length of stay for patients was 5.2 days with Medicare discharges the longest and HMO/PPO the shortest. All payers are included in this figure but graphs in this section only reflect payers with 500 or more discharges during 1995.

The average length of hospital stay per discharge has decreased over the past four years. In 1992, the average length of stay was 7.4 days.

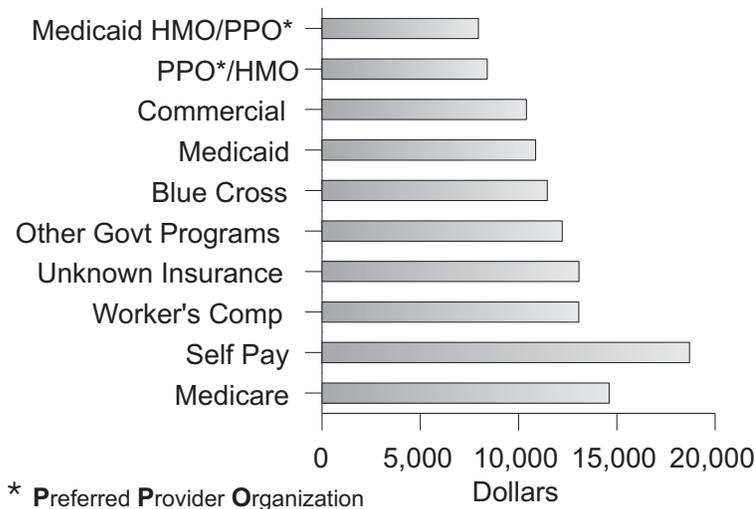
### Average Length of Stay

1995 Hospital Discharges by Insurance Payer



### Average Charge per Discharge

1995 Hospital Charges By Insurance Type



Costs for 1995 hospital discharges in Allegheny County totaled nearly \$2,700,000,000 for 1,309,122 inpatient days. The average charge per discharge was \$12,869.

Automobile insurance costs (not graphed), the highest, were \$19,471 per discharge for 312 patients. Among major insurance payers, Medicare had the highest charge per discharge, \$14,603 and Medicaid PPO/HMO had the lowest, \$7,957.



## Chapter 6

### ***Where do we go from here?***

**M**anaged care is becoming a more significant payer for hospital care, especially as employers increasingly offer employees free managed care coverage in addition to a higher employee contribution for traditional indemnity insurance.

Managed care has also added many new Medicare members and will be mandatory for Medicaid coverage in 1998. Managed care may reduce inpatient stays by emphasizing preventive health care, careful monitoring of chronic diseases and high risk pregnancies and use of case managers for specific types of health conditions. Future reports should monitor changes in admissions by payer type as well as length of stay and cost per stay.

### ***Changes in hospital ownership and health system organization***

The hospital discharge data provide a pattern of hospital utilization. Data can be sorted by individual hospital to allow comparisons between hospitals. This report which covers calendar year 1995 has only looked at discharge data as an aggregate rather than by individual hospital.

Since 1995 significant changes in hospital ownership and management have occurred in Allegheny County as both the University of Pittsburgh Medical System and the Allegheny University Medical System acquired hospitals and physician groups. Future reports should examine these two major systems that represent the early integrated networks of care.

## ***Areas for future examination***

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- ➡ **How do systems differ in the services they provide?**
- ➡ **Which systems perform the most efficient care overall?**
- ➡ **Which systems perform the most efficient care for our leading conditions?**
- ➡ **How do systems differ by patient mix of discharges:**
  - ⇒ Patient geographic residence
  - ⇒ Patient's primary payer
  - ⇒ Patient demographics
  - ⇒ Patient severity



***Data***