



## **Bulletin No. 19**

### **MOST COMMON SURGERIES**

**MedNet Liban Portfolio  
(With International Indicators)**

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## Introduction

On an average day, about 35 surgical procedures are performed on patients administered by MedNet Liban; that is about 12,800 procedures, in an average year.

Procedures are any type of interventions that appear on the discharge records of hospitalized patients. Procedures can range from major operations such as open heart surgeries to endoscopic procedures.

Procedures are coded using a classification system which places them into about **2,678** different categories. For ease of use, closely related categories were grouped together; a process that resulted in 244 unique groups of procedures. Those unique groups were used to come up with the most common procedural categories by age and gender.

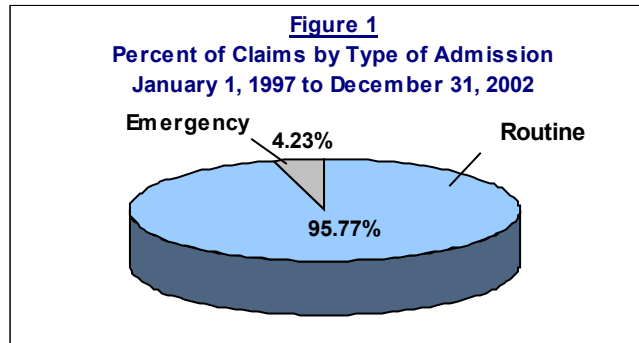
This bulletin examines data from January 1, 1997 to December 31, 2002. All hospitalizations that involved **one** or **more** procedures were considered. Procedures that are judged to be invalid, to be missing or to contain information of little value, have been excluded.

Having said so, the total number of analyzed procedures performed between 1997 and 2002 is about 76,812. Those resulted from 70,798 hospitalizations during the same period of time. So, an average of 1.1 procedures per hospital stay were performed; an indication that about 7% of hospitalizations included more than one single procedure (Please see Table 1).

<b>Table 1</b>		
<b>Number of Procedures</b>	<b>Number of Cases</b>	<b>Percent of Total</b>
<b>1</b>	65,736	92.8%
<b>2</b>	4,355	6.2%
<b>3</b>	564	0.8%
<b>4 or more</b>	143	0.2%
	<b>70,798</b>	<b>100.0%</b>

On the other hand, about 4% of all surgical confinements that required an overnight stay at the hospital were through the Emergency Department (Please see Table 2).

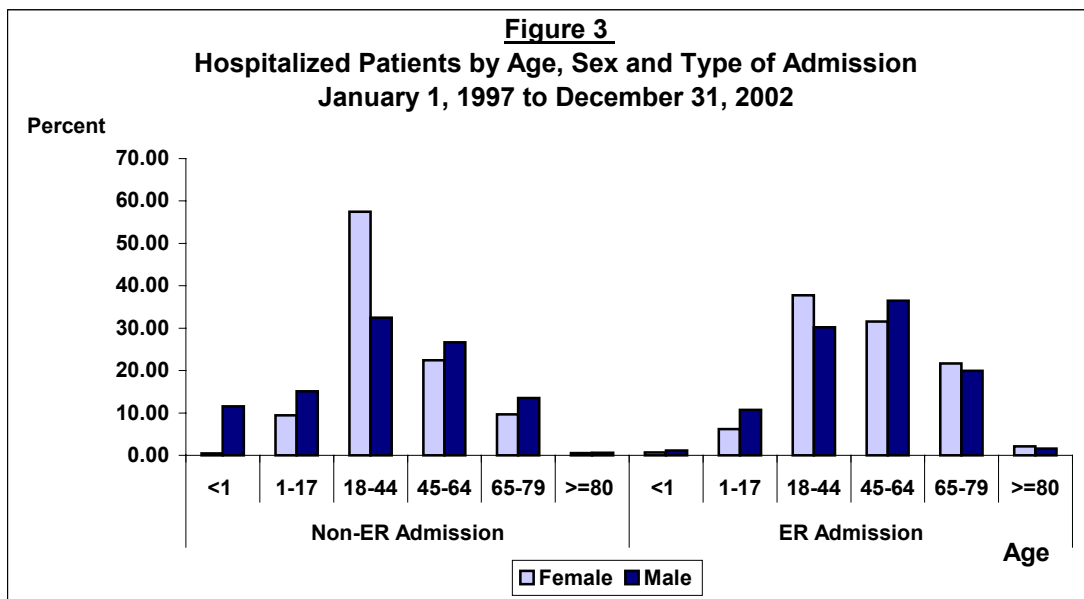
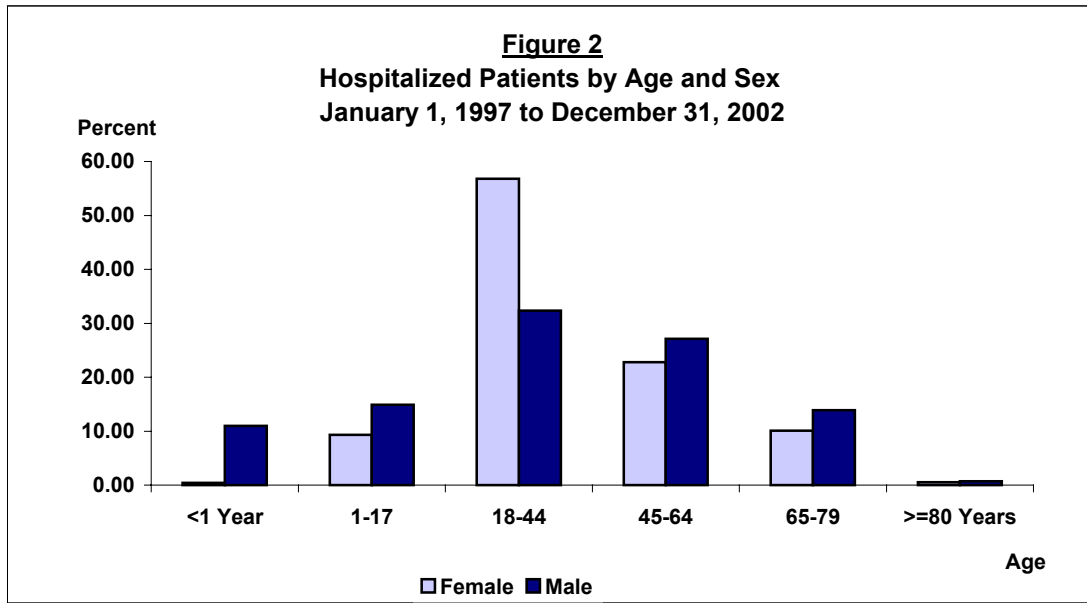
<b>Table 2</b>		
<b>Type of Admission</b>	<b>Number of Cases</b>	<b>Percent of Total</b>
<b>Emergency</b>	2,455	4.2%
<b>Routine</b>	55,568	95.8%
	<b>58,023</b>	<b>100.0%</b>



Looking at procedures by type of admission, it is noted that patients aged 18 to 44 years account for 33% of emergency cases and for 45% of non-emergency cases.

The breakdown of surgical hospitalizations by age and gender is shown in Table 3; following.

<b>Table 3</b>				
<b>Surgical Procedures</b>				
<b>January 1, 1997 to December 31, 2002</b>				
<b>Distribution of Procedures</b>				
<b>by Adherent's Age, Sex and Type of Admission</b>				
	<b>Percent of Total</b>			
<b>Type of Admission</b>	<b>Age Range</b>	<b>Female</b>	<b>Male</b>	<b>Both</b>
<b>Non-ER Admission</b>	<1 Year	0.42	11.52	5.92
	1-17	9.45	15.14	12.27
	18-44	57.47	32.49	45.10
	45-64	22.46	26.66	24.54
	65-79	9.70	13.55	11.60
	>=80 Years	0.50	0.64	0.57
	<b>TOTAL</b>		<b>100.00</b>	<b>100.00</b>
<b>ER Admission</b>	<1 Year	0.70	1.17	0.98
	1-17	6.21	10.71	8.88
	18-44	37.78	30.20	33.28
	45-64	31.56	36.44	34.46
	65-79	21.64	19.90	20.61
	>=80 Years	2.10	1.58	1.79
	<b>TOTAL</b>		<b>100.00</b>	<b>100.00</b>
<b>TOTAL</b>	<1 Year	0.43	11.00	5.71
	1-17	9.34	14.92	12.13
	18-44	56.80	32.37	44.60
	45-64	22.77	27.15	24.96
	65-79	10.11	13.87	11.98
	>=80 Years	0.55	0.69	0.62
	<b>TOTAL</b>		<b>100.00</b>	<b>100.00</b>



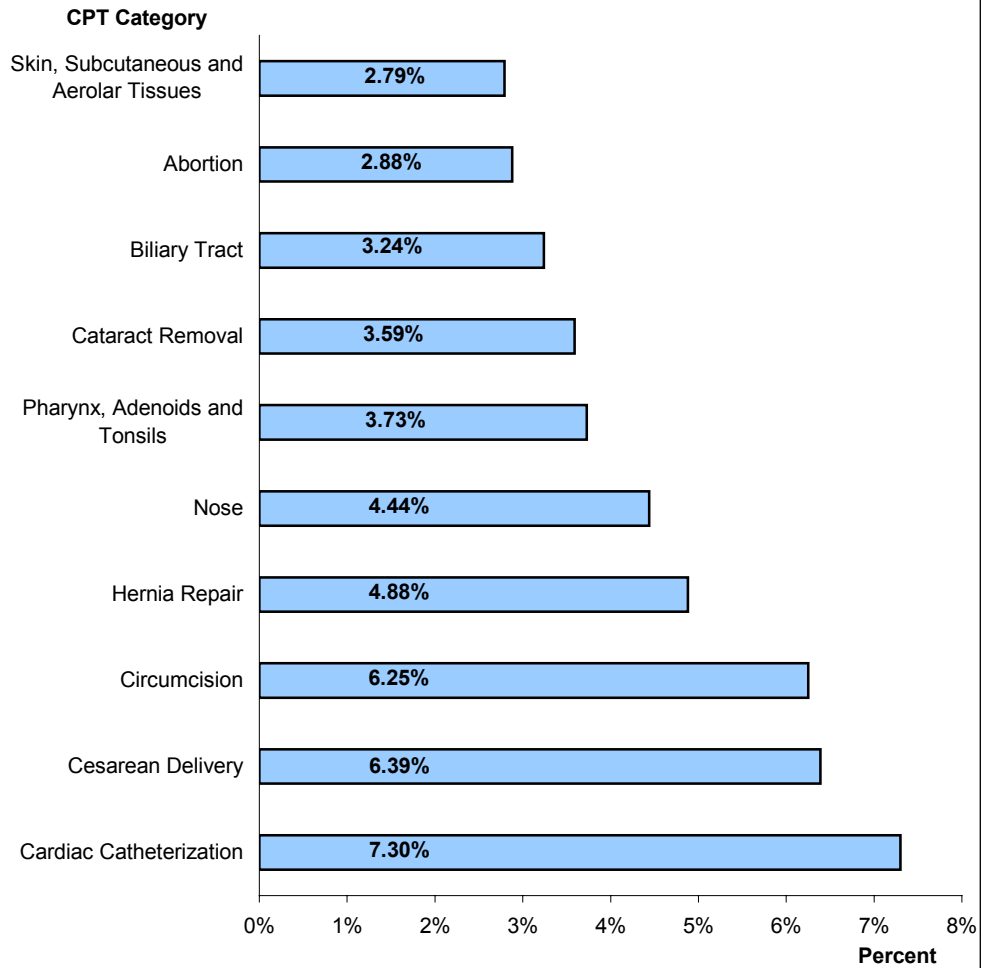
### Most Common Surgeries

- The top five surgical procedures are: Cardiac Catheterization, Cesarean Delivery, Circumcision, Hernia Repair and Nose Surgery. Those five procedures were performed about 29% of the times. Excluding delivery and delivery-related cases, Cardiac Catheterization, Circumcision, Hernia Repair, Nose procedures and Tonsillectomy would top the list of the most common surgeries.
- Abortion is one of the top surgeries; accounting for about 3% of all surgical procedures. The trend of abortive procedures has decreased over the years (see Figure 5).
- Nose surgeries have slightly decreased. Are there any medical reasons or justifications for this slight decrease in nose related surgeries?
- Cardiac Catheterization (or the insertion of a catheter into the heart chamber) is the most common surgical procedure; accounting for one of every 14 procedures.

**Table 4**  
**Surgical Procedures**  
**January 1, 1997 to December 31, 2002**  
**Most Common Procedures**  
**(Patients often receive more than one procedure)**

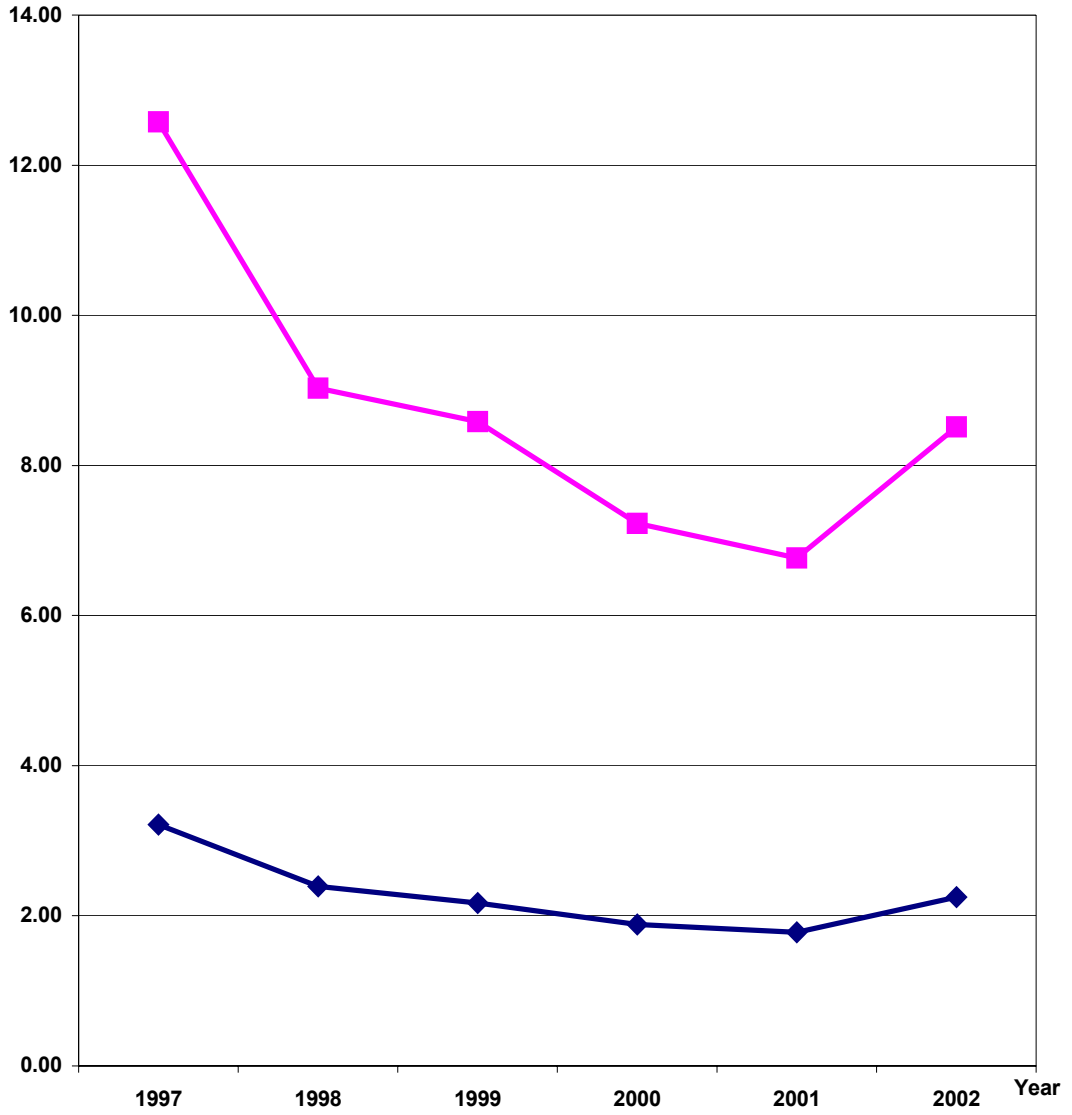
Rank	CPT Category	Procedure	Percent
1	<b>Cardiac Catheterization</b>	Combined Left Heart Catheterization, Selective Coronary Angiography, one more Coronary Arteries and Selective Left Ventricular Angiography	7.30%
2	<b>Cesarean Delivery</b>	Cesarean Delivery only Including Postpartum Care	6.39%
3	<b>Circumcision</b>	Circumcision, Using Clamp or Other Device: Newborn	6.25%
4	<b>Hernia Repair</b>	Repair Inguinal Hernia, Age 5 or over, With Prosthesis or Graft, any Method	4.88%
5	<b>Nose</b>	Septoplasty or Submucous Resection	4.44%
6	<b>Pharynx, Adenoids and Tonsils</b>	Tonsillectomy With or Without Adenoidectomy	3.73%
7	<b>Cataract Removal</b>	Extra - or Intracapsular Cataract Removal With Insertion of Intraocular lens Prosthesis (one stage procedure). Manual or mechanical technique	3.59%
8	<b>Biliary Tract</b>	Cholecystectomy: With or Without Cholangiography, any method	3.24%
9	<b>Abortion</b>	Treatment of Incomplete Abortion, any Trimester, Completed Surgically	2.88%
10	<b>Skin, Subcutaneous and Aerolar Tissues</b>	Excision of Pilonidal Cyst or Sinus	2.79%
<b>TOTAL</b>			<b>45.48%</b>

**Figure 4**  
**Surgical Procedures**  
**January 1, 1997 to December 31, 2002**  
**Most Common Procedures**



**Figure 5**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Abortion Procedures by Year**

Incidence Rate per 1,000  
Exposed to Risk



◆ Abortion Incidence Rate per 1,000 Exposed to Risk

■ Abortion Incidence Rate per 1,000 Exposed to Risk Females Between the Age of 18 -44

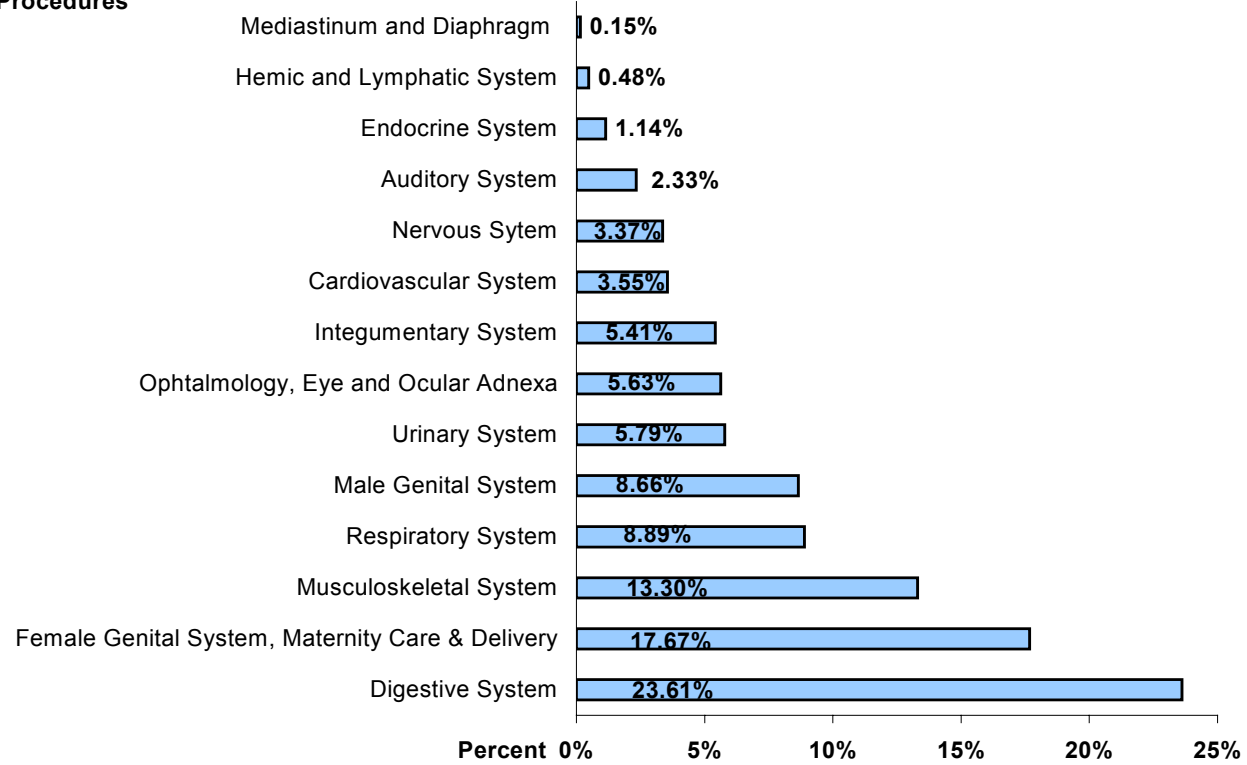
- Surgeries related to the digestive system make up the largest percentage of all performed surgeries; accounting for almost one fourth of all procedures.

<p align="center"><b>Table 5</b>  <b>Surgical Procedures</b>  <b>January 1, 1997 to December 31, 2002</b>  <b>Incisional Procedures</b>  <b>Percent by Body System</b></p>		
<b>Rank</b>	<b>Body System</b>	<b>Percent</b>
1	Digestive System	23.61%
2	Female Genital System, Maternity Care & Delivery	17.67%
3	Musculoskeletal System	13.30%
4	Respiratory System	8.89%
5	Male Genital System	8.66%
6	Urinary System	5.79%
7	Ophthalmology, Eye and Ocular Adnexa	5.63%
8	Integumentary System	5.41%
9	Cardiovascular System	3.55%
10	Nervous System	3.37%
11	Auditory System	2.33%
12	Endocrine System	1.14%
13	Hemic and Lymphatic System	0.48%
14	Mediastinum and Diaphragm	0.15%
<b>TOTAL</b>		<b>100.00%</b>

- Surgeries / procedures related to maternity care form the second largest percentage of all performed surgeries (around one in every 6 procedures).

**Figure 6**  
**Incisional Procedures**  
**Percent by Body System**  
**January 1, 1997 to December 31, 2002**

**Incisional Procedures**



- Gastrostomy procedure is associated with the longest hospital stay (58 days); followed by “Insertion of Subcutaneous Reservoir, Pump or Continuous Infusion System for Connection to Ventricular Catheter” (54 days).

<b>Table 6</b>		
<b>Surgical Procedures</b>		
<b>January 1, 1997 to December 31, 2002</b>		
<b>Procedures with the Longest Hospital Stays</b>		
<b>(Only claims with 1 procedure are included)</b>		
<b>Rank</b>	<b>Procedure</b>	<b>Length of Stay (Days)</b>
1	<b>Gastrostomy</b>	58.3
2	<b>Insertion of subcutaneous reservoir, pump or continuous infusion system for connection to ventricular catheter</b>	54.0
3	<b>Change of Gastrostomy Tube</b>	52.0
4	<b>Percutaneous Portal Vein Catheterization by any Method</b>	42.0
5	<b>Tracheostomy (separate procedure)</b>	35.3
6	<b>Ligation of Internal Jugular Vein or Carotid Artery</b>	31.5
7	<b>Laparotomy for Newborn Intestinal Occlusion</b>	26.0
8	<b>Removal of Hip Prosthesis: Complicated, Including "Total Hip" and Methyl Methacrylate, when applicable</b>	25.0
9	<b>Duodenocholedochotomy, Transduodenal Choledocholithotomy</b>	24.0
10	<b>Lengthening or shortening of tendon, leg or ankles: single or multiple (through same incision)</b>	24.0

- For babies (less than 1 year old), Circumcision accounts for 90% of procedures, followed by Hernia repair (4%).
- Pharynx, Adenoids and Tonsils account for the largest percentage of procedures performed on patients aged one to seventeen years. Ear-related procedures come in second place for the same age group patients; followed by Hernia repair.
- Patients aged 18 to 44 years are more likely to have a nose-related surgery; followed by Hernia and, in third place, by Hemorrhoidectomy.
- Cardiac catheterization is the leading surgical procedure for patients aged 45–64 years and 65-79 years and it is the second leading procedure for patients over 79 years.
- Cataract Removal is the first leading procedure performed on patients aged over 79 years and comes in second place for patients aged 65-79 years.

**Table 7**

**Most Common Surgical Procedures by Age Group  
(Excluding Procedures Related to Pregnancy & Childbirth)  
January 1, 1997 to December 31, 2002**

CPT Category	Major Procedure	Percent					
		< 1 Year	1-17	18-44	45-64	65-79	>= 80 Years
Circumcision	Circumcision, using clamp or other device: newborn	90.12%	.	.	.	.	.
Hernia Repair	Repair inguinal hernia, under age 5 years, with or without hydrocelectomy	3.86%	7.64%	.	.	.	.
	Repair inguinal hernia, age 5 or over, with prosthesis or graft, any method	.	.	5.19%	5.59%	4.62%	.
Middle Ear	Tympanostomy (requiring insertion of ventilating tube)	0.77%	9.58%	.	.	.	.
Cardiac Catheterization	Placement of central venous catheter (subclavian, jugular, or other vein): percutaneous or cutdown	0.61%	.	.	.	.	.
	Combined left heart catheterization, selective coronary angiography, one or more coronary arteries, and selective left ventricular angiography	.	.	2.96%	15.81%	16.44%	9.33%
Stomach	Pyloromyotomy (Fredet-Ramstedt type operation)	0.38%	.	.	.	.	.
Intestines (Except Rectum)	Reduction of volvulus, intussusception, internal hernia, by laparotomy	0.29%	.	.	.	.	.
Pharynx, Adenoids and Tonsils	Adenoidectomy (separate procedure): primary or secondary	0.29%	.	.	.	.	.
	Tonsillectomy with or without adenoidectomy	.	28.02%	.	.	.	.
Skin, Subcutaneous and Aerolar Tissues	Adjacent tissue transfer or rearrangement	0.27%	.	.	.	.	.
	Excision of poilonidal cyst or sinus	.	4.48%	4.78%	.	.	.
	Simple repair of superficial wounds of skin	.	.	.	.	.	3.59%
Trachea and Bronchi	Bronchoscopy (flexible or rigid) diagnostic or therapeutic	0.25%	.	.	.	2.11%	.
External Ear	Removal impacted cerumen (separate procedure), one or both ears	0.23%	.	.	.	.	.
Appendectomy	Appendectomy, any method	.	5.96%	3.28%	.	.	.
Nose	Septoplasty or submucous resection	.	5.73%	10.35%	.	.	.

**Table 7**

**Most Common Surgical Procedures by Age Group  
(Excluding Procedures Related to Pregnancy & Childbirth)  
January 1, 1997 to December 31, 2002**

Age Group		Percent					
CPT Category	Major Procedure	< 1 Year	1-17	18-44	45-64	65-79	>= 80 Years
Testis	Orchiopexy, any type, with or without hernia repair	.	2.50%	.	.	.	.
Removal of Deep/Superficial Implant or Foreign Body	Removal of implant: deep (eg, buried wire, pin, screw, metal bland, rod, nail or plate)	.	2.38%	.	.	.	.
Fracture/ Dislocation - Forearm / Wrist	Closed treatment of distal radial fracture (eg, Colles or Smith type) or epiphyseal separation, with or without fracture of ulnar styloid: with manipulation	.	2.35%	.	.	.	.
Ocular Adnexa - Extraocular Muscles	Strabismus surgery, recession or resection procedure; any muscle, one or more, any method	.	1.70%	.	.	.	.
Anus	Hemorrhoidectomy	.	.	5.04%	2.64%	.	.
Biliary Tract	Cholecystectomy: with or without cholangiography, any method	.	.	4.85%	4.41%	3.54%	3.35%
Laparoscopy of Female Genital System - Hysteroscopy	Laparoscopy, surgical: with removal of adnexal structures (parital or total oophorectomy and/or salpingectomy)	.	.	4.14%	.	.	.
Colonoscopy	Colonoscopy, fiberoptic, beyond splenic flexure: diagnostic or therapeutic	.	.	3.04%	3.27%	3.64%	5.26%
Breast	Excision of cyst, fibroadenoma or other benign or malignant tumor	.	.	2.92%	.	.	.
	Mastectomy, partial	.	.	.	2.59%	.	.
Cataract Removal	Extra- or intracapsular cataract removal with insertion of intraocular lens prosthesis (one stage procedure), manual or mechanical technique	.	.	.	5.16%	15.20%	18.66%
Transluminal Angioplasty	Percutaneous transluminal angioplasty: single vessel	.	.	.	3.35%	2.95%	.
Hysterectomy	Total abdominal hysterectomy (corpus and cervix), with or without removal of tube(s), with or without removal of ovary(s)	.	.	.	3.14%	.	.

**Table 7**

**Most Common Surgical Procedures by Age Group  
(Excluding Procedures Related to Pregnancy & Childbirth)  
January 1, 1997 to December 31, 2002**

Age Group		Percent					
CPT Category	Major Procedure	< 1 Year	1-17	18-44	45-64	65-79	>= 80 Years
Posterior Extradural Laminotomy/ Excision of Herniated Intervertebral Disks	Laminotomy with decompression of nerve root(s), including facetectomy, foraminotomy and/or excision of herniated intervertebral disk: one interspace, cervical	.	.	.	2.37%	.	.
Transurethral Surgery in Vesical Neck/ Prostate	Transurethral resection of prostate including complete vasectomy, meatotomy, cystourethroscopy, urethral calibration and/or dilation, internal urethrotomy	.	.	.	.	3.53%	.
Coronary Artery	Coronary artery bypass, vein only: any number W/CPB	.	.	.	.	2.63%	.
Transurethral Surgery in Urethra and Bladder	Cystourethroscopy, with biopsy	.	.	.	.	2.61%	3.35%
Fracture/ Dislocation - Pelvis / Hip Joint	Open treatment of intertrochanteric, pertrochanteric, or subtrochanteric femoral fracture: with plate/screw type imolant, with or without cerclage	.	.	.	.	.	4.07%
Repair, Revision or Reconstruction - Pelvis / Hip Joint	Arthroplasty, acetabular and proximal femoral prosthetic replacement (total hip replacement), with or without autograft or allograft	.	.	.	.	.	3.83%
Heart and Pericardium	Insertion of permanent pacemaker any method	.	.	.	.	.	3.59%
Lungs and Pleura	Thoracentesis, puncture of pleural cavity for aspiration, initial or subsequent	.	.	.	.	.	3.59%

- Some top surgical procedures are performed on males only (Circumcision, Hernia, Excision of Pilonidal Cyst or Sinus, Hemorrhoidectomy and Percutaneous Transluminal Angioplasty) and some on females only (Cholecystectomy, Mastectomy; Hysteroscopy, Hysterectomy and Appendectomy) (Table 8).
- Among leading procedures common to male and female patients, Cardiac Catheterization is twice as common among males while Nose-related surgeries are more common among females.

CPT Category	Category of Procedures	Percent	
		Males	Females
Circumcision	Circumcision, using clamp or other device: newborn	12.05%	.
Cardiac Catheterization	Combined left heart catheterization, selective coronary angiography, one or more coronary arteries, and selective left ventricular angiography	9.97%	5.54%
Hernia Repair	Repair inguinal hernia, age 5 or over, with prosthesis or graft, any method	7.48%	.
Nose	Septoplasty or submucous resection	4.40%	5.59%
Biliary Tract	Cholecystectomy: with or without cholangiography, any method	.	5.57%
Pharynx, Adenoids and Tonsils	Tonsillectomy with or without adenoidectomy	4.08%	4.18%
Cataract Removal	Extra- or intracapsular cataract removal with insertion of intraocular lens prosthesis (one stage procedure), manual or mechanical technique	3.55%	4.54%
Skin, Subcutaneous and Aerolar Tissues	Excision of pilonidal cyst or sinus	3.48%	.
Breast	Mastectomy, partial	.	4.54%
Anus	Hemorrhoidectomy	3.25%	.
Laparoscopy of Female Genital System - Hysteroscopy	Hysteroscopy, diagnostic (separate procedure) or therapeutic	.	4.34%
Hysterectomy	Total abdominal hysterectomy (corpus and cervix), with or without removal of tube(s), with or without removal of ovary(s)	.	3.60%
Colonoscopy	Colonoscopy, fiberoptic, beyond splenic flexure: diagnostic or therapeutic	2.65%	2.97%
Transluminal Angioplasty	Percutaneous transluminal angioplasty: single vessel	2.12%	.
Appendectomy	Appendectomy, any method	.	2.62%

## Comparison to International Findings

An attempt to compare findings from Lebanon to those found in International queries has proven to be a complicated issue since the coding of procedures and their verbal descriptions are not the same.

Nevertheless, the attempt to inject international statistics is by itself an accomplishment. The following summarizes the major problems that arose when reviewing a study conducted by the Healthcare Cost and Utilization Project (HCUP); sponsored by the Agency for Healthcare Research and Quality (AHRQ) of the United States of America (USA).

1. The breakdown of the body into major disease systems differs between Lebanon and the USA. The numbers as well as the descriptions of those systems are not the same.
2. The coding of surgical procedures is another problem area. Even when a common procedure is found, discrepancies in verbal descriptions or definitions still surfaced.

Having said so, I'd like to present the common findings to the best extent possible.

## Body Systems

Among the top conditions requiring at least one surgical procedure, Female Genital systems placed second in both the U.S. and Lebanese studies. The digestive system related procedures ranked first based on MedNet data and third based on U.S. data. The cardiovascular system ranked first based on U.S most performed procedures while its rank based on MedNet data was ninth.

<b>Table 9</b>		
<b>United States Versus MedNet</b>		
<b>Overnight Stay Claims by Major Body System</b>		
<b>Excluding Invasive Procedures</b>		
<b>Rank</b>	<b>United States</b>	<b>MedNet</b>
1	Cardiovascular System	Digestive System
2	Obstetrical System	Female Genital System, Maternity Care & Delivery
3	Digestive System	Musculoskeletal System
4	Musculoskeletal System	Respiratory System
5	Female Genital System	Male Genital System
6	Nervous System	Urinary System
7	Male Genital System	Ophthalmology, Eye and Ocular Adnexa
8	Integumentary System	Integumentary System
9	Respiratory System	Cardiovascular System
10	Urinary System	Nervous System
11	Hemic and Lymphatic System	Auditory System
12	Ear, Nose, Throat	Endocrine System
13	Ophthalmology, Eye and Ocular Adnexa	Hemic & Lymphatic System
14	Endocrine System	Mediastinum & Diaphragm

## Major Procedural Groups

A procedural group is defined as a set of procedures that all relate to the same body part. An example is “inguinal hernia”, age 5 years plus “is a member of a group of procedures that belong to the procedural group “Hernia Repair”.

Having said so, Table 10 shows that the leading top five procedural groups in both the United States and Lebanon (MedNet experience) share two elements: Cardiac Catheterization (Number One in both studies) and circumcision (Number Three in Lebanon and Number Five in the U.S.).

The second ranking procedural group relates to deliveries in both studies, but the U.S. group relates to “Delivery Assisting procedures” while the Lebanese group relates to cesarean deliveries.

The Third and Fourth ranking procedural groups in the U.S. are “Respiratory Intubation & Mechanical Ventillation” and “Blood Transfusion”.

Hernia repair and nose-related procedures complete the list of the top five Lebanese procedural groups.

**Table 10**  
**United States Versus MedNet**  
**Overnight Stay Claims by Subchapter**

Rank	United States	MedNet	
1	Diagnostic Cardiac Catheterization, Coronary Arteriography	Cardiac Catheterization	Combined left heart catheterization, selective coronary angiography, one or more coronary arteries, and selective left ventricular angiography
2	Manually Assisted Delivery, Medical Induction and Other Procedures to Assist Delivery	Cesarean Delivery	Cesarean delivery only including postpartum care
3	Respiratory Intubation and Mechanical Ventillation	Circumcision	Circumcision, using clamp or other device: newborn
4	Blood Transfusion	Hernia Repair	Repair inguinal hernia, age 5 or over, with prosthesis or graft, any method
5	Circumcision of Infant	Nose	Septoplasty or submucous resection
6	Repair of Current Obstetric Laceration Following Delivery	Pharynx, Adenoids and Tonsils	Tonsillectomy with or without adenoidectomy
7	Fetal Monitoring	Cataract Removal	Extra- or intracapsular cataract removal with insertion of intraocular lens prosthesis (one stage procedure), manual or mechanical technique
8	Upper Gastrointestinal Endoscopy, Biopsy	Biliary Tract	Cholecystectomy: with or without cholangiography, any method
9	Coronary Artery Bypass Graft	Abortion	Treatment of incomplete abortion, any trimester, completed surgically
10	Diagnostic Ultrasound of Heart (Echocardiogram)	Skin, Subcutaneous and Aerolar Tissues	Excision of poilonidal cyst or sinus

## Age-Related Procedures

Table 11 shows the following results (Excluding Deliveries in both studies):

- Circumcision is the common leading procedure for infants in both the U.S. and Lebanon.
- Age groups 1 to 17 years old have different procedures performed in the U.S. than in Lebanon. Appendectomy is the leading procedure in the U.S. for this age group; while “Pharynx, Adenoids and Tonsils” lead the way in Lebanon.
- A patient aged 18 to 44 years is most likely to have a hysterectomy in the U.S. while the most likely Lebanese procedure for an 18 to 44 years old is nose surgery.
- Cardiac Catheterization is the leading procedure for patients aged 45 to 79 years in both the U.S. and Lebanon.

Age	Rank	United States	MedNet
< 1 year	1	Circumcision	Circumcision
	2	Respiratory Intubation and Mechanical Ventilation	Circumcision, using clamp or other device: newborn
1 - 17	1	Respiratory Intubation and Mechanical Ventilation	Repair inguinal hernia, under age 5 years, with or without hydrocelectomy
	2	Appendectomy	Hernia Repair
18 - 44	1	Respiratory Therapy	Pharynx, Adenoids and Tonsils
	2	Hysterectomy	Middle Ear
45 - 64	1	Cardiac Catheterization	Nose
	2	Cardiac Catheterization	Hernia Repair
65 - 79	1	Cardiac Catheterization	Cardiac Catheterization
	2	Respiratory Intubation and Mechanical Ventilation	Hernia Repair
>= 80	1	Cardiac Catheterization	Cardiac Catheterization
	2	Respiratory Intubation and Mechanical Ventilation	Cataract Removal
>= 80	1	Cardiac Catheterization	Cataract Removal
	2	Blood Transfusion	Cardiac Catheterization

### Procedures Requiring the Longest Average Hospital Stay

Of the top ranking ten procedures in terms of length of stay (in days):

- Tracheostomy leads the way in the U.S. with an average stay of 37 days. In Lebanon, this procedure requires 35 days.
- Gastrostomy leads the way in Lebanon with an average stay of 58 days. In the U.S., Gastrostomy required a 20 day-stay and it is more indicative than the Lebanese statistics due to the very large number of studied cases.

	United States		MedNet	
Rank	Procedure	Length of Stay (Days)	Procedure	Length of Stay (Days)
1	Tracheostomy	37.0	Gastrostomy	58.3
2	Other Organ Transplantation	33.0	Insertion of subcutaneous reservoir, pump or continuous infusion system for connection to ventricular catheter	54.0
3	Bone Marrow Transplantation	25.0	Change of gastrostomy tube	52.0
4	Ileostomy/ Enterostomy	24.0	Percutaneous portal vein catheterization by any method	42.0
5	Gastostomy	20.0	Tracheostomy, (separate procedure)	35.3
6	Enteral and Parental Nutrition	20.0	Ligation of internal jugular vein or carotid artery	31.5
7	Extracranial Ventricular Stent	17.0	Laparotomy for newborn intestinal occlusion	26.0
8	Small Bowel Resection	16.0	Removal of hip prosthesis: complicated, including "total hip" and methyl methacrylate, when applicable	25.0
9	Gastrectomy	16.0	Duodenocholedochotomy, transduodenal choledocholithotomy	24.0
10	Colostomy	16.0	Lengthening or shortening of tendon, leg or ankle: single or multiple (through same incision)	24.0

## Trends

Figures 7 to 17 show how the incidence rate of 10 specific procedures changed over time from the mid-point of calendar year 1997 to the mid-point of calendar year 2002.

For example, the rate of medically necessary abortion per 1000 exposed to risk, 18 to 44 years old females has witnessed a major decrease over that period of time: from about 13 per 1000 exposures to about 8 per 1000 exposures. The percentage of all pregnancies that end up in abortion also dropped from about 15% in 1997 to about 13% in 2002 (See figure 17). This is compared to 24.4% in the United States<sup>(1)</sup>.

Cardiac Catheterization; one of the top leading procedures, is on the rise where the rate per 1000 exposures increased from about 16 to about 19 for the 45 to 64 years old group.

Cataract removal for the elderly (over 64 years has also witnessed a significant increase from about 27 per 1000 exposures to about 35 per 1000 exposures).

Cesarean Delivery procedures is another serious concern where incidence rate per 1000 exposures (18 to 44 years old) has increased from 18 to about 21.

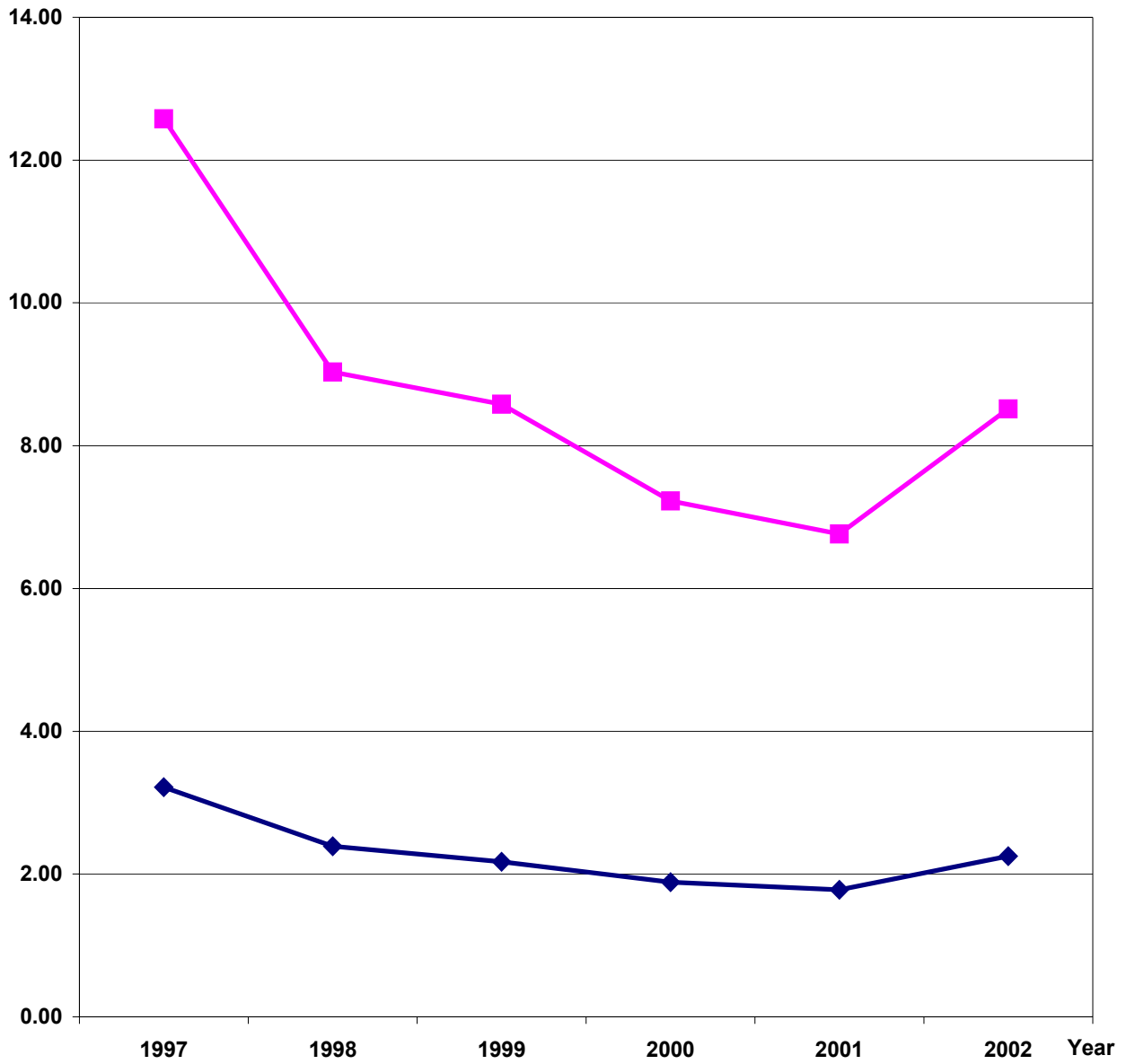
Nose-related procedures have not changed over the years in terms of incidence rate per 1000 exposures. The average incidence rate over the entire period of time was about 3.5 per 1000 exposures.

Other results are shown in the attached figures 7 to 17.

**Figure 7**

Incidence Rate per  
1,000  
Exposed to Risk

**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Abortion Procedures by Year**

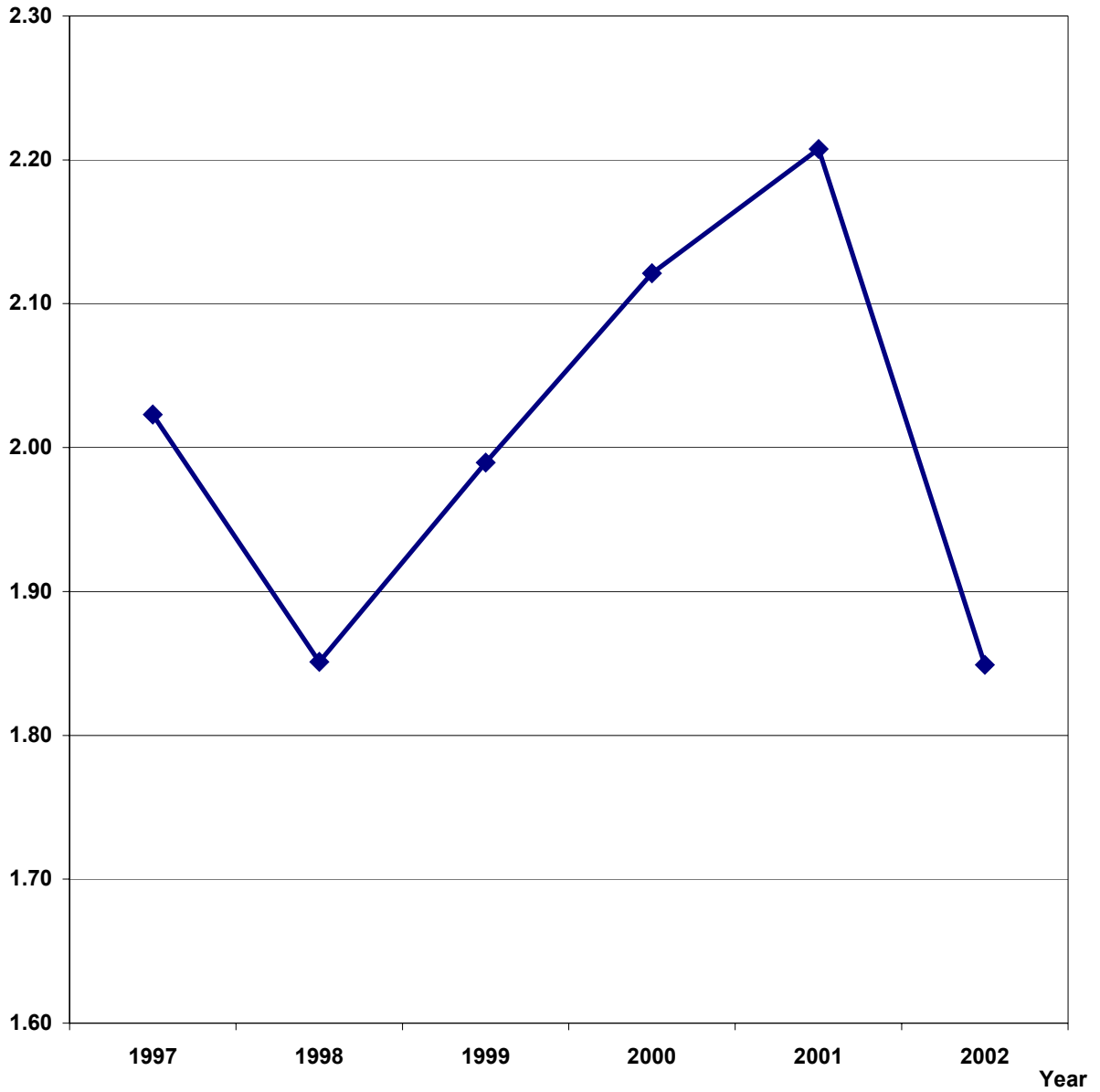


◆ Abortion Incidence Rate per 1,000 Exposed to Risk

■ Abortion Incidence Rate per 1,000 Exposed to Risk Females Between the Age of 18 -44

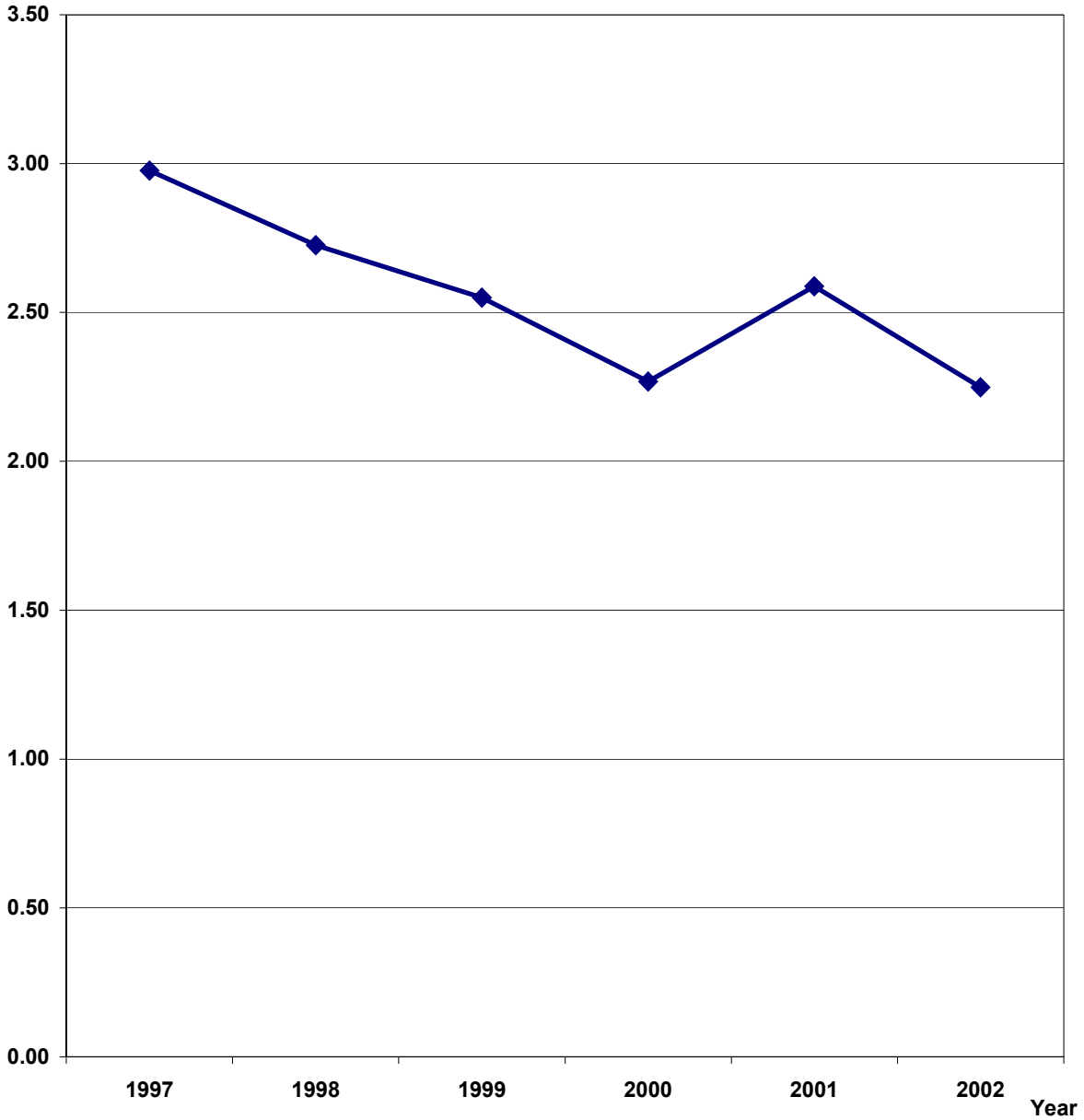
**Figure 8**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Anus-Related**  
**("Hemorroidectomy"- "بواسير")**  
**Procedures by Year**

Incidence Rate per  
1,000  
Exposed to Risk



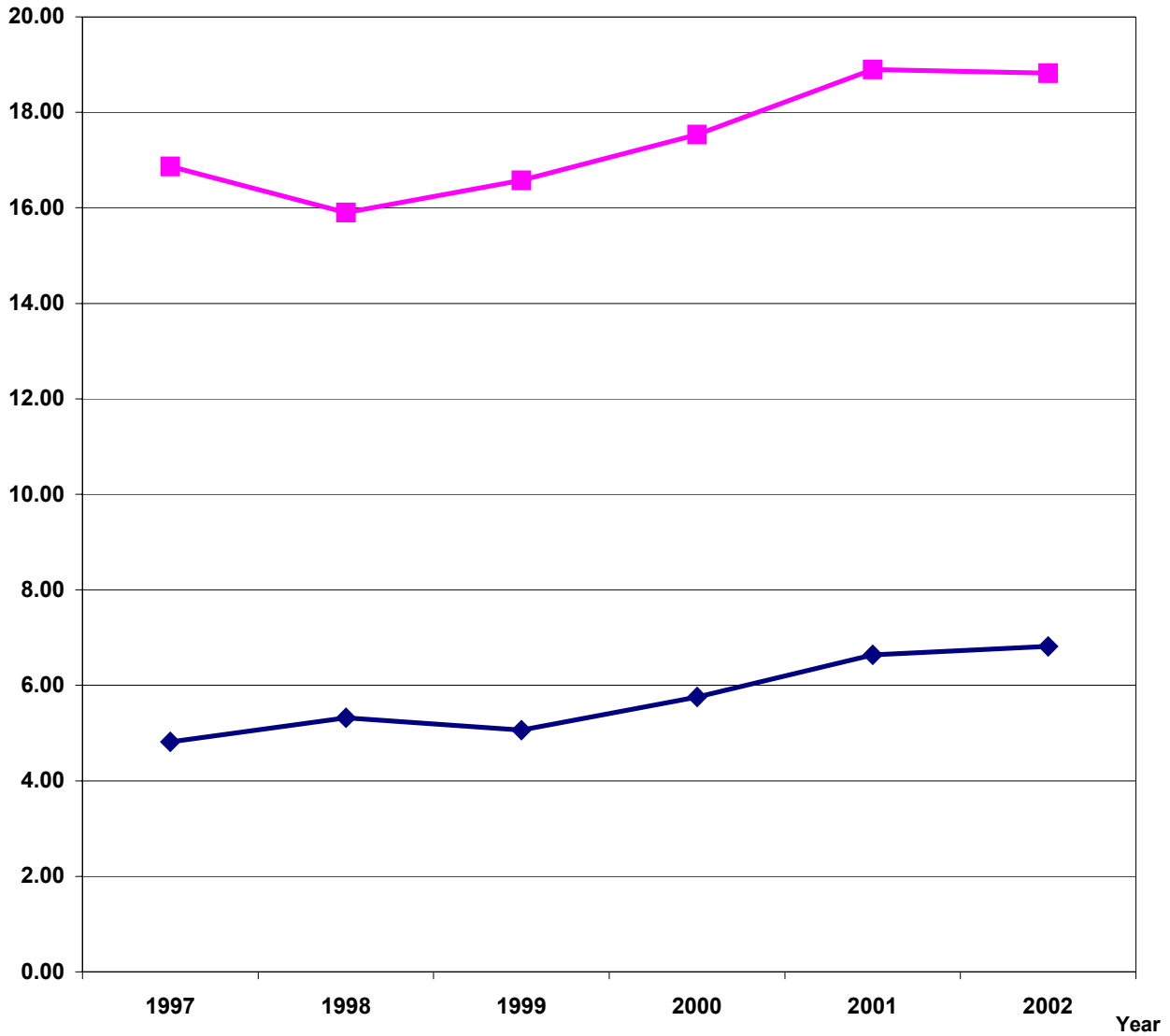
**Figure 9**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of**  
**Biliary Tract ("Cholecystectomy -"الممرارة") Procedures by Year**

Incidence Rate per  
1,000  
Exposed to Risk



**Figure 10**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Cardiac Catheterization ("قسط قلب")**  
**Procedures by Year**

Incidence Rate per  
 1,000  
 Exposed to Risk

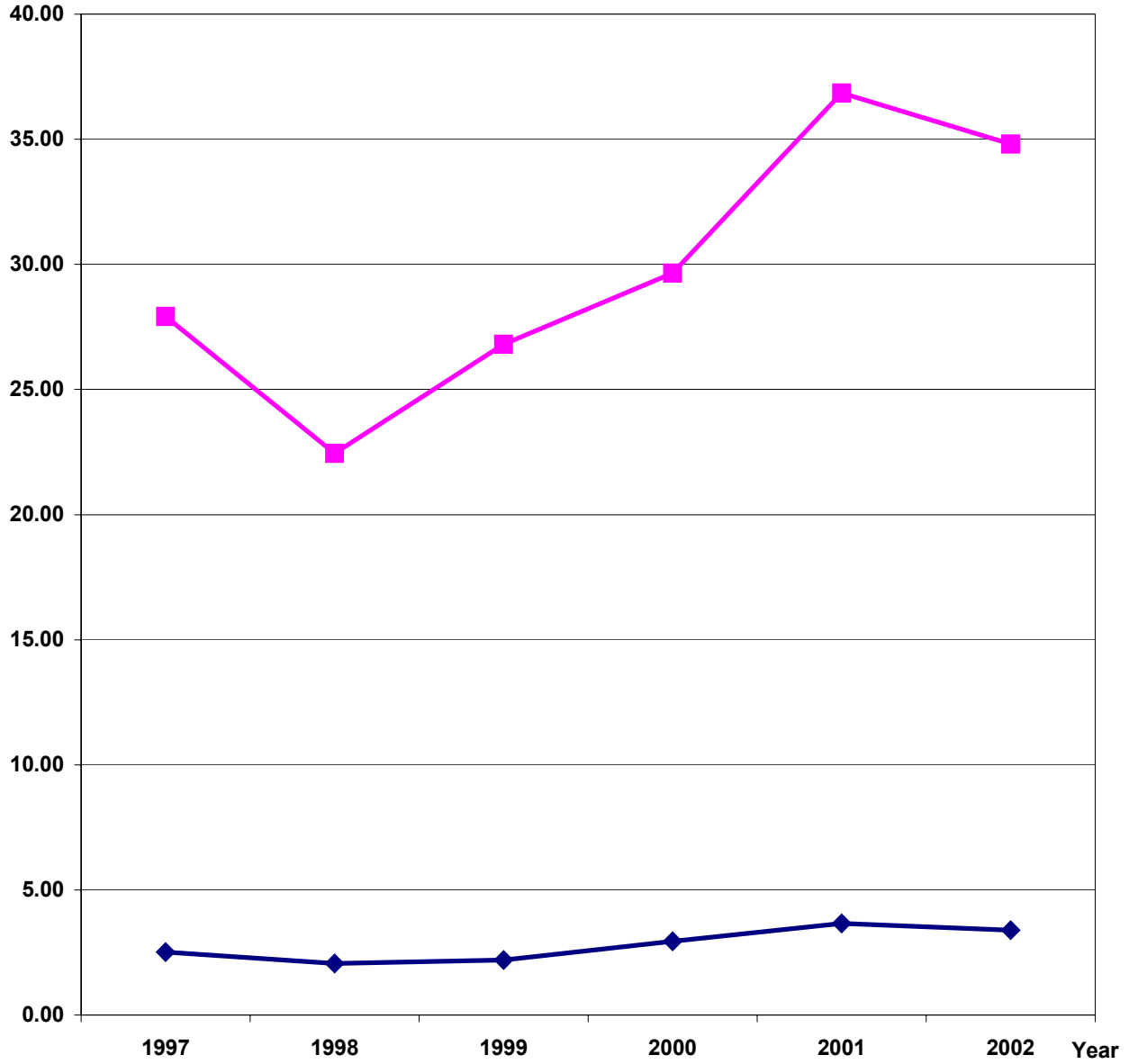


◆ Cardiac Catheterization Incidence Rate per 1,000 Exposed to Risk  
 ■ Cardiac Catheterization Incidence Rate per 1,000 Exposed to Risk Between the Age of 45 - 64

**Figure 11**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**

Incidence Rate per  
1,000  
Exposed to Risk

**Incidence Rate of Cataract Removal Procedures by Year**

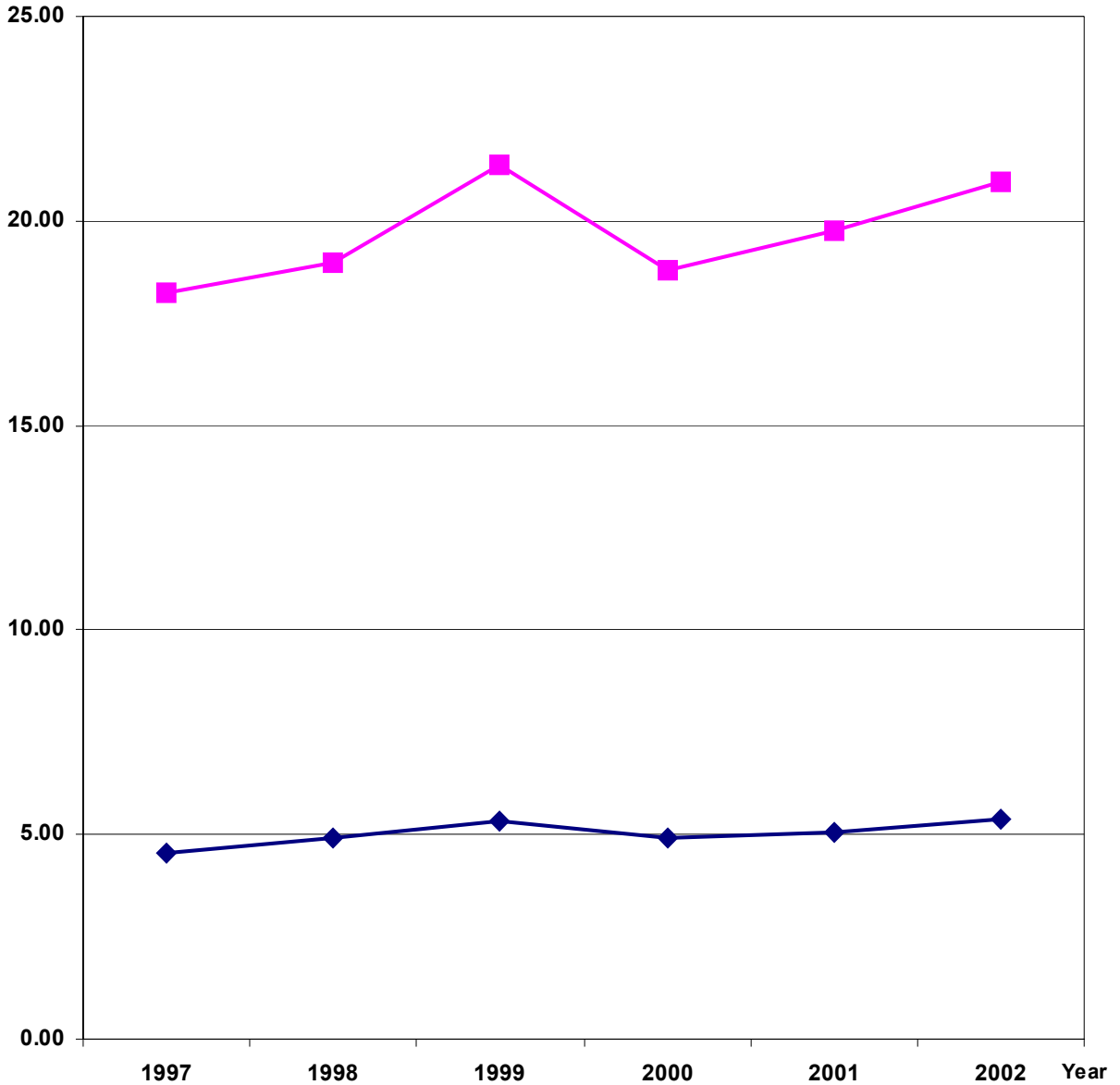


◆ Cataract Removal Incidence Rate per 1,000 Exposed to Risk  
■ Cataract Removal Incidence Rate per 1,000 Exposed to Risk Aged 65 and Above

**Figure 12**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**

Incidence Rate per  
 1,000  
 Exposed to Risk

**Incidence Rate of Cesarean Delivery Procedures by Year**

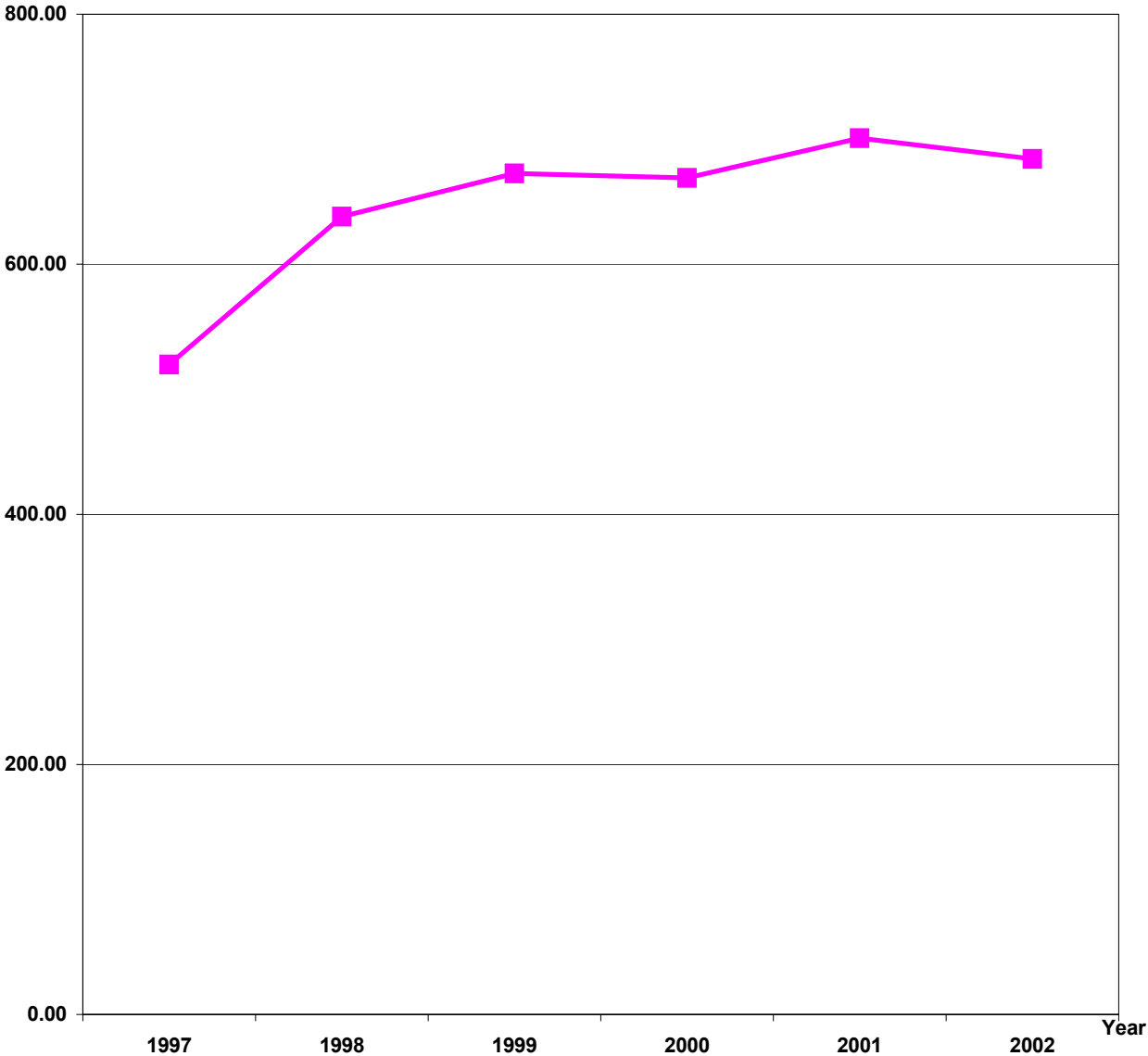


◆ Cesarean Delivery Incidence Rate per 1,000 Exposed to Risk

■ Cesarean Delivery Incidence Rate per 1,000 Exposed to Risk Females Between the Age of 18 -44

**Figure 13**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Circumcision Procedures by Year**

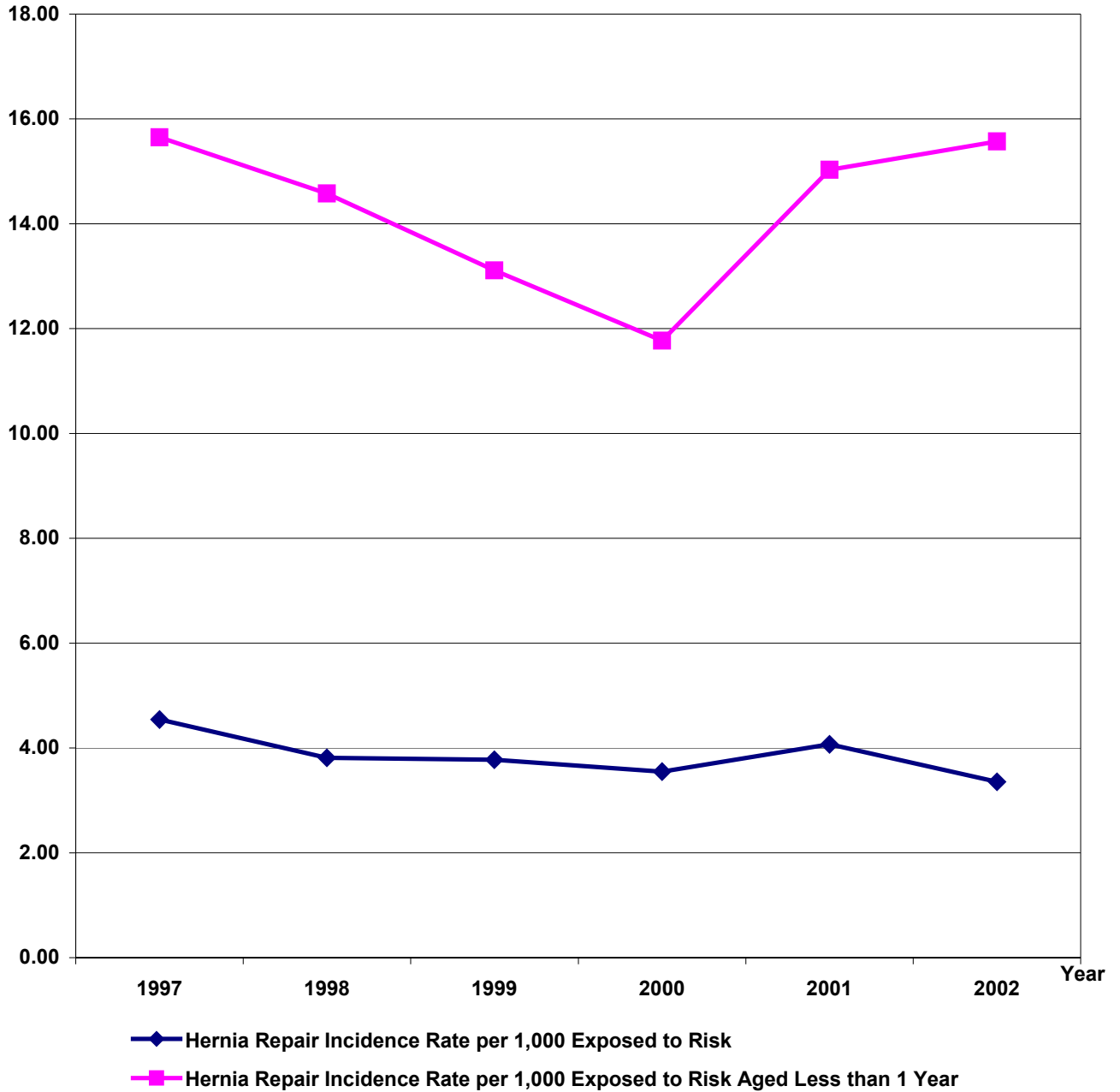
Incidence Rate per 1,000  
Exposed to Risk



—■ Circumcision Incidence Rate per 1,000 Exposed to Risk Males Less than 1 year

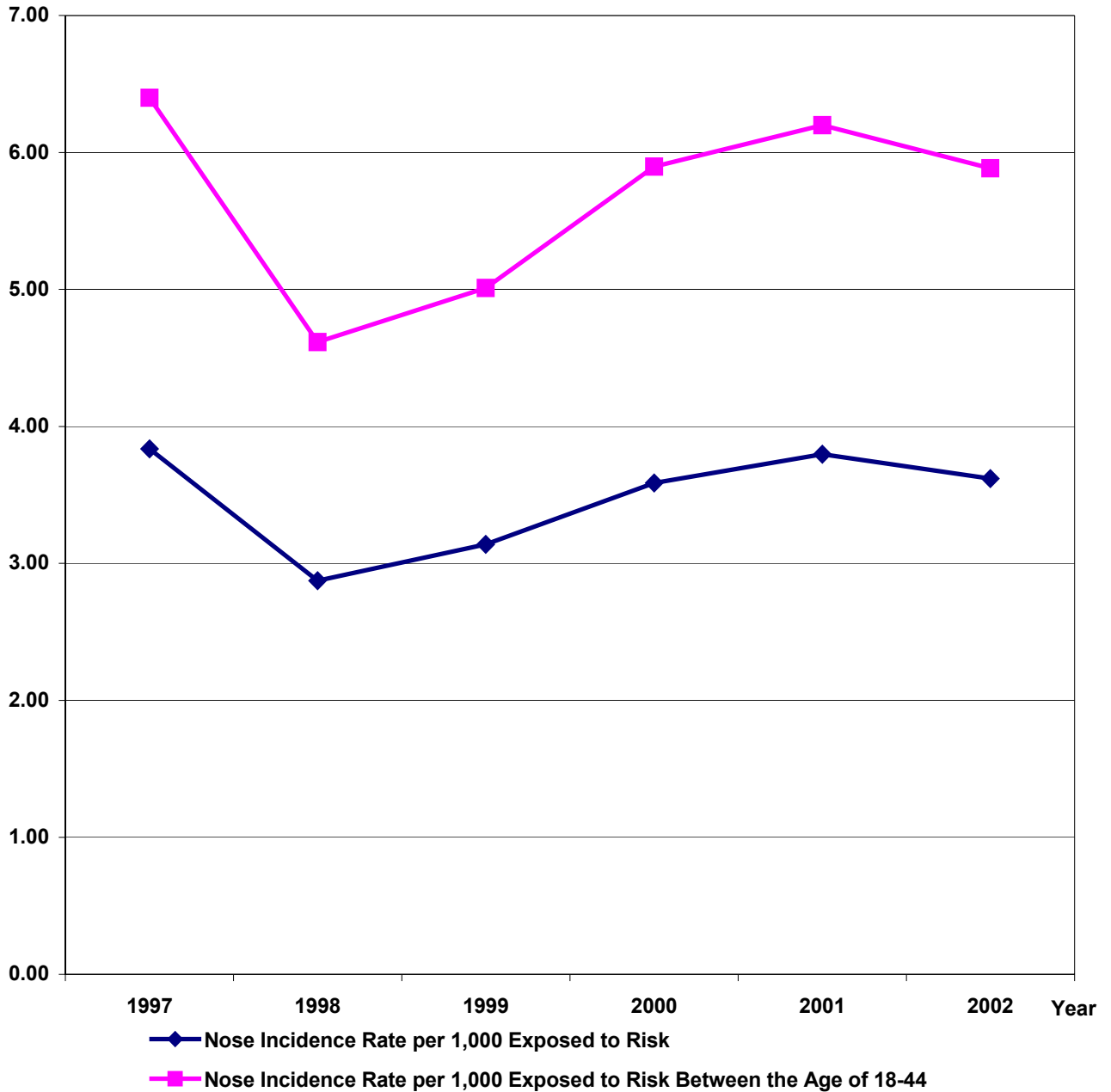
**Figure 14**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Hernia Repair Procedures by Year**

Incidence Rate per  
 1,000  
 Exposed to Risk



**Figure 15**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**  
**Incidence Rate of Nose Procedures by Year**

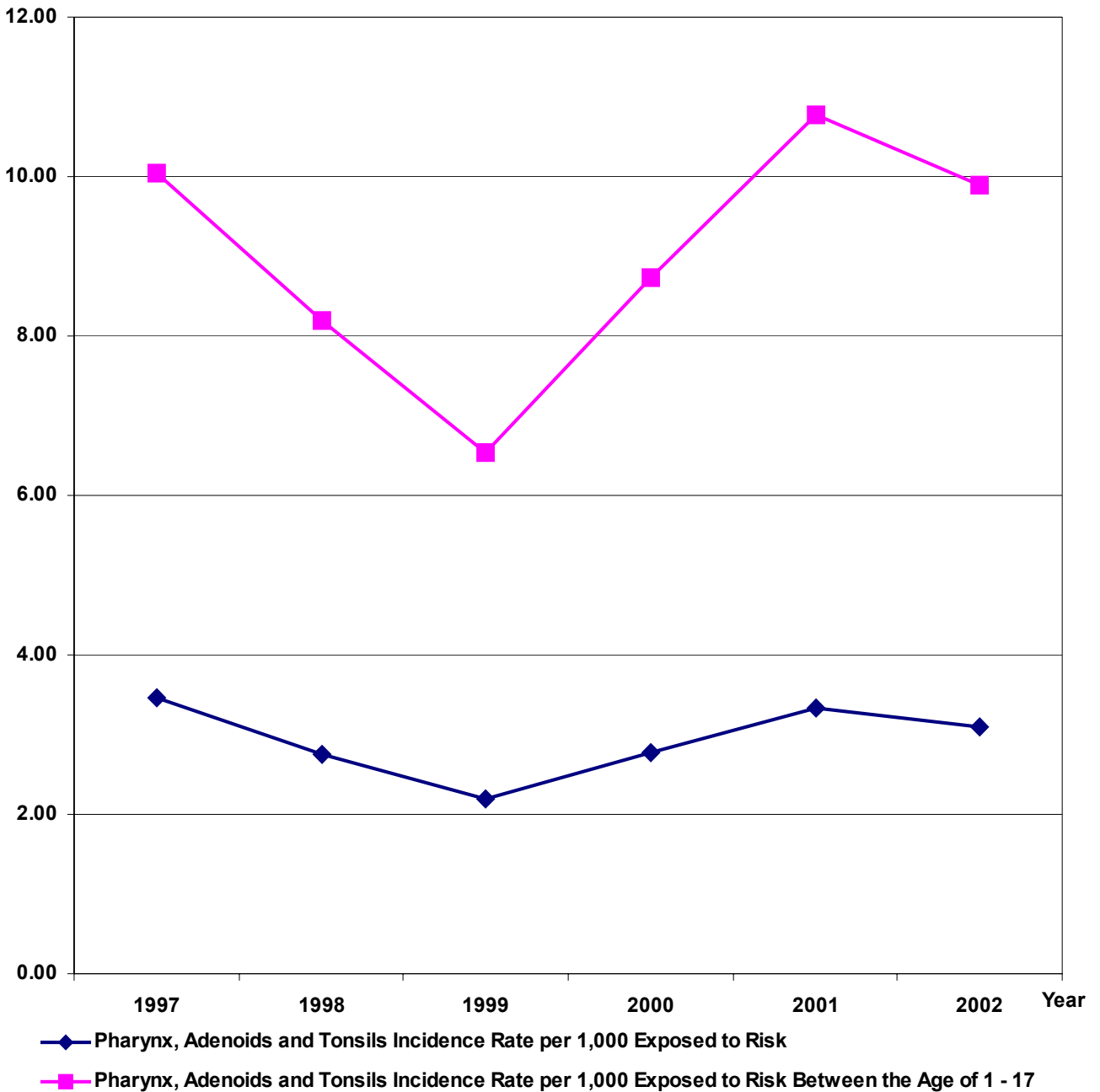
Incidence Rate per  
1,000  
Exposed to Risk



**Figure 16**  
**Surgical Procedures - Overnight Stays**  
**Calendar Years: 1997-2002**

**Incidence Rate of Pharynx, Adenoids and Tonsils Procedures by Year**

Incidence Rate per  
 1,000  
 Exposed to Risk



**Figure 17**  
**Surgical Procedures - Overnight Stays Calendar Years: 1997-2002**  
**Maternity - Related Conditions by Outcome and Year**

