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ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

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Residents of Greece admitted for care to a Boston hospital

OBJECTIVE **To assess the numbers of patients from Greece admitted for care to a Boston hospital and to investigate the primary diagnosis, the principal procedure or intervention, the length of hospital stay and the hospital charges for these patients.** METHOD **A computer search was made of hospital records to identify "foreign discharges" for the period 1986–1997 was conducted. Foreign discharges and accordingly foreign admissions were defined as those of patients whose permanent and legal residence was a country other than the United States. The records of patients from Greece were studied to determine the demographic characteristics, length of hospital stay, principal diagnosis, primary procedure performed and hospital charges.** RESULTS **Patients from Greece constituted the largest component (11.2%) of foreign admissions to this hospital. On a per capita basis Greece was the third most common country listed as the country of origin. For the patients from Greece a neoplasm was the most common principal diagnosis (37%) and the second most common diagnosis was a circulatory disorder (23%). Malignant neoplasms of the brain and central nervous system were the most common neoplasms (28%). Cardiac disease and cerebrovascular lesions were most frequent circulatory disorders (45% and 28% respectively). Of the admissions 57% were to a surgical service, 30% to a medical service and 13% to a pediatric service. An operation or principal procedure was performed on the cardiovascular system in 21% and on the nervous system in 16%. The mean length of hospital stay was 7.8 days and the average hospital charges were $12,983 per patient, per admission.** CONCLUSIONS **Over a period of twelve years, patients from Greece constituted the largest component of the foreign admissions to the Boston hospital studied. On a per capita basis (population for 1993), Greece was the third most common country listed as the country of origin. Neoplasms of the brain, coronary artery disease and cerebrovascular lesions were the most frequent principal diagnoses in the Greek patients. Coronary artery bypass surgery and brain surgery were the most common operations performed.**

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Περίθαλψη ασθενών από την Ελλάδα σε νοσοκομείο της Βοστόνης

Περίληψη στο τέλος του άρθρου

Patients admitted for care to the Massachusetts General Hospital (MGH) come predominantly from the metropolitan area of greater Boston. Small numbers of patients are referred for specialized care from the rest of the state of Massachusetts and from other states. Other patients are referred from countries around the world and a cursory look at their country of origin showed Greece as a predominant source. This observation prompted a more detailed study the purpose of which was to seek answers to the following questions. How did Greece compare to other countries in terms of numbers of patients admitted for care to the MGH? What was the principal admitting diagnosis for the patients coming from Greece? What was the length of their hospital stay and the principal procedure or intervention and, finally, what were the hospital charges in connection with these admissions?

MATERIAL AND METHOD

The MGH is located in Boston, Massachusetts, USA. It is a major teaching facility of Harvard Medical School. It is a primary and a tertiary care facility serving metropolitan Boston,

and because of its established expertise in various clinical areas the hospital also serves patients referred from the rest of the US and from countries around the world. Over the years the number of hospital beds has varied from 850 to approximately 1000 and admissions overall have been in the order of 33,000 to 38,000 per year. In addition there are large numbers of outpatient visits, emergency ward visits and same day surgical procedures details of which are beyond the scope of this work.

Appropriate permission was secured from the hospital committee on medical record research. A computer search was carried out to identify all "foreign discharges" during the years 1986 through 1997. A more detailed computer search of the records of "patients from Greece" was then carried out with the queries of age, gender, principal diagnosis, length of hospital stay, primary procedure performed and hospital charges.

The term "foreign discharges" applies to patients whose primary, permanent and legal residence is a country other than the US. Thus "Greek foreign discharges" refers to residents of Greece who came to Boston for medical care and is not to be confused with patients of Greek origin who are US residents. The years of the study refer to hospital fiscal years (FY) which run from October 1 to September 30; thus FY 1988 is from October 1, 1987 to September 30, 1988 and so on. The scope of the study was limited to patients admitted for hospitalization. The term "foreign discharges" was used in medical record searches because of the way the hospital computers have been programmed. A patient discharge presupposes a hospital admission, so for the purpose of this study "discharges" equal "admissions" and the term "admission(s)" will be used throughout to avoid confusion.

Foreign admissions were tabulated and admissions of residents of Greece were compared to those of other foreign countries (countries of origin of patients other than those legally and permanently residing in the United States). The data pertaining to patients from Greece were analyzed in terms of age, gender, multiple admissions, days in the hospital and hospital billing charges. Calculations of the numbers of foreign admissions on a per capita basis were based on populations for the year 1993, a point halfway between 1986 and 1997, the years included in this study. Population data were derived from the US Census Bureau, International Data Base, available on the Internet (http://www.census.gov/cgibin/ipc/idbrank.pl.). Principal diagnoses and primary procedures were listed and grouped according to the ICD.9.CM International Classification of Diseases, 9th Revision. Statistical calculations were made using the SPSS version 8.0 (SPSS Inc, Chicago IL, USA).

RESULTS

Foreign admissions in general

During the twelve years included in this study (fiscal years 1986–1997) there were 3,785 admissions of residents of foreign countries to the MGH constituting 0.9% of all admissions (3,785/415,802). The rate of foreign admissions varied from a high of 1.3% (447/33957) in 1986 to a low of 0.65% (244/34,500) in 1995. Patients included in the group of foreign admissions came from 97 different countries or territorial entities. Residents of Greece constituted the largest segment (11.2%, 426/3,785), with Venezuela second (9.7%) and Canada third (7.7%). Table 1 lists in descending order the number of foreign admissions by country of origin for the top twenty countries. On a year by year basis Greece contributed the most foreign patients during seven of the twelve years of the study and was second to Canada in 1986 and 1994, to Germany in 1990, to Venezuela in 1991 and 1993 and to Kuwait in 1997. Figure 1 shows the year-to-year foreign admissions for the top five contributing countries.

Also listed in table 1 is the number of foreign admissions on a per capita basis, depending on the population of the country of origin for the year 1993. The same per capita data are shown in figure 2 for the top 15 countries. On a per capita basis, Greece is third on the list with 40.9 admissions per million population. It comes behind Bermuda, first on the list with 2864.4 admissions per million and Kuwait with 79.8 admissions per million. It is noted that the extraordinarily high per capita number of admissions for Bermuda is due to its very small population (59,000 in 1993) and to the fact that this country located approximately 750 miles southeast of Boston relies on Boston hospitals for all patients in need of tertiary care. Kuwait too has a small population (1,446,695 in 1993) and a direct line to Boston for tertiary care needs. With 40.9 admissions per million Greece led all other countries. Next in line but far behind Greece were Dominican Republic and Israel with 23.7 and 21.7 admissions per million respectively (fig. 2).

Patients from Greece

During the twelve years studied, 426 of the "foreign admissions" were identified as admissions of residents of Greece. The actual number of patients was 318, but several patients had more than one admission. Specifically, fifty-seven patients had two admissions; ten patients had three, seven patients had four and two patients had six admissions. There were 199 men (63%) and 119 women (37%) and the average age for the entire group was 44 years with a range of 0 to 84 years, standard deviation (SD) 18.5. For women, the average age was 37 years (range 0 to 74 years, SD 17) and for men 48 years (range 0 to 84 years, SD 18.3), thus, the men as a group were older than the women. Thirty-two patients were younger than 18 years and five of these 32 children were under one year old.

Table 1. Foreign admissions to Massachusetts General Hospital by country of origin. Top 20 countries for FY 1986–1997 (total admissions from all foreign countries: N=3,785).

Country	Number of discharges	Percent of all foreign discharges	Population of the country of origin (×1000)*	Discharges per million population of the country of origin
Greece	426	11.2	10,413	40.9
Venezuela	369	9.7	20,705	17.8
Canada	290	7.7	28,920	10.0
Italy	213	5.6	56,855	3.7
Germany	181	4.8	81,281	2.2
Dominican Republic	175	4.6	7,372	23.7
Bermuda	169	4.5	0,059	2864.4
Saudi Arabia	151	3.9	17,385	8.7
United Kingdom	139	3.7	58,047	2.4
Kuwait	117	3.1	1,466	79.8
Israel	110	2.9	5,062	21.7
Brazil	93	2.4	158,344	0.6
Colombia	92	2.4	34,979	2.6
Spain	87	2.3	38,997	2.2
India	82	2.2	899,507	0.09
Egypt	70	1.8	59,929	1.2
Mexico	54	1.4	89,863	0.6
Ecuador	49	1.3	11,121	4.4
France	45	1.2	57,654	0.8
Switzerland	44	1.2	7,062	6.2

* Year 1993; US Census Bureau, International Data Base
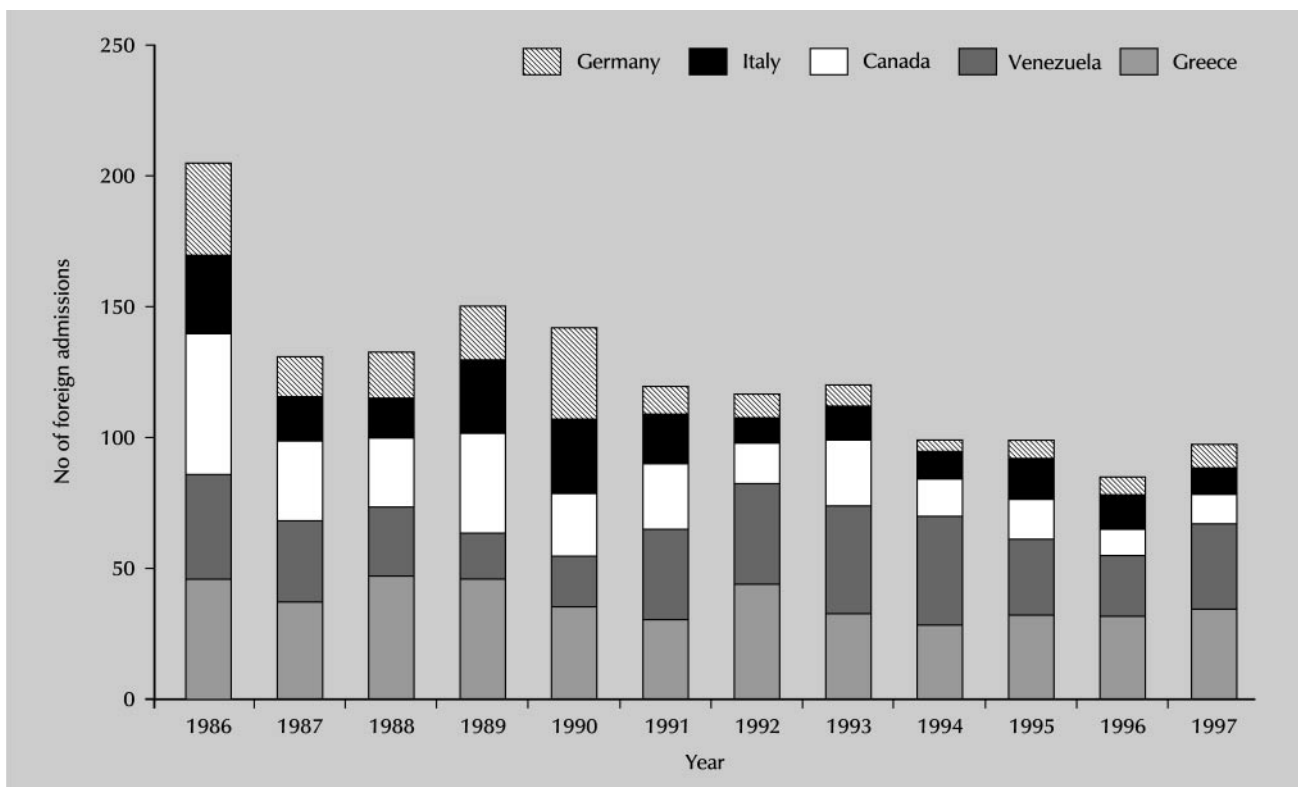
Figure 1. Numbers of foreign admissions to Massachusetts General Hospital by country of origin and year. Top five countries over twelve years.
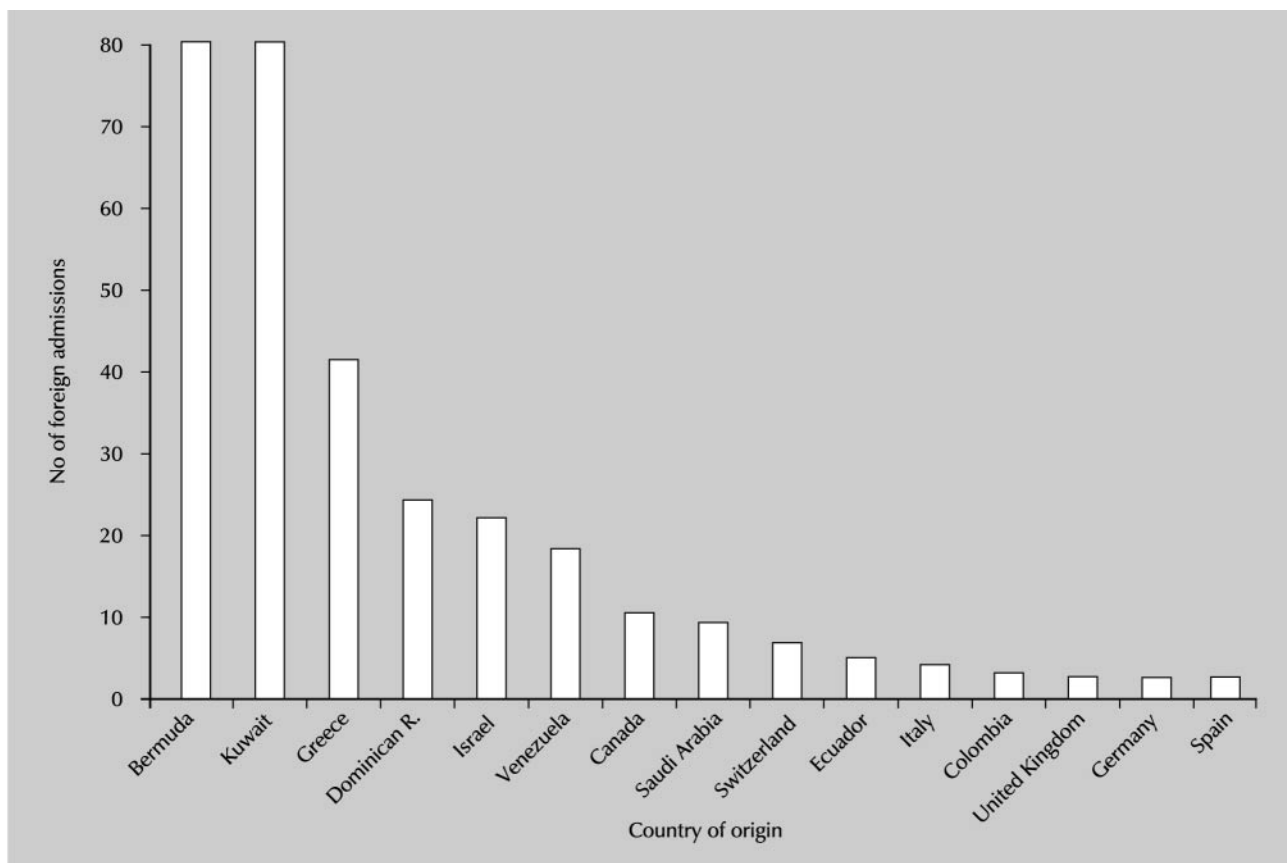
Figure 2. Numbers of foreign admissions to Massachusetts General Hospital per one million population of the country of origin. For Bermuda the value is off scale at 2,864.

The numbers of admissions of Greek patients by year are shown in figure 3. There were no substantial fluctuations over the years, and there was no particular trend regarding the month of the year or the season during which admissions of residents of Greece took place (figures 3, 4). The lowest numbers of admissions occurred in August and September and the highest in January and July, but the differences were not statistically significant (one way ANOVA, post hoc Bonferoni for multiple comparisons, P=0.460).

The mean length of hospital stay was 7.8 days (median 5 days, mode 2 days, range 1 to 251 days, SD 14.3). There were two outliers, at 251 and 82 days respectively (this was actually the same patient with complex medical issues who was discharged and readmitted). The mean length of hospital stay, excluding the two admissions of the outlier patient, was 7.07 days (range 1 to 55 days, SD 7.3). This number is no different from the mean length of hospital stay for all patients.

Principal diagnosis

Table 2 lists the principal diagnosis for the 426 admissions of Greek patients. A neoplasm was the principal diagnosis for the largest group of patients (37%, 157/426 admissions). Diseases of the circulatory system including congenital circulatory conditions were second at 34% (147/426) and musculoskeletal problems and injuries were the third most common disorders at 5% each (23/456).

Table 3 shows in more detail the type of neoplasms listed as the principal diagnosis for 157 admissions. In 38% (61/157) of admissions the neoplastic process involved the brain or spinal cord (28% malignant and 10% benign). Other large categories included neoplasms of the genitourinary system (13%), of bone (12%) and of the digestive organs (7%).

A circulatory disorder was listed as the principal diagnosis in 147 admissions. As shown in table 4, ischemic heart disease and related cardiac problems were diagnosed in 45% (67/147). Cerebrovascular disease including ischemia, bleeding and congenital lesions were diagnosed in 39% (64/147). Prominent among the congenital vascular lesions of the central nervous system (CNS) were arteriovenous malformations.

Consideration of admissions by gender and disease entity showed that more men than women were admit-
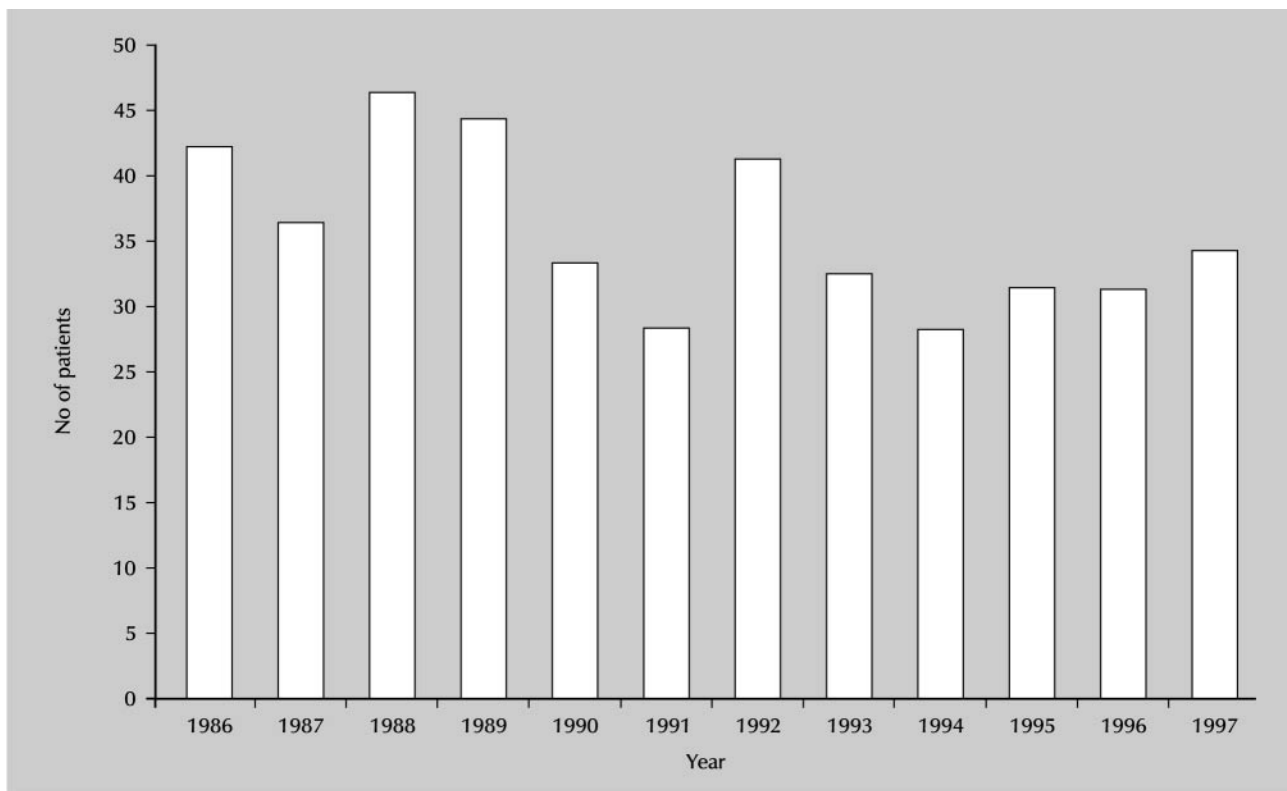
Figure 3. Numbers of admissions to Massachusetts General Hospital of patients from Greece by year.

Table 2. Principal diagnosis of patients from Greece (N=426 admissions).

Diagnosis (ICD-9-CM; 3-digit code)	No	(%)
Infectious & parasitic diseases (001–139)	7	
Neoplasms (140–239)	157	(37%)
Endocrine, nutritional, metabolic disorders (240–279)	8	
Diseases of blood & blood forming organs (280–289)	1	
Mental disorders (290–319)	0	
Diseases of nervous system & sense organs (320–389)	17	
Diseases of the circulatory system (390–459)	100	(23%)
Diseases of the respiratory system (460–519)	9	
Diseases of the digestive system (520–579)	8	
Diseases of the genitourinary system (580–629)	10	
Complications of pregnancy, childbirth (630–676)	1	
Diseases of skin & subcutaneous tissues (680–709)	3	
Diseases of musculoskeletal system (710–739)	23	(5%)
Congenital anomalies of the circulatory system	47	(11%)
Congenital anomalies, other	8	
Conditions originating in perinatal period (760–779)	1	
Ill defined conditions (780–799)	3	
Injury & poisoning (800–999)	23	(5%)
Total	426	

ted in all disease categories except two. In the category of neoplasms outside the CNS and in the group of cerebrovascular aneurysms women constituted the majority.

Listed among the 426 admissions of Greek subjects are two residents of Greece who did not travel specifically to seek medical care in Boston. One patient fell ill while on board a flight from Athens to New York. He left the plane in Boston and was admitted to the hospital for what was eventually diagnosed as a viral infection. The second patient was travelling to Boston to visit relatives. After the long flight from Athens to Boston she complained of breathing difficulties, was admitted and treated for pulmonary embolism.

Clinical service

Another way of studying the principal diagnosis of the patients from Greece and the expertise required in their management is to consider the clinical service to which they were assigned as shown in table 5. Surgery, medicine and pediatrics were the admitting services in 57%, 30% and 13% of cases respectively. Neurology and neurosurgery combined accounted for 32% (139/ 426) and cardiology and cardiac surgery combined accounted for 17% (72/426) of the admissions.
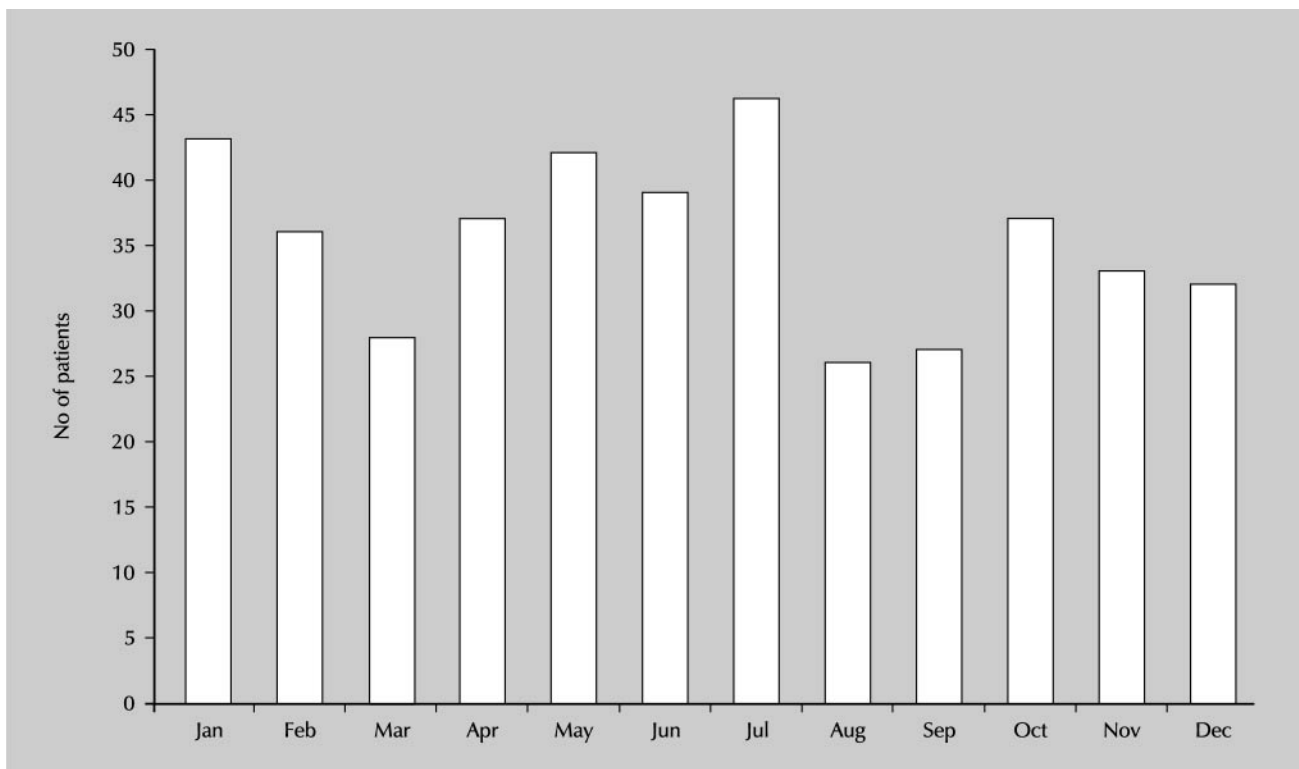
Figure 4. Numbers of admissions to Massachusetts General Hospital of patients from Greece by month.

Table 3. Types of neoplasms (N=157 admissions).

Types of neoplasm (CDC-9-CM; 3-digit code)	Number	(%)
MN of nasopharynx (147)	5	
MN of digestive organs (150–159)	11	(7%)
MN of respiratory organs (160–165)	9	
MN of bone, connective tissue, skin, breast (170–175)	19	(12%)
MN of genitourinary organs (179–189)	20	(13%)
MN of the eye (190)	2	
MN of brain & other parts of nervous system (191–192)	45	(28%)
MN of the thyroid	2	
Secondary MN, various sites (196–198)	15	(10%)
MN of lymphatic & hematopoietic tissue (200–208)	7	
Benign N various sites (210–224)	6	
Benign N of brain and other nervous tissue (225)	16	(10%)
Total	157	

MN: Malignant neoplasm, N: Neoplasm

Table 4. Types of circulatory disorders (N=147 admissions).

Type of disorder (CDC-9-CM; 3-digit code)	Number	(%)
Cardiac (391–429)	67	(45%)
Vascular, other than cardiac (440–453)	16	
Cerebrovascular (430–438)	17	(11%)
Congenital involving the CNS (747)	41	(28%)
Congenital, non CNS (747)	6	
Total	147	

CNS: Central nervous system

Principal procedure or intervention

The principal operations, procedures, or interventions performed during each admission are listed in table 6. The most common operations and interventions were those in the cardiovascular system (21%) and 22 of the 91 interventions were cardiac catheterizations. The second most common group of procedures was on the CNS (16%) and the third most common, on the musculoskeletal system (9%).

Hospital charges

Hospital charges were available for 330 of the 426 admissions. Charges for FY 1994–1997 could not be extracted due to a change of the data entry system. On the basis of the available information, the mean hospital charge for the patients from Greece was $12,983 USD per patient, per admission (range $392 to $330,368, SD 21,397). Here, as for the length of stay,

Table 5. Admissions by clinical service (N=426 admissions).

Clinical service	Number	(%)
Neurology	44	
Cardiology	43	
Internal medicine	23	
Oncology	19	
Medical services, all	129	(30%)
Neurosurgery	85	
General surgery	33	
Cardiac surgery	29	
Orthopedic surgery	29	
Vascular surgery	23	
Thoracic surgery	16	
Urology	15	
Gynecology	13	
Surgical services, all	243	(57%)
General pediatrics	23	
Pediatric surgery	13	
Orthopedics	10	
Pediatric neurology	8	
Pediatric services, all	54	(13%)

Table 6. Operations, principal procedures or interventions (N=426 admissions).

Procedure (ICD-9; 2-digit code)	Number	(%)
Nervous system (01–05)	68	(16%)
Endocrine (06–07)	8	
Eye (08–16)	2	
Ear (18–20)	2	
Nose, mouth, pharynx (21–29)	2	
Respiratory system (30–34)	23	
Cardiovascular system (35–39)	91	(21%)
Hemic, lymphatic system (40–41)	3	
Digestive system (42–54)	25	
Urinary system (55–59)	17	
Male genital organs (60–64)	3	
Female genital organs (65–71)	8	
Musculoskeletal system (76–84)	37	(9%)
Integumentary system (85–86)	10	
Miscelaneous diagnostic & therapeutic (87–99)	146	(34%)
Medical imaging	104	
Radiation therapy with particles	14	
Chemotherapy	26	
None; Evaluation only	23	(5%)

if the outlier with the two longest stays and therefore with the two highest bills were to be excluded, the mean hospital charges were $11,810 USD per patient, per admission (range $392 to $80,379, SD 21.9).

DISCUSSION

Foreign admissions to the MGH constitute a very small fraction, about 1% of admissions overall. Foreign patients come from many countries, 97 different nations or territorial entities being listed as countries of origin of foreign patients admitted during the twelve years of observation. However, Greece had the largest contingent, accounting for 11.2% of all foreign admissions, more than Canada (7.7%), Italy (5.6%) or Germany (4.8%) (tabl. 1). The higher percentage of admissions of patients from Greece becomes even more pronounced, when the per capita ratio is taken into account, based on the population of each country (Greece 10.6 million, Venezuela 22.5 million, Italy 22.5 million, all according to 1997 estimates).

What was the demographic profile of the patients form Greece? They were mostly men, 63% as compared to 37% for women. The men were older than the women on the average with a mean age of 44 years compared to 37 years for women. The oldest man was 84 while the oldest woman was 74 years old. Of the cases 10% were pediatric i.e., younger than 18 years of age.

Most patients from Greece came to Boston for management of a neoplasm (37%) (tables 2, 3), most commonly of the brain or the rest of the nervous system, 38% of all neoplasms belonging to this group. Of these, 73% were malignant tumors such as astrocytomas or glioblastomas and 27% were benign, mostly meningiomas. Malignancies of the genitourinary organs constituted 13% of all neoplasms with ovarian and uterine cancers predominant. The next largest category of neoplasms was that of bone and connective tissue, with malignant bone tumors being the most common.

Another large group of patients form Greece came to the MGH for management of a circulatory disorder (34%, comprising 23% acquired and 11% congenital) (tables 2, 4). Included here are cardiac and cerebrovascular lesions, according to the grouping of the ICD-9-CM International Classification of Diseases. Atherosclerotic coronary artery disease was the predominant clinical entity in the cardiovascular group, and subarachnoid bleeding secondary to ruptured intracranial aneurysm in the cerebrovascular group, while arteriovenous malformations of the brain were the most common of the congenital circulatory anomalies.

Consultants from a variety of specialties were usually involved in the management of the patients from Greece. However, the primary admitting service provides information about the main area of concern. In this regard, 57% of the patients were admitted to a surgical service,

30% to a medical service and 13% to a pediatric service (tabl. 5). Neurosurgery was the most common of the surgical specialties used (35%, 85/243) and neurology and cardiology of the medical services (34% each). An operation or major intervention on the cardiovascular system was performed during 21% of admissions (tabl. 6), and on the nervous system during 16% of the admissions. A number of procedures coded as miscellaneous in the ICD-9-CB classification (codes 87–99) were applied during 34% of the admissions. These included the patients who had cancer chemotherapy or treatment of cerebral arteriovenous malformations with proton beam particles and those subjected to specialized medical imaging. No operation or major intervention was listed for 23 admissions (5%). These were patients who underwent medical and laboratory evaluation only.

Once admitted, the patients from Greece stayed in the hospital for an average of 7.8 days. This is the same as the average length of stay for all patients during the period studied. It should be noted that in recent years this number has been steadily decreasing under pressure from the health insurance carriers in the setting of managed care. Hospital charges were $12,983 (USD) on the average, which includes fees for the hospital room, nursing care, operating room, anesthesia, ancillary services, and laboratory and x-ray services. Not covered in this study were fees in connection with outpatient visits and doctor's fees, which in many instances would have been directly billed to the patient, travel and subsistence expenses for the patient before admission and after discharge, or expenses incurred by persons escorting the patient.

According to data included in a European study (abstracted in the Greek newspaper "To Vima", February 5, 1995), the demand of Greek patients for health care outside Greece decreased during the period 1992–1994. According to this source Greek health carriers paid 89.7 million USD for Greek patients seeking care outside Greece in 1992. This amount dropped to 79 million USD in 1994. The same source indicates that 82.8% of Greek patients going for health care abroad prefer countries of the European Union, mainly England, France and Germany. On a much smaller scale, there has been no reduction in the number of admissions to the MGH of patients from Greece, which from a low of 28 admissions in 1994 increased to 34 in 1997.

This study has limitations. It excludes for example the patients from Greece who visited other Boston hospitals or hospitals elsewhere in the US, Europe and the rest of the world. These data must be available from the Greek state authorities but were not checked for this work. The authors are aware that many pediatric cases are referred to the Boston Children's Hospital and that patients go to the Memorial Center in New York for cancer-related problems and others go to Houston, Texas for cardiovascular problems. Nevertheless, despite its limitations, this investigation provides certain clues about the reasons why Greek patients seek medical care outside Greece.

The number of 426 admissions of 318 patients over a twelve-year period is low but it is higher than for any other country referring patients to this Boston hospital. It is of interest therefore to speculate on the reasons for such preference. There seem to be three main reasons, and there may be others. First, the reputation of the hospital, based on expertise developed in several clinical areas, must be an attractive feature. Second, the large Greek community in Massachusetts and the neighboring state of New Hampshire plays a definite role in bringing to Boston relatives and acquaintances for medical consultation. Third, and possibly the most important is the referral pattern which develops among physicians over time.

Specific examples in this investigation include a close line of communication and collaboration between physicians in Greece and the departments of neurosurgery, cardiology, cardiac surgery and interventional radiology at the MGH.

Finally, one further issue must be emphasized. The majority of the patients from Greece and from other countries came to Boston for management of complex medical problems. The key word here is management, as opposed to diagnosis. In less than 10% of the patients from Greece was there a discrepancy, in part or in toto, between the admitting and the principal diagnosis. Reaching a correct diagnosis was not a problem in most instances. Management by an expert team, access to expertise in specialized surgery and interventions, availability of advanced technology and a hospital infrastructure with reasonable resources were the reasons which brought the Greek patients to Boston. In this context, any enthusiasm about the so-called telemedicine must be tempered by the harsh reality. Telemedicine may be of some help in the diagnosis of difficult clinical conditions but these are infrequent. Unfortunately, and until robotic telesurgery becomes firmly established, telemedicine will add an additional layer of expense. It will have no measurable effect on the number of Greek patients who elect to seek medical care outside Greece.

ΠΕΡΙΛΗΨΗ

Περίθαλψη ασθενών από την Ελλάδα σε νοσοκομείο της Βοστόνης

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ΣΚΟΠΟΣ Μελέτη των εισαγωγών Ελλήνων ασθενών στο Γενικό Νοσοκομείο της Μασσαχουσέτης, στη Βοστόνη. Καθορισμός και αξιολόγηση στοιχείων σχετικών με την κύρια διάγνωση, επεμβάσεις, χρόνο νοσηλείας και τη δαπάνη νοσηλείας. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Έρευνα μέσω ηλεκτρονικών υπολογιστών των αρχείων του Νοσοκομείου για την ανεύρεση εισαγωγών όλων των αλλοδαπών κατά την περίοδο 1986–1997. Αλλοδαποί θεωρούνται ασθενείς των οποίων ο νόμιμος και μόνιμος τόπος διαμονής είναι οποιαδήποτε χώρα εκτός από τις Ηνωμένες Πολιτείες. Ειδική έρευνα των νοσοκομειακών αρχείων των ασθενών από την Ελλάδα για τη συλλογή δημογραφικών στοιχείων και τον καθορισμό της κύριας διάγνωσης, επεμβάσεων, χρόνου νοσηλείας και νοσηλευτικής δαπάνης. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Μεταξύ όλων των αλλοδαπών που εισήχθησαν για περίθαλψη στο Γενικό Νοσοκομείο της Μασσαχουσέτης (Βοστόνη) σε διάστημα 12 ετών, οι ασθενείς από την Ελλάδα αποτέλεσαν το μεγαλύτερο ποσοστό (11,2%). Η Ελλάδα ήταν η τρίτη πιο συχνή χώρα προέλευσης, με βάση τον κατά κεφαλή αριθμό νοσηλευομένων αλλοδαπών (αριθμός πληθυσμού του 1993). Μεταξύ των Ελλήνων ασθενών, η νεοπλασματική εξεργασία ήταν η πιο συχνή κύρια διάγνωση (37%) και ακολουθούσαν οι παθήσεις του κυκλοφορικού (23%). Κακοήθεις όγκοι του εγκεφάλου και του λοιπού κεντρικού νευρικού συστήματος ήταν τα πιο συχνά νεοπλάσματα (28%). Καρδιακές παθήσεις (45%) και αγγειακά εγκεφαλικά επεισόδια (28%) ήταν τα πιο συχνά προβλήματα του κυκλοφορικού. Το τμήμα νοσηλείας ήταν χειρουργικό σε 57%, παθολογικό σε 30% και παιδιατρικό σε 13% των εισαγωγών. Η πιο συχνή χειρουργική ή άλλη επέμβαση αφορούσε στο κυκλοφορικό (21%) και στο νευρικό σύστημα (16%). Ο μέσος χρόνος διαμονής στο νοσοκομείο ήταν 7,8 ημέρες και ο μέσος όρος νοσηλείων $12.983 (USD) ανά ασθενή. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Σε μια περίοδο 12 ετών, ασθενείς από την Ελλάδα παρουσίασαν την υψηλότερη ποσοστιαία αναλογία μεταξύ όλων των αλλοδαπών που εισήχθησαν για νοσηλεία στο Γενικό Νοσοκομείο της Μασσαχουσέτης, στη Βοστόνη. Η Ελλάδα ήταν η τρίτη πιο συχνή χώρα προέλευσης, με βάση τον κατά κεφαλή αριθμό νοσηλευομένων αλλοδαπών. Οι πιο συχνές παθήσεις για τις οποίες ασθενείς από την Ελλάδα αναζήτησαν περίθαλψη στη Βοστόνη ήταν εγκεφαλικά νεοπλάσματα, παθήσεις των στεφανιαίων και αγγειακές παθήσεις του κεντρικού νευρικού συστήματος. Οι πιο συχνές επεμβάσεις ήταν η παράκαμψη των στεφανιαίων και εγχειρήσεις στον εγκέφαλο.

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