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Healthcare Resources Consumed by Foreign Patients in the Public Hospitals of East Macedonia and Thrace

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Abstract:

The rising healthcare expenditures as percentage of GDP is a reality that all developed countries have to deal with. Epidemiologic standards have changed dramatically since the past. The rapid development of knowledge in the scientific field of medicine and the new state of the art medical technology has led to new treatments for various health problems. Prior fatal diseases have become chronic, and life expectancy has risen significantly, leading healthcare costs to explosion. Healthcare spending in Greece has been increased between 2000 and 2009 at a rapid rate of 6.1% per year, but it has dropped the following years, driven by a sharp reduction in public spending on health care as part of government-wide efforts to reduce the large budgetary deficit. This situation has caused an increasing offence sense in population. On the other hand, the last years, Greece has become an immigrant (legal and illegal) reception centre.This study presents comparative data about the consumed resources by Greek and foreign patients in the public hospitals of east Macedonia and Thrace for the years 2006-2010.

Key Words: *Healthcare Resources, Public Hospitals, Migrants*

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1. Introduction

The Greek National Health System (ESY- Ethniko Systima Ygeias) was established in 1983 and provides health care for all residents of Greece. Primary health care services are provided mainly through the social insurance institutions' specialists, the rural health centres and the outpatient departments of regional and district hospitals. Secondary and tertiary care is provided by ESY public hospitals and private for-profit hospitals.

There are 132 public hospitals under the ESY out of which 84 are general hospitals, 7 are university hospitals, 23 are specialized hospitals and 18 are small hospitals/health centres. Most public hospitals have a capacity of 100–200 beds and offer mainly secondary health care, while 32 of them have a capacity of more than 400 beds and offer tertiary health care, as they are equipped with advanced technology and are staffed with specialized personnel. In addition, there are 14 military hospitals funded by the Ministry of Defence, 5 hospitals funded exclusively through the IKA budget, 2 university hospitals which receive extra funds from the Ministry of Education and 2 hospitals under the supervision of the Ministry of Justice, serving the needs of prisoners (Economou 2010).

The health system in Greece is a mixed system, financed by a combination of tax-based and insurance-based statutory financing (Tragakes and Polyzos 1996). Greek public hospitals are funded partially from the State Budget and partially from the fees for the provided services. Fees are paid in most cases either by public social insurance organizations or by private insurance organizations. Social insurance is mandatory for all employees and includes health insurance. Registration with such organizations requires part or full time employment.

The public health system covers Greek, European Union and non European Union citizens according to the norms and standards of international and European social security law and bilateral social insurance conventions and agreements. If a foreigner lives in Greece and pays social security contributions, he has the same level of access to public healthcare services. Unemployed citizens are covered for a period up to 12 months. Poor citizens are characterized as needy provided they can prove their economic status and have free access to health centers and public hospitals. The uninsured have no free access to health services and must pay for them.

In 2010, the Greek economy started to face a deep structural crisis, the main features of which are a large fiscal deficit, huge public debt and the continuous erosion of the country's competitive position. According to OECD data, health spending in Greece increased at a rapid rate of 5.7% per year in real terms on average between 2000 and 2009, but fell by 11% in both 2010 and 2011. These cuts were driven by a sharp

reduction in public spending on health as part of government-wide efforts to reduce the large budgetary deficit.

Most of the reductions in public spending have been achieved through cuts in wages and actual reductions in the number of health workers, as well as price reductions for pharmaceuticals (OECD, 2012). From the beginning of the crisis, the Ministry of Health has considered a range of proposals for reform, all aiming to achieve greater efficiency and reduce expenditure, responding to one of the IMF's key loan conditions, namely that public health expenditures must not exceed 6% of GDP (Kentikelenis and Papanicolas, 2012). The Minister of Health called for a 40% reduction in hospital budgets, but only a few hospitals achieved this target. On the other hand, the crisis caused an increased utilization of public health services. This reflects the inability to afford private sector health services, which previously played a large role in Greece (Kentikelenis et al., 2011).

This conflict between the demand for and offer of healthcare services is causing an increasing sense of isolation and injustice in the population which is sometimes expressed by the phenomena of social exclusion and persecution especially for immigrants, minorities and other vulnerable groups who become *'scapegoats'* for populist politicians and the media. In the past, Greece was predominantly a country from which people emigrated. However, there has been a gradual reversal in the last three decades and Greece has recently emerged as a country which is attracting immigrants. Most of these come from neighboring countries mainly from Albania, but there are a considerable number of economic immigrants and asylum seekers who come from Eastern Europe, the former USSR, the Middle East and several Asian and African countries.

According to the National Statistical Service of Greece (ESYE), in a population of 11,192,849 people in 2007, there were 683,751 immigrants with valid residence permits. The same report has estimated that there were 280,000 illegal immigrants. However, the new ESYE data from the 2011 census show an increase in the immigrant population. In a total population of 10,815,197, there were 911,929 immigrants, while there is no report on the number of illegal immigrants.

As mentioned above, legal insured immigrants have the same access to hospital services as Greek citizens. However, for the undocumented immigrants, legislation prohibits healthcare provision with the exception of emergency treatment for life threatening illnesses as well as healthcare provision to underage children (Article 84/N.3386/2005). Infectious diseases, such as HIV, and childbirth, are normally considered as emergencies (Médecins du Monde 2009). However, in practice undocumented migrants often receive primary healthcare at rural health centers as well as from out-patient hospital services. Occasionally, secondary care might also be provided, albeit unofficially.

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2. The Study

The region of Eastern Macedonia and Thrace consists of five prefectures: Drama, Evros, Kavala, Xanthi and Rodopi. The total population of the region according to the data of a 2011 census is 608,182 people. While data is available for the total number of immigrants in Greece (911,929), no published information could be found on the number of immigrants in the Eastern Macedonia and Thrace region. The demand for healthcare services in the region is satisfied by six public hospitals described in Table 1:

Table 1: Public Hospitals of Eastern Macedonia and Thrace Region

Hospital	Prefecture	City	Capacity in beds
General University Hospital of Alexandroupolis	Evros	Alexandroupolis	500
General Hospital of Didimoticho	Evros	Didimoticho	112
General Hospital of Komotini "Sismanoglio"	Rodopi	Komotini	238
General Hospital of Kavala	Kavala	Kavala	400
General Hospital of Xanthi	Xanthi	Xanthi	222
General Hospital of Drama	Drama	Drama	270

We collected data for only 5 out the six hospitals. Unfortunately, senior management at the University Hospital of Alexandroupolis refused to provide relevant data.
Collected data differ among hospitals due to the different practices in registry recording as well as the differences in the software that hospitals use. Collected data from the hospitals of Kavala, Xanthi and Didimoticho relate to the years 2005-2011, while the data from the hospitals of Drama and Komotini relate to the years 2008-2011.

Data include:
(a) the health insurance organization that covers the fees,
(b) the admission diagnosis,
(c) the ward of admission (for the hospitals of Kavala, Xanthi and Didimoticho)
(d) the length of stay,
(e) the ethnicity and
(f) the reimbursement amount.

In order to proceed with our analysis, we recoded the insurance organization data, which diversified greatly in terms of how they were recorded, especially in the cases of uninsured patients. In some hospitals there were records labeled "needy" and other records labeled "undocumented", while in other hospitals there were records labeled "pending". In an initial recoding, we merged these cases into two major categories: "Uninsured" and "Needy". We kept the label "needy" as it was recorded in any relevant case, because it describes a person legally living in the country, who has been unemployed for over 12 months and has zero income. Such people have free access to healthcare services. In a second recoding, and in order to define the loss of the hospitals from uncollected receivables we merged all these cases under the label "uninsured", since all have the same loss impact in the hospitals' revenue.

In our initial recoding, we also kept the label "European health insurance card" for foreign nationals who owned such a card and were hospitalized free of charge as an interesting indication, while the other cases describing the different social security funds (IKA, OGA etc.) were merged and named "public insurance". In a second recoding we included the cases labeled "European Health Insurance Card" in the category "Public insurance", since it has the same positive impact on the collection of the amounts receivable from the hospitals. The remaining cases, concerning payments either directly from the patient or from a private insurance organization, initially remained as they were, distinguishing between different cases of people who are wealthy enough to be covered by a private insurance organization and people who did not have any kind of insurance (like the unemployed and/or undocumented) and were obliged to pay for the received healthcare services, either from their savings or by loaning the amount. In a second stage recoding, we merged these two cases and labeled them as "private insurance" since they have the same positive impact on the hospitals' revenue.

The data concerning the ethnicity of patients initially remained unchanged in order to map the countries of origin of the foreign patients. In a second stage analysis, they were recoded, and the cases, which numbered under 100, were merged into "Other European Union countries" and "Other Non European Union countries". In the final stage, all cases were recoded into three major categories: "Greece", "European Union countries" and "Non European Union countries". However, we have to mention that there is no indication whether the foreign patients are immigrants who live in the region or tourists who needed healthcare services during their holidays or foreigners from neighboring countries who trust the Greek doctors and hospitals and came to Greece to be treated.

The data concerning the length of stay is directly related to the data concerning the reimbursement amount since the reimbursement of Greek public hospitals is based on a standard per diem fee.

The data concerning the admission diagnosis was ignored, since it was characterized by a wide diversification in the terms describing the ailment even for the same diseases and even in the same hospital. For example, in the hospital of Kavala in the case of patients with multiple sclerosis, there were records labeled "multiple sklerosis", "sklirinsi kata plakas" (the Greek term for the disease) or the abbreviation "MS". Moreover, the admission diagnosis is the initial "working" diagnosis documented by the patient's admitting or attending physician who determines whether inpatient care is necessary. In many cases, the definitive final diagnosis which is determined through studies, procedures, and consultations during the inpatient hospital stay, differs from the diagnosis on admission. So, cases can be found where the admission diagnosis was quite general (e.g. "lower back pain" or "belly pain") resulting in a three-day hospital stay. It is obvious that the belly pain was only a symptom not the disease. It would be quite interesting if we had the final diagnosis. It could be possible to structure a kind of epidemiologic profile of foreign inpatients, by the country of origin.

The data concerning the ward of admission was utilized to give an indication of the kind of health problems which foreign patients face. Table 2 below is a frequency table, mapping the countries of origin of foreign patients.

Table 2. Frequencies of Countries the Foreign Patients Come From

Country	Frequency	Percent	Cumulative Percent
Albania	6,458	46.02%	46.02%
Bulgaria	1,790	12.75%	58.77%
Georgia	1,214	8.65%	67.42%
Russia	1,145	8.16%	75.58%
Germany	542	3.86%	79.44%
Armenia	528	3.76%	83.21%
Moldavia	210	1.50%	84.70%
United Kingdom	183	1.30%	86.01%
Ukraine	160	1.14%	87.15%
Turkey	146	1.04%	88.19%
Kazakhstan	129	0.92%	89.11%
Serbia	124	0.88%	89.99%
Egypt	118	0.84%	90.83%
Iraq	117	0.83%	91.66%
Romania	114	0.81%	92.48%

Italy	77	0.55%	93.02%
Syria	64	0.46%	93.48%
Poland	58	0.41%	93.89%
Uzbekistan	55	0.39%	94.29%
China	51	0.36%	94.65%
Cyprus	47	0.33%	94.98%
Netherlands	45	0.32%	95.30%
Pakistan	43	0.31%	95.61%
Argentine	42	0.30%	95.91%
FYROM	34	0.24%	96.15%
Czech Republic	32	0.23%	96.38%
Country	Frequency	Percent	Cumulative Percent
Palestine	32	0.23%	96.61%
Spain	30	0.21%	96.82%
France	28	0.20%	97.02%
Afghanistan	27	0.19%	97.21%
Sweden	26	0.19%	97.40%
Slovakia	23	0.16%	97.56%
Somalia	23	0.16%	97.73%
Belarus	22	0.16%	97.88%
Austria	21	0.15%	98.03%
Denmark	21	0.15%	98.18%
Chile	20	0.14%	98.33%
Hungary	20	0.14%	98.47%
Iran	20	0.14%	98.61%
USA	19	0.14%	98.75%
Switzerland	18	0.13%	98.87%
Croatia	14	0.10%	98.97%
India	14	0.10%	99.07%
Belgium	11	0.08%	99.15%
Brazil	10	0.07%	99.22%
Australia	8	0.06%	99.28%
Jordan	8	0.06%	99.34%

Portugal	8	0.06%	99.39%
Algeria	7	0.05%	99.44%
Lithuania	6	0.04%	99.49%
Morocco	6	0.04%	99.53%
Canada	5	0.04%	99.57%
Nigeria	5	0.04%	99.60%
Angola	4	0.03%	99.63%
Eritrea	4	0.03%	99.66%
Norway	4	0.03%	99.69%
Uknown	4	0.03%	99.71%
Bangladesh	3	0.02%	99.74%
Dominikus	3	0.02%	99.76%
Japan	3	0.02%	99.78%
Myanmar	3	0.02%	99.80%
Philippines	3	0.02%	99.82%
Tanzania	3	0.02%	99.84%
Azerbaijan	2	0.01%	99.86%
Bosnia	2	0.01%	99.87%
Slovenia	2	0.01%	99.89%
Srilanka	2	0.01%	99.90%
Tajikistan	2	0.01%	99.91%
Kashmir	1	0.01%	99.92%
Kenya	1	0.01%	99.93%
Korea	1	0.01%	99.94%
Country	Frequency	Percent	Cumulative Percent
Lebanon	1	0.01%	99.94%
Mauritania	1	0.01%	99.95%
Mongolia	1	0.01%	99.96%
New Zealand	1	0.01%	99.96%
Ruanda	1	0.01%	99.97%
Sudan	1	0.01%	99.98%
Tunis	1	0.01%	99.99%
Turkmenistan	1	0.01%	99.99%
Venezouela	1	0.01%	100.00%

Total	14,034	100%	

We realize that about half of foreign patients come from Albania, which is the source country for the bulk of immigrants to Greece. In the 90s, Greece became a popular haven for Albanians (Vidali 1999), and they still constitute the largest immigrant group in the country. Today, most of them are incorporated into the Greek society and there is already a second, born in Greece, generation.

Bulgarians, Georgians and Russians follow, with percentages totalling 12.75%, 8.65% and 8.16% respectively. Traditionally, Greece was an attractive destination for these countries, because of some features such as:
- Large informal economies (20-30%).
- Large agricultural sectors and other labour-intensive economic sectors.
- Increasing elderly populations in need of welfare not provided by the state.

These features tend to favour the illegal and semi-legal employment of immigrants, such as seasonal farm labourers, housekeepers and construction workers (Baldwin-Edwards, 2004). The cultural and religious similarities (Greeks are Orthodox Christians as are Bulgarians, Georgians and Russians) seem to be another factor which affects the preference of immigrants from these countries (Maroufof, 2013).
The following Table 3 shows the geographic distribution of these groups among the hospitals in the region of Eastern Macedonia and Thrace.

Table 3: Foreign Patients by Nationality and Hospital in the Region of Eastern Macedonia and Thrace for the years 2005-20111

		Hospital					Total
		Didimoticho	**Drama**	**Kavala**	**Komotini**	**Xanthi**	
Albania	Count	12	259	5619	64	504	6,458
	% within Nationality	.2%	4.0%	87.0%	1.0%	7.8%	100.0%
	% within Hospital	1.7%	43.3%	54.8%	6.5%	33.9%	46.0%
	% of Total	.1%	1.8%	40.0%	.5%	3.6%	46.0%
Armenia	Count	82	4	183	66	193	528
	% within Nationality	15.5%	.8%	34.7%	12.5%	36.6%	100.0%
	% within Hospital	11.5%	.7%	1.8%	6.7%	13.0%	3.8%
	% of Total	.6%	.0%	1.3%	.5%	1.4%	3.8%

Bulgaria	Count	242	0	1158	103	287	1,790
	% within Nationality	13.5%	0.0%	64.7%	5.8%	16.0%	100.0%
	% within Hospital	34.0%	0.0%	11.3%	10.4%	19.3%	12.8%
	% of Total	1.7%	0.0%	8.3%	.7%	2.0%	12.8%

		Hospital					**Total**
		Didimoticho	**Drama**	**Kavala**	**Komotini**	**Xanthi**	
Egypt	Count	0	0	108	0	10	118
	% within Nationality	0.0%	0.0%	91.5%	0.0%	8.5%	100.0%
	% within Hospital	0.0%	0.0%	1.1%	0.0%	.7%	.8%
	% of Total	0.0%	0.0%	.8%	0.0%	.1%	.8%
Georgia	Count	64	79	706	293	72	1,214
	% within Nationality	5.3%	6.5%	58.2%	24.1%	5.9%	100.0%
	% within Hospital	9.0%	13.2%	6.9%	29.7%	4.8%	8.7%
	% of Total	.5%	.6%	5.0%	2.1%	.5%	8.7%
Germany	Count	11	0	437	34	60	542
	% within Nationality	2.0%	0.0%	80.6%	6.3%	11.1%	100.0%
	% within Hospital	1.5%	0.0%	4.3%	3.4%	4.0%	3.9%
	% of Total	.1%	0.0%	3.1%	.2%	.4%	3.9%
Iraq	Count	48	0	40	24	5	117
	% within Nationality	41.0%	0.0%	34.2%	20.5%	4.3%	100.0%
	% within Hospital	6.8%	0.0%	.4%	2.4%	.3%	.8%
	% of Total	.3%	0.0%	.3%	.2%	.0%	.8%
Kazakhstan	Count	9	46	0	62	12	129
	% within Nationality	7.0%	35.7%	0.0%	48.1%	9.3%	100.0%
	% within Hospital	1.3%	7.7%	0.0%	6.3%	.8%	.9%
	% of Total	.1%	.3%	0.0%	.4%	.1%	.9%
Moldavia	Count	7	2	181	3	17	210
	% within	3.3%	1.0%	86.2%	1.4%	8.1%	100.0%

	Nationality						
	% within Hospital	1.0%	.3%	1.8%	.3%	1.1%	1.5%
	% of Total	.0%	.0%	1.3%	.0%	.1%	1.5%
Romania	Count	20	0	43	17	34	114
	% within Nationality	17.5%	0.0%	37.7%	14.9%	29.8%	100.0%
	% within Hospital	2.8%	0.0%	.4%	1.7%	2.3%	.8%
	% of Total	.1%	0.0%	.3%	.1%	.2%	.8%
Russia	Count	29	162	731	152	71	1,145
	% within Nationality	2.5%	14.1%	63.8%	13.3%	6.2%	100.0%
	% within Hospital	4.1%	27.1%	7.1%	15.4%	4.8%	8.2%
	% of Total	.2%	1.2%	5.2%	1.1%	.5%	8.2%
Serbia	Count	0	0	113	0	11	124
	% within Nationality	0.0%	0.0%	91.1%	0.0%	8.9%	100.0%
	% within Hospital	0.0%	0.0%	1.1%	0.0%	.7%	.9%
	% of Total	0.0%	0.0%	.8%	0.0%	.1%	.9%
Turkey	Count	24	5	32	51	34	146
	% within Nationality	16.4%	3.4%	21.9%	34.9%	23.3%	100.0%
	% within Hospital	3.4%	.8%	.3%	5.2%	2.3%	1.0%
	% of Total	.2%	.0%	.2%	.4%	.2%	1.0%

		Hospital					**Total**
		Didimoticho	**Drama**	**Kavala**	**Komotini**	**Xanthi**	
Ukraine	Count	4	7	112	12	25	160
	% within Nationality	2.5%	4.4%	70.0%	7.5%	15.6%	100.0%
	% within Hospital	.6%	1.2%	1.1%	1.2%	1.7%	1.1%
	% of Total	.0%	.0%	.8%	.1%	.2%	1.1%
United Kingdom	Count	0	0	163	4	16	183
	% within Nationality	0.0%	0.0%	89.1%	2.2%	8.7%	100.0%
	% within	0.0%	0.0%	1.6%	.4%	1.1%	1.3%

	Hospital						
	% of Total	0.0%	0.0%	1.2%	.0%	.1%	1.3%
Other EU Countries	Count	26	0	370	23	36	455
	% within Nationality	5.7%	0.0%	81.3%	5.1%	7.9%	100.0%
	% within Hospital	3.7%	0.0%	3.6%	2.3%	2.4%	3.2%
	% of Total	.2%	0.0%	2.6%	.2%	.3%	3.2%
Other Non EU Countries	Count	133	34	253	80	101	601
	% within Nationality	22.1%	5.7%	42.1%	13.3%	16.8%	100.0%
	% within Hospital	18.7%	5.7%	2.5%	8.1%	6.8%	4.3%
	% of Total	.9%	.2%	1.8%	.6%	.7%	4.3%
Total	Count	711	598	10,249	988	1,488	14,034
	% within Nationality	5.1%	4.3%	73.0%	7.0%	10.6%	100.0%
	% within Hospital	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	5.1%	4.3%	73.0%	7.0%	10.6%	100.0%

As we can see from the data in table 3. the bulk of foreign patients (73%) of most nationalities were hospitalized in the hospital of Kavala. Exceptions are the patients from Armenia. Iraq. Kazakhstan and Turkey. for whom the highest percentages were hospitalized in the hospital of Xanthi. Didimoticho. Komotini and Komotini respectively.

In the next table (4) we can see the kind of insurance by nationality.

Table 4: Foreign Patients by Nationality and Insurance in the Region of Eastern Macedonia and Thrace for the years 2005-2011

Nationality		Insurance						Total
		Direct payment	European Health Insurance Card	Needy	Private Insurance	Public Insurance	Uninsured	
Albania	Count	718	19	86	4	5,286	345	6,458
	% Nat.	11.1%	.3%	1.3%	.1%	81.9%	5.3%	100.%
	% Ins.	37.7%	2.9%	12%	3.3%	55.7%	30.1 %	46.0%
Armenia	Count	66	0	40	1	413	8	528
	% Nat.	12.5%	0.0%	7.6%	.2%	78.2%	1.5%	100.%
	% Ins.	3.5%	0.0%	5.6%	.8%	4.4%	.7%	3.8%
Bulgaria	Count	460	116	56	7	916	235	1,790
	% Nat.	25.7%	6.5%	3.1%	.4%	51.2%	13.1 %	100.%
	% Ins.	24.2%	17.5%	7.8%	5.7%	9.7%	20.5 %	12.8%

Nationality		Insurance						Total
		Direct payment	European Health Insurance Card	Needy	Private Insurance	Public Insurance	Uninsured	
Egypt	Count	6	3	2	0	94	13	118
	% Nat	5.1%	2.5%	1.7%	0.0%	79.7%	11.0 %	100.0%
	% Ins	.3%	.5%	.3%	0.0%	1.0%	1.1%	.8%
Georgia	Count	113	5	227	1	826	42	1214
	% Nat	9.3%	.4%	18.7%	.1%	68.0%	3.5%	100.0%
	% Ins	5.9%	.8%	31.7%	.8%	8.7%	3.7%	8.7%
Germany	Count	54	201	5	16	218	48	542
	% Nat	10.0%	37.1%	.9%	3.0%	40.2%	8.9%	100.0%
	% Insuran	2.8%	30.3%	.7%	13.0%	2.3%	4.2%	3.9%

	ce							
Iraq	Count	1	20	0	0	9	87	117
	% Nationality	.9%	17.1%	0.0%	0.0%	7.7%	74.4%	100.0%
	% Insurance	.1%	3.0%	0.0%	0.0%	.1%	7.6%	.8%
Kazakhstan	Count	15	0	19	0	95	0	129
	% Nationality	11.6%	0.0%	14.7%	0.0%	73.6%	0.0%	100.0%
	% Insurance	.8%	0.0%	2.6%	0.0%	1.0%	0.0%	.9%
Moldavia	Count	6	0	0	0	202	2	210
	% Nationality	2.9%	0.0%	0.0%	0.0%	96.2%	1.0%	100.0%
	% Insurance	.3%	0.0%	0.0%	0.0%	2.1%	.2%	1.5%
Romania	Count	21	9	18	6	44	16	114
	% Nationality	18.4%	7.9%	15.8%	5.3%	38.6%	14.0%	100.0%
	% Insurance	1.1%	1.4%	2.5%	4.9%	.5%	1.4%	.8%
Russia	Count	167	2	217	4	704	51	1145
	% Nationality	14.6%	.2%	19.0%	.3%	61.5%	4.5%	100.0%
	% Insurance	8.8%	.3%	30.3%	3.3%	7.4%	4.5%	8.2%
Serbia	Count	24	6	0	29	50	15	124
	% Nationality	19.4%	4.8%	0.0%	23.4%	40.3%	12.1%	100.0%
	% Insurance	1.3%	.9%	0.0%	23.6%	.5%	1.3%	.9%
Turkey	Count	61	8	6	5	44	22	146

	% Nationality	41.8%	5.5%	4.1%	3.4%	30.1%	15.1%	100.0%
	% Insurance	3.2%	1.2%	.8%	4.1%	.5%	1.9%	1.0%
Ukraine	Count	35	4	3	0	115	3	160
	% Nationality	21.9%	2.5%	1.9%	0.0%	71.9%	1.9%	100.0%
	% Insurance	1.8%	.6%	.4%	0.0%	1.2%	.3%	1.1%
United Kingdom	Count	20	60	7	4	71	21	183
	% Nationality	10.9%	32.8%	3.8%	2.2%	38.8%	11.5%	100.0%
	% Insurance	1.1%	9.0%	1.0%	3.3%	.7%	1.8%	1.3%

Nationality		**Insurance**						**Total**
		Direct payment	European Health Insurance Card	Needy	Private Insurance	Public Insurance	Uninsured	
Other EU Countries	Count	48	151	8	33	157	58	455
	% Nationality	10.5%	33.2%	1.8%	7.3%	34.5%	12.7%	100.0%
	% Insurance	2.5%	22.8%	1.1%	26.8%	1.7%	5.1%	3.2%
Other Non EU Countries	Count	88	59	23	13	238	180	601
	% Nationality	14.6%	9.8%	3.8%	2.2%	39.6%	30.0%	100.0%

	ty							
	% Insurance	4.6%	8.9%	3.2%	10.6%	2.5%	15.7 %	4.3%
Total	Count	1,903	663	717	123	9,482	1,146	14,034
	% Nationality	13.6%	4.7%	5.1%	.9%	67.6%	8.2%	100.0 %
	% within Insurance	100.0 %	100.0 %	100 %	100.0 %	100.0%	100. 0%	100.0 %

From the data above, we can see that 67.6 % of foreign patients, who were treated, were covered by a public insurance organization, 13.6% paid directly for the hospital services they received, 4,7% owned a European health insurance card, 5.1% were characterized as needy, 0,9% were covered by a private organization insurance, and 8.2% were uninsured. Of the 8.2% who were uninsured, 30.1% were from Albania, 20.5% from Bulgaria, 7.6% from Iraq, 15.7% for the other non EU countries, while the rest were distributed among the other nationalities.

As far as the frequency per clinic of inpatient care is concerned, the data from table 5 (see below) shows that for Kavala, Didimoticho and Xanthi, 26.4% of the foreign patients were females who needed the obstetric-gynecology clinic services, in most cases to give birth, 13.2% needed surgery (which in most cases was necessary to treat acute health problems), 11.3% were children who received healthcare services, 8.8% were treated in the pathology clinic, 9.4% received one day treatment in the one day pathology and psychiatry clinic, while the rest of them were distributed among the other clinics.

Table 5. Foreign Patients in the Region of Eastern Macedonia and Thrace According to the Clinic Where They Were Treated for the Years 2005-2011

Clinic	Frequency	Percent	Cumulative Percent
Obstetric-Gynecology	3,290	26.4	26.4
Surgery	1,640	13.2	39.6
Pediatric	1,404	11.3	50.9
Pathology	1,101	8.8	59.7
One day	974	7.8	67.6
Orthopedic	725	5.8	73.4
Premature	558	4.5	77.9
Lung	457	3.7	81.5
Urology	434	3.5	85.0
Cardiology	354	2.8	87.9
Ear Nose and Throat	282	2.3	90.1
Neurology	247	2.0	92.1
One day Psychiatry	196	1.6	93.7
Rheumatology	153	1.2	94.9
Ophthalmology	130	1.0	96.0
Neurosurgery	126	1.0	97.0
Psychiatry	120	1.0	97.9
Nephrology	110	.9	98.8
Thalassaemia	45	.4	99.2
Oncology	43	.3	99.5
Intensive Care Unit	25	.2	99.7
Phototherapy	22	.2	99.9
Incubator	12	.1	100.0

As far as concerning the loss of the hospitals from unreceived collectibles, we performed a bivariate analysis to find the frequencies and calculate percents which

allow us to make comparisons between the ethnicity group of patients and their insurance status.

As shown in Table 6, over the period 2005-2011 about 97% of the inpatients were Greek citizens, while the remaining 3% were foreign patients (about 0.5% from EU countries and the rest 2.5% from non EU countries). The group of the foreign patients from non EU countries, especially the part of the group that is uninsured is the group that includes the undocumented immigrants. However, the uninsured part of this group may also include documented immigrants, who were unemployed for a period of over 12 months and were no longer covered by a public insurance fund. From table 6, we can see that this group accounts for only about 0.25% of the inpatients.

Table 6: Bivariate Analysis Insurance*Nationality for the Public Hospitals of Eastern Macedonia and Thrace Region from 2005 to 2007

				Nationality			
	Insurance			**EU Countries**	**Greece**	**Non EU Countries**	**Total**
2005	Insurance	Private Insurance	Count	33	1,091	227	1,351
			% of Total	.05%	1.71%	.36%	2.12%
		Public Insurance	Count	103	58,738	878	59,719
			% of Total	.16%	92.24%	1.38%	93.78%
		Uninsured	Count	28	2,361	223	2,612
			% of Total	.04%	3.71%	.35%	4.10%
	Total		Count	164	62,190	1.328	63,682
			% of Total	.26%	97.66%	2.09%	100.00%
2006	Insurance	Private Insurance	Count	31	1.111	212	1.354
			% of Total	.05%	1.75%	.33%	2.1%
		Public Insurance	Count	76	58,193	1,124	59,393
			% of Total	.12%	91.77%	1.77%	93.7%
		Uninsured	Count	18	2,428	221	2,667
			% of Total	.03%	3.83%	.35%	4.2%
	Total		Count	125	61,732	1,557	63,414
			% of Total	.20%	97.35%	2.46%	100.0%
2007	Insurance	Private Insurance	Count	70	1,100	174	1,344
			% of Total	.11%	1.76%	.28%	2.16%
		Public Insurance	Count	279	57,159	1,037	58,475
			% of Total	.45%	91.66%	1.66%	93.77%

		Uninsured	Count	65	2,344	134	2,543
			% of Total	.10%	3.76%	.21%	4.08%
	Total		Count	414	60,603	1,345	62,362
			% of Total	.66%	97.18%	2.16%	100.00%
2008	Insurance	Private Insurance	Count	105	1,880	230	2,215
			% of Total	.12%	2.16%	.26%	2.54%
		Public Insurance	Count	274	79,573	1,388	81,235
			% of Total	.31%	91.33%	1.59%	93.23%
		Uninsured	Count	70	3,340	270	3,680
			% of Total	.08%	3.83%	.31%	4.22%
	Total		Count	449	84,793	1.888	87,130
			% of Total	.52%	97.32%	2.17%	100.00%
2009	Insurance	Private Insurance	Count	125	1,880	206	2,211
			% of Total	.14%	2.08%	.23%	2.45%
		Public Insurance	Count	297	82,484	1,345	84,126
			% of Total	.33%	91.46%	1.49%	93.28%
		Uninsured	Count	67	3,621	160	3,848
			% of Total	.07%	4.02%	.18%	4.27%
	Total		Count	489	87,985	1,711	90,185
			% of Total	.54%	97.56%	1.90%	100.00%
2010	Insurance	Private Insurance	Count	112	1,753	193	2,058
			% of Total	.13%	2.06%	.23%	2.42%
		Public Insurance	Count	319	76,468	1,333	78,120
			% of Total	.37%	89.84%	1.57%	91.78%
		Uninsured	Count	82	4,648	208	4,938
			% of Total	.10%	5.46%	.24%	5.80%
	Total		Count	513	82,869	1,734	85,116
			% of Total	.60%	97.36%	2.04%	100.00%
2011	Insurance	Private Insurance	Count	112	1,638	195	1,945
			% of Total	.12%	1.73%	.21%	2.05%
		Public Insurance	Count	342	86,040	1,364	87,746
			% of Total	.36%	90.87%	1.44%	92.67%
		Uninsured	Count	84	4,691	220	4,995
			% of Total	.09%	4.95%	.23%	5.28%
	Total		Count	538	92,369	1,779	94,686
			% of Total	.57%	97.55%	1.88%	100.00%
2005-2011	**Insurance**	**Private Insurance**	**Count**	**588**	**10,453**	**1,437**	**12,478**
			% of Total	**.11%**	**1.91%**	**.26%**	**2.28%**
		Public	**Count**	**1.690**	**498,655**	**8,469**	**508,814**

		Insurance	**% of Total**	**.31%**	**91.23%**	**1.55%**	**93.09%**
		Uninsured	**Count**	**414**	**23,433**	**1,436**	**25,283**
			% of Total	**.08%**	**4.29%**	**.26%**	**4.63%**
	Total		**Count**	**2.692**	**532,541**	**11,342**	**546,575**
			% of Total	**.49%**	**97.43%**	**2.08%**	**100.00%**

Table 7 below presents the relationship between the total revenue (pricing) of the hospitals and the amount that represent the loss of the hospitals from uncollectible receivables relating to foreign inpatients. As we can see, this amount accounts for about 0.5% of the total revenues (about 0.05% from uninsured patients from EU countries and the remaining 0.45% from uninsured patients from non EU countries). It must be said that this percentage is very low compared to the total hospital revenue (273,287,123 €).

Table 7: Total Revenue of the Hospitals vs Uncollectible Revenues from Healthcare Services Provided to Uninsured Foreign Patients

Year	Total pricing	EU countries Uninsured	% Total	Non EU countries Uninsured	% Total
2005	27,340,274.02	4,649.55	0.02%	138,807.85	0.51%
2006	29,006,236.44	2,972.70	0.01%	195,561.61	0.67%
2007	31,926,845.25	31,111.57	0.10%	428,381.71	1.34%
2008	47,898,237.75	35,063.67	0.07%	130,122.78	0.27%
2009	49,488,804.20	25,796.10	0.05%	97,779.53	0.20%
2010	41,658,168.73	27,111.46	0.07%	153,928.72	0.37%
2011	45,968,556.88	24,596.03	0.05%	109,920.98	0.24%
2005-2011	273.287.123,27	151.301,08	0.06%	1.254.503.18	0.46%

3. Discussion

The change in epidemiologic standards, the rapid development of medical science and the new state of art medical technology has led to new treatments for various health problems. Previously fatal diseases have become chronic and life expectancy has risen significantly, causing healthcare costs to explode. As a result, rising healthcare expenditures is a reality that all developed countries have to deal with.
On the other hand, health spending in Greece decreased by 11%, in both 2010 and 2011, due to the economic crisis, while the same crisis caused an increased demand for public health services, since access to private sector health services is impossible

for most of the Greek citizens. As the crisis deepens, the gap between the demand and offer of public healthcare services is becoming wider and phenomena such as xenophobia and racism are becoming more intense. Populist politicians find their scapegoats in the immigrant community, ascribing the chronic problems of the Greek economy and society to them and not to its structural problems and corruption. Newspapers and internet "information" make this systematic scapegoating more intense, referring to jobs lost because of immigrants and hospital beds occupied for free by foreigners, while Greek citizens die as a result of not having the money needed to pay the hospitals.

However, the reality may be different from these populistic cries. Lianos (2003) claims that the unemployment rate of native workers is not affected by the presence of immigrants, while Bagavos and Papadopoulou (2006) argue that the entry of immigrants has postponed the ageing population problem and contributed to the survival of the insurance system.

Our study, based on data from the public hospitals of Eastern Macedonia and Thrace for the period 2005-2011, has proven that in this region at least, the foreign patients, especially those undocumented, use disproportionately fewer medical services and contribute less to health care costs in relation to their population share. This finding matches those of other similar studies for other countries (Goldman et al., 2006) and probably can be explained either by the immigrants' better health because of their younger age or by their lack of health insurance.

However, our study is limited to the region of Eastern Macedonia and Thrace, where there is not a heavy concentration of immigrants. Healthcare costs could be large in regions where they are heavily concentrated (e.g. Athens). Research on immigration healthcare service consumption is limited by severe constraints on the quantity and quality of available data. In this general political and economic context, it will be crucial to counteract xenophobia and racism and not to retreat from efforts to establish and implement national migrant health policies.

The immigrant population in Greece is quite considerable and may be more considerable in the future and healthcare costs are only one of the major components around which a policy debate about the fiscal benefits or burden of immigrants should focus. A comprehensive analysis should incorporate the taxes paid by immigrants, and all the public benefits they received, not only health care.

Although there is an increasing harmonization of immigration policies in EU member countries, the dominant emphasis has been on restriction and control (Bendel 2007). However, restrictions in health care provision to undocumented immigrants, do not solve the problem of immigration, they rather operate as blankets hiding it. The hidden problems could become bigger and threaten the public health.

In order to be able to design and apply an effective immigrant healthcare policy, we need accurate and homogenous data, about the foreign patients treated in Greek hospitals, which should help to establish a climate that can help the health system to become more responsive and sensitive to the needs of immigrants (Ingleby 2006, Rechel et al., 2011).

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