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**GREEK AND IMMIGRANTS INPATIENTS AT  
KAVALA'S PUBLIC HOSPITAL: A PRELIMINARY  
DESCRIPTIVE ANALYSIS FOR THE PERIOD 2005-2011**

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***Abstract:** This paper negotiates the matter of healthcare provision to immigrants who visit or/and hospitalized to the public hospital of Kavala, Greece. This matter is of great interest because the mass of immigrant dynamic in the prefecture of Kavala is the biggest of the East Macedonia and Thrace region and public hospitals face important economic problems. Moreover, in times of the current economic crisis hospitals are led to policies to reduce costs. Using official hospital's data we present the traffic of immigrants in consideration of nationality, number of patients, the total cost per year for the hospital, days of hospitalization, the insurance that covered the health care costs, the clinical nursing and compare these variables with those of the hospitalized Greeks.*

***Keywords:** migration, public health, statistical analysis.*

## **1. Introduction**

In the last 20 years the population of immigrants in Greece is increasing as it is considered either as a stopover for immigrants who wish to go to other European countries or as a permanent home country. According to official data (OECD, 2012), the percentage of foreign population was 5% of the total population in 2005, 7.4% in 2009 and 7.1% in 2010. More than half of the total immigrants come from Albania, followed by Bulgarians

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and Georgians. The majority of them stay in Greece for more than 10 years and almost half are legal. Regarding the Albanians, during the last 3-4 years of crisis, there was a tendency to return to their homeland. The immigrants are mainly employed in the sectors of construction, agriculture, livestock, mining and tourism services. Many offer their work in the informal economy, which makes them generally vulnerable labor. The volume of the migration potential increased because of family reunification for children while their case that assist in the integration of family members through their participation in education (Karasavvoglou et al., 2011; Polychronidou et al., 2012; Florou et al., 2013).

In this paper we study the matter of healthcare provision to immigrants who visit or/and hospitalized to the public hospital of Kavala. We use official hospital's data and we present the traffic of immigrants in consideration to nationality, number of patients, the total cost per year for the hospital, days of hospitalization, insurance carrier that covered the health care costs, the clinical nursing and compare these variables with those of the hospitalized Greeks. This matter is of great interest because the mass of immigrant dynamic in the prefecture of Kavala is the biggest of the East Macedonia and Thrace region and public hospitals face important economic problems. Moreover, in times of the current economic crisis hospitals are led to policies to reduce costs.

## 2. Descriptive Analysis for Immigrants

The Public Hospital of Kavala for the period 2005-2011 had the following dynamic: more than 400-420 beds, 1000-1200 personnel in general, 100-170 doctors, 700-800 nurses, 100-200 para-medical personnel (radiologists, microbiologists, bearers, medical assistants, etc.), 80-130 administrative servants, 4 health centers and 52 regional medical offices. We collected the official data from the hospital for the period 2005-2011. The data were regarding the hospitalizations of all patients, Greeks and immigrants. The information that was given for each patient is: record number, entrance day, exit day, diagnoses, budgeting cost, nationality, hospitalization days, insurance carrier, department/clinic. The total number of inpatients (Greeks and immigrants) for this period was 216,438 with an average of more than 29,000 patients per year. The descriptive statistics of budgeting costing of immigrants' hospitalization in Kavala's Hospital are shown in Table 1. The budgeting cost per day is standard including bed, medication and materials (not specialized ones) as it is prescribed by the law.

**Table 1. Descriptive statistics of budgeting costing of immigrants' hospitalization**

<b>Year</b>	<b>Patients (total numbers)</b>	<b>Average Cost</b>	<b>SD</b>	<b>Q2</b>	<b>Q3</b>	<b>Total Cost</b>
<b>2005</b>	1243	441.21	2087.45	190.74	366.81	548426.64
<b>2006</b>	1387	559.67	3326.14	190.74	366.81	776272.32
<b>2007</b>	1432	702.26	4914.50	190.74	366.81	1005650.20
<b>2008</b>	1557	504.20	1385.70	190.74	381.52	785054.76
<b>2009</b>	1478	598.21	1570.72	223.83	402.03	884025.95
<b>2010</b>	1485	565.31	2371.33	191.51	401.35	839494.84
<b>2011</b>	1667	494.06	1279.85	230.26	442.23	823607.67
<b>Total</b>	10249	552.49	2670.30	193.19	381.52	5662532.38

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Regarding the nationality of the hospitalized immigrants for the period of 2005-2011, immigrants from Albania are 54.8% (5.619), from Bulgaria are 11.3% (1.158), from Russia 7.1% (731), from Georgia 6.9% (706), from Germany 4.3% (437) and the rest are several nationalities. The descriptive statistics of immigrants' hospitalization days in Kavala's Hospital are shown in Table 2. A gradual reduction of the average of hospitalization days is noticed which corresponds to several guidelines of the Ministry. According to official data, after the year 2012 the hospitalization days are reduced dramatically from 4.3 days in average to 3.6 days, while the number of immigrant patients has increased in 2011.

**Table 2. Descriptive statistics of immigrants' hospitalization days**

Year	Patients (total numbers)	Average of days	SD	Q2	Q3	Total Cost
2005	1243	4.31	3.94	3	5	5366
2006	1387	4.56	6.76	3	5	6326
2007	1432	4.23	5.46	3	5	6063
2008	1557	4.13	4.26	3	5	6439
2009	1478	4.19	7.11	3	5	6198
2010	1485	3.87	3.44	3	5	5748
2011	1667	3.59	4.01	2	5	5990
<b>Total</b>	10249	4.11	5.17	3	5	42130

The distribution of immigrants' hospitalization days is shown in Table 3. The majority of immigrants are hospitalized for one/two days which indicates that most of the incidents are accidents, short hospitalizations and feverish incidents that are hospitalized through the Emergency Department. It must be noted that for the year 2013 these numbers are increased, because of the admission tickets at Emergency Department that the Ministry has imposed.

**Table 3. Frequency Distribution of immigrants' hospitalization days**

Hospitalization days	Frequency	Percentage	Cumulative percentage
1.00	2316	22.6	22.6
2.00	1901	18.5	41.1
3.00	1491	14.5	55.7
4.00	1407	13.7	69.4
5.00	935	9.1	78.5
6.00	570	5.6	84.1
7.00	401	3.9	88.0
8.00	428	4.2	92.2
9.00	270	2.6	94.8
10.00	117	1.1	96.0
More than 10	413	4.0	100.0
Total	10249	100.0	

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The most frequent clinics of immigrants' hospitalization is the Gynecology-Obstetric (23.2%), the Pediatric (12.8%) and Surgical (12.2%) (see Table 4). Almost only immigrants gave birth in hospitals until the year 2012, but nowadays Greek women seem also to prefer the public hospitals and not private clinics. The same is noticed for the pediatric clinic.

**Table 4. Frequency distribution of hospitalized immigrants by clinics**

<b>Clinic</b>	<b>Frequency</b>	<b>Percentage</b>
A Pathology	445	4.3
A Pneumonology	186	1.8
A Surgical	602	5.9
B Pathology	363	3.5
B Pneumonology	271	2.6
B Surgical	644	6.3
Brief Pathology Annex.	130	1.3
Brief Pathology	707	6.9
Brief Surgical	65	.6
Brief Psychiatric	196	1.9
Gynecology-Obstetric	2379	23.2
Incubator	12	.1
Cardiology	268	2.6
ICU Cardiology	2	.0
ICU Incubator	18	.2
Neurology	247	2.4
Neurosurgeons	126	1.2
Nephrology	110	1.1
Oncology	43	.4
Orthopedic	577	5.6
Urology	347	3.4
Ophthalmology	107	1.0
Pediatric	1316	12.8
Early	558	5.4
rheumatologist	153	1.5
Psychiatric	120	1.2
Otolaryngologic	257	2.5
Total	10249	100.0

The insurance carrier that covered the hospitalization cost is shown in Table 5. There is evidence for only the insured immigrants, uninsured do not visit public hospitals for hospitalizations. Private – individuals are those who pay on their own, but they prefer to be hospitalized in their home country. So, only a few uninsured immigrants visit Greek hospitals. Pending are those who have escaped the system (7.8%) without covering the cost.

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**Table 5. Insurance carrier of the hospitalized immigrants**

Insurance carrier	Frequency	Percentage
Social Insurance Institution	4073	39.7
Agricultural Insurance Organization	2518	24.6
Private – individuals	1352	13.2
Pending	798	7.8
European Insurance Card	501	4.8
Queries	477	4.7
Public	225	2.2
Insurance Agency Freelance	115	1.1
Other	190	1.9
Total	10249	100.0

### 3. Descriptive Analysis for Greeks

The descriptive statistics of budgeting costing of Greeks hospitalization in Kavala's Hospital are shown in Table 6.

**Table 6. Descriptive statistics of budgeting costing of Greeks hospitalization**

Year	Patients (total numbers)	Average Cost	SD	Q2	Q3	Total Cost
2005	30552	515.06	1405.39	190.74	500.96	15736375.24
2006	29832	541.58	1629.21	190.74	519.76	16156527.38
2007	28197	604.93	2008.69	190.74	567.74	17057464.69
2008	28201	677.81	2909.85	190.74	600.00	19115176.17
2009	28322	679.46	1974.15	211.30	651.28	19243729.49
2010	28427	579.87	1736.79	177.67	511.37	16484210.60
2011	32658	530.41	1377.21	216.00	496.61	17322297.17
<b>Total</b>	206189	587.40	2670.30	198.41	536.84	121115780.74

Furthermore, the descriptive statistics of Greeks hospitalization days in Kavala's Hospital are shown in Table 7.

**Table 7. Descriptive statistics of Greeks hospitalization days**

Year	Patients (total numbers)	Average days	SD	Q2	Q3	Total Cost
2005	30552	3.70	4.65	2	4	113267
2006	29832	3.66	4.76	2	4	109465
2007	28197	3.60	4.44	2	4	101588
2008	28201	3.62	4.99	2	4	102200
2009	28322	3.59	5.19	2	4	101881
2010	28427	3.45	4.94	2	4	98285
2011	32658	3.20	4.50	2	4	104791
<b>Total</b>	206189	3.54	4.78	2	4	731477

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The distribution of Greeks' hospitalization days is shown in Table 8. The majority of Greeks are hospitalized for one/two days in the same manner as the immigrants.

**Table 8. Frequency distribution of immigrants' hospitalization days**

Hospitalization days	Frequency	Percentage	Cumulative percentage
1.00	74819	36.3	36.3
2.00	45167	21.9	58.2
3.00	23487	11.4	69.6
4.00	15033	7.3	76.9
5.00	12033	5.8	82.7
6.00	7637	3.7	86.4
7.00	6481	3.1	89.6
8.00	5219	2.5	92.1
9.00	3611	1.8	93.8
10.00	2285	1.1	94.9
More than 10	10417	5.1	100.0
Total	206189	100.0	

The most frequent clinic of Greeks' hospitalization is the Pathology (16.1%), the Pneumonology (10.6%) and Surgical (8.4%) (see Table 9).

**Table 9. Frequency distribution of hospitalized Greeks by clinics**

Clinic	Frequency	Percentage
A Pathology	20458	9.9
A Pneumonology	7936	3.8
A Surgical	8200	4.0
Blood donation	1	.0
B Pathology	12826	6.2
B Pneumonology	14056	6.8
B Surgical	8970	4.4
Brief Pathology annex	2951	1.4
Brief Pathology	11799	5.7
Brief Surgical Anex	2	.0
Brief Surgical	1118	.5
Brief Psychiatric	11952	5.8
Gynecology - obstetric	7233	3.5
Incubator	40	.0
Cardiology	13921	6.8
ICU cardiology	182	.1
Thalassemia	1652	.8
ICU	302	.1
Neurology	4327	2.1
Neurosurgeons	1859	.9
Nephrology	13509	6.6
Oncology	2201	1.1
Orthopedic	10114	4.9
Ourology	12386	6.0

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Ophthalmology	11799	5.7
Pediatric	8146	4.0
Early	2029	1.0
Rheumatologist	9740	4.7
Psychiatric	2695	1.3
Otolaryngologic	3785	1.8
Total	206189	100.0

The insurance carrier that covered the hospitalization cost is shown in Table 10. Pending is only (0.8%).

**Table 10. Insurance carrier of the hospitalized Greeks**

<b>Insurance carrier</b>	<b>Frequency</b>	<b>Percentage</b>
Social Insurance Institution	101344	49.2
Agricultural Insurance Organization	58320	28.3
Private – individuals	2395	1.2
Pending	1652	.8
European Insurance Card	2210	1.1
Queries	6196	3.0
Public	15047	7.3
Insurance Agency Freelance	7571	3.7
Other	11454	5.4
Total	206189	100.0

#### 4. Conclusions

In this paper official data of Kavala's Public Hospital are presented regarding hospitalization of immigrants and Greeks for the period of 2005-2011. The total budgeting cost for immigrants is almost 5%, while for the Greeks is 95%. In total numbers immigrants who have been hospitalized in this period are 10249, while the Greeks are 206189. It is concluded that the mass of hospitalized immigrants is minor regarding the one of Greeks.

The most visited clinics by the immigrants are Gynecology–Obstetric, Pathology, Pediatric and Surgical, while for the Greeks are Pathology, Pneumonology, Surgical, Cardiology and Nephrology.

The main result of this preliminary research is that the immigrants who have escaped the system without covering the hospitalization cost are 798 (7.8%), while the Greeks that their hospitalization cost is pending are 1652 (0.8%).

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### **GRČKI PACIJENI I PACIJENTI IMIGRANTI U JAVNOJ BOLNICI U KAVALI: PRELIMINARNA OPISNA ANALIZA ZA PERIOD 2005-2011**

**Rezime:** U ovom radu razmatra se pitanje obezbeđenja zdravstvene zaštite imigranata koji posećuju i/ili su hospitalizovani u javnoj bolnici u Kavali, Grčka. Ovo pitanje je od velikog značaja zbog toga što je dinamika imigranata u oblasti Kavale najveća u regionu Istočne Makedonije i Trakije, i javne bolnice se suočavaju sa bitnim ekonomskim problemima. Štaviše, u vreme aktuelne ekonomske krize bolnice su dovedene u poziciju da smanjuju troškove. Upotrebom zvaničnih podataka bolnice predstavljamo kretanje imigranata sa stanovišta nacionalnosti, broja pacijenata, ukupnih bolničkih troškova godišnje, broj dana hospitalizacije, osiguranja koje pokriva troškove zdravstvene zaštite, kliničke nege i upoređujemo ove podatke sa podacima o hospitalizovanim Grcima.

**Ključne reči:** migracije, javno zdravlje, statistička analiza.