

## Basic analysis of non-European Union immigrants' hospitalizations and ambulatory care in the province of Ferrara, Northern Italy: the first step to an improved approach to immigrants' healthcare

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### Abstract

**Background:** Immigration towards Ferrara is a recent occurrence. We evaluated the immigrants' health requests.

**Methods:** This report is based on data collected by Local Health Authority.

**Results:** The analysis of ambulatory cares and hospitalizations are comparable. It emerges the age class 31-65 is the most represented. Females' requests are more than males' one, due to pregnancy and gynaecological health requests. The capital hospital sustained the heaviest workload. We found differences respect European Union population regarding length of stay. The predominant kind of access are through emergency room and self-access.

**Conclusions:** This complex pattern of health care requests requires dedicated approaches.

*Key words: emigration, immigration, public health, inpatients, outpatients, ambulatory care*

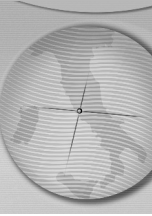
### Introduction

Immigration to Ferrara, a medium-small town of the northern Italy is a relatively new occurrence, which started at the end of eighties [1]. With a large flow of immigration occurring only at the end of nineties [2,3]. Immigrants were primarily from East Europe, North Africa and East Asia [4,5]. At the end of 2005 the population of immigrants from non-European Union (non-EU) countries was 15939 [4,5] (4.53% of the entire population [3]). This phenomenon resulted in the Local Health Care Unit (AUSL) receiving an unexpected increase in the number of requests for healthcare. These populations may have different attitudes towards health and seeking healthcare than the Italian population. We evaluated the possible health needs of immigrants in light of the hospital discharges registered by the local health care unit.

### Methods

This report is based on data collected by the Local Health Care Unit (AUSL) of Ferrara which is stored in two databases. The first of these holds

5556 medical abstracts related to discharges of non-EU citizens living in the province of Ferrara and who were hospitalized in provincial or extra-provincial hospitals. Data were collected from 01/01/2002 to 30/06/2006. Only those citizens who were considered to be non-EU at the date of discharge were included, discharges were used as patients could be hospitalized more than once during the time period examined. The database contained: name, surname, date of birth, nationality, gender (identified through their fiscal code), kind of discharge, date of admission, date of discharge, length of stay, structure of hospitalization and diagnosis related group (DRG). Data relating to newborns, when they were admitted to hospital at birth, were not included in the database. The second database recorded all of the services related to Ambulatory (outpatient) services provided by AUSL of Ferrara, the University Hospital of Ferrara, local and extra provincial clinics, both private and public that were accessible to immigrants between 01/01/2003 and 30/06/2006. Data were stored for



number of treatments but not for patients or prescriptions. The database contained: name, surname, date of birth, nationality, gender (where this was not present, it was identified through the individual's fiscal code), type of ambulatory care, structure categorization and type of access. As some data was missing from the databases, a number of cases were classified as "undefined". In order to guarantee privacy, data were anonymised [6]. To store and manage the data the program Access 2003 was utilized [7], to compile basic statistics and tables Excel 2003 was used [8].

### Results and Discussion

We started our analysis by focusing on the hospitalization numbers that could be attributed to immigrants, both inpatients and outpatients. Complete records compiled according to the type of discharge totaled 5280. Moroccan (18,21%), Ukrainian (10,33%) and Albanian (9,94%) immigrants were the most represented nationalities, in accordance with their high presence in the territory. Chinese (4,48%) were less represented in contrast to their real attendance in the province. During the considered time period, we found an increase in the number of hospitalization/year (548 patients in 2002, 718 in 2003, 945 in 2004, 1940 in 2005, 1129 in the first half of 2006) and a decreased ratio of inpatients/outpatients (from 7.30 in 2002 to 5.34 in 2006). Hospital care could be broken down according to inpatients 81.12%, outpatients 13.91% and 4.97% as unidentified hospitalizations. The most represented age classes were 31-65 years (52.25%) and 16-30 years (36.32%). The high prevalence of those in the middle age-classes is explained by the recent substantial immigration of young adult workers: only a small number of families with infants or newborns are present in the province. This is further evidenced by the very low number of health requests coming from patients over 65 years of age (2.32%), and under 15 (4.14%). Regarding young adult workers, the number of the health requests from females (70.32%) was higher compared to males (25.81%). This is a common feature for both types of hospitalization and across all nationalities, in particular for the women coming from East-European countries like Ukraine, Romania and Moldova. This is probably due to the increased demand for assistants for older Italians [9]. However, 3.87% of hospitalizations were observed not to have had gender ascribed. According to the registered data, the local University-Hospital Care Unit was the principal place of hospitalization (45.50%), followed by the six hospital care units

located in suburban or rural areas of the AUSL territory (38,32%). These data reflect the residential distribution of the immigrants [4]. Hospitals outside the province accounted for 10.19% of the hospitalizations. Only 5.99% of discharges were related to private clinics placed in Ferrara. Discharges were evaluated using DRGs (revision 19). DRGs with at least 50 discharges for both inpatients and outpatients are reported in Table 1. 'Abortion with dilation and curettage, aspiration curettage or hysterotomy' is the predominant DRG, followed by natural childbirth. While some other pregnancy, gestational and gynecological-related DRGs are also highly represented. Males' health requests represent only a very little portion of the hospitalizations and their DRGs relate mainly to work-related or injury-related causes. Regarding inpatients, the average length of stay (ALOS) was evaluated. A comparison with the total ALOS for the Emilia-Romagna region was performed using the regional database [3], which contains records for all of the hospitalizations. In non-EU patients a higher ALOS for every DRG except DRG 243 'medical back problems' was observed. A possible explanation of this phenomenon could be that only the patients with critical health conditions arrive in health care organizations because they try to avoid any kind of contact with public authorities, especially those without permits-of-stay. Alternatively if their health condition was worse than that of an Italian patient this could also make their ALOS longer.

The evaluation of ambulatory care is comparable with data regarding hospitalizations. A total of 125281 ambulatory treatments were provided (23208 in 2003, 31172 in 2004, 52948 in 2005, and 17953 in the first half of 2006). Regarding the distribution according to gender, the number of females treated exceeded that of males (76083 (67.33%) vs. 36921 (32.67%)), but there were 12277 cases in which gender was not defined. The 31-65 age class was the most represented (71451, 57.03%), followed by the 16-30 (44725, 35.70%). Those over 65 years of age and children under 5 years-aged were less represented (2469, 1.97% and 1417, 5.30%, respectively). The low volume of care given to those citizens over 65 is completely different when compared with Italian patients of the same age, who require a higher level of care. On this basis, a different approach is needed in order to satisfy the requests immigrants. The different kinds of access are reported in Table 2. Regarding specialties, chemical clinical analyses were the most frequently represented (77038, 61.49%), followed by radiological services (8120, 6.48%),

Table 1. DRGs more represented (number of hospitalizations).

<u>DRG</u>	<u>F<sup>A</sup></u>	<u>M<sup>B</sup></u>	<u>UG<sup>C</sup></u>	<u>TO TA L</u>	<u>INPATIE NTS</u>	<u>ALOS<sup>D</sup></u>	<u>RER ALOS<sup>E</sup></u>	<u>□</u>
381 abortion with dilation and curettage, aspiration curettage or hysterotomy	653			653	335	5,26	1,42	3,84
373 vaginal delivery without complicating diagnoses	537			537	537	3,37	2,91	0,46
383 other antepartum diagnoses with medical complications	201			201	199	9,12	3,55	5,57
371 cesarean section without complications or comorbidities	200			200	200	5,9	4,49	1,41
379 threatened abortion	135			135	135	4,96	3,7	1,26
364 dilation and curettage, conization except for malignancy	124			124	57	6,72	1,83	4,89
119 vein ligation & stripping	87	18	12	117	81	6,98	1,25	5,73
183 esophagitis, gastroenteritis and miscellaneous digestive disorders age >17 without complications or comorbidities	63	36	9	108	108	5,35	4,98	0,37
359 uterine and adnexa procedures for non-malignancy without complications or comorbidities	88			88	80	5,35	3,52	1,83
384 other antepartum diagnoses without medical complications	86			86	62	10,37	3,3	7,07
360 vagina, cervix and vulva procedures	73			73				
374 vaginal delivery with sterilization and/or dilation and curettage	66			66	66	3,79	3,68	0,11
243 medical back problems	14	35	9	58	58	5,22	7,97	-2,75
231 local excision and removal of internal fixation devices except hip and femur	19	36	2	57				
369 menstrual and other female reproductive system disorders	55			55	51	4,53	2,76	1,77
229 hand or wrist procedures, except major joint procedures, without complications or comorbidities	29	19	2	50				
unspecified DRGs	163	111	2	276				
DRGs with < 50 patients	1314	1179	179	2672				
<b>TOTAL</b>	<b>3907</b>	<b>1434</b>	<b>215</b>	<b>5556</b>				

a: females

b: males

c: undefined gender

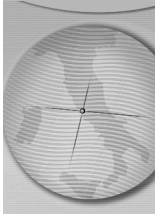
d: average length of stay

e: average length of stay of Emilia-Romagna region

emergency room (6574, 5.25%) and gynaecology/obstetrics (5417, 4.32%). Orthopaedics / traumatology (4031, 3.22%) and rehabilitation (3130, 2.50%) were less represented. Perhaps, this is due to the higher number of hospitalizations related to these problems. A detailed list of the requested clinical tests is reported in table 2. The local University-Hospital Care Unit was observed to be involved in the provision of ambulatory care (90189, 71.99%), followed by the AUSL-related structures (28609, 22.84%), and the extra provincial health care structures (6483, 5.17%). Immigrants living in Ferrara (about 38% of all immigrants of the province) and in neighbouring areas usually prefer the closer local University-Hospital Care Unit. Albanian, Ukrainian and Moroccan citizens were observed to request the major proportion of ambulatory care services (Table 3). Regarding

gender, as was detected in the hospitalizations, there is a predominance of females. This is probably due by the high number of pregnancy-related visits to ambulatory care. The same feature was observed when the kind of access was analysed for which it was noted that services such as 'emergency room without hospitalization' and 'self accesses' were very important.

These results suggest a complex pattern in access to healthcare for immigrant populations, representing a critical problem for AUSL because an individual's country of origin may result in different illness statuses and require different healthcare approaches. Further studies focusing on the perceptions of health and illness are needed in order to identify the right healthcare approaches for immigrants, evaluating their healthcare needs and their immunization status. The present data may be the first step towards a



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**Table 2.** Kind of access and ambulatory care description, divided by gender.

Kind of access	n.	%	females	males	unknown	Ambulatory care description	n.	%	females	males	unknown
Ordinary	74285	59,29	63,01%	21,37%	15,62%	Medical evaluation	13293	10,6	49,50%	49,64%	0,87%
Emergency room not followed by hospitalization	18912	15,10	47,96%	51,88%	0,17%	Blood sample	6894	5,5	67,95%	23,56%	8,48%
Self access	18528	14,79	73,48%	26,15%	0,38%	Complete blood count	4953	3,95	66,07%	23,81%	10,13%
Programmed	7876	6,29	57,42%	41,84%	0,74%	Glucose	3972	3,18	70,69%	20,96%	8,35%
Day service	2449	1,95	69,29%	25,81%	4,90%	Short anamnesis	3841	3,07	66,21%	26,00%	7,79%
Screening	1372	1,10	99,18%	0,82%	0,00%	Urine	3704	2,96	59,90%	40,08%	0,03%
Urgent 24h/delayable	1079	0,86	62,99%	37,01%	0,00%	ALT	3485	2,78	63,02%	25,20%	11,78%
Other	541	0,43	27,07%	69,29%	3,64%	Creatinine	2523	2,01	66,31%	28,88%	4,81%
Not detected	157	0,13	55,85%	42,02%	2,13%	Total blood cholesterol	2261	1,8	64,77%	26,71%	8,53%
Short intensive observation	82	0,07	80,72%	19,28%	0,00%	Other	80355	64,1	62,79%	25,14%	12,07%
<b>TOTAL</b>	<b>125281</b>	<b>100,00</b>	<b>62,06%</b>	<b>28,33%</b>	<b>9,61%</b>	<b>TOTAL</b>	<b>125281</b>	<b>100,00</b>	<b>62,06%</b>	<b>28,33%</b>	<b>9,61%</b>

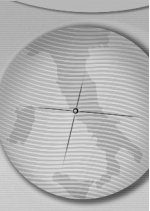
**Table 3.** Division by nationality and gender of the recipients of ambulatory cares.

Nationality	Females		Males		Unknown		Total	
Albania	14269	53,8%	10962	41,3%	1290	4,9%	26521	21,17%
Ukraine	12598	90,3%	717	5,1%	630	4,5%	13945	11,13%
Morocco	6507	52,9%	4872	39,6%	931	7,6%	12310	9,83%
Moldovia	8363	77,3%	1750	16,2%	710	6,6%	10823	8,64%
Romania	6599	68,4%	2372	24,6%	683	7,1%	9654	7,71%
Nigeria	2341	52,3%	798	17,8%	1341	29,9%	4480	3,58%
Statelessness	3084	68,9%	1340	29,9%	52	1,2%	4476	3,57%
Cameroon	1325	36,9%	1285	35,8%	978	27,3%	3588	2,86%
People's Republic of China	2073	62,0%	799	23,9%	474	14,2%	3346	2,67%
Pakistan	1162	35,8%	1965	60,5%	119	3,7%	3246	2,59%
Tunisia	1258	40,3%	1690	54,2%	170	5,5%	3118	2,49%
Russia	1911	74,4%	398	15,5%	260	10,1%	2569	2,05%
Yugoslavia	1463	60,3%	808	33,3%	154	6,4%	2425	1,94%
Philippines	1614	73,2%	510	23,1%	81	3,7%	2205	1,76%
Iran	750	40,9%	964	52,6%	119	6,5%	1833	1,46%
Brazil	843	46,1%	771	42,1%	216	11,8%	1830	1,46%
Colombia	1063	75,9%	191	13,6%	147	10,5%	1401	1,12%
Cuba	1118	84,8%	63	4,8%	137	10,4%	1318	1,05%
Argentina	347	30,6%	286	25,2%	501	44,2%	1134	0,91%
Other Nationalities	7395	49,1%	4380	29,1%	3284	21,8%	15059	12,02%
	76083	60,7%	36921	29,5%	12277	9,8%	125281	100,00%

comprehensive evaluation of healthcare requests by immigrants. Moreover, improving immigrants' compliance to Italian health regulations will be necessary in order to provide more information about subscriptions and the correct pathways for access to healthcare.

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