

Emergency department utilization rates and modalities among immigrant population. A 5-year survey in a large Italian urban emergency department

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Abstract

The rates and modalities of healthcare services utilization for migrant population may differ from natives, since the health needs of the former are influenced by some factors such as health status, self-perceived needs, health-seeking behavior, language barriers and cultural differences. Only scarce and often conflicting data have been published so far on migrants' utilization of healthcare services in Europe, and even less data are available on emergency departments (EDs). The aim of this cross-sectional study was to compare utilization rates and modalities of presentation to the large urban ED of the University Hospital of Parma, Italy (averaging 85,000 visits per year), by Italian native and foreign-born populations during 2008-2012. Throughout the study period 424,466 ED visits were recorded, 64,435 (15.4%) of which by foreign-born patients. A significant difference between utilization rates was observed for all the triage-codes, with higher rates for foreign-born low-acuity codes (green plus white codes: 87.5 vs 73.9, $P < 0.0001$) and lower rates for high-acuity codes (yellow plus red codes: 12.5 vs 26.1%, $P < 0.0001$). The utilization rate was 253.9 visits per 1000 inhabitants for the Italian-native group and 309.7 per 1000 for the foreign-born group (odds ratio 1.23; 95% CI: 1.01-1.48; $P = 0.034$). Different modalities of presentation were also observed, with a high rate of self-referrals (82.3 vs 71.4%, $P < 0.001$). The results of this study suggest that a better knowledge of available Italian healthcare services among immigrants is advisable and should be encouraged.

Introduction

The migrants currently account for approx

3% of the worldwide population. In Europe, the number of migrants has increased to 64.1 millions between 1990 and 2005, and now accounts for nearly 9% of the entire population.¹ One of the greatest challenges of migration is represented by effective management of migrants' health needs according to well established criteria of equity and appropriateness, since this increasing population represents a potentially vulnerable subset, which is exposed to a number of health risks before, during and after migration. For migrant populations, the rates and modalities of utilization of healthcare services may significantly differ from natives, since the health needs of the former are influenced by a variety of factors, including health status, self-perceived needs, health-seeking behaviors, language barriers and cultural differences. This represents a substantial problem for first-generation migrants, whereas their offspring are usually more comfortable with the new social and healthcare organizations.

Italy has historically been a country of emigration since its birth, in 1861. After that year, in the first century, more than 24 million people have left the country searching better economic conditions, especially in United States of America and Latin America. In the 1913 only, nearly 900,000 people left Italy. A second emigration wave was recorded after the second world war, especially toward countries of middle and northern Europe.^{2,3} Compared to other European countries like France and Great Britain, which experienced the immigration phenomenon during the early 1950s after the dissolution of their colonial empires, immigration in Italy is a relatively recent phenomenon, which has began in 1970 and has constantly increased during the 1990s until its current predominant importance in the national scenario, with a foreign-born population of approx 4 million, thus representing nearly 7% of the entire Italian population.⁴ This process has been mainly propelled by the collapse of the Soviet Union, and the political instability in Northern Africa. Immigrants typically come to Italy as asylum seekers, legal immigrants, refugees, and irregular arrivals. It is obviously challenging to accurately estimate this last group, which predictably ranges between 10 to 18% of legally immigrant population. Figure 1 represents the main paths of immigration in Italy from different countries.

The town of Parma (190,522 residents) and its province (447,251 inhabitants)⁵ is located in the Region of Emilia Romagna, in the north-western part of Italy, and is one of the richest and most economically developed areas of the country, which makes it a rather attractive site for many immigrants who are employed in industry, agriculture and services (*i.e.*, especially in the home care of the elderly). In the province of Parma the foreign-born population

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represents almost 13.5% (almost 15.7% in the town), of overall residents,⁵ and there are currently immigrants from 137 countries living in the city area. The most important community is Moldavian, followed by Albanian, Rumanian, Moroccan and Tunisian.⁵

The Italian National Healthcare System (NHS), mainly funded by taxes, provides comprehensive and uniform health care for the entire population, regardless of ability to pay and citizenship. In our Region the access to care is free for children under the age of 14, and for the poorest part of population, whereas co-payments (so-called *tickets*) are required for the general population. Emergency care is typically free of charge, although co-payments are issued for *minor* healthcare problems. However, the utilization of primary and specialist care might present several challenges for immigrants, mainly including language barriers^{6,7} and lack of knowledge of the system's organization (*i.e.*, how to access these services).⁸ At present, only scarce and often contradictory data has been published on migrant's utilization of healthcare services in Europe,⁹ and even less information is available on migrant's utilization of Emergency Departments (EDs). In Copenhagen, for example, a higher ED utilization rate by persons born in Somalia, Turkey and ex-Yugoslavia has been reported, but not by other non-Western-native people.¹⁰ In the same region of Spain (*i.e.*, Catalunya), two studies almost simultaneously showed conflicting figures, *i.e.*, an overall lower ED utilization rate by foreign-born residents was described in Barcelona (attributed to the so-called *healthy immigrant effect*),¹¹ whereas immigrants from low-income countries used EDs more than the Spanish-born population in Lleida, with larger differences for Maghrebi populations and sub-Saharan women.¹² In a rather different social context such as Israel, a lower rate of ED uti-

lization and hospitalization by immigrants was found, even after 10 years from migration.¹³ In Norway, work immigrants from Germany and Poland had a considerably lower use of the ED, while asylum seekers from Somalia and Iraq use these services more than Norwegians.¹⁴ Although high rates of ED use among migrants have been related to inadequate access to other services, a German study failed to find that migrant status was a predictor of inappropriate utilization.¹⁵ Not surprisingly, the relationships between migrants and health have been considered a *cultural dilemma*.¹⁶

In Italy, a retrospective survey based on 2005 Italian Health Conditions Survey, carried out by the Italian National Statistical Office (Istituto Nazionale di Statistica; ISTAT), showed a higher ED utilization rate by immigrants, most notably from those born in Morocco, other African countries and Albania.¹⁷

The aim of the present study was to compare utilization rates and modalities of presentation to the large urban ED of the University Hospital of Parma, Italy, by the Italian-native and foreign-born populations.

Materials and Methods

A cross-sectional study was planned to assess the utilization rates of Italian-native and foreign-born subjects, who visited the ED of the Academic Hospital of Parma (*i.e.*, a 1250 bed, tertiary academic referral institution, averaging 85,000 visits per year), during the years 2008 to 2012, in a catchment area of about 325,000 inhabitants. The information source was the electronic database of the ED, containing information about age, gender, and country of birth, as well as triage color-coding (see below) and modality of presentation (*i.e.*, self-referred *vs* referred by physician) to the ED. The Obstetric and Gynecology Department in our Hospital offers open access emergency care for pregnancy-related problems, and the Pediatric Department offers emergency care for children under age of 14, provided that they do not show trauma-related problems. The study population was divided into Italian-native and foreign-born, and then categorized according to the color-coding triage system. Large age groups were also partitioned. Immigrants (foreign-born) were defined as persons born outside Italy, whose parents were either foreign citizens or born outside the national territory. Both regular and irregular immigrants have been included. In accord with international and national criteria, all the patients were codified by a triage, nurse-driven, system.¹⁸⁻²⁰ In our Region the triage system involves a color-coding protocol using red (level 1), yellow (level 2), green (level 3), and

white (level 4) tags. To compare the difference of distributions between Italian-native and foreign-born emergency accesses by color-code, as well as by modalities of presentation, a chi-squared test was used. Statistical analysis was performed with Mathematica 7® software (Wolfram, Champaign, IL, USA).

Results

A total of 424,466 visits were recorded in the ED between years 2008 and 2012, 64,435 (15.4%) of which by foreign-born patients coming from as many as 137 different countries. A small group of patients coming from European Economic Community countries and North America (*i.e.*, USA, Canada), accounting for 1676 subjects, and obviously not carriers of the aforementioned problems, does not impact on the accuracy of evaluation. The distribution of ED visits among Italian-born and foreign-born subjects by color tags in years 2008-2012 is shown in Table 1. A significant difference

between utilization rates by Italian-born and foreign-born was observed for all the triage-codes considered, with higher rate by foreign-born low-acuity codes (green plus white codes: 87.5 *vs* 73.9%, $P < 0.0001$) and lower for high-acuity codes (yellow plus red codes: 12.5 *vs* 26.1%, $P < 0.0001$). The difference was substantially the same when considering the younger age groups (*i.e.*, age group 15-50 y, green plus white codes: 75.8% Italians *vs* 88.6% foreign-born; yellow plus red codes: 24.2% Italians *vs* 11.4% foreign-born; age group 50-64 y, green plus white codes: 71.7% Italians *vs* 85.9% foreign-born; yellow plus red codes: 28.3% Italians *vs* 14.1% foreign-born), whereas in the age group of 65 y or older the differences were smaller (*i.e.*, green plus white codes: 68.6% Italians *vs* 72.3% foreign-born; yellow plus red codes: 31.4% Italians *vs* 27.7% foreign-born). It is noteworthy, however, that very few foreign-born patients aged 65 y or older were visited, when compared with the Italian citizens of the same age group, thus reflecting the consistency of the migrant population.

Considering a catchment area of 325,000

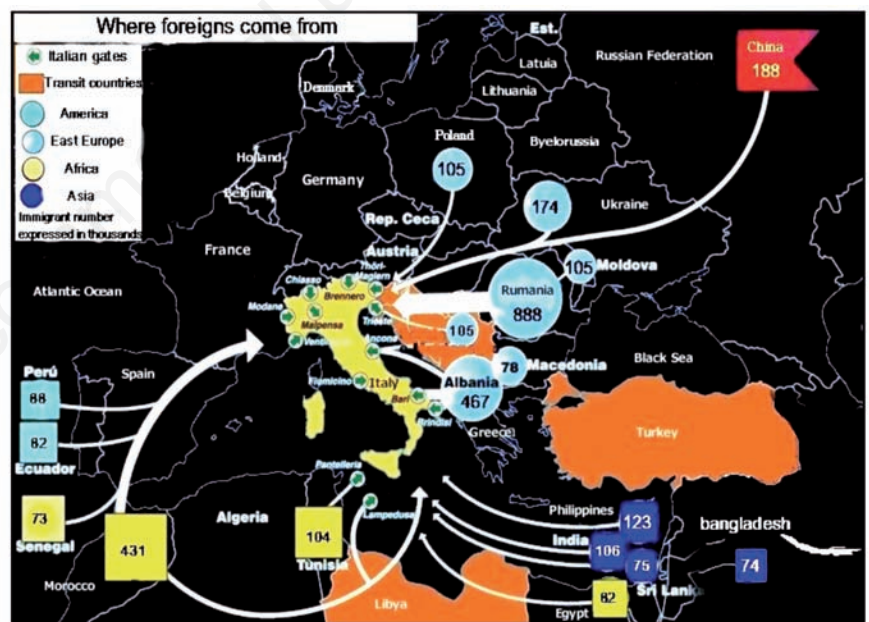


Figure 1. Migration routes to Italy.

Table 1. Distribution of emergency department visits among Italian-native and foreign-born subjects by color tags in 2008-2012.

Color tags	Total (%)	Italian-native (%)	Foreign-born (%)	Chi squared test
Total	424,466	359,031 (84.6)	65,435 (15.4)	
Red	13,986 (3.3)	13,292 (3.7)	694 (1.1)	1212.08 $P < 0.0001$
Yellow	87,770 (20.7)	80,282 (22.4)	7488 (11.4)	4021.92 $P < 0.0001$
Green	291,940 (68.8)	243,685 (67.9)	48,255 (73.7)	88.71 $P < 0.0001$
White	30,770 (7.2)	21,779 (6.1)	8991 (13.7)	789.50 $P < 0.0001$

inhabitants, the ratio of total number of ED visits divided by total population produced an overall utilization rate for the entire population of 261.2 emergency contacts per 1000 persons per year throughout the observational period. The utilization rate was 253.9 visits per 1000 inhabitants for the Italian-native group, and 309.7 per 1000 for the foreign-born group (odds ratio 1.23; 95% CI: 1.01-1.48; $P=0.034$). The modality of presentation to the ED was also assessed after clustering the study population into two large categories, the former including subjects who were referred by a physician (*i.e.* general practitioner), and the latter consisting of self-referrals. The results, which are presented in Table 2, show a significant difference in modalities of presentation of foreign-born immigrants and Italian-natives, being 82.3 *vs* 71.4% for self-referral, and 17.6 *vs* 28.6% ($P<0.001$) for physician-referral, respectively.

The distribution of ED visits among Italian-native and foreign-born subjects, divided by age groups, is shown in Table 3, and displays a large prevalence, among the immigrants, of younger people, and a very poor representation of the oldest group.

During night shifts (*i.e.*, 10 p.m. to 6 a.m.) we recorded an average of 28.3% of all visits, with a peak between 10 p.m. and 1 a.m. (*i.e.*, 93% of the entire group). The zenith of night-shift visits was recorded during Sunday nights (32%), and the nadir during Monday nights (25.1%). There were no significant differences between percentages of immigrants and residents attending ED during day shifts and night shifts (*i.e.*, day shifts: 85.4% residents *vs* 14.6% immigrants; night shifts: 84.1% residents *vs* 15.9% immigrants; P , not significant).

Discussion

An equal, safe and appropriate utilization of healthcare resources are paradigms of all modern NHSs. To the best of our knowledge, this is the first study that has assessed ED utilization rate and modality among immigrant population in Italy. Other reports have focused on specific populations or problems such as pediatric EDs or women and contraception.^{17,21}

One of the most relevant information that has emerged from this cross-sectional investigation is represented by the high rate of access to our ED for non-urgent or semi-urgent medical problems (*i.e.*, green and white codes), for both the Italian-native and the foreign-born population, despite a significantly greater utilization for the latter. In recent years, EDs have evolved to provide not only acute emergency care, but also safety net care for a growing population and situations that were previously managed by primary healthcare facilities.

Table 2. Distribution of emergency department visits among Italian-native and foreign-born subjects, divided by modality of presentation in years 2008-2012.

Modality of presentation	Total (%)	Italian-native (%)	Foreign-born (%)	Chi squared test
Self-referral	310100 (73.06)	256213 (71.4)	53887 (82.5)	3395 $P<0.0001$
Referred by physician	114366 (26.94)	102818 (28.6)	11548 (17.6)	
Total	424466	359031 (84.6)	65435 (15.4)	

Table 3. Distribution of emergency department visits among Italian-native and foreign-born subjects, divided by age groups, in 2008-2012.

Age tags	Italian-native (%)	Foreign-born (%)	Chi squared test	Total (%)
0-14 (only trauma)	21,658 (6.0)	3560 (5.4)	34.69 $P<0.0001$	25,218 (5.9)
15-50	157,644 (43.9)	53,965 (82.5)	32,923.33 $P<0.0001$	211,609 (49.8)
51-64	51,926 (14.5)	5621 (8.6)	1628.75 $P<0.0001$	57,547 (13.6)
>65	127,803 (35.6)	2289 (3.5)	26,829.03 $P<0.0001$	130,092 (30.6)

The obvious consequence is an overcrowding of EDs, with an increased risk for patient safety, delays in providing treatment and compromised privacy, amongst others.²²⁻²⁶ Indeed, one limitation of this study is the selection of the study population, where migrants have been only defined according to the Country of birth. This information is probably insufficient to describe such a multifaceted population and other aspects should be considered, such as type of migration (*e.g.*, forced *versus* voluntary), citizenship, socioeconomic and demographic status along with duration of stay in Italy, all factors that may impact on health needs and access issues.^{9,27,28} In our study, we classified the number of visits and not the number of subjects, since there is a number of frequent users of ED (the so-called frequent-attenders), who are typically homeless people, drug and alcohol abusers, and those with complex medical and social conditions, and this may be another limitation. Due to the characteristics of our database, which recognizes the Country of birth, there is an inherent under-estimation of immigrants group, because the subjects born in Italy from foreign parents, the so-called second generation immigrants, are inevitably lost. Data derived from instruction institutions indicate that subjects born in Parma from foreign parents represent about 75% of foreign pupils in nursery school and 47% in primary school.²⁹ In their study Grassino *et al.* observed that 51.2% of foreign patients seen in a pediatric ED were born in Italy.²¹ It is also acknowledged that some groups, in particular Chinese, prefer to obtain healthcare in an out-of-hospital context, most notably from traditional Chinese medicine,^{9,27} although the Parma Chinese population accounts for less than 1% of the immigrant population, and does not represent a statistical confounding factor.

In analogy with other reports,¹¹ our data seems to confirm the existence of the so-called *healthy immigrant effect*. It is clear that a young population is usually unaffected by chronic diseases that more typically characterize the elderly (*i.e.* cardiovascular and respiratory disorders, malignancies, and other chronic conditions). On the other hand, we have also observed the so called *family rejoining phenomenon* in recent years, with arrival of immigrants' spouses and children, but also parents, thus increasing the median age and generating a previously unknown elderly immigrant population. We also observed a statistically significant difference between the two groups regarding the color-code tags and the modality of access to the ED. We can explain this observation by a poor knowledge by immigrants of how to access primary healthcare services in Italy, with consequent under-utilization of resources different from the ED. This is clearly reflected by the modality of presentation to the ED, wherein a very high rate of self-referrals was found in the immigrant group, maybe due to the lack of knowledge about access to primary and specialist care services. Overall, this aspect may account for the large percentage of minor color-codes (*i.e.*, white and green) among this population.

Conclusions

In conclusion, we observed a higher rate of utilization of the ED by the immigrant population, with a consequent increasing risk of overcrowding. The most reasonable solution entails a better knowledge of access to services offered by the Italian NHS, along with other different areas of potential intervention, including educational leaflets about the health

system placed in schools, places of worship, shops owned by immigrants, and meetings with different communities, which should be encouraged to promote better knowledge through education. Translators and multilingual leaflets concerning health problems should also be available in the ED, to help resolve the language and cultural barriers, along with the use of multilingual displays.

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