

## Health status of immigrant children: an epidemiological survey among Italian paediatricians

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### Abstract

**Background:** Immigrant children represent the fastest-growing segment of the child population in Italy and an increasing proportion of patients attending the daily practices of paediatricians. The aim of this survey was to investigate the health status of migrant children in Italy and, based on the perceptions of paediatricians, to identify the healthcare needs of this segment of immigrant patients.

**Methods:** The survey was carried out between October 2006 and September 2007 on a sample of Italian paediatricians.

**Results:** The sample included 236 paediatricians, accounting for 190,335 paediatric patients in total; of these, 14,308 (7.5%) were immigrant children. The rates of access to recommended vaccinations of immigrant children compared to national data were as follows: Pertussis (87.9% of sample vs 96.7% National data), Haemophilus influenzae (86.5% vs 96%) and Measles, Mumps and Rubella (MMR) (87.3% vs 89.6%). We also found differences in caesarean birth rate (11.8% of immigrant births being caesarean compared to national data, that reaches about 38.3%) and a high rate of parasitosis in immigrant children.

**Discussion:** The results indicate interesting differences between immigrant and Italian children, especially in vaccination coverage and caesarean birth rate, that further studies could clarify in the future.

**Key words:** immigrants' health, children, inequalities, paediatricians, vaccination

### Introduction

A growing body of studies suggest that inequalities in health between migrants and local populations in Europe do exist [1-3].

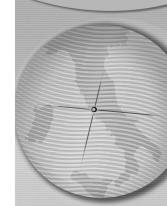
The migration experience has been traditionally related to a process marked by the loss of social relations and by the impact of cultural differences relative to the place of origin. Children represent a vulnerable part of the migrating population; moreover, they may lack certain physical and psychological protective factors, like the "healthy migrant phenomenon" - the fact that first generation immigrants are often healthier than natives in several parameters. Without the adults' strong motivation to find better conditions of life,

children may lose the protection advantage their parents enjoy [4].

At present, there are almost 4,000,000 immigrants in Italy, of which nearly 770,000 under 18 years of age with at least one foreign-born parent; they represent the fastest-growing segment of the child population of Italy [5].

The population of immigrant children represents a big challenge for paediatricians in Europe and in other areas of the world that are traditional destinations of migration flows. Despite this, research so far has focused on the adult immigrant population, and very little is known about immigrant children [6].

Two different perspectives exist on the



health impact of immigrants: on the one hand, immigrants are considered a source of infectious diseases they allegedly carry from their countries of origin. However, recent Italian studies show that infectious diseases seem to be quite uncommon among immigrants, compared to overall morbidity [7, 8].

On the other hand, there are those who consider the health problems of immigrants as more akin to a large spectrum of diseases, that are probably due to social determinants of health, like unhealthy conditions of life and poorer access to health care services [9].

The aim of the present study was to investigate the health status of migrant children in Italy through the experience of family paediatricians, by assessing quantitative and qualitative aspects of this phenomenon in order to evaluate if they differ significantly from Italian children in some way.

Our main goal was to calculate the frequency of disease as the main indicator of the health status of immigrant children, utilizing indicators frequently reported in literature relative to studies of immigrant populations[10,11]. Moreover, based on the perceptions of paediatricians, and by those we mean their feelings, impressions and opinions on the basis of their daily practice, we tried to identify the healthcare needs of immigrant patients.

## Method

### **Study design and population**

An online survey was carried out at the end of a training course of Continuous Education in Medicine from October 2006 to September 2007. During each event, the structure of the form was presented to the paediatricians.

A pilot study was conducted in July 2006, in cooperation with some paediatricians, in order to standardize the procedures and to test the data collection procedure [12].

We defined immigrant children as those who were born outside Italy or were born in Italy to immigrant parents.

The sample was selected during these courses of Continuous Education in Medicine.

### **The questionnaire/form**

The questionnaire was designed through the involvement of paediatricians from Rome, Genoa and Florence participating in the survey. We defined the indicators suitable for achieving our goals during a teleconference.

The questionnaire consisted of 25 open and closed ended questions, divided into 5 sections: demographic characteristics, health status and access to health care services, vaccinations, breast

feeding and nutrition, and infectious and non infectious diseases.

Each paediatrician filled in an online form dealing with the following data:

- number of assisted children (immigrants and native)
- proportion of immigrant children by age groups
- proportion of immigrant children by gender
- number of immigrant children born in Italy (proportion of the total number)
- number of episodes of specific infectious diseases in the last twelve months
- number of vaccinations for each specific disease in the last twelve months
- number of non-infectious paediatric diseases in the previous twelve months
- number of surgical interventions referred in the previous twelve months
- other interventions on nutritional, metabolic and endocrine problems and psycho-social disorders considered as qualitative aspects linked to health care.

When paediatricians had no Internet access available, their participation in the survey was made possible through the compilation of a printed form, similar to the one compiled on the web.

## **Statistical analysis**

Descriptive statistics were elaborated and frequencies, percentages, frequency tables for qualitative variables were reported. Statistical analysis was performed using SPSS 12.0 software for Windows.

## **Results**

### **Socio-demographic characteristics**

Of 268 questionnaires sent, we collected a final sample size of 236 (rate of refusal 25%).

The sample included 236 paediatricians accounting for 190,335 paediatric patients in total; of these, 14,308 (7.5%) were immigrant children.

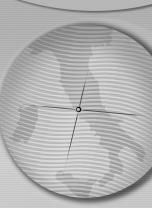
Paediatricians came from several Italian regions (Table 1), particularly from Lazio (20.3%), Puglia (11.4%) and Sicilia (10.2%).

The Socio-demographic characteristics of the immigrant children are shown in Table 2.

As regards migration flows, 3652 children (25.7%) came from developing countries, 8812 (62%) were born in Italy, 305 (2.1%) were born as nomads, 35 (0.2%) were refugee children, 1317 (9.2%) had been adopted and 97 (0.7%) were under guardianship.

### **Health status and access to health care services**

1041 (11.8%) immigrant children were born in Italy by caesarean delivery, 298 (3.3%) were

**Table 1. Geographic distribution of paediatricians.**

<b>Regions</b>	<b>No.</b>	<b>%</b>
Abruzzo	5	2.1
Basilicata	11	4.7
Calabria	17	7.2
Campania	17	7.2
Emilia-Romagna	14	5.9
Lazio	48	20.3
Liguria	8	3.4
Lombardia	29	12.3
Marche	6	2.5
Piemonte	10	4.2

**Table 2. Socio-demographic characteristics of immigrant children patients.**

<b>Immigrant Children Patients</b>	<b>n</b>	<b>%</b>
<b>Gender</b>	14.308	
Male	7.204	49.9
Female	7.104	50.1
<b>Age groups (year)</b>		
< 1	2736	19.1
1 - 3	5206	36.4
4 - 10	5052	35.3
11 - 14	1311	9.2
<b>Countries of origin</b>		
Middle Western Africa	1485	10.6
Eastern Europe	4260	30.3
Northern Africa	3156	22.4
Middle Eastern Africa	795	5.6
Eastern Africa	719	5.1
Southern Eastern Asia and India	2184	15.5
Southern America	1479	10.5

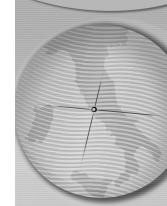
premature infants (gestational age < 32 weeks), 199 (2.2%) were born with respiratory distress and 445 (5%) had low birth weight (< 2500 gr).

#### **Vaccinations**

In Table 3 we summarized mandatory/optional vaccination in Italy in order to facilitate the understanding of text. Figure 1 shows data relative to coverage of recommended (Pertussis, *Haemophilus influenzae* and Measles, Mumps

and Rubella) and optional (Meningococcus, Pneumococcus and Varicella) vaccinations in immigrant children compared to national data. In particular, Pertussis (87.9% of sample versus 96.7% National data), *Haemophilus influenzae* (86.5% vs 96%) and Measles, Mumps and Rubella (MMR) (87.3% vs 89.6%) showed a gap if compared to the global coverage in Italy (Figure 2).

20.8% of responders reported a lower willingness by immigrant parents to vaccinate



their children compared to Italian counterparts; moreover, 3.4% of paediatricians described their willingness as much lower. For 58% of the responders, the level of vaccination acceptance was the same as that of Italian parents, while 17.8% of responders reported that parents of immigrant children accepted vaccinations (both the recommended ones and the optional ones) more willingly than parents of Italian children.

#### Breast feeding and nutrition

16.9% of responders reported problems concerning promotion, acceptance and duration of maternal breast feeding. Of them, 6.8% were from India, 6.3% from Eastern Europe, 4.7% from central Africa, 4.2% from Northern Africa, 3.1% from the Middle East, 2.6% from Southern America and 1.6% from Eastern Africa. 45.7% of paediatricians reported nutritional problems

during weaning: 41.5% of cases were associated with the consumption of pork, 2.5% with cereals, 11% with beef, 6.8% with other kinds of meat and 4.7% with the consumption of other non-specified food. As far as the reasons for these nutritional behaviours are concerned, 38.6% of responders answered that nutritional behaviours were related to religion, while for 19.2% of them, their choice was related to cultural reasons (42.2% marked "other" option, without specifying).

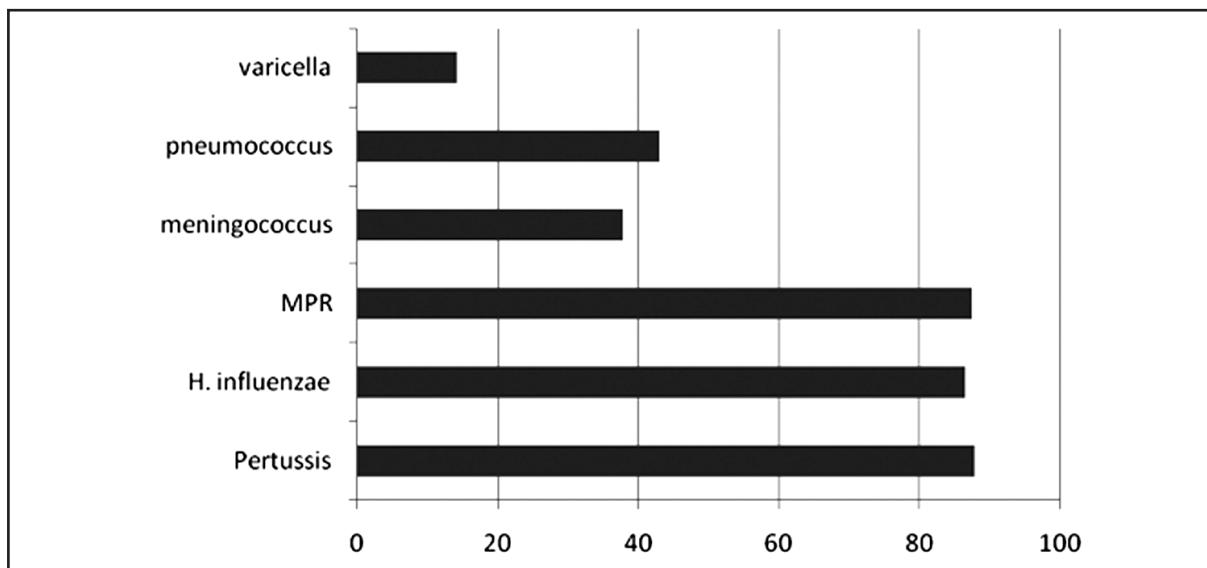
#### Infectious and non infectious diseases

In comparison to Italian children, respiratory and gastrointestinal diseases among immigrant children were considered more common (18.2% of responders), more severe (10.6%) and more recurrent (22.9%). Table 4 shows the episodes of infectious diseases, the most relevant ones being: Intestinal parasitosis 1177 (8.23%), Skin parasitosis

Table 3. Vaccinations that are mandatory and optional in Italy.

<i>Mandatory Vaccinations</i>	<i>Optionals Vaccinations</i>
Polio	Rubella
Diphtheria	Mumps
Tetanus	Pertussis (administered in trivalent vaccine with Diphtheria and Tetanus)
Hepatitis B	Measles
	<i>Haemophilus influenzae</i>

Figure 1. Rates of coverage of recommended and optional vaccinations.



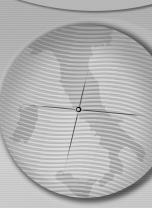
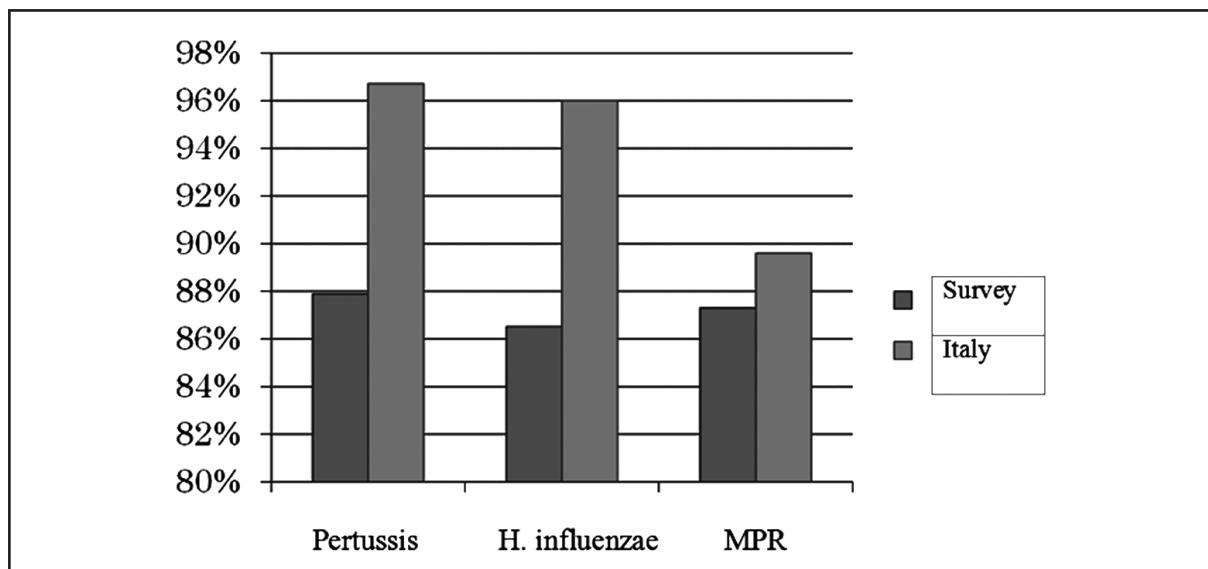


Figure 2. Rates of vaccinations coverage in immigrants children versus Italian children.



491 (3.43%) and Pneumonia 324 (2.26%). In Table 5 the data for non-infectious diseases are shown: Allergic diseases 1281 (8.95%), Anaemia 658 (4.60%), Obesity 509 (3.56%) are at the top of the list.

Moreover, 10.2% of the doctors reported that episodes of severe wheezing, requiring admission to hospital and respiratory care, were more frequent in immigrant children than in the Italian ones.

## Discussion

The results of this study show that a significant number of patients attending the daily practices of paediatricians is represented by children from immigrant families. According to our data, roughly 7.5% of young patients in Italy are children of immigrant families. This component is growing quickly: a large part of this group is less than 3 years old (55.5%) and most of these were born in Italy (62%).

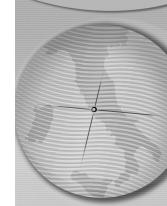
Data reflect the variability and complexity of the population considered, that resulted vulnerable both because of the effects of migration and because of the risk of becoming outcasts and having lower access to, and use of, health services in the host country.

The most striking result of our survey is the lower rate of access to recommended vaccinations, compared to national statistics. Indeed, vaccination coverage for Pertussis (96.7% National data versus 87.9% of our sample), *Haemophilus influenzae* (96% vs 86.5%) and Measles, Mumps and Rubella (MMR) (89.6% vs 87.3%) shows a gap in comparison to global coverage in Italy (Fig. 2). The disparity in Hib, Pertussis and MMR coverage rates suggests a need

for increased culturally competent public health immunization interventions to increase coverage among immigrant children. Furthermore, while we have no explicit data on mandatory vaccinations, our finding of a lower coverage rate for Pertussis, that is combined in a trivalent formulation with Diphtheria and Tetanus vaccines, can be considered as reflecting the overall coverage for mandatory vaccinations and suggests the need for further research in this area. Our results replicate the findings of several international studies, that showed that vaccination rates were considerably lower in immigrant children than in native-born ones [13, 14, 15]. It emerged that almost 25% of paediatricians considered immigrant parents less willing to allow their children to undergo immunizations than Italian parents. Accordingly, the lower immunization coverage in immigrant children may be due to poor information or to lack of access to health care services.

As regards the lower estimated rate of caesarean births (11.8% immigrant births vs 38.3% reported by national data), this result could have been related to a lower access to or utilization of healthcare services [16]. However, it is difficult to compare this result with international data, because caesarian birth rate in Italy tends to be higher than in almost all other Countries [17-19].

17% of responding paediatricians also reported problems related to breastfeeding, which is considered an important indicator for maternal and child health. Previous research has already shown substantial racial/ethnic and socioeconomic disparities in breastfeeding initiation and duration rates, with lower rates for native populations [20, 21]. Our data on breast

**Table 4.** Episodes of infectious diseases.

<i>Infectious disease (ID)</i>	<i>No.</i>	<i>%</i>
Intestinal parasitosis	1177	8.23
Skin parasitosis	491	3.43
Pneumonia	324	2.26
Malaria	62	0.43
Hepatitis C	44	0.31
Measles	40	0.28

**Table 5.** Number of non infectious diseases.

<i>Non infectious diseases</i>	<i>No.</i>	<i>%</i>
Allergic diseases	1281	8.95
Anaemia	658	4.60
Obesity	509	3.56
Malnutrition	317	2.22
Haemoglobin disorders	105	0.73
Fractures	72	0.50
Disorders of pubertal development	64	0.45
Injuries	48	0.34
Celiac disease	44	0.31
Diabetes	13	0.09

feeding and caesarian births are in accordance with a recent Italian study [22].

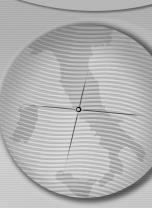
In fact, we know that infant diets in most developing countries are based on prolonged breast-feeding and delayed weaning. Breastfeeding concerns may, therefore, well stem from their permanence in a different setting. Moreover, a recent Italian study highlights that cases of coeliac disease among immigrant children are increasing, as confirmed by our results: the factors influencing dietary intake and their consequences for the health status of this population need, therefore, to be carefully considered [23].

The high prevalence of parasitosis, largely demonstrated in other literature, is confirmed here as well [24-27]. Tuberculosis in immigrants, perhaps due to social living conditions, should be considered as an emerging disease affecting 0.28% of immigrant children, versus 0.02% of the child population of Italy [28].

This survey suffered from a number of limits: firstly, from a purely epidemiological standpoint, results of surveys can be biased when the capability of the sample to represent the population is limited. Secondly, data collection was carried out relying on the experience of family pediatricians, which provided us with information on aggregated data, rather than individual data. Furthermore, the surveillance system does not include data about children from irregularly immigrated parents, who cannot benefit from the national pediatric service. In conclusion, while these results should be considered with care, they point to the existence of interesting issues that deserve to be addressed by future research.

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