

The Evolution of Pediatrics in Portugal: A Historical Overview

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ABSTRACT

In Portugal, the practice of children's medicine is related to Dona Estefania Hospital, in Lisbon, the first pediatric hospital in the country, open in the last quarter of the 19th century. The very first doctors to care for children came from adult's medicine, but they had great interest and understanding of children's characteristics. The first full Professor, Jaime Ernesto Salazar d' Eça e Sousa, received his graduation at Boston University. He came back to Lisbon in 1897 as a specialist in orthopedics and pediatrician of medicine and surgery and started undergraduate and postgraduate pediatrics education. The evolution of pediatrics in the world over nearly the last 150 years has been astonishing, and Portugal has followed this evolution. Nowadays, Portuguese pediatrics is modern and organized and delivers the best health care, resulting in the best data to be found concerning all mortality rates in pediatrics.

Keywords: History, pediatrics, Portugal

THE PIONEERS

The rise of pediatrics was intimately related to the establishment of children's hospitals in the 19th century. The first pediatric hospital in Portugal was founded in 1860 thanks to Queen Estefania Hoenzollern-Sigmarigen, the wife of King Pedro V. Both Queen and King used to visit patients in the hospitals, and Estefania was very alarmed by watching children hospitalized side by side with adults. As such, in 1859, she asked her husband to order the construction of a pediatric hospital in the city of Lisbon. In 1860 after the Queen's premature death, plans for Hospital Estefania were made by Sir Albert Jenkins Humbert, architect of the Royal English House. The plan earned the following comment from Florence Nightingale in her book "Notes on Hospitals" (1863, Children's Hospital 131 e-book, by Google) "If children's hospitals are to be built at all, this is the kind of plan that should be adopted". The hospital was opened 17 years later in 1877 by King Luiz, Pedro's brother, who had passed away in the intervening years. The infant mortality rate in Lisbon in 1877 was 247 per 1000 live births. Infectious diseases, namely diarrhea and pneumonia, were responsible for this high mortality rate, mainly due to a lack of sanitation and miserable living conditions. At that time some adult doctors were inspired to study, understand, and practice children's medicine. Joaquim Eleutério Gaspar Gomes

(1824-1896) was the first doctor in Portugal to accomplish such ideals. With a PhD from Brussels University, he became the first director of a pediatric nursery in Portugal at Dona Estefania Hospital. He requested special rules for pediatric wards and wards for infectious diseases, as well as special diets and medicines, a small forest for outdoor walks, and a basic teaching school to be housed at the hospital. This last request finally took place 47 years later with Sara Benoliel under the governance of Jaime Ernesto Salazar d' Eça e Sousa. As the first to gain full professorship, Jaime Ernesto Salazar d' Eça e Sousa (1871-1940) was the most important doctor in pediatrics. He received his PhD from Boston University and came back to Lisbon in 1897 as a specialist in orthopedics and pediatrician of medicine and surgery. He opened a pediatric outpatient clinic in the General Hospital of São José in 1902, later transferred to Hospital Estefania. Amongst papers, books, and magazines, he published the book *Doenças das Crianças* [Children's Diseases] (1920, Tipografia do Comércio, Lisboa) with his lessons, where we can read the famous sentence "A child is not an adult in miniature" (page 8). After the transfer of the outpatient clinic to Dona Estefania Hospital he worked always there, where he founded the first School of Pediatrics both for undergraduate and postgraduate teaching. In 1913, pediatric medicine and surgery became distinguishable by law, each one getting their own nursery with different doctors and teachers. Two other

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doctors played a very important role at that time: José Júlio Leite Lage (1876-1961), fellow, disciple, close collaborator, and substitute for Salazar de Sousa in the field of medical pediatrics, and Leonardo Castro Freire, the substitute for Salazar de Sousa as professor and surgeon in the field of pediatric surgery. As a matter of fact, these 4 prestigious figures were the pioneers of pediatrics in Portugal. After Salazar de Sousa's death in 1940, the School of Pediatrics was moved to the Scholar Hospital of Santa Marta, staying there until the new scholar hospital, later simply called Santa Maria, was opened in 1954. A further list of other prestigious personalities followers of Jaime d'Eça Salazar de Sousa, who'd become involved in the development of pediatrics in the early 20th century: Manuel Nazareth Cordeiro Ferreira (1895-1981), the substitute for Leite Lage, the mentor and creator of the Portuguese Society of Pediatrics and person responsible for the first permanent pediatric consultation at Hospital Dona Estefânia (1957), which would become the first Pediatric Emergency Department in Portugal. He implemented the rebuilding of the hospital, and the new building was opened in 1962 with 380 pediatric beds. He used to invite distinguished pediatricians from abroad for conferences, lectures and courses; Sara Benoliel (1898-1970), the first female pediatrician in Portugal, disciple and assistant to Salazar de Sousa in the hospital and in the medical school; Humberto Gabriel da Silva Nunes (1907-1990), disciple of Salazar de Sousa and the substitute to Manuel Cordeiro Ferreira, who had the vision of pediatric subspecialties; da Silva Nunes wrote his PhD on Fetal Breathing and became a hospital de Dona Estefânia Fellow of the International College of Paediatrics. Under his governance, the first Portuguese Intermediate care unit for critical pediatric patients was opened in the 1970s at hospital Dona Estefânia. He also created the Social Workers Service and the Childhood Educator's Service in this hospital. Other fellows of Salazar de Sousa were José Santos Bessa (1905-1991) from Coimbra, who had been a student at Hospital de Dona Estefânia between 1929-1930 and then a resident in the following three years; Carlos Salazar de Sousa (1904-1980; Jaime's son), founder of *Revista Portuguesa de Pediatria*, the Portuguese Journal of Pediatrics and organizer of the 10th International Congress of Pediatrics in 1962; Horácio Rey Colaço Menano; José A. Mateus Marques (1930-2010) a clinical pediatrician of excellence and pioneer of pediatric infectiology, and Nuno Tornelli Cordeiro Ferreira (1926-2018), who was Head of multiple health institutions and teaching schools, as well as founder of scientific societies such as the Pediatric Society of Portuguese Language, founder of pediatric hematology and recipient of the international Montaigne Award. Other names include Fernando Sabido (1911-2006), whose main interest was pediatric nutrition; Maria de Lourdes Levy (1921-2015), the second woman to get a PhD in Portugal with an interest in using EEG for assessing neurological problems and a great influencer, whom José Manuel Ramos de Almeida called "the Matriarch of the Portuguese Pediatrics;" João Gomes Pedro, who was concerned with child development; Carlos Areias, director of the Julio Dinis Maternity in Porto; José Miguel Ramos de Almeida; director of the Dr. Alfredo da Costa Maternity in Lisbon; and Luis Duarte Fino and João M. Videira Amaral, both of whom were pioneers of Portuguese neonatology.

The second Portuguese pediatric hospital, Real Hospital de Creanças Maria Pia, was open in Porto in 1883. Pediatrics started being taught in this city in 1917-1918, but occurred at the General Hospital of Santo António under poor conditions with few pediatric beds. When Hospital São João was opened in 1959, a pediatric department was created, which improved teaching conditions. In northern Portugal, another group of prestigious figures contributed to the development of pediatrics: José Dias de Almeida Junior (1854-1919) in 1917-1918 and António de Almeida Garrett (1884-1961) who graduated from Porto with pediatric training in Paris and is considered the founder of the first pediatric department in Porto in 1925. His contribution to the development of Portuguese pediatrics is unquestionable, as he was the first President of the Portuguese Society of Pediatrics (Fig 1), President of the first National Congress of Childhood Protection in 1952, and the Head of the Faculty of Medicine in Porto from 1931-1961. He was succeeded by Francisco Manuel de Fonseca e Castro (1898-1982) the first Head of the Pediatrics Department at Hospital de São João, who was then succeeded by José Augusto Lopes dos Santos (1917-1975), who had earned his PhD in Switzerland. He was succeeded by Norberto Teixeira Santos (1932-1999), a great reformer who promoted training their residents in pediatric services abroad.



Figure 1: Dona Estefania Hospital, main façade, original aspect. Lisbon Municipal Archive. Unknown author

In Coimbra, pediatrics began being taught in 1917-1918 under the following pediatricians: Elísio de Moura (1877-1977), António Luís Morais Sarmento (1888-1977), João Porto, Lúcio de Almeida, and José Santos Bessa, the teacher between 1967-1974 whose knowledge, influence, and power resulted in a law determining that Portugal should have pediatric hospitals in Lisbon, Porto, and Coimbra. The teaching conditions in Coimbra were also precarious, with few pediatric beds placed in adult wards. A pediatric hospital was open in Coimbra in 1977, installed at an old convent after the efforts of Santos Bessa. In 1980, the first polyvalent pediatric intensive care unit in Portugal was opened there with great contribution from António Torrado da Silva, Henrique Carmona da Mota, and Luís Lemos, all of whom had recently returned from abroad.



Figure 2: Children’s week at Dona Estefania Hospital, 1927. From the left hand-side: the third adult figure is Salazar de Sousa the first Full Professor; the female figure, on his right-hand side, is Sara Benoiel, the first paediatrician woman in Portugal



Figure 3: The first Direction of the Portuguese Society of Paediatrics in 1948. From the left-hand side: 1 - Lúcio de Almeida; 2 – Castro Freire; 3 – Almeida Garrett; 4 - Manuel Cordeiro Ferreira; 5 - Carlos Salazar de Sousa; 6 - Abel da Cunha

Other important figures in Coimbra were Jorge Biscaia (bioethics), Nicolau da Fonseca (rheumatology), and Luís Borges. The hospital was moved to a new building in 2011 and was called Hospital Carmona da Mota.

Following the Carnation Revolution on April 25, 1974, a free universal national health service was instituted in 1979 changing the panorama of health.

MODERN PEDIATRICS: THE MOST IMPORTANT FACTS AND DATA

Although the opening of the above-mentioned three children’s hospitals have constituted a big step toward improving pediatric health care, other important facts deserve to be highlighted, namely the opening of neonatal and pediatric intensive care units (NICUs), the reform of perinatal care, and the implementation of pediatric transport systems and their

impact on morbidity and mortality. In the 1960s and 1970s, mortality rates (i.e., perinatal, neonatal, and children under five) were very high (Table 1). During the first years of the 1980s, five NICUs were opened in Lisbon and Porto, and official guidelines were implemented that aimed to promote the quality of pregnancies. However, despite these improvements, many deliveries occurred in places that lacked expert staff and adequate equipment. In 1989, a reform of perinatal care took place under the auspices of Health Minister Leonor Beleza. In 1987, she nominated a committee composed of obstetricians, pediatricians, and politicians with the aim of investigating childbirth conditions and drawing up improvement proposals. Moreover, the Committee had full power to effectively apply them. This Committee was able to implement the following rules in addition to other main features: hospitals were reclassified as Level I, II, or III corresponding to their level of perinatal specificity. Maternities with less than 1,500 deliveries were closed. Level I hospitals performed no deliveries nor had an outpatient clinic for pregnant women. Level II and III hospitals had a very well-defined number and level of at-risk deliveries, adequate staff, and equipment. The rules had an immediate effect on the number of in-hospital deliveries and on mother, perinatal, and neonatal deaths (Table 1).

Concerning pediatric intensive care units (PICU), following the first one that was opened at Hospital Pediátrico de Coimbra, where other important names deserve attention as well, such as José Fabela Neves, Jorge Oliveira, and Luís Januário, the second PICU was opened in Porto at the General Hospital of Santo António by Octávio Cunha, who’d obtained his PhD in Lausanne; João Sequeira opened a PICU in Santa Maria Hospital, Carlos Vasconcelos opened

Table 1: The evolution of perinatal and neonatal data

	1960	2001	2021
Live births (Absolute number)	213 895	112 774	79 582
Out of wedding (%)	9.5	23.8	60
In-hospital deliveries (%)	18.4	99.1	99.3
in Private hospitals (%)	-	6.3	18
Cesaerean section			
Public hospitals (%)	-	23,2	23.4
Private hospitals (%)	-	58.4	81.5
Prematurity (%)	-	5.8	6.8
Low birth weight (% of live births)	-	7.2	7.9
Twins (% of live births)	-	2.4	2.8
Mortality rates	-		
Late Foeta (/1000LB+Stillborn>28 ws GA)	-	3,4	2.2
Perinatal (/1000LB+Stillborn>28 ws GA)	42.2	5.6	3.4
Neonatal (/1000LB+Stillborn>28 ws GA)	28	2.9	1.7
Child (/1000LB)	77.5	5	2.4
Under five (1000LB)	22.9	6.5	3.06

a PICU at Hospital Dona Estefânia, and Torrado da Silva came from Coimbra to open a NICU/PICU at another hospital in Lisbon's Metropolitan Area. Nowadays, all Level III hospitals are university hospitals, and all have a NICU and a PICU. In large cities with more than one ICU, the units have different characteristics that serve with complementary functions.

The first to implement neonatal transport was Lincoln Justo da Silva in 1987, followed by an interhospital pediatric transport system. Later, both were fused under a single transport system, and a patient could be transported under extracorporeal membrane oxygenation (ECMO).

The evolution of pediatric surgery resulted in the survival of newborn infants that otherwise would have died. As in the rest of the world, this started in Portugal under the strong influence of child orthopedics through Jaime Ernesto Salazar d'Eça e Sousa. Other experts in several fields of pediatric surgery deserve being mentioned, such as Abel Pereira da

Cunha, Eduardo Rosado Pinto, Luciano José de Carvalho, Fernando Afonso, António Gentil Martins (i.e., the Siamese Twins surgeon), José Augusto Antunes, Fernando Mena Martins, Paolo Casella, Cardoso da Rocha, José M. Pavão, and Jorge Correia-Pinto.

Portugal has seven schools of medicine, the newest in Minho and Beira Interior Universities, with different teaching methods.

The evolution of medicine and the organization of health care led to the opening of pediatric services and departments at Level II Hospitals, too. Postgraduate teaching (i.e., pediatric residency and training) started early, organized firstly by Hospitais Civis de Lisboa legally regulated in 1918. As time passed, that type of organization was adopted by the Ministry of Health and implemented in other Level III hospitals, then later in Level II hospitals as well.

The development of pediatric societies contributed to the progression of scientific propagation of several branches of pediatrics. Subspecialties started in the mid-1970s (e.g., hematology, nephrology, gastroenterology, neonatology, endocrinology, metabolic diseases) for a current total of 19 subspecialties. All have a scientific society and specific training times and are recognized by the Portuguese Pediatric Society. Before becoming a subspecialist, the doctor must become a pediatrician.

Great events changed the panorama of children's health in Portugal, beyond the already spoken reform of perinatal care. The first and most important was the implementation of the National Vaccines Program by Arnaldo Sampaio in 1965. This program had large population engagement and was responsible for the eradication of measles, congenital rubeola, parotiditis, and polio. Another event was the implementation of the early diagnosis of metabolic diseases, by Rui Vaz Osório in 1979.

Several national registries provide an overview on several child health issues, such as the Registry of Congenital Anomalies started by Laura Ayres and Maria de Jesus Feijóo in 1985 and affiliated with EUROCAT since 1990; the National Registry of Very Low Birth Weight Newborn Infants started by José Carlos Peixoto in 1996, the Surveillance of Cerebral Palsy through the Portuguese Pediatric Surveillance Unit of the Portuguese Society of Pediatrics, started by Daniel Virella in 2006, and the Registry of Infections in NICUs started by Maria Teresa Neto in 2004 with online registration since 2008.

In addition, two associations must be mentioned: the Institute for Child Support (IAC) started in 1983 by João dos Santos, and the Association for Promotion of Child Safety (APSI) (1992). Both have contributed greatly to child welfare. Table 1 shows some data that mirrors the evolution of pediatrics in Portugal, and Table 2 provides an overview of the most important dates.

Table 2: An overview of the most important events and dates in paediatrics in Portugal

Dona Estefania Hospital (Lisbon) (Opening)	1877
Maria Pia Children's Hospital (Porto)	1883
First lesson of paediatrics (Lisbon)	1916
Postgraduate teaching of paediatrics (Hospitais Civis de Lisboa)	1918
Section of Paediatrics. Lisbon's Society of Medical Sciences	1926
The Portuguese Journal of Paediatrics	1938
Specialty of Paediatrics. Portuguese Medical Association	1944
Portuguese Society of Paediatrics	1948
National Programme of Vaccination	1965
Portuguese Society of Paediatric Surgery	1974
Coimbra's Paediatric Hospital (Coimbra)	1977
Metabolic Early Diagnosis	1979
Polyvalent Paediatric/Neonatal Intensive Care Unit (Coimbra)	1980
Neonatal Intensive Care Units (Lisbon and Porto)	1981/1983
Polyvalent Paediatric Intensive Care Unit (Porto)	1985
Registry of Congenital Anomalies	1985
Interhospital Neonatal Transport by Land	1987
Reform of Perinatal Care	1989
Paediatric Intensive Care Units (Lisbon)	1989/1991
National Registry of Very Low Birth Weight	1996
Interhospital Neonatal Transport by air	1998
Interhospital Paediatric Transport	2005
Epidemiological Surveillance of Cerebral Palsy	2006
Registry of Infections in NICU	2008
Interhospital Neonatal/Paediatric Transport	2012

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