



History and Rise of Pediatric Interventional Pulmonology

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"Pediatric Interventional Pulmonology" is a brand-new dedicated journal. It is a significant milestone, enhancing visibility and accessibility of the discipline within the academic community. Pediatric interventional pulmonology is a relatively recent medical specialty, but it has quickly evolved to become a crucial field within pediatrics. This discipline focuses on the diagnosis and treatment of respiratory diseases in children, using minimally invasive techniques to improve clinical outcomes.

The history of pediatric interventional pulmonology dates back to advancements in general pulmonology and the rise of medical technologies. In the early 20th century, respiratory diseases in children, such as tuberculosis and pneumonia, were common and often fatal (1, 2). At that time, treatments were primarily conservative, with few intervention options available. The introduction of chest radiography in the 1920s marked a significant advancement, enabling better analysis of respiratory pathologies (3).

In the 1960s, major progress was made with the introduction of bronchoscopy. This technique, which allowed for the examination of the airways and the performance of biopsies, paved the way for more sophisticated interventions. Pediatric pulmonologists began using bronchoscopy to diagnose and treat conditions such as infections (mainly tuberculosis), congenital airway malformations (4), and, notably, the extraction of foreign bodies from the larynx, trachea, and bronchi—an issue of extraordinary diversity, but dominated by peanuts and nuts, which became widely consumed in Western countries and globally from the 1980s. This period also saw an epidemic of food allergies associated with these foreign bodies (5-7).

The French experience with rigid bronchoscopy under general anesthesia began in the pediatric department of Toulouse in 1975. It is known that, at that time, none of the pediatric departments in French university hospitals, where young doctors, interns, or resident doctors were training to specialize in pediatric pulmonology, had the necessary equipment for safely performing such high-risk interventions on infants and

very young children, some of whom were under the age of one.

The prerequisites for safe bronchoscopy were threefold: 1) a trained pediatric bronchoscopist; 2) a competent anesthetist; and 3) high-quality equipment. This experience in pediatric tracheobronchoscopy is summarized in several works, particularly "Endoscopie bronchique de l'enfant." (8).

Over the following decades, interventional pulmonology benefited from technological innovations, including the advent of video bronchoscopy. This method enabled real-time visualization of the airways, making procedures less invasive and safer (9). Concurrently, the use of bronchial navigation and lung volume reduction devices transformed the treatment of chronic lung diseases (9).

Research and clinical trials also played a crucial role in the development of pediatric interventional pulmonology. Studies were conducted to evaluate the effectiveness of various intervention techniques, which helped standardize practices and improve outcomes (10), as well as establish international guidelines (11, 12).

Today, pediatric interventional pulmonology encompasses a wide range of interventions, from therapeutic bronchoscopies to the implantation of bronchial stents (13, 14). It has also become a field of multidisciplinary collaboration, involving pulmonologists, radiologists, anesthetists, and other specialists to ensure integrated, high-quality care.

The impact of pediatric interventional pulmonology on children's health is undeniable. Thanks to these techniques, many children suffering from chronic respiratory diseases can benefit from treatments that improve their quality of life and reduce their hospital stay. The future of this specialty looks promising, with ongoing research into new technologies, such as artificial intelligence and robotics, which could further refine therapeutic approaches.

In conclusion, the history of pediatric interventional pulmonology has been written over the past 50 years. It is a story of rapid evolution, marked by scientific discoveries, technological innovations, and a deeper understanding of pediatric respiratory diseases. This field will continue to progress, offering new solutions to improve the respiratory health of children around the world (15, 16).

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