

## New book on echocardiography in congenital and acquired heart disease from fetal life to adulthood

### *Nuevo libro en ecocardiografía en cardiopatías congénitas y adquiridas del feto al adulto*

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#### **An overview of congenital heart diseases in America**

Congenital heart diseases (CHDs) are the most common structural congenital defect in the world. The prevalence at birth per 1000 live births (LBs) in the continent varies by country and is directly related to the birth rate and infant mortality rate. In general, we can state that the prevalence is 8-13 cases per 1000 LBs<sup>1</sup>. Earlier studies in 2013 by Hoffman et al. indicate that 136,000 babies with CHDs are born every year in the Americas (65,000 in North America and 71,000 in South America)<sup>2</sup>. In North America, there are an average of 181 cases per day; in other words, there are 1.8 new CHD cases every 15 min. In South America, in turn, 197 cases are born per day, representing 2.05 new cases every 15 min.

Fifty years ago, only 15% of children with CHD survived and reached adulthood<sup>3</sup>. With advances in the diagnosis and surgical treatment of CHD in childhood, survival today is over 90% in most countries in the world. Moreover, as a direct consequence, the number of adult survivors with congenital heart diseases (ACHDs) has increased significantly, especially in developed countries. Latin America (LATAM) has experienced the same demographic changes in cardiovascular patients, and the number of ACHDs is increasing

every year. Today, there are more than 1.8 million ACHDs, compared with 2.3 million children with CHD<sup>4</sup>.

Of all the children born with CHDs each year in LATAM, almost 45% are moderate and high-complexity defects, and at least, 25% require surgical intervention within the 1<sup>st</sup> year of life, due to the severity of the defect<sup>5</sup>. Therefore, all CHDs require an early and effective diagnosis. Echocardiography is vitally important and should be high-precision, especially in complex cases. To understand, the complex anatomy and pathophysiology, among other aspects, require that a cardiologist specialized in CHDs be trained and certified in CHD echocardiography. At present, formal echocardiographic training consists of a year of official training, during which the clinical cardiologist acquires the necessary knowledge and skill to cover all necessary aspects. Official CHD echocardiography training programs are scarce in LATAM and are offered in Mexico, Brazil, Argentina, and Chile. Therefore, training in this field should continue after basic training in pediatric cardiology.

The official CHD echocardiography textbooks are produced in Europe and North America, in English. They are and continue to be the official textbooks for all those who wish to learn and further their knowledge in this field.

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## A needed and benchmark textbook in Spanish, specialized in congenital heart disease echocardiography

The LATAM and Caribbean region is comprised 46 countries, dependent territories, and overseas departments. The Latin-derived languages include Spanish, Portuguese, and French. Thirty-three countries explicitly belong to LATAM, and in 22 of these, the official language is Spanish.

In response to the need to complement the training and improve knowledge in echocardiography on CHDs of cardiologists in Spanish-speaking countries, a textbook has been written on Echocardiography in Congenital and Acquired Heart Disease from Fetal Life to Adulthood (*Ecocardiografía en Cardiopatías Congénitas y Adquiridas del Feto al Adulto*), the official textbook of the Society of Cardiovascular Imaging of the Interamerican Society of Cardiology [Sociedad de Imágenes Cardiovasculares de la Sociedad Interamericana de Cardiología (SISIAC), Editorial Distribuna], Distribuna Publishers LTDA, and Bogotá-Colombia 2023. ISBN: 978-958-55777-72-5<sup>6</sup>. Digital ISBN: 978-958-55777-73-2. The book is arranged in 11 sections, which discuss all the topics related to echocardiography in CHDs and acquired heart disease from fetal life to adulthood. In this book, the editors, Vasquez-Antona C, Pignatelli Ricardo, Romero-Rivera Ivan, and Guzo de Leon Daniel have structured a scientific work which hopes to be a benchmark for LATAM and other Spanish-speaking countries in the world.

The book begins with the basic and extends to the most complex, aspects of CHDs. Section I describes the general and basic principles of ultrasound, followed by the organization of pediatric echocardiography laboratories, highlighting the recommendations for LATAM, and the certification process for the laboratories. It ends with a chapter on structural and cardiovascular cardiac measurements. Sections II through VII are completely devoted to CHDs. They begin with atrial septal defects, followed by ventricular septal defects, then conus trunk defects, left and right heart defects, venous connection malformations, and, finally, complex CHDs, such as uni-ventricular heart. The next sections discuss acquired diseases and cardio-oncology. The book ends with Section XI which covers echocardiography in special situations, such as 3D echocardiography, ventricular mechanics, intraoperative echocardiography, echocardiography in the hemodynamics laboratory, ventricular assistance, fetal echocardiography, and adult CHDs, among other topics.

From my critical and expert point of view, this is a specialized book with a complete, solid, and didactic structural development. It answers the need for complementary training for many clinical CHD cardiologists in LATAM countries. It offers basic and specialized theoretical knowledge which helps improve understanding. Its broad content is not restricted to congenital defects, but also delves into acquired heart disease and systemic childhood diseases and their cardiac repercussions.

A total of 109 expert authors from 17 countries in North America, Central America, South America and Spain participated. It consists of 57 chapters, with more than 700 figures and 500 videos. It has an innovative design known as “DualBook”, consisting of a printed edition and a digital format (e-book) which contains all the chapters and can be read not only on a personal computer but also on portable devices such as tablets or smartphones. Using a QR application, readers can reproduce all the videos: a very useful tool, especially for cardiologists who are dealing with echocardiographic CHD assessment for the first time. This tool fosters learning using moving images that are typical of the various CHDs, which have been provided by the authors and collaborators from real CHD cases in LATAM (it is like having a real-time echocardiography professor).

I congratulate the editors and collaborators of this CHD echocardiography project, in which I hope, will become the reference textbook for all cardiologists in Spanish-speaking countries.

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### Conflicts of interest

John J. Araujo is a member and fellowship in SISIAC.

### Ethical disclosures

**Protection of human and animal subjects.** The authors declare that no experiments were performed on humans or animals for this study.

**Confidentiality of data.** The authors declare that no patient data appear in this article.

**Right to privacy and informed consent.** The authors declare that no patient data appear in this article.

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