

# New information technology in cardiac surgery. Development of an applicative about ascending aortic aneurysm (“Aortic Surgery”)

*Nova tecnologia de informação em cirurgia cardíaca. Desenvolvimento de um aplicativo sobre aneurisma de aorta ascendente (“Aortic Surgery”)*

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## *Abstract*

An app in the area of Aortic Diseases (ascending aortic aneurysm) was developed. This article offers a brief introduction about the information received and transmitted in the app and the process through which it was developed as well as its contents.

*Descriptors:* Aneurysm. Heart/surgery.

## *Resumo*

Desenvolvimento de um aplicativo na área de Doenças da Aorta (aneurisma da aorta ascendente). É descrita uma breve introdução sobre as informações recebidas e transmitidas, como foi desenvolvido o aplicativo e seu conteúdo.

*Descritores:* Aneurisma aórtico, cirurgia. Cirurgia.

There are two kinds of medical information: the received and the transmitted information. A source of data (received information) is necessary to transmit any information. A long time ago, this source was provided to people by the papyrus. The evolution of “technology” gave place to the book. At the time, it was a radical change and readers had great difficulty adapting to this new situation (www.youtube.com Papiro e os Monges).

In the medical field, the most important and widely accepted information came from the Index Medicus. The first volume was published in 1879. For a long time, received information was provided by the printed Index Medicus. But due to the convenient and speedy way news is spread

on the internet, the online version of the Index surpassed the printed one. The last printed volume of the Index Medicus was published in December 2004 (volume 45). The online version of the printed Index Medicus is called PubMed.

Exame magazine (03/25/2013) reported that, in 2012, 3.1 million tablets were sold in Brazil. This indicates a growth of 171% compared to sales in 2011. In the same period, the domestic tablets market grew 159%.

As a result of these data, we decided to transmit the information to the medical field via the rapid and accessible way: the internet. The tool in this case was the app.

Throughout the years, while working in the fascinating Cardiac Surgery specialty, we documented the interesting

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cases with photos. Diseases of the aorta have always been attractive to surgeons because of their surgical challenges. The present app describes the cases of Ascending Aorta operated on by ourselves.

We chose the cases by etiology and created a proper classification. Then, we contacted an information technology enterprise ([www.snowmanlabs.com](http://www.snowmanlabs.com)). It is a group with many professionals: a designer, someone to develop the app only for smartphones; another for tablets, and yet another for adjusting photos and text. The director was responsible for contacting Apple and Google. It took approximately 12 months of hard work from the beginning to the acceptance by Apple. The time spent in reviewing the app for Apple took four months and the work had to be done according to the enterprise's strict rules. The app was accepted on August 27<sup>th</sup>, 2013. The name of the app is Aortic Surgery and it is available for iOS (iPhone, iPad, iTouch) and Android (smartphones and tablets) systems.

The content has an introduction and eight great sessions following the etiologic causes of the aneurysms. In the introduction, we described the general aspects of the aneurysm (incidence, natural history, and operative techniques). It is a bilingual (English and Portuguese) app. It is possible to add favorites and alter the brightness of the display. Furthermore, it offers slide presentations, a manual on how to use it, and bibliographic references. The references are linked to PubMed.

The sessions were as follows:

1. Restricted to the ascending aorta. It has three sub-sessions: aortoplasty, aortic loculation, and ascending aorta.
2. Bicuspid aortic valve and Marfan Syndrome (in association with a severe pectus excavatum)

3. Aortic dissection: acute and chronic. The acute aortic dissection being with a cardiac tamponade.

4. Involvement of the proximal hemi-arch and aortic arch (quadrifurcated graft and stepwise anastomosis)

5. After late cardiac surgery: (1) aortic valve replacement (biological and mechanical prostheses); (2) acute type A dissection; (3) Bentall procedure; (4) correction of congenital cardiopathy (type II aortopulmonary window operated on 32 years ago); and (5) myocardial revascularization (functioning left internal thoracic artery to the left anterior descending artery)

6. Reimplantation technique (moderate aortic valve insufficiency)

7. Association with coarctation of the aorta (in adults) with extra-anatomic bypass (one case with type A dissection and severe aortic valvopathy and another with a bicuspid aortic valve stenosis in an old lady)

8. Sternal erosion (luetic)

A research was performed and there was no similar app in the national or international market. The content is exclusive (cases operated on by ourselves). It has approximately 145 illustrations. Each case is briefly described with pertinent bibliography and has a link to PubMed. In other words, it is like an "online" atlas of surgical treatment of ascending aortic aneurysm. Certainly, it is an important tool for students, residents, cardiologists, interventionists, surgeons, and other health professionals.

Author's roles & responsibilities	
RGC	App idealization. Text writing

Download the APP  
**Aortic Surgery**

