

# Meet key digital health thought leaders: David Albert

Nico Bruining \*

Department of Cardiology, Erasmus MC, Thoraxcenter, Dr. Molewaterplein 40, Rotterdam 3015GD, The Netherlands

Online publish-ahead-of-print 3 March 2023

**CardioPulse Digital talks to the Founder and Chief Medical Officer of AliveCor: Dr. David Albert**



David E. Albert is a physician, inventor, and serial entrepreneur who has developed life-saving products over the last 40 years and turned a number of those innovations into startups. Today, he is the founder and chief medical officer of AliveCor. His previous startups include Data Critical [sold to General Electric (GE)]. Dr Albert left GE in 2004 as the chief scientist of GE Cardiology. His most famous invention, the iPhone ECG, became a global sensation via a 4 min YouTube video in January 2011 and was featured on ABC, CBS, CNN, and Fox News. Dr Albert has 80 issued US patents, and he has authored or co-authored over 100 scientific abstracts and publications in the cardiology literature. He graduated with honours from Harvard College and from Duke University Medical School. Dr Albert lives in Los Angeles with his wife, and they have four children and two grandchildren.

## You studied Biomedical Engineering at Duke University and worked on early developments of wireless monitoring within the industry. Can you tell us more about your career choices leading to the successful launch of AliveCor in 2011?

Actually, my first invention was a wrist-based pulse monitor, which was my first US patent in 1983. My second invention was a Doppler haemodynamic monitor, which I licensed to a major medical device company at the time—Quinton Instruments. I then went back to the University of Oklahoma Medical Center, where I worked in the lab of Dr Ralph Lazzara and Dr Ben Scherlag—pioneers in electrophysiology. At Oklahoma University (OU), I met Dr Sonny Jackman who pioneered cardiac ablation and other leaders such as the late Tom Bigger, Jeremy Ruskin, David Wilber, and Jamie Hammill (who I knew from Duke). I started my first company, Corazonix, as an OU spin-out that commercialized a high-resolution ECG based on a Personal Computer (PC). Arrhythmia Research Technology purchased that company in 1990. After that, I started Data Critical Corp., which pioneered wireless ECG and partnered with HP Medical (now Philips), Marquette Medical (now GEHC), Nokia, and many others. GEHC acquired Data Critical in 2001 (actually on 11 September 2001)! I stayed as the chief scientist of GE Cardiology until 2004, at which time I left to invent some new products to save lives of people with hearing loss in fire emergencies. That company, Lifetone Technology, today sells those products which have saved lives of those most at risk of dying in a fire. This leads me to 2009 when, together with two old friends from Australia, Bruce Satchwell and Kim Barnett, I conceived the original smartphone ECG. That product idea became AliveCor in 2011, and today, we have sold over 3 million devices which have been used all over the world and were the first 'personal ECG' devices that were widely accepted. Today, over 200 million ECGs have been recorded with Kardia devices, and they are sold in over 40 countries.

\* Corresponding author. Tel: +31107033934, Email: [n.bruining@erasmusmc.nl](mailto:n.bruining@erasmusmc.nl)

© The Author(s) 2023. Published by Oxford University Press on behalf of the European Society of Cardiology.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact [journals.permissions@oup.com](mailto:journals.permissions@oup.com)

## You are one of the pioneers of digital health and we are curious what inspired you to use a smartphone as a remote monitoring device, and what has it resulted in for you?

I had the idea for a personal ECG in about 1996 and actually built a prototype, received an FDA 510(k) and a US patent. However, that device was a “Rube Goldberg” concoction of a clamshell handheld computer, PCMCIA card, modem, and cell phone with a cable connecting everything. It was impractical. With the advent of the modern smartphone in 2007 and the arrival of app development, my “old” idea became a real possibility. I figured that we could “sneak” into the smartphone using ultrasound, and it still works today and is extremely noise resistant and low power—another revolutionary invention of which I am very proud. It humbles me today to hear stories of how this technology has helped in the care of people around the world.

## Remote monitoring and wearables are a rapidly developing field. What can we expect soon?

Well, we at AliveCor started with a single-lead ECG, and today, we have a six-lead ECG which provides all six limb leads. I wonder what we could think of next? I'll let your readers speculate, but they don't have to wait too long.

We see that many different wearables have been approved as a medical device targeting atrial fibrillation. KardiaMobile is one of them. What caught my great interest is an article you co-authored in 2015<sup>1</sup> exploring remote monitoring of myocardial ischemia (MI). That is high on the wish list but is not yet available. What holds this back and what is needed to realize remote MI detection?

I have worked with several investigators (who are my friends and most have a history of being at Duke in Cardiology) to investigate the detection of acute coronary syndrome and STEMI. I think you can infer from my earlier answer that AliveCor will introduce a product aimed at the ability to diagnosis (DX) these significant problems anywhere and anytime with a device that fits in your pocket. We are so excited and confident that GE Healthcare has partnered with us for this next generation of Kardia.

## Do you see other disruptive digital health innovations on the horizon?

I think that the limits of out-of-the-hospital diagnosis and care are limited only by the imagination. What I am waiting for is the time that digital health simply becomes *health*.

**Conflict of interest:** None declared.

## Reference

1. Muhlestein JB, Le V, Albert D, Moreno FL, Anderson JL, Yanowitz F, et al. Smartphone ECG for evaluation of STEMI: results of the ST LEUIS Pilot Study. *J Electrocardiol* 2015;**48**:249–259.