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Pedia BP: Development of a smartphone application to improve the accuracy and management of hypertension in children and adolescents

Hope Bussenius

Emory University, USA

Abstract

The prevalence of hypertension and pre-hypertension in the pediatric population are increasing (Ellis & Miyashita, 2011). A significant cardiovascular risk factor the development of primary hypertension earlier in life increases the chances of cardiovascular morbidity and mortality later in life. Studies have already shown that 34 to 38% of children and adolescents with mild untreated hypertension already show signs of left ventricular hypertrophy (Hanevold C. et al, 2004). It is critically important that hypertension and pre-hypertension are recognized and appropriately managed to decrease the risk of CAD, CVD, heart failure, CHD, and sleep apnea. Evidence shows that this problem is under-recognized due to a number of factors including lack of provider knowledge regarding the AHA blood pressure recommendations and the National High Blood Pressure Educational Program (NHBPEP) guidelines. Another issue is the complexity of factors involved in diagnosing HTN in this population delineated by the (NHBPEP) guidelines. The blood pressure tables include 1,904 variables based on gender, age, and height percentile delineated from the CDC development charts. To more easily detect hypertension in children and adolescents, a Smartphone application, Pedia BP, was designed and developed. The existing tables from The Fourth Report on the Diagnosis, Evaluation and Treatment of High Blood Pressure in Children and Adolescents, which contain hundreds of normal and abnormal blood pressure values based on gender, age, and height percentile, were analyzed and streamlined into a much simplified single user interface Smartphone application. Pedia BP makes it easy to identify abnormal blood pressure values in almost any potential care or screening setting.

Biography

Hope Bussenius completed her D.N.P. in 2012 from Georgia Health Sciences University. She is an Assistant Professor at Emory University. In 1997, she founded Health Connection, Inc., a primary care clinic employed primarily by nurse practitioners and for 30 years she has worked in Haiti focusing on the management of infectious diseases. Currently, she is working with research teams at Children's Healthcare of Atlanta (CHOA) and Georgia Institute of Technology on several innovative projects focusing on improving healthcare through technology.