

May Measurement Month 2017: Results from Cabo Verde—Sub-Saharan Africa

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Elevated blood pressure (BP) is a growing burden worldwide, leading to over 10 million deaths each year. May Measurement Month (MMM) is a global initiative aimed at raising awareness of high BP and to act as a temporary solution to the lack of screening programmes worldwide. Cabo Verde is in an epidemiological transition, with replacement of infectious diseases by chronic diseases, and the major cause of morbidity/mortality is cardiovascular disease which caused 28.9% of the total deaths in 2016. The only data we have are from 2007—the Ministry of Health and Social Security used a study STEP approach in which the prevalence of hypertension was 35%. An opportunistic cross-sectional survey of volunteers aged ≥ 18 was carried out in May 2017 (MMM17). Blood pressure measurement, the definition of hypertension and statistical analysis followed the standard MMM protocol. A total of five islands and eight centres, including hospitals and local health centres participated in this study, with about 20 volunteers/investigators. A total of 2630 individuals were screened during MMM17. After multiple imputation, 760 (29.0%) had hypertension defined as being on BP lowering treatment or having a BP $\geq 140/90$ mmHg. Of individuals not receiving anti-hypertensive medication, 232 (11.1%) were hypertensive. Of 522 individuals receiving anti-hypertensive medication with an available BP, 225 (43.1%) had uncontrolled BP. MMM17 was the largest BP screening campaign undertaken in Cabo Verde. The proportion of hypertensives in the population in study was 29.0%, with most of these on treatment, and 43.1% of those on treatment with uncontrolled hypertension. These results suggest that opportunistic screening can identify significant numbers with raised BP.

Background

The Republic of Cabo Verde is an island country that consists of an archipelago of 10 main islands and several smaller islands and islets. Located 570 km off the coast of Western Africa, off Senegal, culturally contiguous with West African Sub-Saharan countries, latitude 16 N. The country covers an area of 4033 km² and is home to 532 000 inhabitants (estimated as of July 2016). The country is prosperous and politically very stable with a well-funded Ministry of Health and Social Security (MHSS) that provides most healthcare services for its citizens, although some private hospitals and

clinics do exist, with the country having relatively good health statistics. In 2007, the MHSS used a study STEP approach and the prevalence of hypertension was found to be 35%.¹ The country is in epidemiological transition and the major cause of morbidity/mortality is cardiovascular disease which caused 28.9% of the total deaths in 2016. The invitation to MMM17 came from the African co-ordinator.

Methods

The local study co-ordinator had the ethical authorization approved by the National Committee of Health Research and Ethics. A total of five islands and eight centres, including hospitals and local health centres participated in this study, with about 20 volunteers/investigators. The National

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Telemedicine Service held the investigator training with the proper funding from the WHO, the MHSS, and the National Institute of Public Health. The volunteers were recruited via awareness and mobilization among hospitals and educational managers in health. The survey was conducted from 1 to 31 May, using various types and brands of blood pressure (BP) machines, with Omron being the most common. Three BP measurement readings were all taken in the sitting position, with weight and height also being measured. Hypertension was defined as either being on BP lowering treatment or having a BP $\geq 140/90$ mmHg. The data collection was made via excel and hard copy. The data were cleaned locally by the co-ordinator and analysed centrally by the May Measurement Month (MMM) project team.

Results

A total of 2630 were screened with a mean age of 40.6 (SD 16.6) years.

A total of 2090 participants (79.5%) were not taking any anti-hypertensive medication; 528 (20.1%) were on anti-hypertensive medication, and 12 (0.5%) were unknown. The majority of the surveyed—1834 (67.9%) were Mulattoes; a total of 690 (26.2%) were Black; 35 (1.3%) were White; 8 (0.3%) were South Asian; 5 (0.2%) were East Asian; and 58 (2.2%) were of unknown ethnicity. Diabetes

was present in 5.7% of the participants, 1.9% had a prior myocardial infarction, 0.7% had a previous stroke, 6.2% smoked, 7.2% had an alcohol intake of one or more drinks per week, and 6.1% were pregnant. The mean body mass index was 25.1.

After multiple imputation, of those with a mean BP reading available, 760 (29.0%) out of 2619 participants had hypertension. Of 2090 not on anti-hypertensive treatment, a total of 232 participants (11.1%) were hypertensive; of 528 on treatment with an available BP reading, 225 participants (43.1%) had an uncontrolled BP.

After adjusting for age and sex in linear regression models, participants on anti-hypertensive medication had on average significantly higher systolic and diastolic BP than those not on medication (*Figure 1*). After adjusting for age, sex, and anti-hypertensive treatment, those drinking alcohol regularly also had higher systolic and diastolic BP, while significantly lower diastolic BP was found in pregnant women.

Discussion

A total of 760 participants were found to have hypertension (29.0%) in this study, with 528 of these on anti-hypertensive medication. Almost half of those on treatment were uncontrolled.

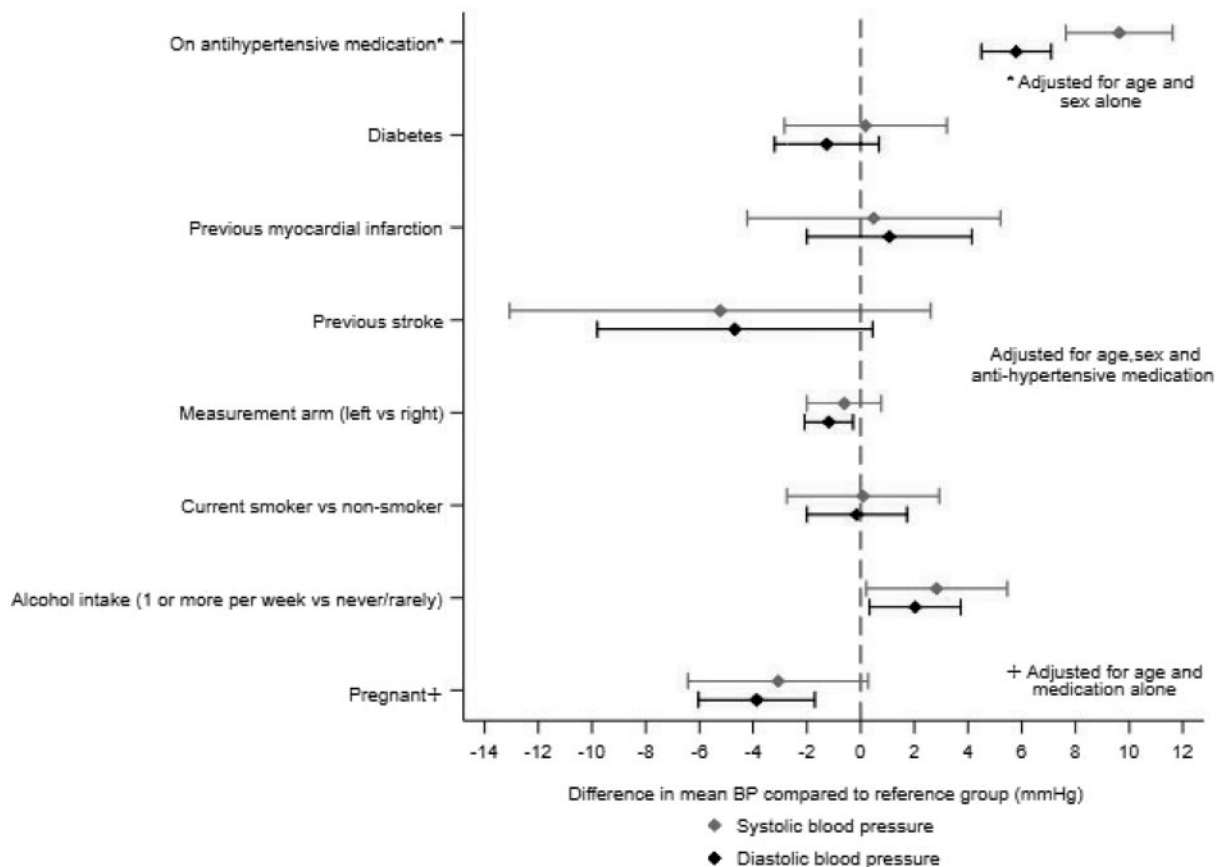


Figure 1 Change in blood pressure according to individual characteristics from linear regression model, adjusted for age, sex, and anti-hypertensive medication (except where annotated).

In 2007, the prevalence of hypertension in the country was 35% (IDNT)⁽¹⁾, 6% above the values found in the present study 10 years later. We note also a greater number of patients treated and well controlled in this study. This may be explained by differential selection of subjects or the intensive information, education, and communication campaigns carried out near the Cape Verdean population, and by the existence of a National Program for the Prevention of Hypertension and Cardiovascular Diseases.

The MMM impact was very positive, because it took the topic of hypertension to the front line of the health agenda, reminding both health professionals and the population of the need for regular BP measurement. The simplicity of the MMM study and its little cost of resources

contributed greatly to the considerable success in our country.

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Conflict of interest: none declared.

Reference

1. Ministério da Saúde. *Inquérito doenças não transmissíveis (IDNT)*. Praia, Cabo Verde: Ministério da Saúde; 2007.