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## Cameroon public health sector: Shortage and inequalities in geographic distribution of health personnel

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**Introduction:** Cameroon is classified by the World Health Organization (WHO) as having a critical shortage of health personnel. This is further complicated by the geographic distributional inequalities of the national health workforce. This shortfall impedes Cameroons' progress of improving the human resources for health (HRH) to meet up with the Millennium Development Goals (MDGs) by 2015. However, it is unknown whether the health workforce of Cameroon is distributed equally across geographic regions. Additionally, indicators other than population levels have not been used to measure health care needs. This study aimed to assess the adequacy, evenness of distribution and challenges faced by the health workforce across the different regions of Cameroon.

**Method:** National health personnel availability and distribution were assessed by use of end-of-year census data for 2011 obtained from the MoPH data base. The inequalities and distribution of the workforce were estimated using Gini coefficient and Lorenz curve and linear regression was used to determine the relation between health personnel density and selected health outcomes. Alternative indicators to determine health care needs were illustrated using concentration curves.

**Results:** Significant geographic inequalities in the availability of health workforce exist in Cameroon. Some regions have a higher number of physicians (per person) than others leading to poor health outcomes across the regions. 70% of regions have a density of health personnel-to-population per 1,000 that is less than 1.5, implying acute shortage of health personnel. Poor working and living conditions, coupled with limited opportunities for career progress accounted for some documented 232 physicians and 205 nurses that migrated from the public sector. Significant distributional inequality was noticed when underfive infant mortality and malaria prevalence rate were used as indicators to measure health care needs.

**Conclusion:** Our results show an absolute shortage of public health personnel in Cameroon that is further complicated by the geographic distributional inequalities across the regions of the nation. Cameroon aims to achieve universal health coverage by 2035; to realize this objective, policies targeting training, recruitment, retention and effective deployment of motivated and supported health workforce as well as the development and improvement of health infrastructures remain the major challenge

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## Maternal anthropometry and reproductive outcomes: A population-based study

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Maternal health determined by women nutritional status is also associated with reproductive health and pregnancy viability. We investigated the relationships between maternal obesity and reproductive outcomes occurrence. We conducted a cross-sectional study using the last Brazilian DHS data (2006) of 6,724 women and their singleton pregnancies from 2001 until data collection. Maternal obesity was the main exposure: waist circumference (WC) ≥80 cm and body mass index (BMI) ≥25 kg/m<sup>2</sup>. Outcomes were: Spontaneous abortion, stillbirth and mortality, and also the altered children nutrition, detected by height-for-age and body mass index in z scores from the World Health Organization reference population. Logistic, linear and Poisson regression models were used to estimate associations between maternal altered anthropometry and the reproductive outcomes occurrence. Spontaneous abortion and stillbirths were more frequent among women with overweigh, global and abdominal obesity. Each BMI unit increase (OR = 1.05; 95% CI: 1.02-1.08) increased the chance of having an abortion. Abdominal obesity was strongly associated to the stillbirth occurrence (OR=2.91; 95% CI: 1.32-6.44) while global obesity was highly predictive of abortions (OR=2.49; 95% CI: 1.45-4.26). Brazilian women abdominal obesity and excess of weight were strong predictors of neonatal death (OR=3.24; 95% CI: 1.30-8.09; OR=2.44; 95% CI: 1.17-5.07, respectively). The results related to the children nutritional outcomes showed that children whose mothers had BMI 35 kg/m<sup>2</sup> had HAZ 0.4 higher when compared to the mothers of normal weight (p-trend < 0.0001). These results provide important epidemiological information in the direction of maternal altered anthropometry and the reproductive outcomes occurrence.

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