

Introduction

The 41 years of armed conflict (1961 to 2002) resulted in a poor development of the health care and education infrastructures, and forced the relocation of people to safer places, namely major urban cities like Luanda. This phase was characterized by typical demographic, nutritional and epidemiological profiles.

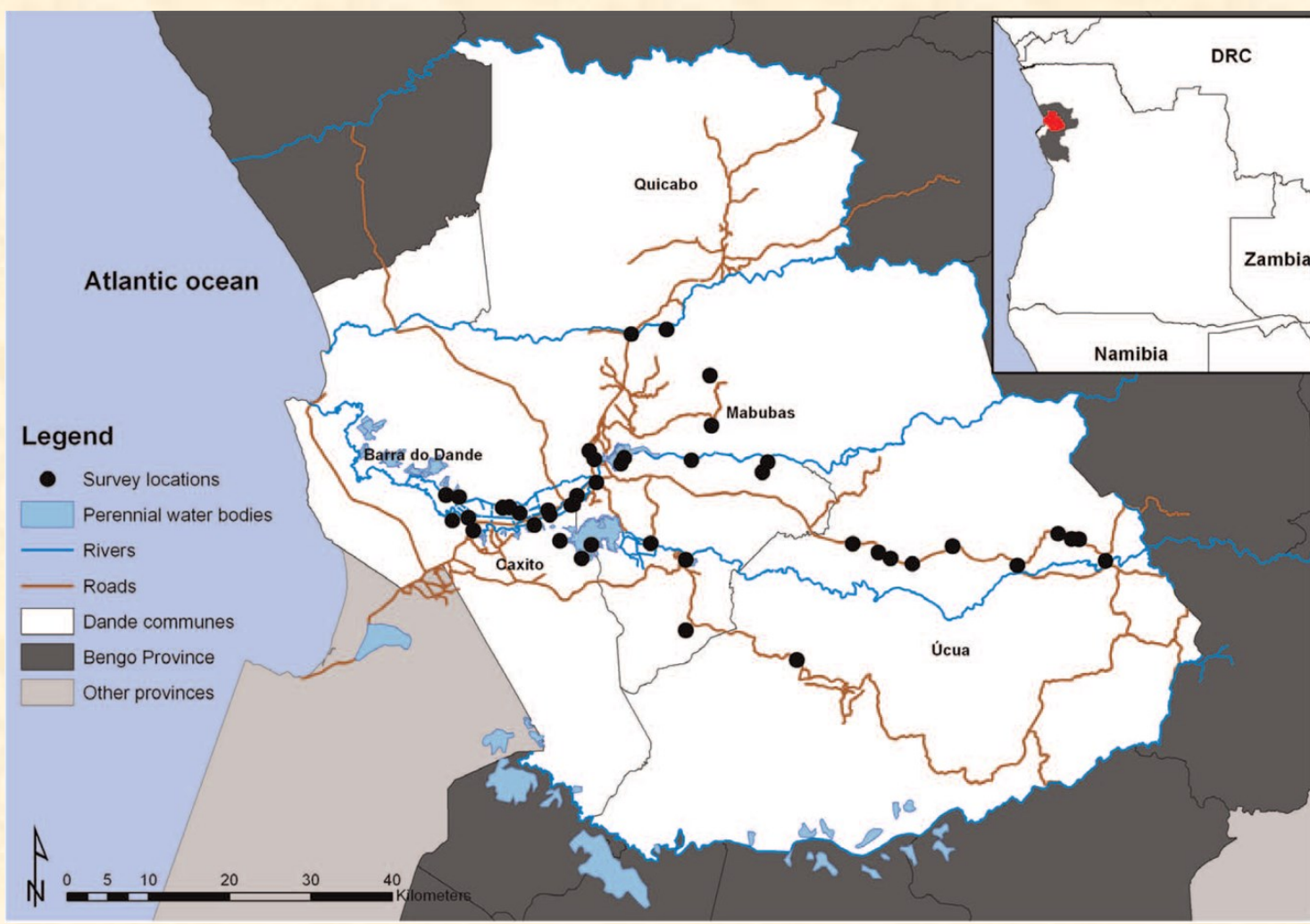


Figure 1: The study area - Bengo Province in Angola

With the end of this period Angola has been repeatedly ranked as one of the three fastest growing economies in the world, and along with the social stabilization and globalization, the country is facing the introduction of new medical technologies, improvement of health systems and services, better access to them, and overall better quality of life.

These changes could also be translating into socio-cultural, demographic and nutritional changes which in turn may leading to changes in the epidemiological profile of the country. Thus, the emergence of non-communicable diseases are likely to become an increasingly important public health problem in Angola. Also, considering that several infectious diseases persist, our weakened health system will have to face a double burden.

Thus, disease surveillance data on non-communicable diseases to determine their prevalence and impact, along with the major behavioural risk factors like consumption of tobacco, alcohol, diets and physical inactivity are urgently needed.

Methods

In 2007 the CISA project (Health Research Centre of Angola, translated) was established as a result of a partnership between the Angolan and Portuguese Governments and the Calouste Gulbenkian Foundation.

Sousa-Figueiredo *et al.* (2012) conducted a cross-sectional community-based survey to determine the prevalence of schistosomiasis, malaria, helminthiasis, anaemia and malnutrition in children and their mothers.

Pires *et al.* (2013) conducted a community based survey that determined the prevalence of hypertension and their major risk factors in the adult population. This population was followed in order to determine the incidence of hypertension and the evolution of other cardiovascular risk factors (Pedro *et al.*, unpublished data).

Here we discuss cumulative results from this two community based surveys, in order to enlighten the challenges to the health system and the research opportunities associated with the double burden of an epidemiological transition phase.



Figure 2—Images of the field work during both community surveys

Results

Infectious Diseases

Malaria (*Plasmodium falciparum*): 10-18%. Associated with maternal awareness about the disease, distance to health facilities and distance from river.

Schistosoma haematobium: 10-22%. Associated with self-reported regular baths in dam and rivers.

Geohelminths: 23 - 32%. Associated with self-reported worms in stool and tummy pain.

H. nana: 2-7%. Associated with age, use of soap, washing vegetables, bathing in irrigation channels, and individuals per families.

Anaemia: 40-60%, spatial clusters with risk > 86%. Associated with malnutrition, malaria and infection with *S. haematobium*.

Under-nutrition: 11% (wasting by height for Age). Significantly associated with age, sex, anaemia and helminthiasis.

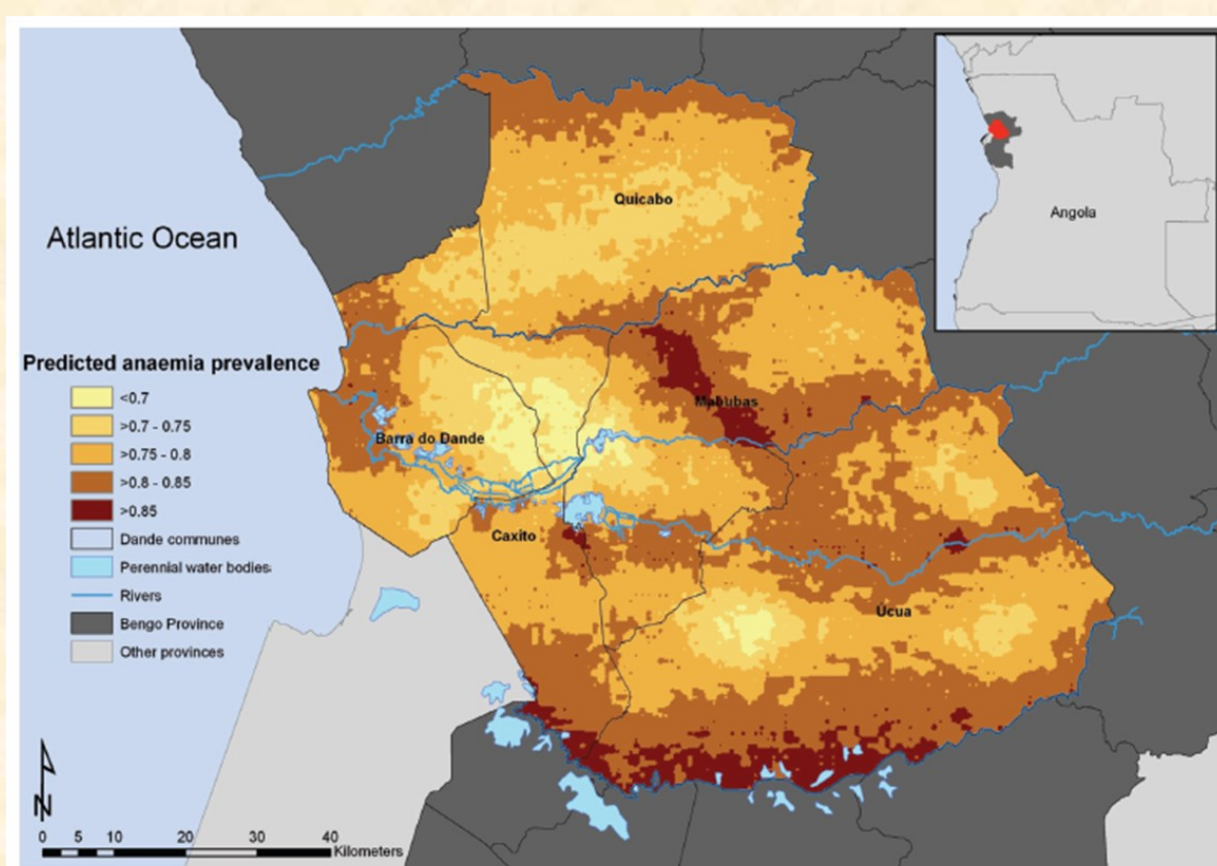


Fig. 1. Predicted spatial distribution of anemia (Hb < 11.0 g/dl) for younger boys in Dande municipality, Angola.

Figure 3—Predicted spatial distribution of anemia

Hypertension Baseline Prevalence

45% pre-hypertensive

23% hypertensive

22% were aware of their health status

14% were in treatment (36% controlled)

Risk factors:

50% reported frequent alcohol consumption

10% reported the habit of active smoking

Significantly associated:

Advanced Age, Low level of education, Higher body mass index, Abdominal obesity in men.

Follow-up period: from 2011 to 2013

Decrease in smoking (9.2% to 7.7%)

Decrease in alcohol consumption (44.9% to 43.2%)

Increase in BMI (6.2% to 8.9% obese)

Decrease in abdominal obesity (41.6% to 35.6%)

Follow-up period

Variation of the average blood pressure:

Systolic decreased from 121.1 to 115.0 mmHg

Diastolic pressure increased from 68.88 to 75.04. mmHg

Incidence of hypertension: It was observed 37 (out of 303) new cases with an overall incidence rate of 63.9 per 1000 person-years (95% CI: 45.0 to 88.2), associated with age, alcohol and abdominal obesity.

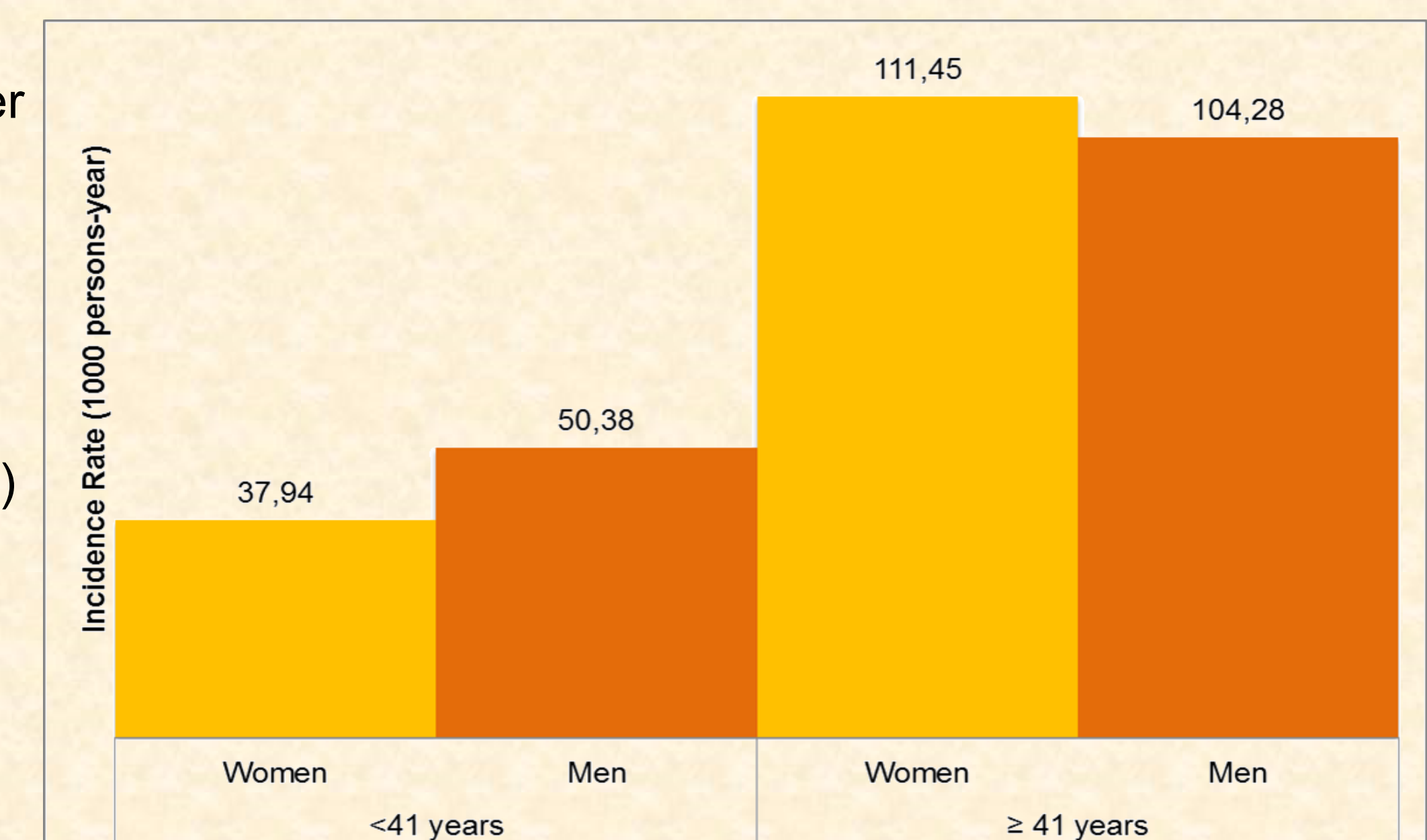


Figure 4—Incidence of Hypertension after a 2 years follow up period

Discussion and Conclusion

- Despite population differences within the two surveys, this descriptive analysis conducted in the same area, revealed the co-occurrence of hypertension and other cardiovascular disease risk factors with infectious diseases and their outcomes.
- Malaria, *S. haematobium*, and Geohelminths were found to co-exist within the same area and have worrisome prevalence's and disturbing associations with adverse health outcomes such as anaemia and malnutrition.
- Unpublished data from the CISA Health Demographic Survey (2009-2014) reports the occurrence a crude mortality rate of 5.7 per 1000 person-year (CI 95%: 5.5 to 6.0), out of which, a specific mortality rate of 0.54 per 1000 person-year (CI 95%: 0.43 to 0.67) as attributable to cardiovascular disease, being the main cause of death in this population for this period.
- Also, intestinal infectious diseases and malaria were reported to be responsible for 66.9% from the 363 deaths (with attributed causes) in children from 28 days to 14 years, followed by malnutrition and influenza/pneumonia.
- This data was estimated on reported deaths and the existence of traceable and available families for the WHO verbal autopsy instrument collection, in this way we expect that the real mortality rates will be superior. This data reinforces the emergence of these diseases and the current state of epidemiological transition the country is facing.
- For the dual control and management of both group of diseases, new strategic models will be needed, addressing preventive measures and monitoring the treatment of patients. Further studies on the associated morbidity and mortality are important indicators that may be useful for a better understanding of the possible epidemiological transition underway.

Bibliography

- Sousa-Figueiredo *et al.* 2012. Epidemiology of malaria, schistosomiasis, geohelminths, anemia and malnutrition in the context of a demographic surveillance system in northern Angola. PLoS One 2012, 7:e33189.
Pires *et al.* 2013 Hypertension in Northern Angola: prevalence, associated factors, awareness, treatment and control. BMC Public Health. 2013;13:90.

Promoters

