

# NUTRITION-RELATED NON-COMMUNICABLE DISEASE (N-RNCD) COUNTRY PROFILES



## ZAMBIA

Evidence has been mounting to support the hypothesis that maternal undernutrition, as well as in-utero and infant and young child undernutrition, increase the risk of developing N-RNCDs later in life (Barker, 1992 and Gluckman, 2010). Recent empirical studies have demonstrated that many common manifestations of undernutrition, such as intra-uterine growth restriction (IUGR), low birth weight, and stunting are all significantly associated with later development of hypertension, insulin resistance, and obesity. These are preconditions related to the development of N-RNCDs such as Type II diabetes mellitus (diabetes) and cardiovascular disease (CVD). Addressing maternal, infant, and young child undernutrition is therefore not only important to preventing the immediate threats of child morbidity and mortality, but also to reducing the risk of N-RNCDs later in life.

In Zambia, the burden of N-RNCDs is already an important health issue in the adult population, with particularly high levels of hypertension and cholesterol (See Table 1). In addition to the data in the table, average body mass index (BMI) among women stayed constant at 22 between 2001-02 and 2007, but the overweight prevalence rose from 12 to 19 percent (2001-02 and 2007 DHS). Prevalence of diabetes has actually decreased from 8 percent in 1998 to 7 percent in 2008 (Danaei et al, 2011).

**Table 1: Estimated Age-Standardized Adult N-RNCD Prevalence, Zambia 2008**

	Pre-NCD conditions (% of Adults)				N-RNCDs	
	Hypertension	Raised Glucose levels	Overweight*	Raised Cholesterol	Diabetes (% of Adults)**	CVD (% of Deaths)
Women	46%	8%	19%	29%	8%	-
Total	48%	7%	-	28%	7%	12%

Source: Alwan, Ala and World Health Organization. (2011). *Global status report on noncommunicable diseases 2010*. Geneva, Switzerland: World Health Organization. \*Overweight Data from DHS 2007. \*\*Diabetes Data from Global Burden of Metabolic Risk Factors of Chronic Diseases Database (Danaei et al, 2011).

Table 2 shows percent of infants who were born low birth weight, children who are stunted, overweight, stunted and overweight, or who are stunted with an overweight mother, and overweight women, broken down by socio-economic characteristics. Of those children who were low birth weight, 98 percent were born after 8 month or full-term pregnancies, meaning the reason for their low weight was not due to length of gestation. Regarding overweight, 8 percent of Zambian children under 5 fall into this category. For comparison, the percentage of children ages 2 to 5 who are considered overweight in the U.S is 11 percent (CDC, 2012). Taking a look at the current nutritional status of children under 5, there is reason to be concerned that obesity and N-RNCDs will continue to rise as this cohort grows into adulthood, particularly among the sub-groups that reach 9 to 10 percent overweight (see Table 2).

**Table 2: National Survey Indicators on Nutritional Status, by Background Characteristics, Zambia 2007**

		% of Children under 5					% of Women 15-49
		Low birth weight	Stunted	Overweight	Stunted and Overweight (same child)	Stunted child with Overweight Mother	Overweight
Educational attainment of mother	No education	13%	45%	7%	4%	2%	10%
	Primary	13%	48%	9%	6%	7%	17%
	Secondary	13%	39%	7%	5%	6%	22%
	Above secondary	21%	23%	5%	0%	14%	47%
Wealth index of family	Poorest	13%	48%	10%	7%	2%	7%
	Poorer	13%	51%	8%	6%	5%	9%
	Middle	13%	47%	10%	6%	5%	11%
	Richer	15%	41%	6%	4%	9%	23%
	Richest	14%	34%	7%	3%	13%	35%
Location of household	Urban	15%	39%	7%	4%	11%	30%
	Rural	13%	48%	9%	6%	4%	11%
Total		13%	45%	8%	5%	6%	19%

Definitions: Low Birth Weight (<2500g or classified by mother as small or very small at birth); Stunted (HAZ<-2SD); Child Overweight (WHZ>+2SD); Maternal Overweight (BMI≥25)  
Source: DHS 2007 data, weighted estimates of percent of all children under 5 or percent of women 15-49.

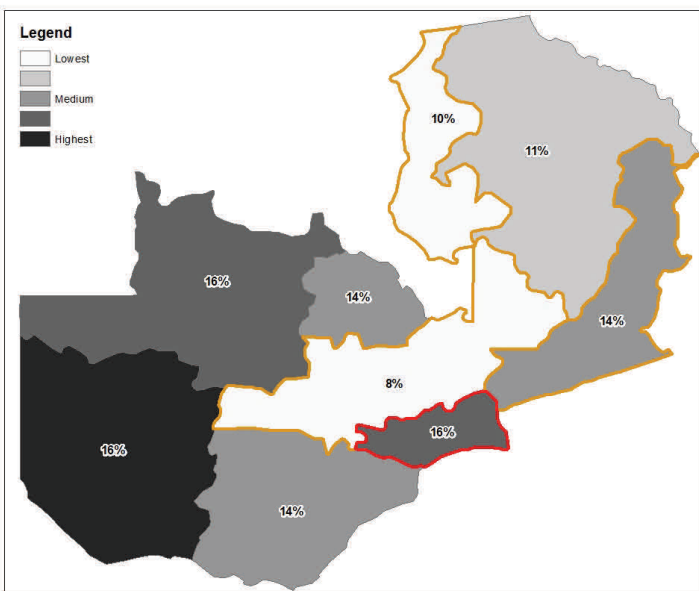


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Looking further at Table 2, the statistics demonstrate unexpected findings. For example, sub-groups at risk for overweight also have stunting rates at close to 50 percent, such as children of mothers with only primary education, rural households, or those in the poorest or middle wealth quintiles. Low birth weight varies little by sub-group, with the exception of those born to women with more than a secondary education (2.4 percent of women) — here the prevalence rises to 21 percent. Child stunting, child

**Percentage of children who are born low birth weight (<2500g)**

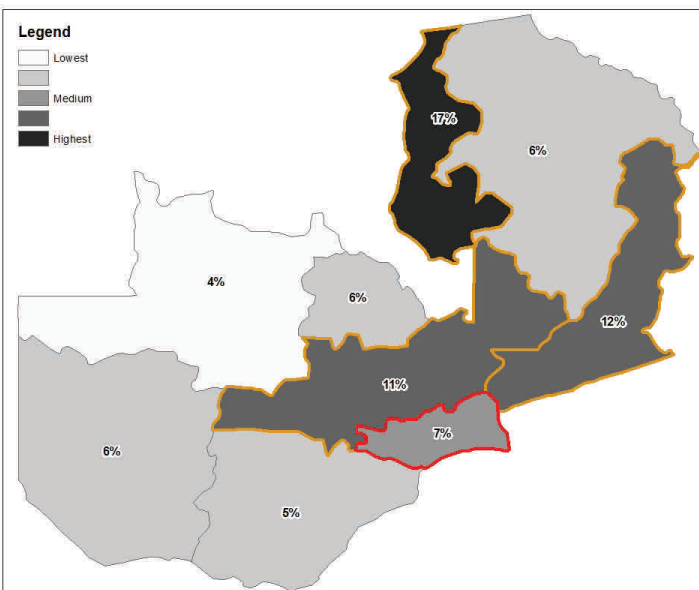


overweight, and stunted-overweight child prevalence were all highest in those with lower education and lower wealth quintiles, suggesting a dual burden in these sub-groups. However, maternal overweight and stunted child –overweight mother pairs trended in the opposite direction for all demographic indicators.

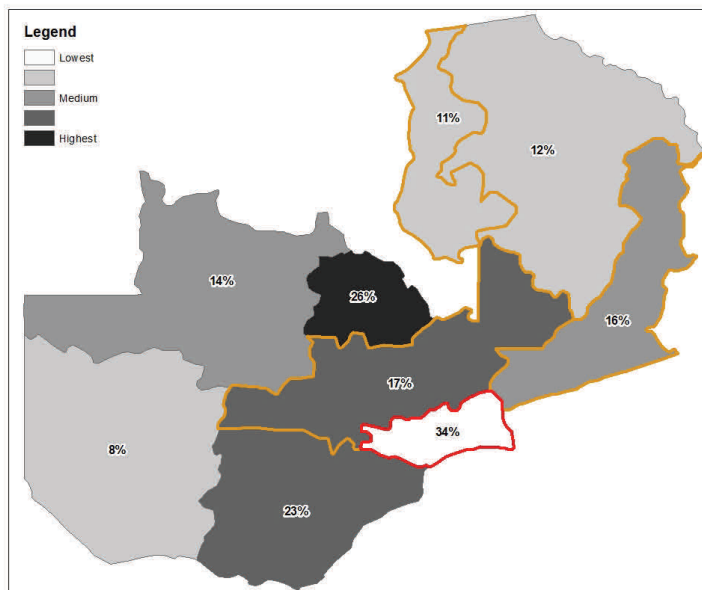
*National level estimates do not adequately illustrate the wide sub-population variations that exist. The maps here show these rates at the regional level. Lusaka (red border) is in the top three highest burden regions for both overweight women (34 percent) and low birth weight (16 percent). Luapula, Eastern, and Central regions (orange borders) have very high rates for child overweight (17, 12, and 11 percent respectively), but lower rates of maternal overweight and low birth weight than most of the other regions.*

Source: DHS 2007 data, weighted estimates of percent of all children under 5 or women 15-49.

**Percentage of children who are overweight (WHZ>+2SD)**



**Percentage of women who are overweight (BMI ≥ 25)**



This descriptive analysis begins to explore where future risks may lie for N-RNCDs in Zambia, identifying where undernutrition programs may need to be tailored or targeted to better avoid later life health conditions. Here child and maternal overweight overlap stunting as significant nutritional conditions. More in-depth analysis is needed to understand the determinants and dynamics influencing these relationships. SPRING is currently working to develop more evidence on why certain subpopulations are more at risk and how this information can be used to adjust nutrition programs.

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