

**Supplementary Table 1:** Risk factors, definitions, theoretical minimum risk exposure levels and data representative index (*source: GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet. 2016 Oct 7; 388:1659–1724.*)

Risk factors	Definition	Theoretical minimum risk exposure level	Data representative index (global)
<b>Child and maternal undernutrition</b>			93.9%
<b>Suboptimal breastfeeding</b>			77.8%
Non-exclusive breastfeeding	Proportion of children younger than 6 months who receive predominant, partial, or no breastfeeding	All children are exclusively breastfed for first 6 months of life	77.8%
Discontinued breastfeeding	Proportion of children aged 6–23 months who do not receive any breastmilk	All children continue to receive breastmilk until 2 years of age	79.2%
<b>Childhood undernutrition</b>			79.3%
Childhood underweight	Proportion of children less than -3 SDs, -3 to -2 SDs, and -2 to -1 SDs of the WHO 2006 standard weight-for-age curve	All children are above -1 SD of the WHO 2006 standard weight-for-age curve	78.8%
Childhood wasting	Proportion of children less than -3 SDs, -3 to -2 SDs, and -2 to -1 SDs of the WHO 2006 standard weight-for-length curve	All children are above -1 SD of the WHO 2006 standard weight-for-height curve	79.3%
Childhood stunting	Proportion of children less than -3 SDs, -3 to -2 SDs, and -2 to -1 SDs of the WHO 2006 standard height-for-age curve	All children are above -1 SD of the WHO 2006 standard height-for-age curve	93.7%
Iron deficiency	Peripheral blood haemoglobin concentration in g/L	Country specific	68.3%
Vitamin A deficiency	Proportion of children aged 28 days to 5 years with serum retinol concentration <0.7 $\mu$ mol/L	No childhood vitamin A deficiency	40.9%
Zinc deficiency	Proportion of the population with inadequate zinc intake versus loss	No inadequate zinc intake	84.3%
<b>Overall dietary risks</b>			92.9%
Diet low in fruits	Average daily consumption of fruits (fresh, frozen, cooked, canned, or dried, excluding fruit juices and salted or pickled fruits)	Consumption of fruit between 200 g and 300 g per day	88.9%
Diet low in vegetables	Average daily consumption of vegetables (fresh, frozen, cooked, canned, or dried vegetables, including legumes but excluding salted or pickled vegetables, juices, nuts and seeds, and starchy vegetables such as potatoes or corn)	Consumption of vegetables between 340 g and 500 g per day	88.9%
Diet low in whole grains	Average daily consumption of whole grains (bran, germ, and endosperm in their natural proportion) from breakfast cereals, bread, rice, pasta, biscuits, muffins, tortillas, pancakes, and other sources	Consumption of whole grains between 100 g and 150 g per day	16.2%
Diet low in nuts and seeds	Average daily consumption of nut and seed foods	Consumption of nuts and seeds between 16 g and 25 g per day	88.9%
Diet low in milk	Average daily consumption of milk, including non-fat, low fat, and full-fat milk, excluding soy milk and other plant derivatives	Consumption of milk between 350 g and 520 g per day	88.9%
Diet high in red meat	Average daily consumption of red meat (beef, pork, lamb, and goat but excluding poultry, fish, eggs, and all processed meats)	Consumption of red meat between 18 g and 27 g per day	88.9%

Diet high in processed meat	Average daily consumption of meat preserved by smoking, curing, salting, or addition of chemical preservatives	Consumption of processed meat between 0 g and 4 g per day	27.3%
Diet high in sugar sweetened beverages	Average daily consumption of beverages with $\geq 50$ kcal per 226.8 g serving, including carbonated beverages, sodas, energy drinks, and fruit drinks, but excluding 100% fruit and vegetable juices	Consumption of sugar-sweetened beverages between 0 g and 5 g per day	26.8%
Diet low in fibre	Average daily intake of fibre from all sources including fruits, vegetables, grains, legumes, and pulses	Consumption of fibre between 19 g and 28 g per day	88.9%
Diet suboptimal in calcium	Average daily intake of calcium from all sources, including milk, yogurt, and cheese	Consumption of calcium between 1.0 g and 1.50 g per day	88.9%
Diet low in seafood omega-3 fatty acids	Average daily intake of eicosapentaenoic acid and docosahexaenoic acid	Consumption of seafood omega-3 fatty acids between 200 mg and 300 mg per day	88.9%
Diet low in polyunsaturated fatty acids	Average daily intake of omega-6 fatty acids from all sources, mainly liquid vegetable oils, including soybean oil, corn oil, and safflower oil	Consumption of polyunsaturated fatty acids between 9% and 13% of total daily energy	88.9%
Diet high in trans fatty acids	Average daily intake of trans fat from all sources, mainly partially hydrogenated vegetable oils and ruminant products	Consumption of trans fatty acids between 0% and 1.0 % of total daily energy	39.9%
Diet high in sodium	24 h urinary sodium measured in mg per day	Consumption of sodium between 1.0 g and 5.0 g per day	32.3%
<b>High body-mass index</b>	Body-mass index, measured in $\text{kg}/\text{m}^2$	20-25 $\text{kg}/\text{m}^2$	90.9%

**Supplementary Table 2:** Data sources used for estimation of mortality associated with maternal and child under nutrition in sub-Saharan Africa in the Global Burden of Diseases (GBD) study (**source:** <http://ghdx.healthdata.org/gbd-2015-data-citations>)

No	Data sources
1	Central Bureau of Statistics (Kenya), United Nations Children's Fund (UNICEF). Kenya Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
2	Kenya National Bureau of Statistics, United Nations Children's Fund (UNICEF). Kenya - Eastern Province Multiple Indicator Cluster Survey 2008. Nairobi, Kenya: Kenya National Bureau of Statistics
3	Bureau of Statistics (Liberia), United Nations Children's Fund (UNICEF). Liberia Multiple Indicator Cluster Survey 1995
4	Macro International, Inc, National Institute of Statistics and Economic Analysis (INSAE) (Benin). Benin Demographic and Health Survey 1996. Calverton, United States: Macro International, Inc
5	National Institute of Statistics and Economic Analysis (INSAE) (Benin), ORC Macro. Benin Demographic and Health Survey 2001. Calverton, United States: ORC Macro
6	National Institute of Statistics and Economic Analysis (INSAE) (Benin), National Program Against AIDS (PNLS) (Benin), Macro International, Inc. Benin Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
7	Macro International, Inc, National Center for Statistics and Economic Studies (Congo, Rep.). Congo Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
8	Macro Systems, Inc.; Institute for Resource Development, National Council for Population Development (NCPD). Kenya Demographic and Health Survey 1988-1989. Columbia, United States: Macro Systems, Inc
9	Central Bureau of Statistics (Kenya), Macro International, Inc, National Council for Population Development (NCPD). Kenya Demographic and Health Survey 1993. Calverton, United States: Macro International, Inc
10	Central Bureau of Statistics (Kenya), Macro International, Inc, National Council for Population Development (NCPD). Kenya Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
11	Centers for Disease Control and Prevention (CDC), Central Bureau of Statistics (Kenya), Macro International, Inc, Ministry of Health (Kenya), National Council for Population and Development (Kenya). Kenya Demographic and Health Survey 2003. Calverton, United States: Macro International, Inc
12	Ministry of Planning and Economic Affairs (Liberia), Westinghouse; Institute for Resource Development. Liberia Demographic and Health Survey 1986. Columbia, United States: Westinghouse; Institute for Resource Development
13	Liberia Institute for Statistics and Geo-information Services (LISGIS), Macro International, Inc. Liberia Demographic and Health Survey 2006-2007. Calverton, United States: Macro International, Inc
14	Macro Systems, Inc.; Institute for Resource Development, Makerere University, Ministry of Health (Uganda). Uganda Demographic and Health Survey 1988-1989. Columbia, United States: Macro Systems, Inc
15	Macro International, Inc, Statistics Department (Uganda). Uganda Demographic and Health Survey 1995. Calverton, United States: Macro International, Inc
16	Macro International, Inc, Uganda Bureau of Statistics. Uganda Demographic and Health Survey 2000-2001. Calverton, United States: Macro International, Inc
17	Macro International, Inc, Uganda Bureau of Statistics. Uganda Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
18	ICF Macro, Kenya Medical Research Institute (KEMRI), Kenya National Bureau of Statistics, Ministry of Public Health and Sanitation (Kenya), National AIDS and STI Control Program (Kenya), National Aids Control Council (NACC), National Coordinating Agency for Population and Development (Kenya). Kenya Demographic and Health Survey 2008-2009. Calverton, United States: ICF Macro
19	ICF Macro, Uganda Bureau of Statistics. Uganda Demographic and Health Survey 2011. Calverton, United States: ICF Macro
20	ICF International, Ministry of Health (Congo, Rep.), National Center for Statistics and Economic Studies (Congo, Rep.). Congo Demographic and Health Survey 2011-2012. Fairfax, United States: ICF International, 2013
21	Kenya National Bureau of Statistics, United Nations Children's Fund (UNICEF). Kenya - Coast Multiple Indicator Cluster Survey 2009. New York, United States: United Nations Children's Fund (UNICEF), 2014
22	ICF International, Liberia Institute for Statistics and Geo-information Services (LISGIS), National AIDS and STI Control Program (NACP), Ministry of Health and Social Welfare (Liberia). Liberia Demographic and Health Survey 2013
23	ICF International, National Institute of Statistics and Economic Analysis (INSAE) (Benin), National Program Against AIDS (PNLS) (Benin). Benin Demographic and Health Survey 2011-2012. Fairfax, United States: ICF International, 2014
24	National Institute of Statistics and Demography (Burkina Faso), United Nations Children's Fund (UNICEF). Burkina Faso Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
25	Ministry of Planning and Reconstruction (Congo, DR), United Nations Children's Fund (UNICEF). Congo, DR Multiple Indicator Cluster Survey 2001. New York, United States: United Nations Children's Fund (UNICEF)
26	Central Statistical Office (Zambia), London School of Hygiene and Tropical Medicine. Zambia Living Conditions Monitoring Survey 1998. Lusaka, Zambia: Central Statistical Office (Zambia)
27	Central Statistical Office (Zambia). Zambia Living Conditions Monitoring Survey 2002-2003. Lusaka, Zambia: Central Statistical Office (Zambia)

28	Central Statistical Office (Zambia). Zambia Living Conditions Monitoring Survey 2004-2005. Lusaka, Zambia: Central Statistical Office (Zambia)
29	Centers for Disease Control and Prevention (CDC), Central Statistical Office (Zambia), Food Security, Health and Nutrition Information System (Zambia), Food and Agriculture Organization of the United Nations (FAO), United Nations Children's Fund (UNICEF). Zambia Multiple Indicator Cluster Survey 1995
30	Central Statistical Office (Zambia), Food Security, Health and Nutrition Information System (Zambia), United Nations Children's Fund (UNICEF). Zambia Multiple Indicator Cluster Survey 1999. New York, United States: United Nations Children's Fund (UNICEF)
31	Macro International, Inc, National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 1992-1993. Calverton, United States: Macro International, Inc
32	Macro International, Inc, National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 1998-1999. Calverton, United States: Macro International, Inc
33	Macro International, Inc, National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 2003. Calverton, United States: Macro International, Inc
34	ICF Macro, Ministry of Health (Burkina Faso), National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
35	Macro International, Inc, Ministry of Planning (Congo, DR). Democratic Republic of the Congo Demographic and Health Survey 2007. Calverton, United States: Macro International, Inc
36	Department of Applied Research for Development (Madagascar), Macro International, Inc. Madagascar Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
37	Macro International, Inc, National Institute of Statistics (Madagascar). Madagascar Demographic and Health Survey 1997. Calverton, United States: Macro International, Inc
38	Macro International, Inc, National Institute of Statistics (Madagascar). Madagascar Demographic and Health Survey 2003-2004. Calverton, United States: Macro International, Inc
39	Macro International, Inc, Ministry of Health (Mali), National Directorate of Statistics and Informatics (DNSI) (Mali). Mali Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
40	Sahel Institute, Westinghouse; Institute for Resource Development. Mali Demographic and Health Survey 1987. Columbia, United States: Westinghouse; Institute for Resource Development
41	Macro International, Inc, National Directorate of Statistics and Informatics (DNSI) (Mali), Planning and Statistics Unit, Ministry of Health (Mali). Mali Demographic and Health Survey 1995-1996. Calverton, United States: Macro International, Inc
42	Macro International, Inc, National Directorate of Statistics and Informatics (DNSI) (Mali), Planning and Statistics Unit, Ministry of Health (Mali). Mali Demographic and Health Survey 2001. Calverton, United States: Macro International, Inc
43	Central Statistical Office (Zambia), Macro International, Inc, University of Zambia. Zambia Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
44	Central Statistical Office (Zambia), Macro International, Inc, Ministry of Health (Zambia). Zambia Demographic and Health Survey 1996-1997. Calverton, United States: Macro International, Inc
45	Central Board of Health (Zambia), Central Statistical Office (Zambia), Macro International, Inc. Zambia Demographic and Health Survey 2001-2002. Calverton, United States: Macro International, Inc
46	Central Statistical Office (Zambia), Macro International, Inc. Zambia Demographic and Health Survey 2007. Calverton, United States: Macro International, Inc
47	ICF Macro, National Institute of Statistics (Madagascar). Madagascar Demographic and Health Survey 2008-2009. Calverton, United States: ICF Macro, 2010
48	National Institute of Statistics (Madagascar), United Nations Children's Fund (UNICEF). Madagascar Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
49	Central Statistical Office (Zambia). Zambia Living Conditions Monitoring Survey 2010
50	ICF International, INFO-STAT (Mali), Ministry of Health (Mali), National Institute of Statistics (INSTAT) (Mali), Planning and Statistics Unit, Ministry of Health (Mali). Mali Demographic and Health Survey 2012-2013. Fairfax, United States: ICF International, 2014
51	United Nations Children's Fund (UNICEF), National Institute of Statistics (Cameroon). Cameroon Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
52	Ministry of Planning, Economic Development and Public Investment (Equatorial Guinea), United Nations Children's Fund (UNICEF). Equatorial Guinea Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
53	National Statistical Office of Malawi, United Nations Children's Fund (UNICEF). Malawi Multiple Indicator Cluster Survey 1995
54	United Nations Children's Fund (UNICEF), National Statistics Office (Malawi). Malawi Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
55	National Office of Statistics (Mauritania), United Nations Children's Fund (UNICEF). Mauritania Multiple Indicator Cluster Survey 2007. New York, United States: United Nations Children's Fund (UNICEF)
56	Macro International, Inc, Ministry of Economy, Planning and Regional Development (Cameroon). Cameroon Demographic and Health Survey 1991. Calverton, United States: Macro International, Inc
57	Central Bureau of the Census and Population Studies (Cameroon), Macro International, Inc. Cameroon Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
58	Macro International, Inc, National Institute of Statistics (Cameroon). Cameroon Demographic and Health Survey 2004. Calverton, United States: Macro International, Inc
59	ICF International, Ministry of Economy, Planning and Regional Development (Cameroon), Ministry of Public Health (Cameroon), National Institute of Statistics (Cameroon), Pasteur Center of Cameroon. Cameroon Demographic and Health Survey 2011. Fairfax, United States: ICF International
60	Macro International, Inc, National Statistical Office of Malawi. Malawi Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
61	Macro International, Inc, National Statistical Office of Malawi. Malawi Demographic and Health Survey 2000. Calverton, United States: Macro International, Inc
62	Macro International, Inc, National Statistical Office of Malawi. Malawi Demographic and Health Survey 2004-2005. Calverton, United States: Macro International, Inc

63	ICF Macro, National Statistical Office of Malawi. Malawi Demographic and Health Survey 2010. Calverton, United States: ICF Macro
64	ICF International, Ministry of Health and Social Welfare (Equatorial Guinea), Ministry of Planning, Economic Development and Public Investment (Equatorial Guinea). Equatorial Guinea Demographic and Health Survey 2011
65	Central Statistics Office (Botswana). Botswana Family Health Survey 1996. Gaborone, Botswana: Central Statistics Office (Botswana)
66	Central Statistics Office (Botswana), United Nations Children's Fund (UNICEF). Botswana Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF), 2015
67	Government of Niger, Macro International, Inc, United Nations Children's Fund (UNICEF). Niger Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
68	Centers for Disease Control and Prevention (CDC), Government of Niger, United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA). Niger Multiple Indicator Cluster Survey 1996
69	Central Statistics Office (Botswana), Macro Systems, Inc.; Institute for Resource Development, Ministry of Health (Botswana). Botswana Demographic and Health Survey 1988. Columbia, United States: Macro Systems, Inc.; Institute for Resource Development
70	General Directorate of Statistics and Economic Studies (Gabon), Macro International, Inc. Gabon Demographic and Health Survey 2000-2001. Calverton, United States: Macro International, Inc
71	Department of Statistics and National Accounts (Niger), Macro International, Inc. Niger Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
72	Department of Statistics and National Accounts (Niger), Macro International, Inc. Niger Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
73	CARE International, Macro International, Inc. Niger Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
74	Macro International, Inc, Ministry of Health (Cape Verde), National Institute of Statistics (Cape Verde). Cape Verde Demographic and Health Survey 2005
75	Central Statistics Office (Botswana). Botswana Family Health Survey 2007-2008. Gaborone, Botswana: Central Statistics Office (Botswana), 2009
76	Cape Verde National Statistics Institute (INE) Division of Reproductive Health-Centers for Disease Control and Prevention (CDC). (2000) Cape Verde Reproductive Health Survey 1998. Atlanta, United States: Centers for Disease Control and Prevention (CDC)
77	ICF International, Ministry of Public Health (Niger), National Institute of Statistics (Niger). Niger Demographic and Health Survey 2012. Fairfax, United States: ICF International, 2014
78	General Directorate of Statistics (Gabon), ICF International, Ministry of Economy, Employment and Sustainable Development (Gabon), Ministry of Health (Gabon). Gabon Demographic and Health Survey 2012. Fairfax, United States: ICF International, 2013
79	United Nations Children's Fund (UNICEF), Census Bureau (Chad), National Institute of Statistical, Economic and Demographic Studies (Chad). Chad Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
80	Bureau of Statistics (Lesotho), United Nations Children's Fund (UNICEF). Lesotho Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
81	Federal Office of Statistics (Nigeria), United Nations Children's Fund (UNICEF). Nigeria Multiple Indicator Cluster Survey 1995
82	National Bureau of Statistics (Nigeria), United Nations Children's Fund (UNICEF). Nigeria Multiple Indicator Cluster Survey 1999. Abuja, Nigeria: National Bureau of Statistics (Nigeria)
83	United Nations Children's Fund (UNICEF), National Bureau of Statistics (Nigeria). Nigeria Multiple Indicator Cluster Survey 2007. New York, United States: United Nations Children's Fund (UNICEF)
84	Census Bureau (Chad), Macro International, Inc, National Institute of Statistical, Economic and Demographic Studies (Chad). Chad Demographic and Health Survey 1996-1997. Calverton, United States: Macro International, Inc
85	Macro International, Inc, National Institute of Statistical, Economic and Demographic Studies (Chad). Chad Demographic and Health Survey 2004. Calverton, United States: Macro International, Inc
86	Bureau of Statistics (Lesotho), Macro International, Inc, Ministry of Health and Social Welfare (Lesotho). Lesotho Demographic and Health Survey 2004-2005. Calverton, United States: Macro International, Inc
87	Macro International, Inc, National Institute of Statistics (INE) (Mozambique). Mozambique Demographic and Health Survey 1997. Calverton, United States: Macro International, Inc
88	Macro International, Inc, National Institute of Statistics (INE) (Mozambique). Mozambique Demographic and Health Survey 2003-2004. Calverton, United States: Macro International, Inc
89	Federal Office of Statistics (Nigeria), Macro International, Inc.; Institute for Resource Development. Nigeria Demographic and Health Survey 1990. Calverton, United States: Macro International, Inc
90	National Population Commission of Nigeria, ORC Macro, UK Department for International Development (DFID), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA). Nigeria Demographic and Health Survey 2003. Calverton, United States: ORC Macro
91	Federal Ministry of Health (Nigeria), Macro Systems, Inc.; Institute for Resource Development, National Population Bureau (Nigeria). Nigeria - Ondo Special Demographic and Health Survey 1986-1987. Columbia, United States: Macro Systems, Inc
92	ICF Macro, Ministry of Health and Social Welfare (Lesotho). Lesotho Demographic and Health Survey 2009-2010. Calverton, United States: ICF Macro
93	Macro International, Inc, National Population Commission of Nigeria. Nigeria Demographic and Health Survey 2008. Calverton, United States: Macro International, Inc, 2009
94	Central Bank of Nigeria, National Bureau of Statistics (Nigeria), Nigerian Communications Commission (NCC). Nigeria General Household Survey 2007. Abuja, Nigeria: National Bureau of Statistics (Nigeria)
95	Central Bank of Nigeria, National Bureau of Statistics (Nigeria), Nigerian Communications Commission (NCC). Nigeria General Household Survey 2008

96	United Nations Children's Fund (UNICEF), National Statistics Institute (Mozambique). Mozambique Multiple Indicator Cluster Survey 2008-2009. New York, United States: United Nations Children's Fund (UNICEF)
97	Mozambique National Institute of Statistics, Division of Reproductive Health-Centers for Disease Control and Prevention (CDC). (2003) Mozambique Young Adult Reproductive Health Survey 2001. Atlanta, United States: Centers for Disease Control and Prevention (CDC)
98	ICF Macro, Manhica Health Research Center (CISM), Ministry of Health (Mozambique), National Institute of Statistics (INE) (Mozambique). Mozambique Demographic and Health Survey 2011. Calverton, United States: ICF Macro, 2013
99	Ministry of Planning, Economy, and International Cooperation (Chad), National Institute of Statistical, Economic and Demographic Studies (Chad), United Nations Children's Fund (UNICEF). Chad Multiple Indicator Cluster Survey 2010. New York, United States: United Nations Children's Fund (UNICEF), 2014
100	National Bureau of Statistics (Nigeria), United Nations Children's Fund (UNICEF). Nigeria Multiple Indicator Cluster Survey 2011. New York, United States: United Nations Children's Fund (UNICEF), 2013
101	Burundi Institute of Statistics and Economic Studies, United Nations Children's Fund (UNICEF). Burundi Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
102	Macro International, Inc, National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Demographic and Health Survey 1994. Calverton, United States: Macro International, Inc
103	Macro International, Inc, National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Demographic and Health Survey 1998-1999. Calverton, United States: Macro International, Inc
104	ICF International, Ministry of the Fight Against AIDS (Côte d'Ivoire), National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Demographic and Health Survey 2011-2012. Fairfax, United States: ICF International, 2013
105	Population Department, Ministry of the Interior (Burundi), Westinghouse; Institute for Resource Development. Burundi Demographic and Health Survey 1987. Columbia, United States: Westinghouse; Institute for Resource Development
106	Central Statistics Office (Namibia), Macro International, Inc, Ministry of Health and Social Services (Namibia). Namibia Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
107	Macro International, Inc, Ministry of Health and Social Services (Namibia), National Planning Commission (Namibia). Namibia Demographic and Health Survey 2000. Calverton, United States: Macro International, Inc
108	Macro International, Inc, Ministry of Health and Social Services (Namibia). Namibia Demographic and Health Survey 2006-2007. Calverton, United States: Macro International, Inc
109	Macro International, Inc, National Office of Population (Rwanda). Rwanda Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
110	Macro International, Inc, National Office of Population (Rwanda). Rwanda Demographic and Health Survey 2000. Calverton, United States: Macro International, Inc
111	Macro International, Inc, National Institute of Statistics of Rwanda. Rwanda Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
112	Macro International, Inc, Ministry of Health (Rwanda), National Institute of Statistics of Rwanda. Rwanda Interim Demographic and Health Survey 2007-2008. Calverton, United States: Macro International, Inc
113	United Nations Children's Fund (UNICEF), National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
114	National School for Statistics and Economics Applied (ENSEA), United Nations Children's Fund (UNICEF), United Nations Educational, Scientific and Cultural Organization (UNESCO). Côte d'Ivoire Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
115	ICF Macro, Ministry of Health (Sao Tome and Principe), National Institute of Statistics (Sao Tome and Principe). Sao Tome and Principe Demographic and Health Survey 2008-2009. Calverton, United States: ICF Macro
116	Department of Statistics (Rwanda), United Nations Children's Fund (UNICEF). Rwanda Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
117	National Institute of Statistics (Sao Tome and Principe), United Nations Children's Fund (UNICEF). Sao Tome and Principe Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
118	Burundi Institute of Statistics and Economic Studies, ICF International, Ministry of Public Health and the Fight against AIDS (Burundi). Burundi Demographic and Health Survey 2010-2011. Fairfax, United States: ICF International, 2012
119	ICF Macro, Ministry of Health (Rwanda), National Institute of Statistics of Rwanda. Rwanda Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
120	United Nations Development Programme (UNDP), United Nations Children's Fund (UNICEF). Comoros Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
121	Central Statistics Department (Gambia), United Nations Children's Fund (UNICEF). Gambia Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
122	Gambia Bureau of Statistics (GBOS), United Nations Children's Fund (UNICEF). Gambia Multiple Indicator Cluster Survey 2005-2006. New York, United States: United Nations Children's Fund (UNICEF)
123	Macro International, Inc, National Centre of Documentation and Scientific Research (Comoros). Comoros Demographic and Health Survey 1996. Calverton, United States: Macro International, Inc

124	Department of Statistics (Senegal), Westinghouse; Institute for Resource Development. Senegal Demographic and Health Survey 1986. Columbia, United States: Westinghouse; Institute for Resource Development
125	Directorate of Forecasting and Statistics, Ministry of the Economy, Finance and Planning (Senegal), Macro International, Inc. Senegal Demographic and Health Survey 1992-1993. Calverton, United States: Macro International, Inc
126	Directorate of Forecasting and Statistics, Ministry of the Economy, Finance and Planning (Senegal), Macro International, Inc. Senegal Demographic and Health Survey 1997. Calverton, United States: Macro International, Inc
127	Department of Health (South Africa), Macro International, Inc, South African Medical Research Council. South Africa Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
128	Department of Health (South Africa), Macro International, Inc, South African Medical Research Council. South Africa Demographic and Health Survey 2003-2004
129	Ministry of Health and Prevention (Senegal), Research Center for Human Development (Senegal). Senegal Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
130	Government of Senegal, United Nations Children's Fund (UNICEF). Senegal Multiple Indicator Cluster Survey 1996
131	Center for Research in Human Development (CRDH), Cheikh Anta Diop University, Hospital Aristide Le Dantec, ICF Macro, National Agency of Statistics and Demography (Senegal). Senegal Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
132	General Directorate of Statistics and Forecasting (Comoros), ICF International. Comoros Demographic and Health Survey 2012-2013. Fairfax, United States: ICF International, 2014
133	Gambia Bureau of Statistics (GBOS), ICF International, Ministry of Health and Social Welfare (Gambia). Gambia Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2015
134	Gambia Bureau of Statistics (GBOS), United Nations Children's Fund (UNICEF). Gambia Multiple Indicator Cluster Survey 2010
135	ICF International, Ministry of Health and Social Action (Senegal), National Agency of Statistics and Demography (Senegal). Senegal Continuous Demographic and Health Survey 2012-2013. Fairfax, United States: ICF International, 2014
136	Department of Statistics and Demographic Studies (Djibouti), League of Arab States, Ministry of Health (Djibouti), Pan Arab Project for Family Health (PAPFAM). Djibouti Family Health Survey 2002
137	Ministry of Economy, Finance, and Planning in charge of Privatization (Djibouti), Ministry of Health (Djibouti), United Nations Children's Fund (UNICEF). Djibouti Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
138	Ministry of Health (Ghana), United Nations Children's Fund (UNICEF). Ghana Multiple Indicator Cluster Survey 1995
139	Ministry of Health (MOH) (Ghana), Ghana Statistical Service and United Nations Children's Fund (UNICEF). Ghana Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
140	Central Statistics Office (Sierra Leone), United Nations Children's Fund (UNICEF). Sierra Leone Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
141	United Nations Children's Fund (UNICEF), Statistics Sierra Leone. Sierra Leone Multiple Indicator Cluster Survey 2005. New York, United States: United Nations Children's Fund (UNICEF)
142	Pan Arab Project for Family Health (PAPFAM), United Nations Children's Fund (UNICEF). Somalia Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
143	Division of Reproductive Health-Centers for Disease Control and Prevention (CDC) and Ministry of Health. (1989) Swaziland Family Planning/Maternal and Child Health Survey 1988. Atlanta, United States: Centers for Disease Control and Prevention (CDC)
144	Central Statistical Office (Swaziland), United Nations Children's Fund (UNICEF). Swaziland Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
145	Ghana Statistical Service, Macro Systems, Inc.; Institute for Resource Development. Ghana Demographic and Health Survey 1988. Columbia, United States: Macro Systems, Inc
146	Ghana Statistical Service, Macro International, Inc. Ghana Demographic and Health Survey 1993-1994. Calverton, United States: Macro International, Inc
147	Ghana Statistical Service, Macro International, Inc. Ghana Demographic and Health Survey 1998-1999. Calverton, United States: Macro International, Inc
148	Ghana Statistical Service, Macro International, Inc. Ghana Demographic and Health Survey 2003. Calverton, United States: Macro International, Inc
149	Central Statistical Office (Swaziland), Macro International, Inc. Swaziland Demographic and Health Survey 2006-2007. Calverton, United States: Macro International, Inc
150	Ghana Statistical Service, Macro International, Inc, Ministry of Health (Ghana). Ghana Demographic and Health Survey 2008. Calverton, United States: Macro International, Inc
151	Macro International, Inc, Statistics Sierra Leone. Sierra Leone Demographic and Health Survey 2008. Calverton, United States: Macro International, Inc
152	Central Statistical Office (Swaziland), United Nations Children's Fund (UNICEF). Swaziland Multiple Indicator Cluster Survey 2010. New York, United States: United Nations Children's Fund (UNICEF)
153	Institute of Statistical, Social and Economic Research, University of Ghana, United Nations Children's Fund (UNICEF). Ghana - Accra Multiple Indicator Cluster Survey 2010-2011. New York, United States: United Nations Children's Fund (UNICEF), 2014
154	Centers for Disease Control and Prevention (CDC), Ghana Statistical Service, Government of Japan, Ministry of Health (Ghana), Navrongo Health Research Centre, USAID, United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA). Ghana Multiple Indicator Cluster Survey 2011. New York, United States: United Nations Children's Fund (UNICEF), 2013
155	Statistics Sierra Leone, United Nations Children's Fund (UNICEF). Sierra Leone Multiple Indicator Cluster Survey 2010. New York, United States: United Nations Children's Fund (UNICEF)
156	Ministry of National Planning and Development (Somaliland), United Nations Children's Fund (UNICEF). Somalia - Somaliland Multiple Indicator Cluster Survey 2011. New York, United States: United Nations Children's Fund (UNICEF), 2015

157	Living Conditions Monitoring Office (Angola), National Statistics Office (Angola), United Nations Children's Fund (UNICEF). Angola Multiple Indicator Cluster Survey 1996. New York, United States: United Nations Children's Fund (UNICEF)
158	National Institute of Statistics (Angola), United Nations Children's Fund (UNICEF). Angola Multiple Indicator Cluster Survey 2001. New York, United States: United Nations Children's Fund (UNICEF)
159	United Nations Children's Fund (UNICEF). Togo Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
160	Directorate General of Statistics and National Accounting (Togo), United Nations Children's Fund (UNICEF). Togo Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
161	Macro International, Inc, National Statistics and Evaluation Office (Eritrea). Eritrea Demographic and Health Survey 2002. Calverton, United States: Macro International, Inc
162	Macro International, Inc, National Statistics Office (Eritrea). Eritrea Demographic and Health Survey 1995-1996. Calverton, United States: Macro International, Inc
163	Macro International, Inc, National Statistics Directorate (Guinea). Guinea Demographic and Health Survey 1992
164	Macro International, Inc, National Statistics Directorate (Guinea). Guinea Demographic and Health Survey 1999. Calverton, United States: Macro International, Inc
165	Macro International, Inc, National Statistics Directorate (Guinea). Guinea Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
166	Demographic Research Unit, University of Lomé (Togo), Department of Statistics (Togo), Macro Systems, Inc.; Institute for Resource Development, Ministry of Public Health, Social Affairs and the Status of Women (Togo). Togo Demographic and Health Survey 1988. Columbia, United States: Macro Systems, Inc
167	Department of Statistics (Togo), Macro International, Inc. Togo Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
168	Central Statistical Office (Zimbabwe), Macro Systems, Inc.; Institute for Resource Development. Zimbabwe Demographic and Health Survey 1988-1989. Columbia, United States: Macro Systems, Inc.;
169	Central Statistical Office (Zimbabwe), Macro International, Inc. Zimbabwe Demographic and Health Survey 1994. Calverton, United States: Macro International, Inc
170	Central Statistical Office (Zimbabwe), Macro International, Inc. Zimbabwe Demographic and Health Survey 1999. Calverton, United States: Macro International, Inc
171	Central Statistical Office (Zimbabwe), Macro International, Inc. Zimbabwe Demographic and Health Survey 2005-2006. Calverton, United States: Macro International, Inc
172	Central Statistical Office (Zimbabwe). Zimbabwe Multiple Indicator Monitoring Survey 2009. New York, United States: United Nations Children's Fund (UNICEF)
173	Directorate General of Statistics and National Accounting (Togo), United Nations Children's Fund (UNICEF). Togo Multiple Indicator Cluster Survey 2010. New York, United States: United Nations Children's Fund (UNICEF)
174	ICF Macro, Zimbabwe National Statistics Agency. Zimbabwe Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro, 2012
175	ICF Macro, Ministry of Health and Public Hygiene (Guinea), National Institute of Statistics (Guinea). Guinea Demographic and Health Survey 2012. Calverton, United States: ICF Macro, 2014
176	Division of Statistics and Economic Studies (Central African Republic), Ministry of Economy, Planning and International Cooperation (Central African Republic), United Nations Children's Fund (UNICEF). Central African Republic Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
177	United Nations Children's Fund (UNICEF). Central African Republic Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
178	Secretary State of Planning, National Institute of Statistics and Census (INEC), United Nations Children's Fund (UNICEF). Guinea-Bissau Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
179	United Nations Children's Fund (UNICEF), Government of Guinea-Bissau. Guinea-Bissau Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
180	Division of Statistics and Economic Studies (Central African Republic), Macro International, Inc. Central African Republic Demographic and Health Survey 1994-1995. Calverton, United States: Macro International, Inc
181	Macro International, Inc, Population and Housing Census Commissions Office (PHCCO). Ethiopia Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
182	Central Statistical Agency (Ethiopia), ORC Macro. Ethiopia Demographic and Health Survey 2000. Calverton, United States: ORC Macro, 2001
183	Bureau of Statistics (Tanzania), Macro International, Inc, Ministry of Health (Tanzania). Tanzania Demographic and Health Survey 1991-1992. Calverton, United States: Macro International, Inc
184	Bureau of Statistics (Tanzania), Macro International, Inc, Planning Commission (Tanzania). Tanzania Demographic and Health Survey 1996. Calverton, United States: Macro International, Inc
185	Bureau of Statistics (Tanzania), Macro International, Inc. Tanzania Demographic and Health Survey 1999. Calverton, United States: Macro International, Inc
186	Macro International, Inc, National Bureau of Statistics (Tanzania). Tanzania Demographic and Health Survey 2004-2005. Calverton, United States: Macro International, Inc
187	Central Statistical Agency (Ethiopia), ICF Macro, Ministry of Health (Ethiopia). Ethiopia Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
188	ICF Macro, National Bureau of Statistics (Tanzania). Tanzania Demographic and Health Survey 2009-2010. Calverton, United States: ICF Macro
189	Centers for Disease Control and Prevention (CDC), National Statistics Institute (Guinea-Bissau), United Nations Children's Fund (UNICEF). Guinea-Bissau Multiple Indicator Cluster Survey 2010
190	Central African Institute of Statistics, Economic and Social Studies (ICASEES) (Central African Republic), ICF International. Central African Republic Multiple Indicator Cluster Survey 2010-2011. Fairfax, United States: ICF International, 2013
191	Uganda Bureau of Statistics. Uganda Living Standards Measurement Survey - Integrated Survey on Agriculture 2009-2010. Washington DC, United States: World Bank
192	Kenya National Bureau of Statistics, United Nations Children's Fund (UNICEF). Kenya - Nyanza Province Multiple Indicator Cluster Survey 2011. Nairobi, Kenya: Kenya National Bureau of Statistics
193	Kenya Integrated Household Budget Survey 2005-2006 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)



194	Kenya Welfare Monitoring Survey II 1994 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
195	Liberia National Nutrition Survey 1999-2000 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
196	Kenya National Bureau of Statistics, United Nations Children's Fund (UNICEF). Kenya - North Eastern Province Multiple Indicator Cluster Survey 2007. Nairobi, Kenya: Kenya National Bureau of Statistics
197	ICF International, Kenya Medical Research Institute (KEMRI), Kenya National Bureau of Statistics, Ministry of Health (Kenya), National AIDS Control Council (Kenya), National Council for Population and Development (Kenya). Kenya Demographic and Health Survey 2014. Fairfax, United States: ICF International, 2015
198	Kenya National Bureau of Statistics, Population Studies and Research Institute, University of Nairobi (Kenya), United Nations Children's Fund (UNICEF). Kenya - Bungoma County Multiple Indicator Survey 2013-2014. New York, United States: United Nations Children's Fund (UNICEF), 2015
199	Kenya National Bureau of Statistics, Population Studies and Research Institute, University of Nairobi (Kenya), United Nations Children's Fund (UNICEF). Kenya - Kakamega County Multiple Indicator Survey 2013-2014. New York, United States: United Nations Children's Fund (UNICEF), 2015
200	Kenya National Bureau of Statistics, Population Studies and Research Institute, University of Nairobi (Kenya), United Nations Children's Fund (UNICEF). Kenya - Turkana County Multiple Indicator Survey 2013-2014. New York, United States: United Nations Children's Fund (UNICEF), 2015
201	United Nations Children's Fund (UNICEF). Zaire Multiple Indicator Cluster Survey 1995. New York, United States: United Nations Children's Fund (UNICEF)
202	Central Statistical Office (Zambia). Zambia Living Conditions Monitoring Survey 1996. Lusaka, Zambia: Central Statistical Office (Zambia)
203	Central Statistical Office (Zambia). Zambia Living Conditions Monitoring Survey 2006
204	National Statistical Institute (Congo, DR), Ministry of Planning (Congo, DR), United Nations Children's Fund (UNICEF). Congo, DR Multiple Indicator Cluster Survey 2010. New York, United States: United Nations Children's Fund (UNICEF)
205	ICF International, Ministry of Planning and Monitoring Implementation of the Revolution of Modernity (Congo, DR), Ministry of Public Health (Congo, DR), National Institute of Statistics (Congo, DR). Democratic Republic of the Congo Demographic and Health Survey 2013-2014. Fairfax, United States: ICF International, 2014
206	Central Statistical Office (Zambia), ICF International, Ministry of Health (Zambia), Tropical Diseases Research Centre, University Teaching Hospital (Zambia), University of Zambia. Zambia Demographic and Health Survey 2013-2014. Fairfax, United States: ICF International, 2015
207	Madagascar Multiple Indicator Cluster Survey 1995 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
208	Madagascar Permanent Household Survey 1993-1994 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
209	Mali Multiple Indicator Cluster Survey 1996 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
210	Burkina Faso National Nutrition Survey 2009 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
211	Study of the Epidemiology of Breastfeeding in Madagascar as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
212	Burkina Faso Core Welfare Indicators Questionnaire Survey 2007 as it appears in United Nations Children's Fund (UNICEF). UNICEF Childinfo - Nutritional Status. New York, United States: United Nations Children's Fund (UNICEF)
213	National Office of Statistics (Mauritania), League of Arab States. Mauritania Maternal and Child Health Survey 1990-1991
214	Macro International, Inc, National Office of Statistics (Mauritania). Mauritania Demographic and Health Survey 2000-2001. Calverton, United States: Macro International, Inc
215	National Statistical Office of Malawi, World Bank. Malawi Integrated Household Survey 2010-2011. Washington DC, United States: World Bank
216	Malawi Integrated Household Survey 1997-1999 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
217	Mauritania Multiple Indicator Cluster Survey 1996 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
218	Malawi National Sample Survey of Agriculture 1980-1981 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
219	Malawi Micronutrient Survey 2009 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
220	Mauritania National Quick Survey on Nutrition and Child Survival as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)

221	Custodio E, Descalzo MA, Roche J, Molina L, Sánchez I, Lwanga M, Torres AM, Fernández-Zincke E, Bernis C, Villamor E, Baylin A. The economic and nutrition transition in Equatorial Guinea coincided with a double burden of over- and under nutrition. <i>Econ Hum Biol.</i> 2010; 8(1): 80-7 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
222	Custodio E, Descalzo MA, Roche J, Sánchez I, Molina L, Lwanga M, Bernis C, Villamor E, Baylin A. Nutritional status and its correlates in Equatorial Guinean preschool children: results from a nationally representative survey. <i>Food Nutr Bull.</i> 2008; 29(1): 49-58 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
223	National Statistical Office of Malawi, United Nations Children's Fund (UNICEF). Malawi Multiple Indicator Cluster Survey 2013-2014. New York, United States: United Nations Children's Fund (UNICEF), 2015
224	National Statistical Office of Malawi. Malawi Integrated Household Panel Survey 2013. Washington DC, United States: World Bank, 2015
225	Niger National Survey on Morbidity and Mortality 1985 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
226	Health of Children Under Five Years of Age in Cape Verde as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
227	Wennberg A. Anthropometric assessment of the nutritional status of preschool-age children in Cape Verde. <i>Bull World Health Organ.</i> 1988; 66(3): 375-86 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
228	Reitmaier P, Dupret A, Cutting WA. Better health data with a portable microcomputer at the periphery: an anthropometric survey in Cape Verde. <i>Bull World Health Organ.</i> 1987; 65(5): 651-7 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
229	Cape Verde Core Welfare Indicator Questionnaire Survey 2006 as it appears in United Nations Children's Fund (UNICEF). UNICEF Childinfo - Nutritional Status. New York, United States: United Nations Children's Fund (UNICEF)
230	Niger Nutrition and Child Survival Survey 2008 as it appears in United Nations Children's Fund (UNICEF). UNICEF Childinfo - Nutritional Status. New York, United States: United Nations Children's Fund (UNICEF)
231	Ministry of Health (Mozambique), National Institute of Statistics (INE) (Mozambique), United Nations Children's Fund (UNICEF). Mozambique Multiple Indicator Cluster Survey 1995
232	Macro International, Inc, National Population Commission of Nigeria. Nigeria Demographic and Health Survey 1999. Calverton, United States: Macro International, Inc
233	ICF International, National Population Commission of Nigeria. Nigeria Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2014
234	Mozambique Core Welfare Indicators Questionnaire Survey 2000-2001 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
235	Lesotho National Micronutrient Survey 1993 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
236	Nigeria National Micronutrient Survey 1993 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
237	Lesotho National Nutrition Survey 1992 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
238	Nigeria Food Consumption and Nutrition Survey 2001-2003 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition - Historical. Geneva, Switzerland: World Health Organization (WHO)
239	Lesotho Multiple Indicator Cluster Survey 1996 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition - Historical. Geneva, Switzerland: World Health Organization (WHO)
240	Lesotho National Nutrition Survey 2007 as it appears in United Nations Children's Fund (UNICEF). UNICEF Childinfo - Nutritional Status. New York, United States: United Nations Children's Fund (UNICEF)
241	National Bureau of Statistics (Nigeria). Nigeria General Household Survey 2012-2013. Washington DC, United States: World Bank
242	National Bureau of Statistics (Nigeria). Nigeria General Household Survey 2010-2011. Abuja, Nigeria: National Bureau of Statistics (Nigeria)
243	ICF International, Ministry of Health and Social Welfare (Lesotho). Lesotho Demographic and Health Survey 2014. Fairfax, United States: ICF International, 2016
244	National Institute of Statistics (Sao Tome and Principe), United Nations Children's Fund (UNICEF). Sao Tome and Principe Multiple Indicator Cluster Survey 2006. New York, United States: United Nations Children's Fund (UNICEF)
245	United Nations Children's Fund (UNICEF). South Sudan Multiple Indicator Cluster Survey 1999. New York, United States: United Nations Children's Fund (UNICEF)
246	Central Bureau of Statistics (Sudan), Federal Ministry of Health (Sudan), Government of Sudan, Ministry of Health (South Sudan), Southern Sudan Centre for Census, Statistics and Evaluation. Sudan - South Multiple Indicator Cluster Survey 2010. New York, United States: United Nations Children's Fund (UNICEF), 2015

247	Burundi National Nutrition Survey 2005 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
248	Malnutrition in Côte d'Ivoire: Prevalence and Determinants as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
249	Evaluation of Vitamin A and Iron Deficiencies in Côte d'Ivoire: Final Report as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
250	Sao Tome and Principe Nutritional Status and Immunization Coverage of Children Under 5 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
251	ICF International, Ministry of Health and Social Services (Namibia), Namibia Institute of Pathology, Namibia Statistics Agency. Namibia Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2015
252	ICF International, Ministry of Health (Rwanda), National Institute of Statistics of Rwanda. Rwanda Demographic and Health Survey 2014-2015. Fairfax, United States: ICF International, 2016
253	Directorate of Forecasting and Statistics, Ministry of the Economy, Finance and Planning (Senegal), Ministry of Economy and Finance (Senegal), United Nations Children's Fund (UNICEF). Senegal Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
254	South Africa National Income Dynamics Study - Wave 1 2008 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
255	South Africa Anthropometric, Vitamin A, Iron and Immunisation Coverage Status in Children Aged 6 to 71 Months 1994 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
256	Senegal Social Dimensions of Adjustment Household Priority Survey 1991-1992 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
257	Comoros Report on the Nutritional Status and the Factors Involved in Children Less Than Two Years Old 1991 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
258	Gambia Multiple Indicator Cluster Survey 1996 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
259	Labadarios D, Steyn NP, Maunder E, MacIntyre U, Gericke G, Swart R, Huskisson J, Dannhauser A, Vorster HH, Nesmuni AE, Nel JH. The National Food Consumption Survey (NFCS): South Africa, 1999. Public Health Nutr. 2005; 8(5): 533-43 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
260	Comoros Integrated Household Survey 2004 as it appears in United Nations Children's Fund (UNICEF). UNICEF Childinfo - Nutritional Status. New York, United States: United Nations Children's Fund (UNICEF)
261	Cheikh Anta Diop University, ICF International, National Agency of Statistics and Demography (Senegal). Senegal Continuous Demographic and Health Survey 2014. Fairfax, United States: ICF International, 2015
262	United Nations Children's Fund (UNICEF). Somalia Multiple Indicator Cluster Survey 1999
263	ICF International, Ministry of Health and Sanitation (Sierra Leone), Statistics Sierra Leone. Sierra Leone Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2014
264	Djibouti Household Survey - Social Indicators 1996 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
265	Sierra Leone National Nutrition Survey 1989 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
266	Swaziland National Nutrition Survey 2008 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
267	Djibouti Immunization Coverage and Malnutrition Survey 1989-1990 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
268	Nutritional Status in Ghana and its Determinants as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
269	Serdula MK, Aphae JM, Kunene PF, Gama DM, Staehling N, Peck R, Seward J, Sullivan B, Trowbridge FL. Acute and chronic undernutrition in Swaziland. J Trop Pediatr. 1987; 33(1): 35-42 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
270	Survey Report on the Nutritional Status of Children Aged 6 to 59 Months in the Republic of Djibouti as it appears in United Nations Children's Fund (UNICEF). UNICEF Childinfo - Nutritional Status. New York, United States: United Nations Children's Fund (UNICEF)
271	Ghana Health Service, Ghana Statistical Service, ICF International. Ghana Demographic and Health Survey 2014. Fairfax, United States: ICF International, 2015

272	Directorate General of Statistics and National Accounts (Togo), ICF International, Ministry of Health (Togo). Togo Demographic and Health Survey 2013-2014. Fairfax, United States: ICF International, 2015
273	Guinea Household Living Conditions Survey 1994-1995 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
274	Angola Investigation Report on Nutrition 2007 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
275	Children and Women in Eritrea: 1994 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
276	Togo National Survey of Nutrition and Survival of Children Aged 0 to 59 Months 2008 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
277	Guinea National Survey of Iron Deficiency Anemia 2000 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
278	Guinea National Survey on Nutritional Status and Tracking Key Indicators of Child Survival 2007-2008 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
279	Zimbabwe National Health Information System Nutrition Component Report 1987 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
280	Togo National Policy on Food and Nutrition Synthesis Document as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
281	United Nations Children's Fund (UNICEF), Zimbabwe National Statistics Agency. Zimbabwe Multiple Indicator Cluster Survey 2014. New York, United States: United Nations Children's Fund (UNICEF), 2015
282	Economic Development Initiatives (EDI), Muhimbili University of Health and Allied Sciences (Tanzania), Rockwool Foundation Research Unit. Tanzania - Kagera Living Standards Measurement Study 2010. Washington DC, United States: World Bank
283	Central Statistical Agency (Ethiopia), World Bank. Ethiopia Rural Socioeconomic Survey 2011-2012. Washington DC, United States: World Bank
284	Central African Republic Nutrition Survey 1995 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
285	Guinea-Bissau SMART Nutrition Survey 2008 as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)
286	Benin National Survey on Vitamin A and Availability of Iodized Salt in Households 2000 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
287	Liberia National Micronutrients Survey 1999 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
288	Samba C, Tchibindat F, Houze P, Gourmel B, Malvy D. Prevalence of infant Vitamin A deficiency and undernutrition in the Republic of Congo. Addict Behav Rep. 2006; 97(3): 270-83 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
289	Ngare DK, Muttunga JN, Njonge E. Vitamin A deficiency in pre-school children in Kenya. East Afr Med J. 2000; 77(8): 421-4 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
290	Samba C, Gourmel B, Houze P, Malvy D. Assessment of vitamin A status of preschool children in a sub-Saharan African setting: comparative advantage of modified relative-dose response test. J Health Popul Nutr. 2010; 28(5): 484-93
291	Zambia National Vitamin A Survey 2003 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
292	Zambia National Survey on Vitamin A Deficiency 1997 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
293	Democratic Republic of the Congo - Significance of Vitamin A Deficiency in the Democratic Republic of the Congo as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
294	Madagascar Survey on Vitamin A Deficiency in Women and Children and Survey of Anemia in Schoolchildren from 6-14 Years 2000 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
295	Cameroon National Survey on Vitamin A Deficiency and Anemia 2000 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)

296	Malawi National Micronutrient Survey 2001 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
297	Wilson MR, Mansour M, Atud AE, Casey R, Fobi G, Moukouri E, Alemayehu W, Martone JF, Ross-Degnan D. A population-based study of xerophthalmia in the extreme North Province of Cameroon, West Africa. Arch Ophthalmol. 1996; 114(4): 464-8 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
298	Botswana Micronutrient Malnutrition Survey 1994 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
299	Cape Verde Characterization of Vitamin A Deficiency and Anemia in Preschool Children 1996 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
300	Mozambique Survey on Vitamin A Deficiency and Prevalence of Anemia and Malaria 2001-2002 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
301	World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
302	Rwanda National Nutrition Survey of Women and Children 1996 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
303	Namibia Iodine Deficiency Disorders Prevalence Survey 1992 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
304	Gambia Nationwide Survey on the Prevalence of Vitamin A and Iron Deficiency in Women and Children 2001 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
305	Ghana - Proceedings of the Workshop on Dissemination of Findings of Vitamin A and Anaemia Prevalence Surveys - 1998 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
306	Ghana VAST Study Team. Vitamin A supplementation in northern Ghana: effects on clinic attendances, hospital admissions, and child mortality. Ghana VAST Study Team. Lancet. 1993; 342(8862): 7-12 as it appears in Imdad A, Herzer K, Mayo-Wilson E, Yakoob MY, Bhutta ZA. Vitamin A supplementation for preventing morbidity and mortality in children from 6 months to 5 years of age. Cochrane Database Syst Rev. 2010; CD008524
307	Angola Vitamin A and Anaemia Survey 1998-1999 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
308	Zimbabwe National Micronutrient Survey 1999 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
309	Central African Republic National Survey on Vitamin A Deficiency, Iron Deficiency and the Consumption of Iodized Salt 1998-1999 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
310	Ethiopia MICAH Program Final Evaluation Report 2006 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
311	Tanzania National Vitamin A Survey 1997 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
312	Haidar J, Demissie T. Malnutrition and xerophthalmia in rural communities of Ethiopia. East Afr Med J. 1999; 76(10): 590-3 as it appears in World Health Organization (WHO). WHO Global Database on Vitamin A Deficiency. Geneva, Switzerland: World Health Organization (WHO)
313	Danneskiold-Samsøe N, Fisker AB, Jørgensen MJ, Ravn H, Andersen A, Balde ID, Leo-Hansen C, Rodrigues A, Aaby P, Benn CS. Determinants of vitamin a deficiency in children between 6 months and 2 years of age in Guinea-Bissau. BMC Public Health. 2013; 172
314	Benn CS, Aaby P, Balé C, Olsen J, Michaelsen KF, George E, Whittle H. Randomised trial of effect of vitamin A supplementation on antibody response to measles vaccine in Guinea-Bissau, west Africa. Lancet. 1997; 350(9071): 101-5 as it appears in Imdad A, Herzer K, Mayo-Wilson E, Yakoob MY, Bhutta ZA. Vitamin A supplementation for preventing morbidity and mortality in children from 6 months to 5 years of age. Cochrane Database Syst Rev. 2010; CD008524
315	Shankar AH, Genton B, Semba RD, Baisor M, Paino J, Tamja S, Adiguma T, Wu L, Rare L, Tielsch JM, Alpers MP, West KP. Effect of vitamin A supplementation on morbidity due to Plasmodium falciparum in young children in Papua New Guinea: a randomised trial. Lancet. 1999; 354(9174): 203-9 as it appears in Imdad A, Herzer K, Mayo-Wilson E, Yakoob MY, Bhutta ZA. Vitamin A supplementation for preventing morbidity and mortality in children from 6 months to 5 years of age. Cochrane Database Syst Rev. 2010; CD008524
316	Diness BR, Christoffersen D, Pedersen UB, Rodrigues A, Fischer TK, Andersen A, Whittle H, Yazdanbakhsh M, Aaby P, Benn CS. The effect of high-dose vitamin A supplementation given with bacille Calmette-Guérin vaccine at birth on infant rotavirus infection and diarrhea: a randomized prospective study from Guinea-Bissau. J Infect Dis. 2010; S243-251
317	Food and Agriculture Organization of the United Nations (FAO). FAOSTAT Food Balance Sheets, October 2014. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO)
318	Socio-Economic Determinants of Nutritional Status Among Children Under Five in Mauritania as it appears in World Health Organization (WHO). WHO Global Database on Child Growth and Malnutrition. Geneva, Switzerland: World Health Organization (WHO)



**Supplementary Table 3:** Data sources used for estimation of mortality associated with dietary risk factors of noncommunicable diseases in sub-Saharan Africa in the Global Burden of Diseases (GBD) study (source: <http://ghdx.healthdata.org/gbd-2015-data-citations>)

No	Data sources
1	Food and Agriculture Organization of the United Nations (FAO). FAOSTAT Food Balance Sheets, May 2013. Rome, Italy: Food and Agriculture Organization of the United Nations (FAO)
2	Congo - Brazzaville STEPS Noncommunicable Disease Risk Factors Survey 2004 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
3	Benin - Littoral STEPS Noncommunicable Disease Risk Factors Survey 2007 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
4	Benin STEPS Noncommunicable Disease Risk Factors Survey 2008 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
5	Zambia - Lusaka STEPS Noncommunicable Disease Risk Factors Survey 2008 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
6	Madagascar - Antananarivo and Toliara STEPS Noncommunicable Disease Risk Factors Survey 2005 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
7	Democratic Republic of the Congo - Kinshasa STEPS Noncommunicable Disease Risk Factors Survey 2005 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
8	Mali STEPS Noncommunicable Disease Risk Factors Survey 2007 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
9	Burkina Faso - Dietary Diversity as a Measure of the Micronutrient Adequacy of Women's Diets: Results from Ouagadougou, Burkina Faso Site as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
10	Mali - Dietary Diversity as a Measure of the Micronutrient Adequacy of Women's Diets: Results from Bamako, Mali Site as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
11	Cameroon STEPS Noncommunicable Disease Risk Factors Survey 2003 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
12	Malawi STEPS Noncommunicable Disease Risk Factors Survey 2009 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
13	Mauritania - Nouakchott STEPS Noncommunicable Disease Risk Factors Survey 2006 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
14	Botswana STEPS Noncommunicable Disease Risk Factors Survey 2007 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
15	Niger STEPS Noncommunicable Disease Risk Factors Survey 2007 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
16	Gabon - Estuaire STEPS Noncommunicable Disease Risk Factors Survey 2009 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
17	Cape Verde STEPS Noncommunicable Disease Risk Factors Survey 2007 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
18	Chad - Ville de N'Djaména STEPS Noncommunicable Disease Risk Factors Survey 2008 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
19	Mozambique STEPS Noncommunicable Disease Risk Factors Survey 2005 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
20	Mozambique - Dietary Diversity as a Measure of the Micronutrient Adequacy of Women's Diets: Results from Rural Mozambique Site as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
21	Food and Nutrient Availability in South African Households 1995 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]

22	Sierra Leone STEPS Noncommunicable Disease Risk Factors Survey 2009 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
23	Swaziland STEPS Noncommunicable Disease Risk Factors Survey 2007 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
24	Eritrea STEPS Noncommunicable Disease Risk Factors Survey 2004 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
25	Ethiopia - Addis Ababa STEPS Noncommunicable Disease Risk Factors Survey 2006 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
26	Oguntona CR, Tella TO. Street foods and dietary intakes of Nigerian urban market women. <i>Int J Food Sci Nutr.</i> 1999; 50(6): 383-90 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
27	Euromonitor International. Partially Hydrogenated Vegetable Oil Sales Database
28	The INTERSALT Co-operative Research Group. Appendix tables. Centre-specific results by age and sex. <i>J Hum Hypertens</i> 1989;3(5):331-407 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
29	Melse-Boonstra A, Rozendaal M, Rexwinkel H, Gerichhausen MJ, van den Briel T, Bulux J, Solomons NW, West CE. Determination of discretionary salt intake in rural Guatemala and Benin to determine the iodine fortification of salt required to control iodine deficiency disorders: studies using lithium-labeled salt. <i>Am J Clin Nutr.</i> 1998; 68(3): 636-41 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
30	Pavan L, Casiglia E, Pauletto P, Batista SL, Ginocchio G, Kwankam MM, Biasin R, Mazza A, Puato M, Russo E, Pessina AC. Blood pressure, serum cholesterol and nutritional state in Tanzania and in the Amazon: comparison with an Italian population. <i>J Hypertens.</i> 1997; 15(10): 1083-90 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
31	Cooper R, Rotimi C, Ataman S, McGee D, Osotimehin B, Kadiri S, Muna W, Kingue S, Fraser H, Forrester T, Bennett F, Wilks R. The prevalence of hypertension in seven populations of West African origin. <i>Am J Public Health.</i> 1997; 87(2): 160-8 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
32	Simmons D, Barbour G, Congleton J, Levy J, Meacher P, Saul H, Sowerby T. Blood pressure and salt intake in Malawi: an urban rural study. <i>J Epidemiol Community Health.</i> 1986; 40(2): 188-92 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
33	Hess SY, Zimmermann MB, Staubli-Asobayire F, Tebi A, Hurrell RF. An evaluation of salt intake and iodine nutrition in a rural and urban area of the Côte d'Ivoire. <i>Eur J Clin Nutr.</i> 1999; 53(9): 680-6 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
34	Barlow RJ, Connell MA, Levendig BJ, Gear JS, Milne FJ. A comparative study of urinary sodium and potassium excretion in normotensive urban black and white South African males. <i>S Afr Med J.</i> 1982; 62(25): 939-41 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
35	Charlton KE, Steyn K, Levitt NS, Peer N, Jonathan D, Gogela T, Rossouw K, Gwebushe N, Lombard CJ. A food-based dietary strategy lowers blood pressure in a low socio-economic setting: a randomised study in South Africa. <i>Public Health Nutr.</i> 2008; 11(12): 1397-406 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
36	Maseko MJ, Majane HO, Milne J, Norton GR, Woodiwiss AJ. Salt intake in an urban, developing South African community. <i>Cardiovasc J S Afr.</i> 2006; 17(4): 186-91 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]
37	Kerry SM, Emmett L, Micah FB, Martin-Peprah R, Antwi S, Phillips RO, Plange-Rhule J, Eastwood JB, Cappuccio FP. Rural and semi-urban differences in salt intake, and its dietary sources, in Ashanti, West Africa. <i>Ethn Dis.</i> 2005; 15(1): 33-9 as it appears in Global Dietary Database Consortium, Nutrition and Chronic Disease Expert Group (NutriCoDE). Global Dietary Database 1980-2011. [Unpublished]



**Supplementary Table 4:** Data sources used for estimation of mortality associated with overweight/obesity in sub-Saharan Africa in the Global Burden of Diseases (GBD) study (source: <http://ghdx.healthdata.org/gbd-2015-data-citations>)

No	Data sources
1	Macro International, Inc, National Institute of Statistics and Economic Analysis (INSAE) (Benin), Benin Demographic and Health Survey 1996. Calverton, United States: Macro International, Inc
2	National Institute of Statistics and Economic Analysis (INSAE) (Benin), ORC Macro. Benin Demographic and Health Survey 2001. Calverton, United States: ORC Macro
3	National Institute of Statistics and Economic Analysis (INSAE) (Benin), National Program Against AIDS (PNLS) (Benin), Macro International, Inc. Benin Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
4	Macro International, Inc, National Center for Statistics and Economic Studies (Congo, Rep.). Congo Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
5	Central Bureau of Statistics (Kenya), Macro International, Inc, National Council for Population Development (NCPD). Kenya Demographic and Health Survey 1993. Calverton, United States: Macro International, Inc
6	Central Bureau of Statistics (Kenya), Macro International, Inc, National Council for Population Development (NCPD). Kenya Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
7	Centers for Disease Control and Prevention (CDC), Central Bureau of Statistics (Kenya), Macro International, Inc, Ministry of Health (Kenya), National Council for Population and Development (Kenya). Kenya Demographic and Health Survey 2003. Calverton, United States: Macro International, Inc
8	Liberia Institute for Statistics and Geo-information Services (LISGIS), Macro International, Inc. Liberia Demographic and Health Survey 2006-2007. Calverton, United States: Macro International, Inc
9	Macro International, Inc, Statistics Department (Uganda). Uganda Demographic and Health Survey 1995. Calverton, United States: Macro International, Inc
10	Macro International, Inc, Uganda Bureau of Statistics. Uganda Demographic and Health Survey 2000-2001. Calverton, United States: Macro International, Inc
11	Macro International, Inc, Uganda Bureau of Statistics. Uganda Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
12	ICF Macro, Kenya Medical Research Institute (KEMRI), Kenya National Bureau of Statistics, Ministry of Public Health and Sanitation (Kenya), National AIDS and STI Control Program (Kenya), National Aids Control Council (NACC), National Coordinating Agency for Population and Development (Kenya). Kenya Demographic and Health Survey 2008-2009. Calverton, United States: ICF Macro
13	World Health Organization (WHO). Congo World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
14	Ministry of Health (Congo, Rep.), World Health Organization (WHO). Congo - Brazzaville STEPS Noncommunicable Disease Risk Factors Survey 2004
15	Ministry of Health (Benin), World Health Organization (WHO). Benin - Littoral STEPS Noncommunicable Disease Risk Factors Survey 2007
16	ICF Macro, Uganda Bureau of Statistics. Uganda Demographic and Health Survey 2011. Calverton, United States: ICF Macro
17	ICF International, Ministry of Health (Congo, Rep.), National Center for Statistics and Economic Studies (Congo, Rep.). Congo Demographic and Health Survey 2011-2012. Fairfax, United States: ICF International, 2013
18	ICF International, National Institute of Statistics and Economic Analysis (INSAE) (Benin), National Program Against AIDS (PNLS) (Benin). Benin Demographic and Health Survey 2011-2012. Fairfax, United States: ICF International, 2014
19	World Health Organization (WHO). Liberia STEPS Noncommunicable Disease Risk Factors Survey 2011
20	ICF International, Kenya Medical Research Institute (KEMRI), Kenya National Bureau of Statistics, Ministry of Health (Kenya), National AIDS Control Council (Kenya), National Council for Population and Development (Kenya). Kenya Demographic and Health Survey 2014. Fairfax, United States: ICF International, 2015
21	Ministry of Health (Uganda), World Health Organization (WHO). Uganda STEPS Noncommunicable Disease Risk Factors Survey 2014
22	Kavishe B, Biraro S, Baisley K, Vanobberghen F, Kapiga S, Munderi P, Smeeth L, Peck R, Mghamba J, Mutungi G, Ikoona E, Levin J, Bou Monclús MA, Katende D, Kisanga E, Hayes R, Grosskurth H. High prevalence of hypertension and of risk factors for non-communicable diseases (NCDs): a population based cross-sectional survey of NCDs and HIV infection in Northwestern Tanzania and Southern Uganda. BMC Med. 2015; 13: 126
23	Macro International, Inc, National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 1992-1993. Calverton, United States: Macro International, Inc
24	Macro International, Inc, National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 1998-1999. Calverton, United States: Macro International, Inc
25	Macro International, Inc, National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 2003. Calverton, United States: Macro International, Inc
26	ICF Macro, Ministry of Health (Burkina Faso), National Institute of Statistics and Demography (Burkina Faso). Burkina Faso Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
27	Macro International, Inc, Ministry of Planning (Congo, DR). Democratic Republic of the Congo Demographic and Health Survey 2007. Calverton, United States: Macro International, Inc
28	Macro International, Inc, National Institute of Statistics (Madagascar). Madagascar Demographic and Health Survey 1997. Calverton, United States: Macro International, Inc
29	Macro International, Inc, National Institute of Statistics (Madagascar). Madagascar Demographic and Health Survey 2003-2004. Calverton, United States: Macro International, Inc

30	Macro International, Inc, Ministry of Health (Mali), National Directorate of Statistics and Informatics (DNSI) (Mali). Mali Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
31	Macro International, Inc, National Directorate of Statistics and Informatics (DNSI) (Mali), Planning and Statistics Unit, Ministry of Health (Mali). Mali Demographic and Health Survey 1995-1996. Calverton, United States: Macro International, Inc
32	Macro International, Inc, National Directorate of Statistics and Informatics (DNSI) (Mali), Planning and Statistics Unit, Ministry of Health (Mali). Mali Demographic and Health Survey 2001. Calverton, United States: Macro International, Inc
33	Central Statistical Office (Zambia), Macro International, Inc, University of Zambia. Zambia Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
34	Central Statistical Office (Zambia), Macro International, Inc, Ministry of Health (Zambia). Zambia Demographic and Health Survey 1996-1997. Calverton, United States: Macro International, Inc
35	Central Board of Health (Zambia), Central Statistical Office (Zambia), Macro International, Inc. Zambia Demographic and Health Survey 2001-2002. Calverton, United States: Macro International, Inc
36	Central Statistical Office (Zambia), Macro International, Inc. Zambia Demographic and Health Survey 2007. Calverton, United States: Macro International, Inc
37	ICF Macro, National Institute of Statistics (Madagascar). Madagascar Demographic and Health Survey 2008-2009. Calverton, United States: ICF Macro, 2010
38	Ministry of Health (Zambia), World Health Organization (WHO). Zambia - Lusaka STEPS Noncommunicable Disease Risk Factors Survey 2008
39	Ministry of Public Health (Congo, DR), World Health Organization (WHO). Democratic Republic of the Congo - Kinshasa STEPS Noncommunicable Disease Risk Factors Survey 2005
40	Central Statistical Office (Zambia), ICF International, Ministry of Health (Zambia), Tropical Diseases Research Centre, University Teaching Hospital (Zambia), University of Zambia. Zambia Demographic and Health Survey 2013-2014. Fairfax, United States: ICF International, 2015
41	World Health Organization (WHO). Mali STEPS Noncommunicable Disease Risk Factors Survey 2007
42	Health Promotion Research Institute (Hungary), Hungarian Gallup Institute. Hungary National Population Health Survey 2000
43	Mauny F, Viel JF, Roubaux F, Ratsimandresy R, Sellin B. Blood pressure, body mass index and socio-economic status in the urban population of Antananarivo (Madagascar). Ann Trop Med Parasitol. 2003; 97(6): 645-54
44	Torheim LE, Granli GI, Sidibé CS, Traoré AK, Oshaug A. Women's iodine status and its determinants in an iodine-deficient area in the Kayes region, Mali. Public Health Nutr. 2005; 8(4): 387-94
45	Doulougou B, Kouanda S, Rossier C, Soura A, Zunzunegui MV. Differences in hypertension between informal and formal areas of Ouagadougou, a sub-Saharan African city. BMC Public Health. 2014; 14: 893
46	Central Bureau of the Census and Population Studies (Cameroon), Macro International, Inc. Cameroon Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
47	Macro International, Inc, National Institute of Statistics (Cameroon). Cameroon Demographic and Health Survey 2004. Calverton, United States: Macro International, Inc
48	ICF International, Ministry of Economy, Planning and Regional Development (Cameroon), Ministry of Public Health (Cameroon), National Institute of Statistics (Cameroon), Pasteur Center of Cameroon. Cameroon Demographic and Health Survey 2011. Fairfax, United States: ICF International
49	Macro International, Inc, National Statistical Office of Malawi. Malawi Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
50	Macro International, Inc, National Statistical Office of Malawi. Malawi Demographic and Health Survey 2000. Calverton, United States: Macro International, Inc
51	Macro International, Inc, National Statistical Office of Malawi. Malawi Demographic and Health Survey 2004-2005. Calverton, United States: Macro International, Inc
52	Macro International, Inc, National Office of Statistics (Mauritania). Mauritania Demographic and Health Survey 2000-2001. Calverton, United States: Macro International, Inc
53	ICF Macro, National Statistical Office of Malawi. Malawi Demographic and Health Survey 2010. Calverton, United States: ICF Macro
54	World Health Organization (WHO). Malawi World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
55	Health of Populations in Transition (HoPiT) Research Group (Cameroon), Ministry of Public Health (Cameroon), World Diabetes Foundation (WDF), World Health Organization (WHO). Cameroon STEPS Noncommunicable Disease Risk Factors Survey 2003
56	Ministry of Health (Malawi), World Health Organization (WHO). Malawi STEPS Noncommunicable Disease Risk Factors Survey 2009
57	Ministry of Health (Mauritania), World Health Organization (WHO). Mauritania - Nouakchott STEPS Noncommunicable Disease Risk Factors Survey 2006
58	Kamadjeu RM, Edwards R, Atanga JS, Kiawi EC, Unwin N, Mbanya J-C. Anthropometry measures and prevalence of obesity in the urban adult population of Cameroon: an update from the Cameroon Burden of Diabetes Baseline Survey. BMC Public Health. 2006; 228
59	Chilima DM, Ismail SJ. Anthropometric characteristics of older people in rural Malawi. Eur J Clin Nutr. 1998; 52(9): 643-9
60	Pasquet P, Temgoua LS, Melaman-Sego F, Froment A, Rikong-Adié H. Prevalence of overweight and obesity for urban adults in Cameroon. Ann Hum Biol. 2003; 30(5): 551-62
61	Fezeu L, Minkoulou E, Balkau B, Kengne A-P, Awah P, Unwin N, Alberti GKMM, Mbanya J-C. Association between socioeconomic status and adiposity in urban Cameroon. Int J Epidemiol. 2006; 35(1): 105-11
62	General Directorate of Statistics and Economic Studies (Gabon), Macro International, Inc. Gabon Demographic and Health Survey 2000-2001. Calverton, United States: Macro International, Inc
63	Department of Statistics and National Accounts (Niger), Macro International, Inc. Niger Demographic and Health Survey 2006. Calverton, United States: Macro International, Inc
64	Department of Statistics and National Accounts (Niger), Macro International, Inc. Niger Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
65	CARE International, Macro International, Inc. Niger Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
66	Ministry of Health (Botswana), Ministry of Local Government (Botswana), World Health Organization (WHO). Botswana STEPS Noncommunicable Disease Risk Factors Survey 2007

67	Ministry of Health (Niger), World Health Organization (WHO). Niger STEPS Noncommunicable Disease Risk Factors Survey 2007
68	Ministry of Health and Public Hygiene (Gabon), World Health Organization (WHO). Gabon - Estuaire STEPS Noncommunicable Disease Risk Factors Survey 2009
69	ICF International, Ministry of Public Health (Niger), National Institute of Statistics (Niger). Niger Demographic and Health Survey 2012. Fairfax, United States: ICF International, 2014
70	General Directorate of Statistics (Gabon), ICF International, Ministry of Economy, Employment and Sustainable Development (Gabon), Ministry of Health (Gabon). Gabon Demographic and Health Survey 2012. Fairfax, United States: ICF International, 2013
71	World Health Organization (WHO). Cape Verde STEPS Noncommunicable Disease Risk Factors Survey 2007
72	Census Bureau (Chad), Macro International, Inc, National Institute of Statistical, Economic and Demographic Studies (Chad). Chad Demographic and Health Survey 1996-1997. Calverton, United States: Macro International, Inc
73	Macro International, Inc, National Institute of Statistical, Economic and Demographic Studies (Chad). Chad Demographic and Health Survey 2004. Calverton, United States: Macro International, Inc
74	Bureau of Statistics (Lesotho), Macro International, Inc, Ministry of Health and Social Welfare (Lesotho). Lesotho Demographic and Health Survey 2004-2005. Calverton, United States: Macro International, Inc
75	Macro International, Inc, National Institute of Statistics (INE) (Mozambique). Mozambique Demographic and Health Survey 1997. Calverton, United States: Macro International, Inc
76	Macro International, Inc, National Institute of Statistics (INE) (Mozambique). Mozambique Demographic and Health Survey 2003-2004. Calverton, United States: Macro International, Inc
77	National Population Commission of Nigeria, ORC Macro, UK Department for International Development (DFID), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA). Nigeria Demographic and Health Survey 2003. Calverton, United States: ORC Macro
78	ICF Macro, Ministry of Health and Social Welfare (Lesotho). Lesotho Demographic and Health Survey 2009-2010. Calverton, United States: ICF Macro
79	Macro International, Inc, National Population Commission of Nigeria. Nigeria Demographic and Health Survey 2008. Calverton, United States: Macro International, Inc, 2009
80	Ministry of Public Health (Chad), World Health Organization (WHO). Chad - Ville de N'Djaména STEPS Noncommunicable Disease Risk Factors Survey 2008
81	Federal Ministry of Health (Nigeria), Nigerian Heart Foundation, World Health Organization (WHO). Nigeria - Lagos STEPS Noncommunicable Disease Risk Factors Survey 2003
82	Ministry of Health (Mozambique), World Health Organization (WHO). Mozambique STEPS Noncommunicable Disease Risk Factors Survey 2005
83	ICF Macro, Manhica Health Research Center (CISM), Ministry of Health (Mozambique), National Institute of Statistics (INE) (Mozambique). Mozambique Demographic and Health Survey 2011. Calverton, United States: ICF Macro, 2013
84	ICF International, National Population Commission of Nigeria. Nigeria Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2014
85	Ministry of Health and Social Welfare (Lesotho), World Health Organization (WHO). Lesotho STEPS Noncommunicable Disease Risk Factors Survey 2012
86	Iliyasu Z, Abubakar IS, Abubakar S, Lawan UM, Gajida AU, Jibo AM. A survey of weight perception and social desirability of obesity among adults in Kano Metropolis, Northern Nigeria. Niger J Med. 2013; 22(2): 101-8
87	Macro International, Inc, National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Demographic and Health Survey 1994. Calverton, United States: Macro International, Inc
88	Macro International, Inc, National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Demographic and Health Survey 1998-1999. Calverton, United States: Macro International, Inc
89	ICF International, Ministry of the Fight Against AIDS (Côte d'Ivoire), National Institute of Statistics (Côte d'Ivoire). Côte d'Ivoire Demographic and Health Survey 2011-2012. Fairfax, United States: ICF International, 2013
90	Central Statistics Office (Namibia), Macro International, Inc, Ministry of Health and Social Services (Namibia). Namibia Demographic and Health Survey 1992. Calverton, United States: Macro International, Inc
91	Macro International, Inc, Ministry of Health and Social Services (Namibia). Namibia Demographic and Health Survey 2006-2007. Calverton, United States: Macro International, Inc
92	Macro International, Inc, National Office of Population (Rwanda). Rwanda Demographic and Health Survey 2000. Calverton, United States: Macro International, Inc
93	Macro International, Inc, National Institute of Statistics of Rwanda. Rwanda Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
94	World Health Organization (WHO). Côte d'Ivoire World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
95	World Health Organization (WHO). Namibia World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
96	ICF Macro, Ministry of Health (Sao Tome and Principe), National Institute of Statistics (Sao Tome and Principe). Sao Tome and Principe Demographic and Health Survey 2008-2009. Calverton, United States: ICF Macro
97	Department of Statistics (Rwanda), United Nations Children's Fund (UNICEF). Rwanda Multiple Indicator Cluster Survey 2000. New York, United States: United Nations Children's Fund (UNICEF)
98	Ministry of Health (Côte d'Ivoire), World Health Organization (WHO). Côte d'Ivoire - Lagunes STEPS Noncommunicable Disease Risk Factors Survey 2005
99	Burundi Institute of Statistics and Economic Studies, ICF International, Ministry of Public Health and the Fight against AIDS (Burundi). Burundi Demographic and Health Survey 2010-2011. Fairfax, United States: ICF International, 2012
100	Department of Statistics (Côte d'Ivoire), World Bank (WB). Côte d'Ivoire Living Standards Measurement Survey 1986-1987. Washington, DC, United States: World Bank (WB)
101	Department of Statistics (Côte d'Ivoire). Côte d'Ivoire Living Standards Measurement Survey 1987-1988. Washington, DC, United States: World Bank (WB)
102	Department of Statistics (Côte d'Ivoire). Côte d'Ivoire Living Standards Measurement Survey 1988-1989. Washington, DC, United States: World Bank (WB)
103	ICF Macro, Ministry of Health (Rwanda), National Institute of Statistics of Rwanda. Rwanda Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro

104	World Health Organization (WHO). Sao Tome and Principe STEPS Noncommunicable Disease Risk Factors Survey 2008
105	Centers for Disease Control and Prevention (CDC), Ministry of Health (Rwanda), National Institute of Statistics of Rwanda, Rwanda Biomedical Center, World Health Organization (WHO). Rwanda STEPS Noncommunicable Disease Risk Factor Survey 2012-2013
106	ICF International, Ministry of Health and Social Services (Namibia), Namibia Institute of Pathology, Namibia Statistics Agency. Namibia Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2015
107	Macro International, Inc, National Centre of Documentation and Scientific Research (Comoros). Comoros Demographic and Health Survey 1996. Calverton, United States: Macro International, Inc
108	Directorate of Forecasting and Statistics, Ministry of the Economy, Finance and Planning (Senegal), Macro International, Inc. Senegal Demographic and Health Survey 1992-1993. Calverton, United States: Macro International, Inc
109	Department of Health (South Africa), Macro International, Inc, South African Medical Research Council. South Africa Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
110	Department of Health (South Africa), Macro International, Inc, South African Medical Research Council. South Africa Demographic and Health Survey 2003-2004
111	World Health Organization (WHO). Comoros World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
112	World Health Organization (WHO). Senegal World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
113	World Health Organization (WHO). South Africa World Health Survey 2002-2003. Geneva, Switzerland: World Health Organization (WHO), 2005
114	Joint Health Surveys Unit of Social and Community Planning Research and University College London, Health Survey for England, 1997 [computer file]. 2nd ed. Colchester, Essex: UK Data Archive [distributor], 4 December 2000. SN: 3979
115	National Centre for Social Research, University College London Department of Epidemiology and Public Health, Health Survey for England, 1998 [computer file]. 4th ed. Colchester, Essex: UK Data Archive [distributor], 30 November 2002. SN: 4150
116	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 1999 [computer file]. 3rd Edition. Colchester, Essex: UK Data Archive [distributor], February 2002. SN: 4365
117	National Centre for Social Research, University College London Department of Epidemiology and Public Health, Health Survey for England, 2000 [computer file]. Colchester, Essex: UK Data Archive [distributor], 23 April 2002. SN: 4487
118	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2001 [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], June 2004. SN: 4628
119	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2003 [computer file]. Colchester, Essex: UK Data Archive [distributor], March 2005. SN: 5098
120	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2004 [computer file]. Colchester, Essex: UK Data Archive [distributor], July 2006. SN: 5439
121	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2005 [computer file]. Colchester, Essex: UK Data Archive [distributor], July 2007. SN: 5675
122	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2006 [computer file]. 4th Edition. Colchester, Essex: UK Data Archive [distributor], July 2011. SN: 5809, <a href="http://dx.doi.org/10.5255/UKDA-SN-5809-1">http://dx.doi.org/10.5255/UKDA-SN-5809-1</a>
123	Ministry of Health and Prevention (Senegal), Research Center for Human Development (Senegal). Senegal Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
124	University of Cape Town, Southern Africa Labour and Development Research Unit. National Income Dynamics Study (NIDS) Wave 1 [computer files]. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2009. Cape Town: DataFirst [distributor], 2009
125	Center for Research in Human Development (CRDH), Cheikh Anta Diop University, Hospital Aristide Le Dantec, ICF Macro, National Agency of Statistics and Demography (Senegal). Senegal Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
126	Gambia Bureau of Statistics (GBOS), ICF International, Ministry of Health and Social Welfare (Gambia). Gambia Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2015
127	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2007 [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], April 2010. SN: 6112, <a href="http://dx.doi.org/10.5255/UKDA-SN-6112-1">http://dx.doi.org/10.5255/UKDA-SN-6112-1</a>
128	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2008 [computer file]. 3rd Edition. Colchester, Essex: UK Data Archive [distributor], July 2011. SN: 6397, <a href="http://dx.doi.org/10.5255/UKDA-SN-6397-1">http://dx.doi.org/10.5255/UKDA-SN-6397-1</a>
129	National Centre for Social Research and University College London. Department of Epidemiology and Public Health, Health Survey for England, 2009 [computer file]. 2nd Edition. Colchester, Essex: UK Data Archive [distributor], July 2011. SN: 6732, <a href="http://dx.doi.org/10.5255/UKDA-SN-6732-1">http://dx.doi.org/10.5255/UKDA-SN-6732-1</a>
130	Southern Africa Labour Development Research Unit (SALDRU), University of Cape Town. South Africa Integrated Family Survey 1999
131	World Health Organization (WHO). Comoros STEPS Noncommunicable Disease Risk Factors Survey 2011
132	World Health Organization (WHO). Gambia STEPS Noncommunicable Disease Risk Factors Survey 2010

133	National Centre for Social Research and University of Leicester, Adult Psychiatric Morbidity Survey, 2007 [computer file]. 3rd Edition. Colchester, Essex: UK Data Archive [distributor], January 2011. SN: 6379, <a href="http://dx.doi.org/10.5255/UKDA-SN-6379-1">http://dx.doi.org/10.5255/UKDA-SN-6379-1</a>
134	National Centre for Social Research et al. , National Survey of Sexual Attitudes and Lifestyles II, 2000-2001 [computer file]. Colchester, Essex: UK Data Archive [distributor], August 2005. SN: 5223, <a href="http://dx.doi.org/10.5255/UKDA-SN-5223-1">http://dx.doi.org/10.5255/UKDA-SN-5223-1</a>
135	Southern Africa Labour and Development Research Unit. National Income Dynamics Study 2010-2011, Wave 2. Version 1.0. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2012. Cape Town: DataFirst [distributor], 2013
136	Southern Africa Labour and Development Research Unit. National Income Dynamics Study 2012, Wave 3 [dataset]. Version 1.2. Cape Town: Southern Africa Labour and Development Research Unit [producer], 2013. Cape Town: DataFirst [distributor], 2013
137	Holdsworth M, Gartner A, Landais E, Maire B, Delpuech F. Perceptions of healthy and desirable body size in urban Senegalese women. <i>Int J Obes Relat Metab Disord.</i> 2004; 28(12): 1561-8
138	Steyn K, Bourne L, Jooste P, Fourie JM, Rossouw K, Lombard C. Anthropometric profile of a black population of the Cape Peninsula in South Africa. <i>East Afr Med J.</i> 1998; 75(1): 35-40
139	Temple NJ, Steyn K, Hoffman M, Levitt NS, Lombard CJ. The epidemic of obesity in South Africa: a study in a disadvantaged community. <i>Ethn Dis.</i> 2001; 11(3): 431-7
140	Human Sciences Research Council, South African Medical Research Council. South Africa National Health and Nutrition Examination Survey 2012
141	Duboz P, Boetsch G, Gueye L, Macia E. Hypertension prevalence, awareness, treatment and control in Dakar (Senegal). <i>J Hum Hypertens.</i> 2014; 28(8): 489-93
142	Ghana Statistical Service, Macro International, Inc. Ghana Demographic and Health Survey 1993-1994. Calverton, United States: Macro International, Inc
143	Ghana Statistical Service, Macro International, Inc. Ghana Demographic and Health Survey 1998-1999. Calverton, United States: Macro International, Inc
144	Ghana Statistical Service, Macro International, Inc. Ghana Demographic and Health Survey 2003. Calverton, United States: Macro International, Inc
145	Central Statistical Office (Swaziland), Macro International, Inc. Swaziland Demographic and Health Survey 2006-2007. Calverton, United States: Macro International, Inc
146	Ghana Statistical Service, Macro International, Inc, Ministry of Health (Ghana). Ghana Demographic and Health Survey 2008. Calverton, United States: Macro International, Inc
147	Macro International, Inc, Statistics Sierra Leone. Sierra Leone Demographic and Health Survey 2008. Calverton, United States: Macro International, Inc
148	World Health Organization (WHO). Ghana World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
149	World Health Organization (WHO). Swaziland World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
150	Ministry of Health and Sanitation (Sierra Leone), World Health Organization (WHO). Sierra Leone STEPS Noncommunicable Disease Risk Factors Survey 2009
151	Centre for the Study of African Economies (CSAE), Ghana Statistical Service. Ghana Urban Household Panel Survey 2006. Oxford, United Kingdom: Centre for the Study of African Economies (CSAE)
152	Ministry of Health (Swaziland), World Health Organization (WHO). Swaziland STEPS Noncommunicable Disease Risk Factors Survey 2007
153	World Health Organization (2005). Study on Global Ageing and Adult Health (SAGE), Pilot Study, 2005 (Data Set 27-28, Cunningham, Shayna.) [machine-readable data file and documentation]. Geneva, Switzerland: World Health Organization (Producer). Los Altos, CA: Sociometrics Corporation, Data Archive of Social Research on Aging (Producer & Distributor)
154	ICF International, Ministry of Health and Sanitation (Sierra Leone), Statistics Sierra Leone. Sierra Leone Demographic and Health Survey 2013. Fairfax, United States: ICF International, 2014
155	Centre for International Health and Development, Institute of Child Health (CIHD), Food and Nutrition Security Analysis Unit (Somalia), Ministry of Health (Somalia), Ministry of Health and Labor (Somaliland), Puntland Ministry of Health (Somalia), United Nations Children's Fund (UNICEF), World Food Programme (WFP), World Health Organization (WHO). Somalia National Micronutrient and Anthropometric Survey 2009
156	Ghana Health Service, Ghana Statistical Service, ICF International. Ghana Demographic and Health Survey 2014. Fairfax, United States: ICF International, 2015
157	Ghana Health Service, World Health Organization (WHO). Ghana - Greater Accra Region STEPS Noncommunicable Disease Risk Factors Survey 2006
158	Ministry of Health (Swaziland), World Health Organization (WHO). Swaziland STEPS Noncommunicable Disease Risk Factors Survey 2014
159	Macro International, Inc, National Statistics and Evaluation Office (Eritrea). Eritrea Demographic and Health Survey 2002. Calverton, United States: Macro International, Inc
160	Macro International, Inc, National Statistics Office (Eritrea). Eritrea Demographic and Health Survey 1995-1996. Calverton, United States: Macro International, Inc
161	Macro International, Inc, National Statistics Directorate (Guinea). Guinea Demographic and Health Survey 1999. Calverton, United States: Macro International, Inc
162	Macro International, Inc, National Statistics Directorate (Guinea). Guinea Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
163	Department of Statistics (Togo), Macro International, Inc. Togo Demographic and Health Survey 1998. Calverton, United States: Macro International, Inc
164	Central Statistical Office (Zimbabwe), Macro International, Inc. Zimbabwe Demographic and Health Survey 1994. Calverton, United States: Macro International, Inc
165	Central Statistical Office (Zimbabwe), Macro International, Inc. Zimbabwe Demographic and Health Survey 1999. Calverton, United States: Macro International, Inc
166	Central Statistical Office (Zimbabwe), Macro International, Inc. Zimbabwe Demographic and Health Survey 2005-2006. Calverton, United States: Macro International, Inc
167	World Health Organization (WHO). Zimbabwe World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
168	Ministry of Health and Child Welfare (Zimbabwe), University of Zimbabwe, World Health Organization (WHO). Zimbabwe STEPS Noncommunicable Disease Risk Factors Survey 2005
169	Ministry of Health (Eritrea), World Health Organization (WHO). Eritrea STEPS Noncommunicable Disease Risk Factors Survey 2004
170	ICF Macro, Zimbabwe National Statistics Agency. Zimbabwe Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro, 2012
171	Ministry of Health (Togo), West African Health Organization, World Health Organization (WHO). Togo STEPS Noncommunicable Disease Risk Factors Survey 2010-2011

172	World Health Organization (WHO). Guinea - Conakry STEPS Noncommunicable Disease Risk Factors Survey 2009
173	Division of Statistics and Economic Studies (Central African Republic), Macro International, Inc. Central African Republic Demographic and Health Survey 1994-1995. Calverton, United States: Macro International, Inc
174	Macro International, Inc, Population and Housing Census Commissions Office (PHCCO). Ethiopia Demographic and Health Survey 2005. Calverton, United States: Macro International, Inc
175	Central Statistical Agency (Ethiopia), ORC Macro. Ethiopia Demographic and Health Survey 2000. Calverton, United States: ORC Macro, 2001
176	Bureau of Statistics (Tanzania), Macro International, Inc, Ministry of Health (Tanzania). Tanzania Demographic and Health Survey 1991-1992. Calverton, United States: Macro International, Inc
177	Bureau of Statistics (Tanzania), Macro International, Inc, Planning Commission (Tanzania). Tanzania Demographic and Health Survey 1996. Calverton, United States: Macro International, Inc
178	Macro International, Inc, National Bureau of Statistics (Tanzania). Tanzania Demographic and Health Survey 2004-2005. Calverton, United States: Macro International, Inc
179	Central Statistical Agency (Ethiopia), ICF Macro, Ministry of Health (Ethiopia). Ethiopia Demographic and Health Survey 2010-2011. Calverton, United States: ICF Macro
180	ICF Macro, National Bureau of Statistics (Tanzania). Tanzania Demographic and Health Survey 2009-2010. Calverton, United States: ICF Macro
181	World Health Organization (WHO). Ethiopia World Health Survey 2003. Geneva, Switzerland: World Health Organization (WHO), 2005
182	World Health Organization (WHO). Ethiopia - Addis Ababa STEPS Noncommunicable Disease Risk Factors Survey 2006
183	World Health Organization (WHO). Central African Republic - Bangui STEPS Noncommunicable Disease Risk Factors Survey 2010
184	National Institute for Medical Research (Tanzania), World Health Organization (WHO). Tanzania STEPS Noncommunicable Disease Risk Factors Survey 2012
185	Ministry of Health (Zanzibar), World Health Organization (WHO). Tanzania - Zanzibar STEPS Noncommunicable Disease Risk Factors Survey 2011
186	World Health Organization (WHO). Ethiopia - Butajira STEPS Noncommunicable Disease Risk Factors Survey 2003
187	Mengistu MD. Pattern of blood pressure distribution and prevalence of hypertension and prehypertension among adults in Northern Ethiopia: disclosing the hidden burden. BMC Cardiovasc Disord. 2014; 14: 33

**Supplementary Table 5:** Covariates and mediators used in Global Burden of Disease 2015 dietary risk factors study (*source: GBD 2015 Risk Factors Collaborators. Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet. 2016 Oct 7; 388:1659–1724.*)

Dietary risk	Covariates used in modeling							Metabolic mediators used			
	sex	Suboptimal metric	Nationally Representativeness	Data from FFQ	Data from HBS	Data from FAO	Country level covariate	Body Mass Index	Total Serum Cholesterol	Fasting Plasma Glucose	Systolic Blood Pressure
Diet low in fruits	√	√	√	√	√	√		√	√	√	√
Diet low in vegetables	√	√	√	√	√	√		√	√	√	√
Diet low in whole grains	√	√	√	√	√	x		√	√	√	x
Diet low in nuts and seeds	√	√	√	√	√	√		√	√	√	√
Diet low in milk	√	√	√	√	√	√		x	x	x	x
Diet high in red meat	√	√	√	√	√	√		√	x	√	x
Diet high in processed meat	√	√	√	√	√	x	National availability of red meat (grams/person/day) National availability of pig meat (% of energy/person/day)	√	x	√	√
Diet high in sugar-sweetened beverages	√	√	√	√	√	x	National availability of sugar (Kcal/person/day)	x	x	x	x
Diet low in fiber	√	√	√	√	√	√		x	√	x	x
Diet suboptimal in calcium	√	√	√	√	√	√		x	x	x	x
Diet low in seafood omega-3 fatty acids	√	√	√	√	√	√	Landlocked nation (Yes./No)	√	x	x	√
Diet low in polyunsaturated fatty acids	√	√	√	√	√	√		x	√	√	x
Diet high in trans fatty acids	√	√	√	√	√	x	National availability of hydrogenated oil (% of energy/person/day)	√	√	x	x
Diet high in sodium	√	x	√	x	x	x		x	x	x	x

FFQ – food frequency questionnaire; HBS – household budget survey; FAO-Food and Agriculture Organization; √ - used ; x – not used.

**Supplementary Table 6: Number, rate, proportion and percentage change of deaths associated with child and maternal undernutrition in sub-Saharan countries between 1990 and 2015**

Countries	Number (95% UI)			Rate (95% UI) per 100 000			Proportion (%) (95% UI)		
	1990	2015	Change (%)	1990	2015	Change (%)	1990	2015	Change (%)
<b>Sub-Saharan Africa</b>	1490671 (1305548-1667532)	826204 (737346-923789)	-44.6	156(138-174)	53(47-59)	-66.2	8.5% (7.4-9.5)	3.8% (3.4-4.3)	-55.3
<b>Central Sub-Saharan Africa</b>	152378 (123661-190511)	112914 (86048-147814)	-25.9	144(118-179)	60(45-80)	-58.2	7.5% (5.9-9.8)	3.9% (2.9-5.6)	-48.4
Angola	49664 (35987-68401)	23414 (15852-33624)	-52.9	203 (147-281)	52 (33-83)	-74.3	9.8% (5.4-18.2)	3.6% (1.9-6.2)	-62.9
Central African Republic	8325 (6359-10879)	6928 (4778-9926)	-16.8	161 (126-210)	100 (69-146)	-37.9	6.7% (5.1-8.9)	4.3% (2.7-6.5)	-36.0
Congo	2781 (2064-3620)	2098 (1377-3022)	-24.6	74 (55-99)	34 (22-50)	-54.3	3.4% (2.5-4.6)	2.2% (1.5-3.3)	-35.1
Democratic Republic of the Congo	89820 (70519-116690)	79615 (57529-109741)	-11.4	129 (101-168)	63 (45-88)	-51.1	7.5% (5.6-10.2)	4.3% (3.6-2)	-43.0
Equatorial Guinea	1082 (828-1452)	422 (239-738)	-61.0	150 (113-205)	34 (19-60)	-77.2	6.9% (4-13)	2.6% (1.3-4.7)	-61.5
Gabon	705 (501-978)	436 (284-622)	-38.2	47 (34-66)	21 (13-31)	-56.3	2.8% (2-4)	1.7% (1.1-2.5)	-39.1
<b>Eastern Sub-Saharan Africa</b>	605387 (529428-684327)	283319 (250895-320673)	-53.2	169 (149-190)	52 (46-59)	-69.5	8.1% (7.1-9.2)	3.7% (3.2-4.3)	-54.2
Burundi	17534 (13583-22509)	12868 (8902-18715)	-26.6	166 (127-213)	69 (48-97)	-58.2	5.8% (4.4-7.6)	4.7% (3.2-6.9)	-19.3
Comoros	978 (817-1161)	371 (237-582)	-62.1	133 (111-159)	37 (25-55)	-71.9	7.9% (5.9-11.1)	3.4% (2.4-4.8)	-56.6
Djibouti	1202 (1017-1404)	615 (464-805)	-48.9	126 (106-148)	62 (46-82)	-51.0	9.3% (7-12.2)	4.9% (3.1-7.2)	-47.4
Eritrea	11683 (10013-13949)	5490 (4097-7122)	-53.0	213 (182-253)	79 (58-108)	-62.8	9.9% (8.3-12)	5% (3.6-7.2)	-49.2
Ethiopia	218708 (172720-280525)	58783 (43653-76020)	-73.1	231 (185-294)	44 (33-56)	-81.2	8.6% (6.8-11)	3.6% (2.5-5.1)	-58.5
Kenya	37490 (33943-41560)	25503 (21698-29999)	-32.0	90 (81-101)	43 (36-51)	-52.7	6.4% (5.7-7.3)	3.5% (2.9-4.1)	-45.8
Madagascar	38650 (33577-46663)	22152 (16239-29363)	-42.7	178 (156-211)	65 (47-86)	-63.6	10.2% (8.8-12.4)	4.7% (3.3-6.6)	-54.1
Malawi	33087 (24067-42345)	16589 (12470-21673)	-49.9	183 (135-229)	61 (47-78)	-66.8	9.2% (6.9-11.8)	4.4% (3.2-6)	-52.3
Mozambique	38032 (29332-48739)	14111 (10209-18565)	-62.9	142 (111-180)	34 (24-47)	-76.1	7.8% (6.1-10.1)	2% (1.5-2.8)	-74.0
Rwanda	20622 (15128-25814)	7293 (5272-9896)	-64.6	153 (118-189)	48 (35-64)	-68.8	6.9% (5.2-8.6)	4.2% (2.9-5.9)	-39.1
Somalia	30489 (25670-34992)	26018 (20374-31920)	-14.7	243 (194-304)	140 (102-196)	-42.5	11.8% (7.1-19.4)	7.5% (4.7-12.6)	-36.6
South Sudan	27967 (22670-34149)	20661 (15528-27020)	-26.1	243 (195-306)	111 (80-156)	-54.5	13.7% (7.5-22.2)	6.9% (3.9-11.3)	-49.3
Tanzania	69813 (57152-83841)	33864 (26212-43901)	-51.5	100 (83-119)	44 (33-60)	-70.3	7.6% (5.2-10.6)	3.5% (2.6-4.8)	-59.6
Uganda	34842 (26336-42941)	27436 (20822-35299)	-21.3	99 (78-121)	42 (31-54)	-58.2	4.8% (3.7-6.2)	2.9% (2.1-4.2)	-39.7
Zambia	23981 (19411-28481)	11408 (8508-14969)	-52.4	153 (126-182)	52 (39-67)	-66.4	8% (6.4-9.8)	2.8% (2.1-3.6)	-65.4
<b>Southern Sub-Saharan Africa</b>	52501 (49300-55991)	19463 (16718-22467)	-62.9	61 (58-65)	20 (17-23)	-67.1	4.2% (3.9-4.5)	1.3% (1.1-1.5)	-68.1
Botswana	1120 (950-1297)	284 (158-460)	-74.6	45 (38-52)	10 (6-16)	-77.4	3.6% (1.5-6.3)	0.7% (0.3-1.4)	-80.8
Lesotho	2498 (2211-2768)	1521 (1099-2033)	-39.1	87 (77-97)	50 (37-67)	-42.6	5.8% (4.6-7.1)	1.9% (1.2-2.9)	-67.1
Namibia	1664 (1438-1913)	767 (492-1101)	-53.9	63 (54-72)	21 (14-30)	-66.6	4.1% (3.5-4.9)	1.7% (1-2.8)	-58.3
South Africa	36862 (34190-39912)	6950 (5503-8714)	-81.1	66 (61-71)	12 (10-15)	-81.7	4.5% (4.1-4.9)	0.8% (0.7-1)	-81.6
Swaziland	1173 (1020-1326)	640 (438-872)	-45.4	62 (54-71)	33 (23-45)	-47.0	3.9% (3-5.2)	1.5% (0.9-2.5)	-61.4
Zimbabwe	9185 (8132-10262)	9300 (7335-11655)	1.3	47 (42-52)	35 (28-43)	-25.8	3.5% (2.9-4.2)	2.2% (1.6-3.1)	-35.6
<b>Western Sub-Saharan Africa</b>	680406 (577609-777762)	410508 (348886-476136)	-39.7	170 (145-195)	57 (49-66)	-66.5	10.3% (8.5-12.2)	4.5% (3.7-5.4)	-56.2
Benin	18860 (14798-23874)	8290 (6229-10664)	-56.0	181 (143-229)	45 (34-58)	-75.1	11.8% (9.3-15.3)	3.4% (2.1-5.1)	-71.4
Burkina Faso	32797 (25866-39798)	21861 (16563-28092)	-33.3	178 (141-218)	67 (52-86)	-62.2	9.7% (7.5-12.1)	5% (3.3-7.3)	-48.7
Cameroon	28149 (22109-35667)	18905 (13710-25168)	-32.8	112 (88-141)	46 (34-61)	-58.4	7.4% (5.7-9.7)	3.1% (2-4.6)	-57.8
Cape Verde	307 (262-355)	43 (33-55)	-85.9	45 (39-52)	8 (6-10)	-83.4	4.5% (3.9-5.2)	0.9% (0.7-1.2)	-79.5
Chad	31104 (25821-35590)	34600 (26042-42439)	11.2	233 (193-270)	118 (88-146)	-49.3	14.1% (11.4-16.7)	7.8% (4.8-11.8)	-44.8
Cote d'Ivoire	25463 (20080-33557)	17790 (13491-23011)	-30.1	106 (84-140)	45 (34-58)	-57.4	6.1% (4.6-8.1)	3% (2-4.2)	-51.6
The Gambia	1955 (1623-2281)	1124 (907-1376)	-42.5	148 (123-176)	29 (24-37)	-70.5	8.7% (7.1-10.6)	2.8% (2-3.8)	-63.0
Ghana	26466 (22373-31510)	9068 (6363-12566)	-65.7	99 (84-117)	21 (15-30)	-78.3	6.2% (4.6-8.2)	1.8% (1.1-2.9)	-71.0
Guinea	25545 (20030-32341)	12272 (9506-15567)	-52.0	208 (163-265)	57 (44-72)	-72.7	12.1% (9.3-15.5)	3.8% (2.7-5.3)	-68.9
Guinea-Bissau	4484 (3625-5317)	2994 (2256-3833)	-33.2	209 (167-252)	93 (70-121)	-55.3	12.4% (6.2-20.2)	6.2% (2.7-10.7)	-49.7
Liberia	9683 (7803-11823)	3373 (2470-4328)	-65.2	217 (175-264)	46 (34-59)	-78.9	11.2% (8.3-14.3)	3.5% (2.4-4.9)	-68.4
Mali	33162 (24637-41995)	21592 (15683-29071)	-34.9	188 (140-239)	63 (46-83)	-66.4	9.7% (7.2-12.5)	4.7% (3.3-6.7)	-51.6
Mauritania	4133 (3350-5118)	1974 (1521-2444)	-52.2	110 (91-135)	31 (24-38)	-72.1	7.2% (5.6-9.1)	3.4% (2.3-4.7)	-52.9
Niger	67260 (53464-79176)	40408 (31439-51245)	-39.9	379 (299-449)	92 (71-116)	-75.8	19.6% (15.1-23.7)	6.8% (4.6-9.7)	-65.1



Nigeria	329465 (260065-399822)	195525 (151492-247662)	-40.7	173 (137-211)	57 (44-71)	-67.3	11% (7.9-14.6)	5.4% (3.8-7.2)	-51.1
Sao Tome and Principe	220 (188-258)	69 (50-90)	-68.7	100 (85-117)	22 (16-28)	-78.4	8% (6.7-9.6)	1.9% (1.2-2.9)	-75.9
Senegal	18074 (14725-21505)	9294 (7293-11421)	-48.6	121 (99-144)	36 (28-45)	-70.6	7.9% (6.3-9.8)	2.9% (1.9-4.3)	-63.1
Sierra Leone	15608 (11693-19954)	7069 (5086-9344)	-54.7	196 (147-252)	64 (47-85)	-67.1	11.8% (8.3-15.7)	4% (2.7-5.7)	-65.9
Togo	7660 (6198-9359)	4255 (3246-5427)	-44.5	102 (83-125)	34 (26-44)	-66.4	6.7% (5.3-8.5)	2.5% (1.7-3.6)	-62.8

*UI: uncertainty interval; rates and proportions are age-standardized. Proportion was calculated out of all-cause of death.*

**Supplementary Table 7:** Number, rate, proportion and percentage change of deaths associated with high body mass index in sub-Saharan countries between 1990 and 2015

Countries	Number (95% UI)			Rate (95% UI) per 100 000			Proportion (%) (95% UI)		
	1990	2015	Change (%)	1990	2015	Change %	1990	2015	Change % (%)
<b>Sub-Saharan Africa</b>	109407 (71767-152893)	266768 (189051-353096)	143.8	59 (39-83)	73 (51-97)	23.3	3.2% (2.1-4.6)	5.3% (3.8-7)	63.3
<b>Central Sub-Saharan Africa</b>	13683 (7705-21628)	29013 (15050-51043)	112.0	67 (38-105)	68 (37-116)	1.6	3.5% (2.1-5)	4.3% (2.6-6.5)	24.6
Angola	2293 (491-5650)	10024 (2998-27549)	337.1	59 (14-138)	122 (40-304)	108.7	2.4% (1.1-4.1)	7.2% (4.6-10.5)	195.1
Central African Republic	802 (392-1348)	2537 (961-4857)	216.3	54 (26-91)	108 (42-204)	99.7	2.2% (1.1-3.6)	4.4% (2.5-6.6)	95.9
Congo	1273 (738-1924)	2491 (1253-4391)	95.7	122 (71-183)	126 (66-218)	3.5	5.6% (3.5-8)	8% (5.4-11)	44.1
Democratic Republic of the Congo	8449 (4411-13654)	12293 (5559-21515)	45.5	63 (33-102)	42 (19-75)	-32.9	3.6% (2.2-5.2)	2.8% (1.5-4.4)	-21.9
Equatorial Guinea	171 (44-386)	456 (170-1360)	166.3	90 (25-197)	118 (48-323)	31.3	3.6% (2-5.7)	7.9% (5.1-11.5)	117.3
Gabon	695 (456-1001)	1211 (702-1983)	74.4	115 (74-165)	130 (76-211)	13.2	6.8% (4.6-9.3)	10.5% (7.7-13.8)	55.0
<b>Eastern Sub-Saharan Africa</b>	32585 (18538-49585)	76417 (46080-111311)	134.5	46 (26-72)	54 (33-80)	16.8	2.2% (1.2-3.4)	3.9% (2.4-5.5)	75.1
Burundi	1436 (587-2582)	905 (306-1916)	-37.0	62 (25-114)	22 (8-46)	-64.2	2.2% (1-3.7)	1.5% (0.6-2.7)	-31.6
Comoros	100 (40-186)	164 (81-275)	62.7	59 (23-110)	48 (23-83)	-17.9	3.4% (1.7-5.3)	4.3% (2.5-6.4)	28.6
Djibouti	84 (34-158)	468 (211-930)	454.2	37 (15-71)	101 (48-193)	171.0	2.7% (1.3-4.5)	7.5% (5-10.4)	182.4
Eritrea	573 (322-888)	751 (289-1604)	31.1	57 (31-91)	39 (15-81)	-31.7	2.6% (1.5-4)	2.3% (1.2-3.8)	-11.0
Ethiopia	6637 (2795-11717)	17938 (8226-32920)	170.3	33 (14-58)	45 (21-81)	38.7	1.2% (0.5-2.2)	3.6% (2-5.6)	197.5
Kenya	2278 (1315-3399)	7541 (5129-10329)	231.1	29 (16-44)	44 (29-62)	53.4	2.1% (1.2-3.1)	3.6% (2.4-5)	75.0
Madagascar	2565 (1395-3971)	4956 (2176-9416)	93.2	53 (29-83)	51 (23-95)	-5.1	3.1% (1.6-4.8)	3.6% (1.9-5.7)	16.3
Malawi	948 (399-1656)	2896 (1366-5220)	205.4	27 (11-49)	47 (22-84)	74.5	1.3% (0.6-2.4)	3.3% (1.8-5)	146.3
Mozambique	2128 (1131-3415)	9154 (4072-17273)	330.2	40 (21-65)	83 (38-156)	106.9	2.2% (1.2-3.5)	4.8% (2.8-7.3)	117.3
Rwanda	1147 (509-2028)	1760 (781-3432)	53.5	49 (21-89)	41 (18-79)	-15.6	2.2% (1-3.8)	3.5% (1.8-5.7)	60.1
Somalia	2194 (525-5275)	3059 (723-7431)	39.4	79 (20-183)	74 (19-169)	-5.7	3.3% (1.7-5.3)	3.5% (1.9-5.4)	5.4
South Sudan	1261 (323-3327)	3681 (1022-10176)	191.9	51 (14-127)	70 (21-189)	37.8	2.5% (1.2-4.2)	3.7% (2.1-5.8)	51.0
Tanzania	6348 (4099-9125)	10505 (4567-20840)	65.5	70 (44-101)	52 (23-101)	-25.3	4.1% (2.7-5.8)	4% (2.3-6.1)	-2.7
Uganda	2927 (1441-4942)	6872 (2917-12716)	134.8	52 (26-88)	59 (25-110)	13.0	2.5% (1.3-4.1)	4% (2.1-6.2)	58.0
Zambia	1942 (1168-2876)	5709 (3188-9140)	194.0	73 (43-108)	104 (59-166)	41.1	3.8% (2.4-5.4)	5.5% (3.6-7.7)	43.5
<b>Southern Sub-Saharan Africa</b>	35031 (27735-42711)	67889 (54186-81717)	93.8	146 (114-180)	157 (124-190)	8.0	9.9% (7.8-12.1)	10.4% (8.3-12.4)	4.3
Botswana	458 (146-1165)	1782 (604-5571)	288.7	95 (32-226)	161 (59-460)	70.0	6.1% (4-8.7)	8.7% (5.6-13.2)	43.0
Lesotho	644 (390-966)	2028 (1047-3644)	214.9	86 (52-129)	209 (109-371)	142.4	5.7% (3.6-7.9)	7.6% (5.1-11.1)	34.8
Namibia	412 (262-597)	804 (441-1438)	95.4	73 (46-106)	73 (41-128)	0.2	4.7% (3-6.8)	5.7% (3.7-8.2)	20.7
South Africa	30913 (24715-37418)	57640 (45522-69419)	86.5	167 (132-204)	169 (132-205)	0.9	11.3% (9.1-13.6)	11.6% (9.4-13.7)	2.3
Swaziland	531 (340-749)	1338 (617-2417)	151.9	189 (124-263)	249 (120-438)	31.9	11.7% (9.1-14.4)	10.8% (7.5-14.9)	-7.8
Zimbabwe	2072 (1256-2976)	4295 (2164-7429)	107.3	55 (33-79)	78 (39-133)	42.0	4% (2.6-5.7)	4.8% (3-6.8)	19.4
<b>Western Sub-Saharan Africa</b>	28107 (15240-44439)	93450 (63598-130648)	232.5	34 (18-55)	64 (42-89)	84.4	2.1% (1.1-3.3)	5% (3.5-6.7)	140.7
Benin	709 (386-1093)	4499 (2094-8098)	534.2	34 (18-54)	105 (50-180)	206.3	2.2% (1.2-3.4)	7.4% (5.2-9.8)	234.2
Burkina Faso	592 (231-1103)	3615 (1771-6645)	510.4	17 (7-32)	62 (30-111)	263.8	0.9% (0.4-1.6)	4.4% (2.7-6.4)	377.2
Cameroon	3348 (2046-4804)	10077 (5169-18188)	201.0	64 (39-94)	111 (57-195)	72.0	4.3% (2.7-6)	7.2% (4.8-10.1)	68.2
Cape Verde	67 (40-99)	184 (120-258)	174.9	40 (24-60)	62 (41-87)	55.2	4% (2.4-6)	7.7% (5.2-10.5)	90.5
Chad	583 (290-959)	3948 (1643-7413)	577.6	25 (12-41)	85 (36-158)	245.2	1.5% (0.8-2.4)	5.2% (3.3-7.5)	254.4
Cote d'Ivoire	1690 (850-2809)	6515 (3048-11682)	285.6	32 (15-54)	65 (31-115)	101.8	1.9% (0.9-3.1)	4.1% (2.4-6.1)	122.2
The Gambia	166 (74-317)	451 (248-733)	171.4	51 (23-96)	68 (38-108)	34.2	3.7% (2.1-5.7)	6.4% (4.2-8.9)	72.7
Ghana	2110 (911-3985)	11044 (5179-20695)	423.3	35 (15-66)	88 (42-161)	151.9	2.2% (1-3.8)	7% (4.5-10.1)	226.5
Guinea	881 (482-1387)	3308 (1610-5798)	275.3	32 (17-50)	62 (30-107)	95.6	1.8% (1-2.8)	4% (2.4-6)	116.3
Guinea-Bissau	164 (40-477)	738 (187-2222)	351.2	31 (8-89)	87 (24-241)	177.2	1.6% (0.7-3)	4.6% (2.4-7.6)	189.9
Liberia	711 (445-1048)	1677 (941-2776)	135.7	84 (52-123)	93 (53-151)	10.9	4.3% (2.9-5.8)	7% (4.9-9.3)	63.8
Mali	1280 (619-2158)	5070 (2690-8399)	296.0	33 (16-57)	87 (47-144)	163.9	1.7% (0.8-2.9)	6.3% (4.2-8.8)	270.8
Mauritania	548 (364-785)	1384 (746-2312)	152.4	66 (42-95)	83 (45-136)	26.2	4.3% (2.8-6)	8.8% (6.3-11.6)	106.4

Niger	778 (389-1280)	3274 (1605-5710)	320.7	28 (13-46)	46 (24-82)	68.9	1.4% (0.7-2.3)	3.4% (1.9-5.1)	139.0
Nigeria	12242 (5277-22839)	29972 (16886-54006)	144.8	31 (14-58)	45 (26-80)	44.7	1.9% (0.9-3.3)	4.2% (2.7-6.1)	116.1
Sao Tome and Principe	27 (16-40)	65 (32-110)	142.5	48 (29-72)	84 (42-142)	74.4	3.9% (2.4-5.5)	7.2% (4.9-10)	86.8
Senegal	1253 (731-1880)	3966 (1728-7440)	216.6	42 (25-64)	70 (31-127)	64.8	2.8% (1.6-4.1)	5.5% (3.3-7.9)	96.8
Sierra Leone	527 (254-926)	1972 (1051-3328)	274.3	29 (14-52)	78 (42-130)	164.7	1.7% (0.9-2.8)	4.7% (3.1-6.9)	171.8
Togo	429 (208-721)	1687 (769-2959)	293.0	29 (14-48)	59 (28-103)	106.1	1.9% (0.9-3.1)	4.1% (2.4-6.1)	120.9

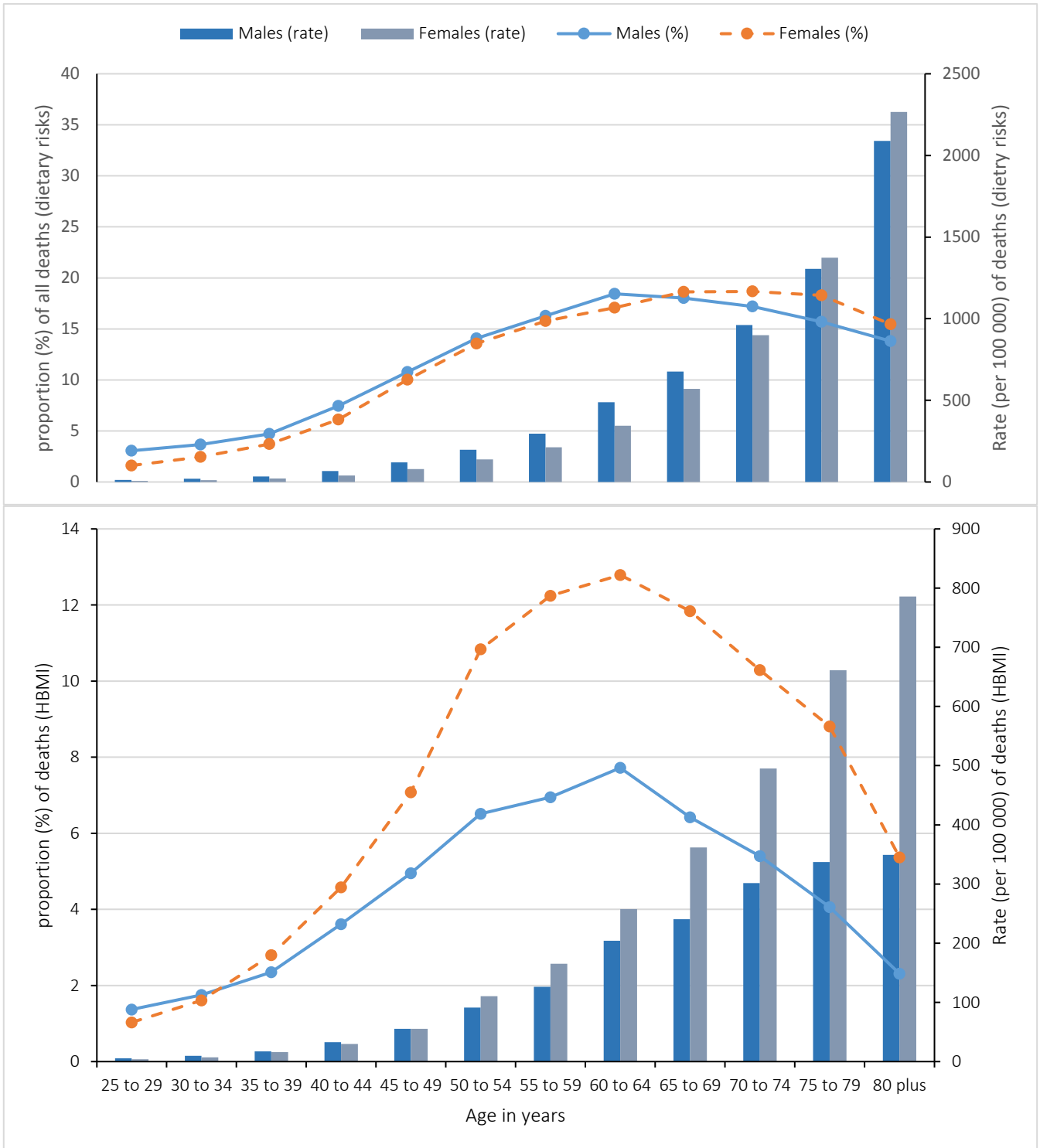
*UI: uncertainty interval; rates and proportions are age-standardized. Proportion was calculated out of all-cause of death.*

**Supplementary Table 8:** Number, rate, proportion and percentage change of deaths associated with dietary risks of non-communicable diseases in sub-Saharan countries between 1990 and 2015

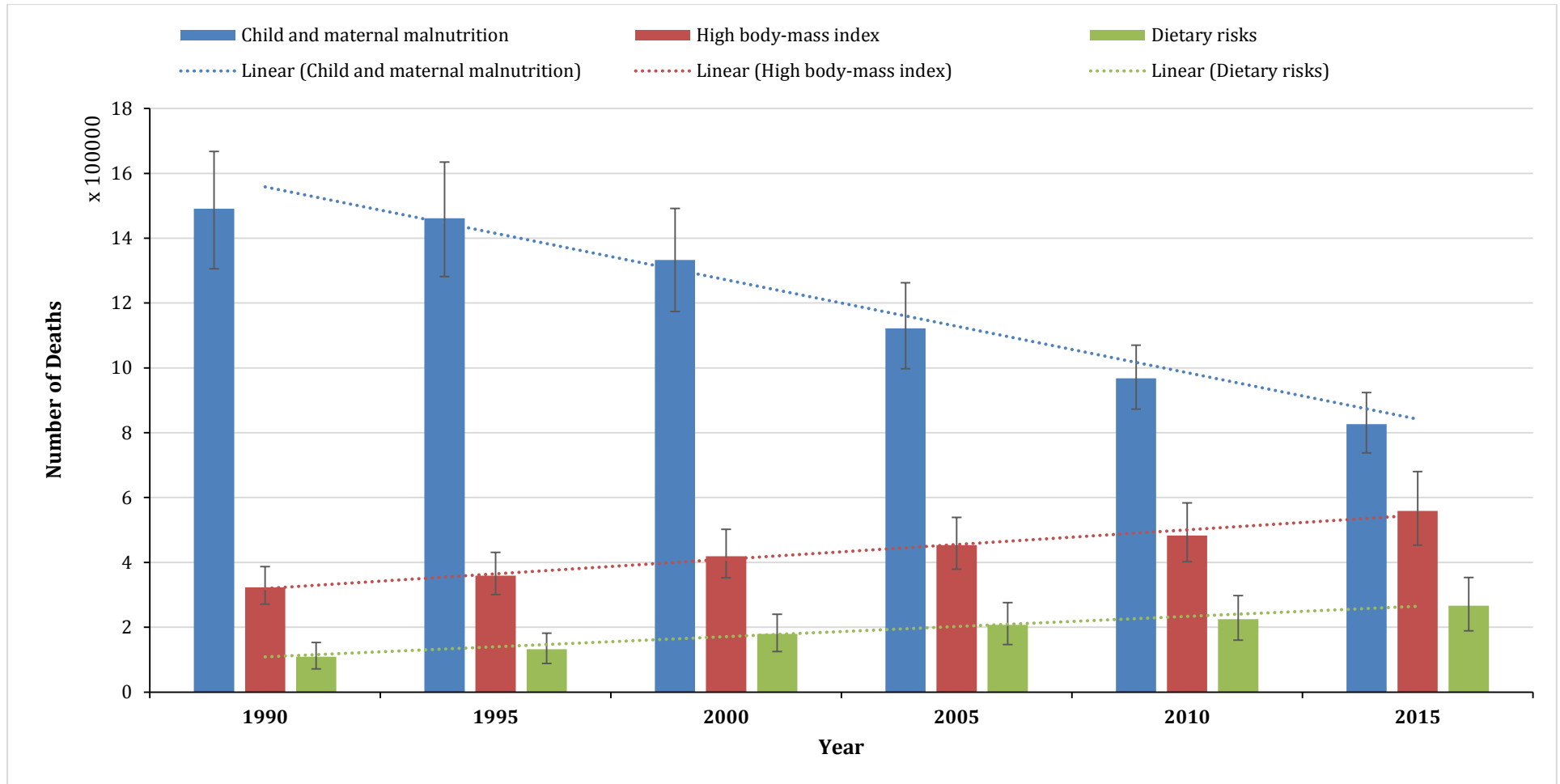
Countries	Number (95% UI)			Rate (95% UI) per 100 000			Proportion % (%) (95% UI)		
	1990	2015	Change (%)	1990	2015	Change (%)	1990	2015	Change (%)
<b>Sub-Saharan Africa</b>	322932 (271234-387047)	558578 (453433-680197)	73.0	191 (158-231)	169 (138-208)	-11.5	10.9% (9.2-13.1)	12.8% (10.7-15.3)	17.2
<b>Central Sub-Saharan Africa</b>	37715 (25752-53853)	73490 (45379-107237)	94.9	206 (141-292)	194 (121-276)	-5.8	7.9% (6.4-9.7)	11% (8.8-13.5)	15.9
Angola	9504 (2689-20138)	17292 (6180-44883)	81.9	267 (87-512)	235 (95-527)	-11.9	10% (8.3-12.2)	14% (11.4-17.2)	25.0
Central African Republic	3571 (2694-4628)	6174 (2992-10241)	72.9	271 (204-347)	285 (146-457)	5.1	10.7% (8.1-13.6)	12.4% (9.1-15.7)	4.6
Congo	3097 (2286-4031)	4378 (2516-6731)	41.3	317 (239-408)	239 (142-356)	-24.6	11.4% (9.4-14)	13% (10.4-16.1)	5.5
Democratic Republic of the Congo	19735 (11944-29835)	43431 (24585-65158)	120.1	170 (101-256)	172 (99-256)	1.5	14.4% (11.8-17.8)	15% (12.2-18.5)	18.1
Equatorial Guinea	548 (165-1056)	678 (311-1877)	23.7	306 (102-556)	195 (97-475)	-36.2	11.4% (9.1-14.5)	12.8% (10.3-16.2)	6.3
Gabon	1259 (946-1628)	1537 (957-2422)	22.1	221 (166-285)	169 (106-264)	-23.3	11.5% (9.2-14.3)	14.4% (11.5-17.7)	4.9
<b>Eastern Sub-Saharan Africa</b>	135083 (111972-166003)	222631 (171455-293795)	64.8	213 (176-265)	173 (132-226)	-19.1	12.5% (9.1-15.9)	13.3% (10.4-16.9)	21.1
Burundi	6952 (4244-10350)	6074 (3319-9878)	-12.6	341 (215-485)	174 (100-276)	-49.0	8.9% (7.5-10.6)	10.3% (8.2-12.6)	-3.0
Comoros	346 (200-561)	402 (248-616)	16.3	235 (141-364)	149 (96-224)	-36.6	14.5% (12.2-17.3)	15.3% (12.5-18.4)	-0.7
Djibouti	372 (220-571)	844 (424-1546)	126.6	200 (125-297)	199 (107-340)	-0.2	10.2% (8.5-12.5)	12.4% (10.2-15.1)	4.0
Eritrea	1979 (1503-2610)	3398 (1569-6076)	71.7	246 (188-327)	210 (105-352)	-14.5	10.8% (8.8-13.3)	14.5% (11.7-18)	12.5
Ethiopia	52633 (41517-66930)	66269 (39367-106512)	25.9	290 (231-364)	182 (112-282)	-37.1	13.1% (10.7-16.1)	13.7% (11-17)	35.1
Kenya	5955 (4821-7297)	12712 (10244-15503)	113.5	84 (69-104)	82 (66-99)	-3.5	12.8% (8.9-16.7)	12.5% (9.7-16)	10.6
Madagascar	10371 (8115-13208)	20030 (11125-32810)	93.1	248 (194-321)	228 (135-363)	-8.0	6.9% (5.5-8.4)	8.3% (6.3-10.2)	13.2
Malawi	4099 (3013-5371)	6882 (4042-11130)	67.9	138 (101-179)	117 (71-186)	-14.9	9.3% (7.8-11.2)	12% (9.4-14.9)	19.9
Mozambique	7763 (5634-10432)	20169 (10417-33120)	159.8	162 (117-214)	197 (106-315)	21.7	16.1% (12.4-19.8)	14.5% (11.3-18.5)	28.5
Rwanda	4483 (3148-6266)	4592 (2588-7555)	2.4	216 (155-304)	119 (69-194)	-44.9	12% (10.1-14.3)	15.1% (12.5-18.5)	5.3
Somalia	6012 (1809-12892)	8130 (2500-18248)	35.2	245 (84-482)	221 (78-452)	-9.8	15.6% (13.3-18.6)	13.9% (11.8-16.5)	0.6
South Sudan	3989 (1293-9417)	8761 (3076-21791)	119.6	196 (73-405)	183 (71-415)	-6.5	14.9% (12.6-17.9)	13.4% (11.3-15.9)	2.3
Tanzania	18254 (13902-23137)	37083 (20930-63255)	103.2	233 (178-297)	206 (121-337)	-11.7	12.1% (9.9-14.4)	14.8% (12.5-17.6)	16.4
Uganda	7462 (4537-10655)	14738 (7142-23730)	97.5	139 (88-198)	134 (69-213)	-3.7	9.2% (7.6-11)	11.4% (9.6-13.7)	35.5
Zambia	4342 (3155-5704)	12370 (7798-17995)	184.9	175 (128-231)	239 (154-344)	36.8	11.1% (9.1-13.8)	10.7% (8.4-13.3)	39.5
<b>Southern Sub-Saharan Africa</b>	50079 (42299-59924)	85044 (70412-102766)	69.8	219 (184-263)	204 (169-246)	-7.0	10.4% (8.7-12.6)	12.2% (10.2-14.7)	-10.3
Botswana	927 (348-2153)	2443 (926-7229)	163.5	224 (95-468)	244 (104-633)	9.0	7.4% (6.2-9.1)	12.3% (10.2-14.8)	-8.2
Lesotho	1335 (850-1859)	3173 (1801-5102)	137.7	195 (127-270)	340 (198-534)	74.3	8.2% (6.5-10.1)	12.2% (10.1-14.8)	-2.7
Namibia	1238 (910-1581)	1739 (1032-2920)	40.4	246 (183-315)	183 (114-296)	-25.6	7.3% (5.9-8.9)	10.8% (8.6-13.1)	-10.1
South Africa	41079 (34820-49032)	67352 (56143-81294)	64.0	231 (196-276)	203 (169-245)	-12.2	9.6% (6.8-12.9)	9.9% (7.2-13.2)	-11.1
Swaziland	594 (397-836)	1492 (692-2544)	151.3	227 (155-316)	296 (150-482)	30.5	13.7% (11-16.6)	15.9% (12.7-19.3)	-8.3
Zimbabwe	4905 (3579-6441)	8845 (5039-14031)	80.3	151 (113-196)	172 (100-267)	14.0	11.1% (9.1-13.8)	10.7% (8.4-13.3)	-3.7
<b>Western Sub-Saharan Africa</b>	100056 (78235-127200)	177413 (140988-225225)	77.3	151 (119-191)	144 (115-183)	-4.5	9.1% (7.2-11.5)	12.7% (10.5-15.5)	24.9
Benin	2691 (2120-3418)	7317 (3722-12273)	171.9	154 (123-195)	197 (108-316)	27.3	14.8% (11.3-18.6)	13.6% (9.8-18)	39.1
Burkina Faso	4154 (3252-5295)	8546 (4920-13830)	105.7	137 (108-175)	172 (104-264)	25.2	11.8% (9.1-15.4)	11.5% (8.7-14.8)	64.7
Cameroon	6128 (4873-7639)	13167 (7520-22068)	114.9	135 (108-167)	159 (95-255)	17.4	15% (12.4-18.3)	17.8% (15-21.2)	15.6
Cape Verde	235 (193-288)	419 (329-538)	78.1	150 (123-184)	144 (113-185)	-3.7	11.1% (8.9-13.8)	11.6% (9-14.7)	18.2
Chad	2657 (2055-3371)	7136 (3540-12121)	168.5	132 (103-167)	178 (95-289)	35.1	13.5% (10.9-17)	13.4% (10.6-17.3)	39.7
Cote d'Ivoire	8249 (6171-10918)	16341 (9143-27124)	98.1	199 (152-261)	205 (123-324)	2.9	9.7% (6.6-12.8)	11.5% (7.8-15.1)	13.9
The Gambia	432 (244-724)	836 (546-1192)	93.4	165 (98-261)	158 (108-219)	-4.6	11.5% (9.6-13.7)	13.5% (11.3-16.3)	22.4
Ghana	8671 (5646-12714)	19219 (10214-32247)	121.6	186 (127-263)	179 (102-290)	-3.8	8.6% (7.1-10.4)	11.7% (9.5-14.4)	25.1
Guinea	3254 (2568-4096)	8108 (4999-12159)	149.2	147 (118-185)	180 (116-265)	22.4	10.3% (7.7-13.3)	12.8% (9.5-16.7)	36.3
Guinea-Bissau	847 (315-1969)	1663 (573-4643)	96.4	199 (83-427)	234 (92-566)	18.1	6% (5.1-7.2)	6.7% (5.6-7.9)	24.4
Liberia	1110 (772-1556)	2447 (1500-3766)	120.5	162 (116-222)	162 (104-241)	0.3	14.2% (11.6-18.1)	16.1% (12.6-20.7)	48.7
Mali	5837 (4601-7198)	8090 (4809-12758)	38.6	180 (143-220)	164 (102-247)	-8.7	12.9% (11-15.3)	15.2% (12.7-18.3)	28.7
Mauritania	1360 (1084-1695)	2054 (1181-3151)	51.0	199 (159-248)	143 (88-213)	-28.1	8.9% (6.6-11.5)	11.4% (8.6-14.7)	17.8

Niger	3135 (2407-4029)	8701 (5237-13502)	177.6	142 (109-181)	149 (96-221)	4.8	8.7% (6.7-10.9)	9.6% (7.4-12.3)	47.6
Nigeria	43196 (27785-64811)	55456 (36507-90013)	28.4	139 (92-205)	103 (70-161)	-25.6	9.6% (7.2-13.2)	10.2% (7.2-13.9)	11.1
Sao Tome and Principe	77 (62-95)	127 (70-199)	64.1	149 (121-184)	175 (99-273)	17.0	10.2% (8.6-12.2)	14.5% (12-17.4)	25.8
Senegal	3837 (2998-4894)	9146 (4897-15941)	138.3	156 (122-198)	185 (104-308)	18.0	8.8% (6.9-10.8)	12.1% (10-14.8)	41.8
Sierra Leone	2000 (1272-2994)	4047 (2461-6225)	102.4	147 (99-210)	199 (126-295)	35.1	10.5% (7.2-13.8)	10.6% (7.9-13.3)	38.5
Togo	2182 (1687-2778)	4586 (2767-6985)	110.1	176 (137-224)	192 (123-282)	9.3	6.7% (4.8-9)	9% (6.8-11.8)	17.9

*UI: uncertainty interval; rates and proportions are age-standardized. Proportion was calculated out of all-cause of death.*



**Supplementary Figure 1:** Proportion (of all-cause) and rate of deaths associated with high-body mass index and dietary risks of non-communicable diseases in sub-Saharan countries by sex and age in 2015 (sub-Sahara Africa)



**Supplementary Figure 2:** Number of deaths associated with Child and maternal undernutrition, high body mass index and dietary risks of non-communicable diseases in sub-Saharan countries between 1990 and 2015