

GBD PROFILE: KENYA

GLOBAL BURDEN OF DISEASES, INJURIES, AND RISK FACTORS STUDY 2010

The Global Burden of Disease Study 2010 (GBD 2010) is a collaborative project of nearly 500 researchers in 50 countries led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. It is the largest systematic scientific effort in history to quantify levels and trends of health loss due to diseases, injuries, and risk factors. GBD serves as a global public good to inform evidence-based policymaking and health systems design.

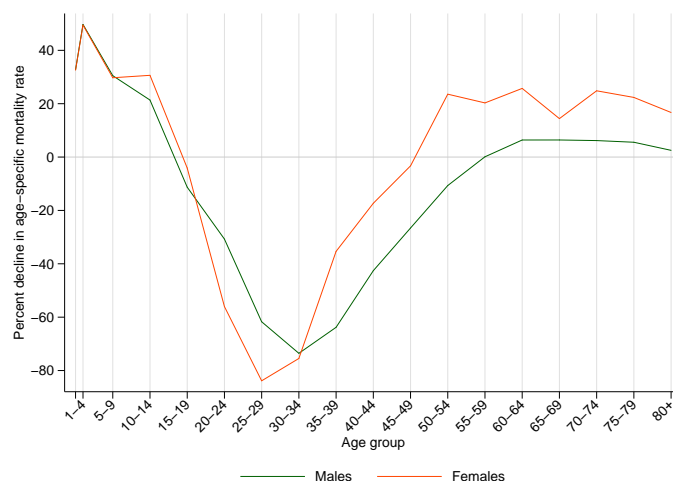
PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in Kenya, HIV/AIDS, lower respiratory infections, and malaria were the highest ranking causes in 2010.
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), lower respiratory infections showed the largest decrease, falling by 21% from 1990 to 2010.
- The leading risk factor in Kenya is childhood underweight.

ALL-CAUSE MORTALITY RATE

- This chart shows the change in mortality rate at every age range. The points above 0 on the chart indicate positive declines in the all-cause mortality rate, while points below 0 indicate an increase in mortality rate between 1990 and 2010.
- The greatest reductions in all-cause mortality rate were experienced by males aged 1-4 years (50%). Females aged 25-29 years saw the largest increase in mortality rate (84%).

Percent decline in age-specific mortality rate by sex from 1990-2010 in Kenya



CAUSES OF PREMATURE DEATH

Years of life lost (YLLs) quantify premature mortality by weighting younger deaths more than older deaths.

Ranks for top 25 causes of YLLs 1990-2010, Kenya

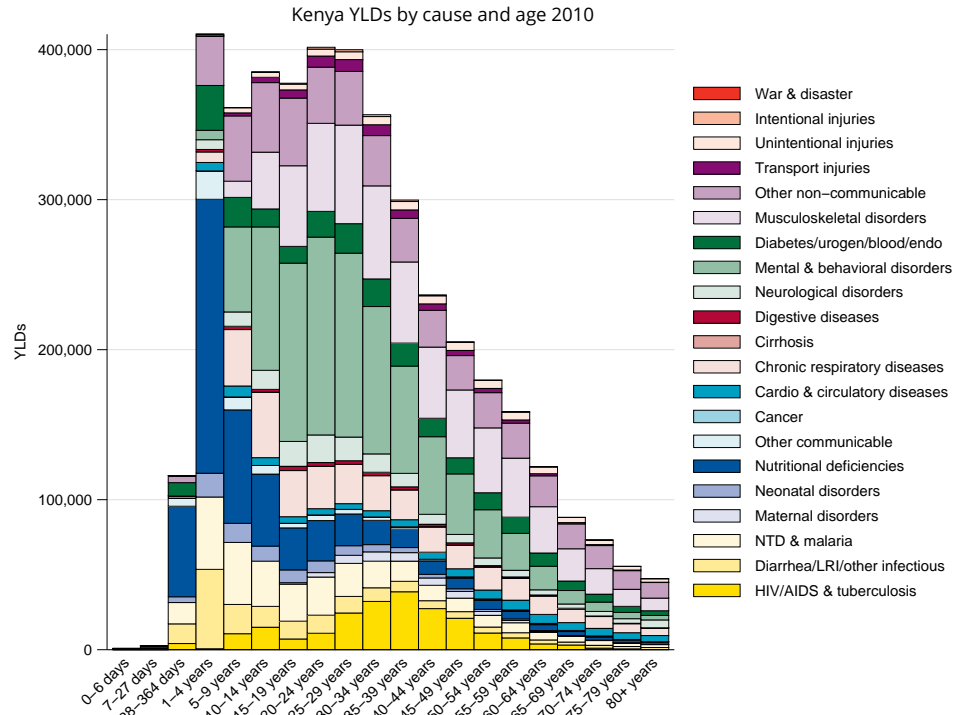
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
2,144 (18.5%)	1 Lower respiratory infections	1 HIV/AIDS	2,826 (18.4%)	1,512
1,556 (13.4%)	2 Malaria	2 Lower respiratory infections	1,676 (10.9%)	-22
1,042 (9.0%)	3 Diarrheal diseases	3 Malaria	1,550 (10.0%)	-1
612 (5.3%)	4 Protein-energy malnutrition	4 Diarrheal diseases	1,012 (6.6%)	-2
556 (4.8%)	5 Preterm birth complications	5 Neonatal sepsis	830 (5.4%)	48
567 (4.9%)	6 Neonatal sepsis	6 Preterm birth complications	724 (4.7%)	30
551 (4.7%)	7 Measles	7 Protein-energy malnutrition	744 (4.8%)	24
429 (3.7%)	8 Meningitis	8 Meningitis	485 (3.2%)	12
386 (3.3%)	9 Neonatal encephalopathy	9 Neonatal encephalopathy	479 (3.1%)	27
272 (2.3%)	10 Tuberculosis	10 Tuberculosis	450 (2.9%)	66
383 (3.3%)	11 HIV/AIDS	11 Road injury	424 (2.8%)	106
223 (1.9%)	12 Congenital anomalies	12 Maternal disorders	252 (1.6%)	71
207 (1.8%)	13 Road injury	13 Congenital anomalies	241 (1.6%)	7
177 (1.5%)	14 Stroke	14 Stroke	225 (1.5%)	26
147 (1.3%)	15 Maternal disorders	15 Syphilis	174 (1.1%)	28
136 (1.2%)	16 Syphilis	16 Ischemic heart disease	155 (1.0%)	36
114 (1.0%)	17 Ischemic heart disease	17 Epilepsy	157 (1.0%)	76
110 (0.9%)	18 Fire	18 Fire	146 (0.9%)	30
89 (0.8%)	19 Epilepsy	19 Drowning	138 (0.9%)	79
80 (0.7%)	20 Drowning	20 Self-harm	139 (0.9%)	173
51 (0.4%)	21 Self-harm	21 Diabetes	92 (0.6%)	105
69 (0.6%)	22 Typhoid fevers	22 Cirrhosis	93 (0.6%)	100
45 (0.4%)	23 Diabetes	23 Interpersonal violence	90 (0.6%)	156
47 (0.4%)	24 Cirrhosis	24 Typhoid fevers	112 (0.7%)	62
44 (0.4%)	25 Poisonings	25 Falls	70 (0.5%)	128
	29 Interpersonal violence	26 Measles		
	33 Falls	29 Poisonings		

This chart shows the change in the top 25 causes of YLLs due to premature mortality from 1990 to 2010. Solid lines indicate a cause has moved up in rank or stayed the same. Broken lines indicate a cause has moved down in rank. The causes are color coded by blue for non-communicable diseases, green for injuries, and red for communicable, maternal, neonatal, and nutritional causes of death.

YEARS LIVED WITH DISABILITY (YLDs)

Years lived with disability (YLDs) are estimated by weighting the prevalence of different conditions based on severity. The top five leading causes of YLDs in Kenya are iron-deficiency anemia, major depressive disorder, low back pain, HIV/AIDS, and neck pain.

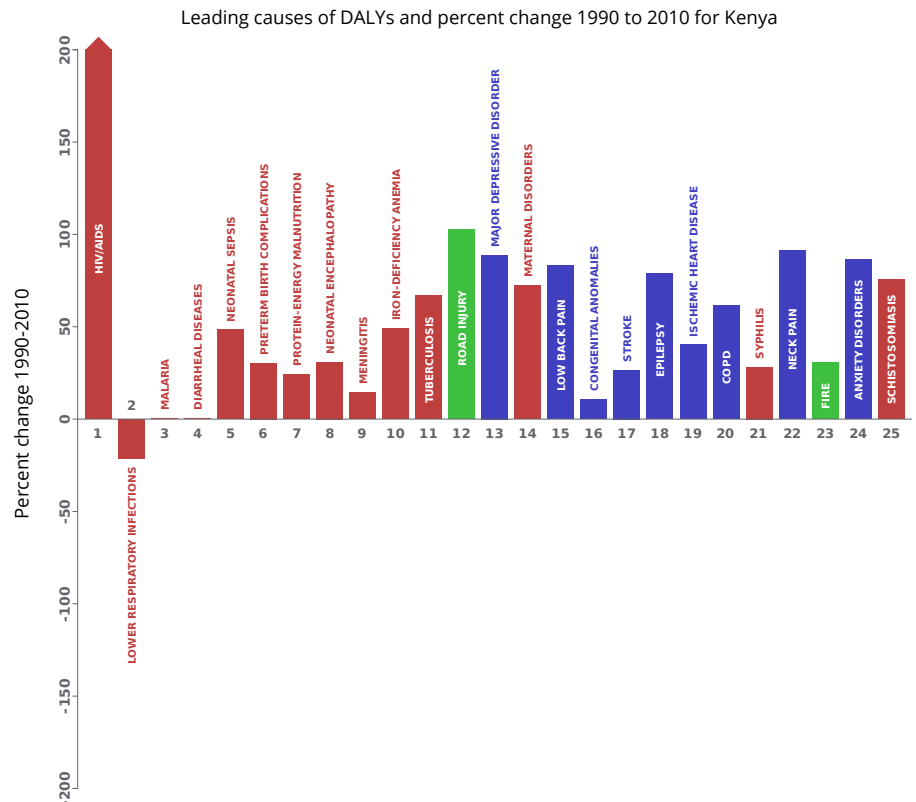
The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows which age groups had the most YLDs in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain.



DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Disability-adjusted life years (DALYs) quantify both premature mortality (YLLs) and disability (YLDs) within a population. In Kenya, the top three causes of DALYs in 2010 were HIV/AIDS, lower respiratory infections, and malaria. The only cause to appear in the 10 leading causes of DALYs in 2010 and not 1990 was HIV/AIDS.

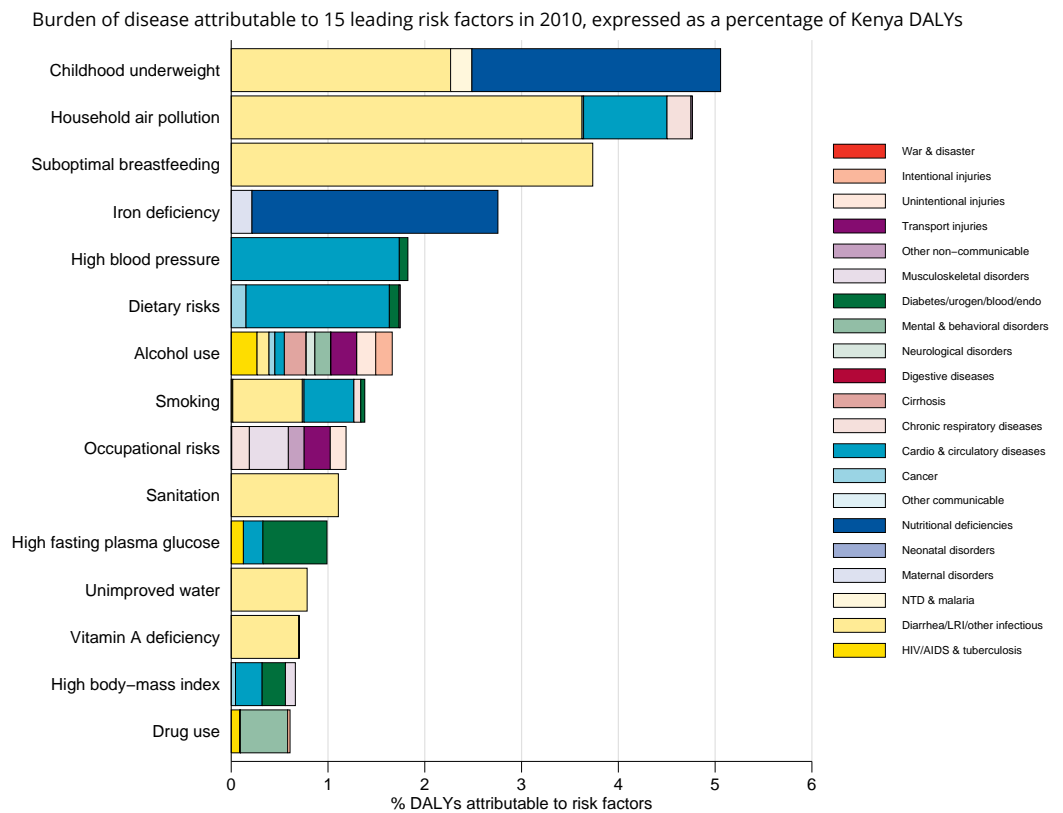
The top 25 causes of DALYs are ranked from left to right in order of the number of DALYs they contributed in 2010. Bars going up show the percent by which DALYs have increased since 1990. Bars going down show the percent by which DALYs have decreased. Globally, non-communicable diseases and injuries are generally on the rise, while communicable, maternal, neonatal, and nutritional causes of DALYs are generally on the decline.



RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Kenya are childhood underweight, household air pollution from solid fuels, and suboptimal breastfeeding. The leading risk factors for children under 5 and adults aged 15-49 years were childhood underweight and alcohol use, respectively, in 2010.

The graph shows the top 15 risk factors for Kenya. The colored portion of each bar represents the specific diseases attributable to that risk factor while bar size represents the percentage of DALYs linked to specific risk factors.



COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Kenya against other comparator countries provides key insight into public health successes and areas where Kenya might be falling behind. The table identifies Kenya's rank across 14 other comparator countries, selected and ordered by income per capita, for five metrics of interest, with 1 indicating the best rank and 15 indicating the worst rank.

- Age-standardized rates are used to make meaningful comparisons across time by adjusting for changes in population size and age structure.
- Life expectancy incorporates mortality, and health-adjusted life expectancy further incorporates years lived in less than ideal health.
- In 2010, Kenya ranked 3rd for age-standardized YLD rate and 9th for age-standardized YLL rate.

Age-standardized death rates, YLL rates, YLD rates, and life expectancy at birth and health-adjusted life expectancy at birth for 1990 and 2010, both sexes combined																				
Country	Age-standardized death rate (per 100,000)				Age-standardized YLL rate (per 100,000)				Age-standardized YLD rate (per 100,000)				Life expectancy at birth				Health-adjusted life expectancy at birth			
	1990		2010		1990		2010		1990		2010		1990		2010		1990		2010	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	LE	Rank	LE	Rank	HALE	Rank	HALE	Rank
Mauritania	1,244	6	1,031	9	45,799	7	36,003	8	15,248	15	14,307	13	60.2	7	64.5	9	50.3	7	54.3	9
Cambodia	1,355	12	957	5	47,844	8	28,770	5	14,501	7	12,603	2	59.2	8	67.5	5	50.1	8	58	4
Tajikistan	1,067	2	911	4	38,138	1	27,409	4	12,331	1	12,296	1	63.8	1	68.3	4	54.8	1	58.7	2
Senegal	1,278	7	1,009	6	49,632	10	33,824	6	13,914	5	13,379	8	58.8	10	65.3	6	49.9	9	55.6	6
São Tomé and Príncipe	1,044	1	794	1	39,144	2	24,592	1	13,532	4	13,252	5	63.5	2	70.2	1	53.9	2	59.6	1
Côte d'Ivoire	1,400	13	1,457	13	58,331	12	56,879	12	14,774	11	13,910	12	55.7	13	56	12	46.8	12	47.7	13
The Gambia	1,315	10	1,109	11	54,039	11	41,302	11	14,365	6	13,291	6	57.2	11	62.2	11	48.4	11	53.2	11
Kenya	1,092	3	1,013	7	39,731	3	36,153	9	13,184	2	12,884	3	63	3	64.8	8	53.8	3	55.5	7
Timor-Leste	1,223	5	872	3	45,244	5	26,770	3	14,698	9	13,715	9	60.5	6	68.7	3	50.7	6	58	5
Chad	1,508	14	1,389	12	67,610	14	58,839	14	15,080	13	14,364	14	52.5	14	55.5	14	43.9	14	46.8	14
Benin	1,312	9	1,080	10	58,713	13	38,726	10	15,237	14	13,830	11	55.9	12	63.4	10	46.6	13	53.7	10
Ghana	1,185	4	1,030	8	45,628	6	35,128	7	14,555	8	13,298	7	60.5	5	64.9	7	50.9	5	55.3	8
Bangladesh	1,295	8	864	2	49,258	9	26,361	2	14,743	10	13,206	4	58.9	9	69	2	49.2	10	58.4	3
Lesotho	1,316	11	2,130	15	43,569	4	85,888	15	13,503	3	15,483	15	60.9	4	47.4	15	52	4	40.2	15
Zambia	1,722	15	1,533	14	73,053	15	57,620	13	15,030	12	13,732	10	50.6	15	55.8	13	42.7	15	47.8	12

COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Kenya relative to the same comparator countries for the leading causes of DALYs in 1990 (top) and 2010 (bottom).

- The columns are ordered by the absolute number of DALYs in Kenya for that particular year, with greatest burden on the left.
- The numbers indicate the rank across countries for each cause in terms of age-standardized DALY rates, with 1 as the best performance and 15 as the worst.

Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 1990																												
Country	Lower respiratory infections	Malaria	Diarrheal diseases	Protein-energy malnutrition	Preterm birth complications	Neonatal sepsis	Measles	Meningitis	Neonatal encephalopathy	Iron-deficiency anemia	HIV/AIDS	Tuberculosis	Congenital anomalies	Road injury	Major depressive disorder	Stroke	Maternal disorders	Low back pain	Syphilis	Ischemic heart disease	Epilepsy	COPD	Fire	Asthma	Neck pain			
Mauritania	5	4	12	7	9	11	11	8	7	13	8	8	2	13	10	6	15	12	13	9	9	7	7	12	9			
Cambodia	9	6	2	5	11	3	8	4	5	10	4	13	14	6	8	15	6	5	6	14	1	11	2	15	3			
Tajikistan	13	2	7	1	14	1	1	3	14	1	3	1	12	10	3	14	1	9	1	15	4	6	4	3	4			
Senegal	11	12	13	3	3	8	10	10	2	9	7	10	1	3	6	2	11	2	3	2	14	10	6	9	12			
São Tomé and Príncipe	1	10	4	10	5	9	6	5	6	7	5	2	13	5	13	11	2	11	2	4	7	13	8	5	11			
Côte d'Ivoire	6	13	14	8	13	13	7	11	10	6	14	5	7	14	11	8	8	8	5	10	13	9	10	7	5			
The Gambia	14	11	6	12	4	14	9	12	3	12	6	9	9	12	15	13	12	13	9	12	12	12	11	7	7			
Kenya	8	8	1	11	2	7	5	7	4	5	11	6	3	9	4	3	4	4	8	3	5	1	9	4	13			
Timor-Leste	10	5	5	4	10	2	13	6	1	4	1	14	15	4	12	10	10	6	7	13	2	8	1	14	2			
Chad	15	7	15	14	8	10	14	14	8	15	10	11	4	8	7	4	13	14	14	5	10	5	14	8	10			
Benin	12	14	8	13	12	15	13	13	14	13	14	13	3	8	11	5	5	14	10	10	7	15	4	13	6	8		
Ghana	4	9	3	6	7	15	12	9	11	11	12	4	5	7	9	7	5	1	4	8	8	2	3	1	6			
Bangladesh	3	3	11	9	15	5	4	1	15	8	1	7	10	2	1	1	7	15	11	1	3	15	5	10	1			
Lesotho	2	1	10	2	6	4	2	2	9	3	9	15	11	1	2	12	3	7	12	6	6	14	11	13	15			
Zambia	7	15	9	15	1	6	3	15	12	2	15	12	6	15	14	9	9	3	15	11	11	3	15	2	14			
Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010																												
Country	HIV/AIDS	Lower respiratory infections	Malaria	Diarrheal diseases	Neonatal sepsis	Preterm birth complications	Protein-energy malnutrition	Neonatal encephalopathy	Meningitis	Iron-deficiency anemia	Tuberculosis	Road injury	Major depressive disorder	Maternal disorders	Low back pain	Congenital anomalies	Stroke	Epilepsy	Ischemic heart disease	COPD	Syphilis	Neck pain	Fire	Anxiety disorders	Schistosomiasis			
Mauritania	6	11	6	11	11	10	8	9	10	13	7	14	6	13	11	8	6	12	7	2	12	8	9	6	11			
Cambodia	4	4	4	1	3	11	3	5	3	9	9	7	5	2	6	12	13	2	14	12	4	3	2	4	6			
Tajikistan	3	6	2	5	1	9	1	10	4	1	2	6	7	1	9	13	15	4	15	10	5	4	5	13	1			
Senegal	5	9	9	12	8	3	2	1	9	12	8	2	4	10	2	1	2	11	1	7	2	10	6	11	8			
São Tomé and Príncipe	8	2	8	4	7	2	7	3	5	6	1	3	15	4	10	7	7	6	3	13	1	12	7	15	5			
Côte d'Ivoire	12	13	15	13	15	13	12	13	14	8	11	15	8	12	8	10	12	15	12	11	7	6	12	7	12			
The Gambia	9	12	13	8	13	6	9	6	11	11	6	12	9	11	12	11	8	8	8	6	10	7	8	3	7			
Kenya	13	8	7	9	9	4	13	4	7	7	10	9	11	6	4	3	3	5	2	1	11	15	11	9	13			
Timor-Leste	1	3	5	6	2	7	5	2	2	3	14	4	13	8	5	15	9	1	13	9	6	2	1	5	1			
Chad	11	15	11	15	12	12	15	11	15	15	12	13	10	15	14	9	4	14	5	8	14	5	13	10	9			
Benin	7	10	14	7	10	8	11	8	12	14	5	10	2	9	13	5	5	10	9	3	8	9	10	2	14			
Ghana	10	5	10	3	14	5	10	7	8	10	3	8	3	5	1	4	10	9	11	5	3	11	3	8	15			
Bangladesh	2	1	3	2	4	15	6	15	1	5	4	1	1	3	15	6	1	3	4	15	9	1	4	14	1			
Lesotho	15	14	1	14	5	14	4	14	6	4	15	5	14	14	7	14	14	7	6	14	13	14	15	1	1			
Zambia	14	7	12	10	6	1	14	12	13	2	13	11	12	7	3	2	11	13	10	4	15	13	14	12	10			
Ranking Legend		1 - 3			4 - 7			8 - 11			12 - 15																	