



## National and Sub-National Burden of Diarrheal Disease in Ethiopia, 1990 to 2019.

- Globally, diarrheal diseases are among the leading infectious causes of morbidity and mortality. Much progress has been made in the reduction of diarrhea burden particularly among children under the age of 5 years.
- The high burden among older adults is an increasing public health challenge that requires appropriate attention due to a growing number of elderly populations in the world.
- However, there hasn't been a study to assess the national and sub-national burden of morbidity, mortality, trend and risk factors of diarrheal disease in Ethiopia to inform policy decision makers.
- Therefore, the Global Burden of Diseases, Injuries, and Risk Factors (GBD 2019) study was used to quantify the burden in the country.

### Key Finding

#### Diarrhea morbidity

- The age standardized incidence episode rate of diarrheal disease was 122.8k per 100k populations in Ethiopia. It was nearly similar across regions too (Table1).
- The incidence episode rate per 100k populations was higher among adults 70+ years of age (312.2k) than among children under-5 (186.7k) nationally, and this difference was also seen across regions.
- The rate among both children under-5 and adults 70+ was higher than the national rate indicating that diarrheal disease is more common in the two age groups.

#### Diarrhea mortality

- The mortality rate due to diarrheal disease was 76.4 deaths per 100k populations in Ethiopia. It was nearly similar across regions too (Table1).
- However, about 85.9% of deaths occurred in three biggest regions of the country.
- The death rate per 100k population was higher among adults 70+ years of age (534.8) than under-5 year children (150.7). This difference was also observed across regions.
- Diarrheal diseases were the 2<sup>nd</sup> leading causes of deaths at national level (Figure1). It was also the 2<sup>nd</sup> and 4<sup>th</sup> leading cause of death among children under-5 and adults 70+ respectively.

### Years of life lost (YLL) due to diarrheal disease

- The age standardized national YLL rate was 2.7k per 100k populations. It was almost similar across regions (Table1).

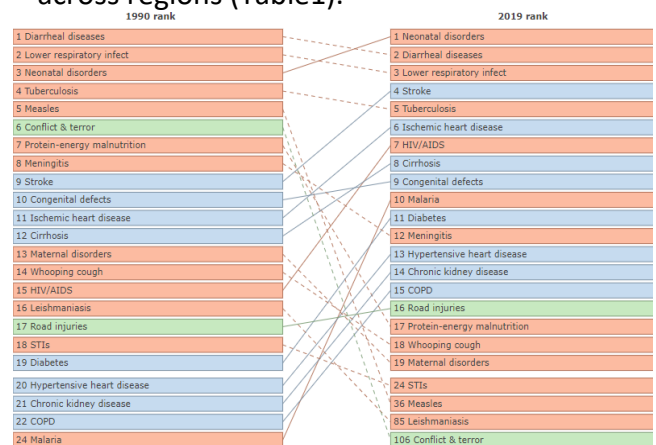


Figure 1: Ranking of diarrhoeal disease as a cause of death among all ages in 1990 and 2019.

- Although the YLL among children (13.2k) appears to be twice higher than among older adults (7.1k), the differences are not statistically significant. It was also similar across regions between the two age groups.

### Trend in burden of diarrheal disease

#### Incidence trend

- The national age standardized diarrheal incidence episode rate showed decline by 16% in 2019 compared to 1990 (Table1). Likewise among children under-5 (24%); but no change among adults 70+ (0%).
- The declining trend was faster between 2005 and 2015 nationally and among children under-5.





### Mortality trend

- The national age standardized diarrheal death rate showed a 75% decline in 2019

compared to 1990 (Table 1). Also, among children under-5 years a 77%, and among adults 70+ years of age by -66% decline.

Table 1: National and Sub-national burden of diarrheal disease and its change between 1990 and 2019.

Regions	Incidence		Mortality		YLL	
	Age standardized incidence episode rate per100k (95% UI) in 2019	Age standardized rate change between 1990 and 2019 (95% UI)	Age standardized deaths rate per100k (95% UI) in 2019	Age standardized rate change between 1990 and 2019 (95% UI)	Age standardized YLL rate per100k (95% UI) in 2019	Age standardized rate change between 1990 and 2019 (95% UI)
Addis Ababa	105,243.4	-0.17	24.4	-0.85	706.9	-0.87
Afar	120,319.0	-0.22	101.1	-0.82	3,028.7	-0.83
Amhara	124,858.5	-0.12	83.6	-0.71	2,872.5	-0.75
Benishangul	135,755.4	-0.18	106.6	-0.78	3,468.0	-0.79
Diredawa	108,118.4	-0.20	49.1	-0.82	1,527.3	-0.84
Gambella	123,365.5	-0.33	66.2	-0.83	1,765.7	-0.87
Harari	115,323.4	-0.21	52.2	-0.86	1,696.7	-0.86
Oromia	121,634.6	-0.19	71.4	-0.78	2,636.7	-0.78
Somali	127,784.3	-0.14	99.7	-0.70	3,189.1	-0.67
SNNPR	126,152.0	-0.17	83.7	-0.75	2,883.2	-0.75
Tigray	116,418.5	-0.12	61.7	-0.73	1,885.8	-0.77
Ethiopia	122,781.8	-0.16	76.4	-0.75	2,679.4	-0.76

\*South Nations, Nationalities and Peoples Region.

- The death rate due to diarrheal diseases has declined by 78%; with an average annual rate of 5.2%. Yet, still it accounted for 9.1% of overall deaths in Ethiopia.
- The decline was consistent between the years 1990 and 2019 across all age and under-5; but unstable among 70+.

### YLL trend

- The national age standardized YLL rate showed a 76% decline in 2019 compared to 1990. Similarly, a 77% decline among children under-5 years and a 71% decline among adults 70+ years of age.

### Risk Factors of diarrheal diseases

- Overall, 96.6% of the death due to diarrheal diseases was attributable to unsafe water, poor sanitation and hand washing practices (WASH).
- Child and maternal malnutrition accounted for 44.4% of deaths, followed by Child growth failure, which accounted for 39.8%.
- Suboptimal breast feeding practice (6%), low birth weight and short gestation (3.6%), Vitamin A deficiency (2.2%), and for air pollution by particulate matters (1.3%) were additional risk factors for diarrheal diseases.

### Conclusion

- Diarrheal diseases were among the top leading causes of high diseases burden both at national and sub-national levels.
- Almost all sub-national states carry high burden of the disease with similar rates; with exception of Addis Ababa having lower death and YLL rates.
- Both incidence episode rate and death rate were higher among adults 70+ than children under-5 years of age.
- Decline in incidence is much slower than decline in mortality; and incidence episode rate has declined between 2015 and 2019.
- The role of routine hygiene and sanitation measures and proper child nutrition should not be undermined in an effort to ensuring the health of the population.

### Acknowledgment

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