

Supplemental Information

Table S1: Parameters used in the model.

Parameter	Distribution (mean, SD)	Reference
Latent period	lognormal(4.5, 1.5)	[14, 35]
Infectious period for asymptomatic and mild cases	lognormal(8, 2)	[14, 36]
Duration of presymptomatic period	lognormal(1.1, 0.9)	[14, 37]
Length of time from symptom onset to hospitalization	lognormal(6.6, 4.9)	[14, 37, 38]
Length of time from hospitalization to critically ill	lognormal(1.5, 1)	[14, 38, 39]
Length of time from critically ill to death	lognormal(10.7, 4.8)	[14, 40]
Time from onset of symptoms to recovery for severe and critically ill cases	lognormal(18.1, 6.3)	[14, 40]
Age-stratified mortality rates	varied by age	[14, 41, 42]
Age-stratified probability of developing symptoms	Table S2	[14, 40, 43]
Fraction of symptomatic infections <15 year old	0.25	[44]
Fraction of symptomatic infections ≥15 year old	0.6	[31, 45, 46]
Vaccine efficacy against infection, VE_{SUS}	59.6	[34]
Vaccine efficacy against symptomatic infection, VE_{DIS}	67.5	[34]
Vaccine efficacy against Hospitalization, VE_{HOSP}	87.65	[34]
Antiviral effect, AVE	25, 50, 75, 100	assumed
Antiviral effect on hospitalization, AV_H ,	50 or 80	[7, 10]

Table S2: Age-specific parameters for disease progression.

Parameter	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+
Probability of severe disease	0.0005	0.00165	0.0072	0.0208	0.0343	0.0765	0.1328	0.20655	0.2457	0.2457
Probability of critical disease	0.00003	0.00008	0.00036	0.00104	0.00216	0.00933	0.03639	0.08923	0.1742	0.1742
Probability of death	0.00002	0.00002	0.0001	0.00032	0.00098	0.00265	0.00766	0.02439	0.08292	0.1619

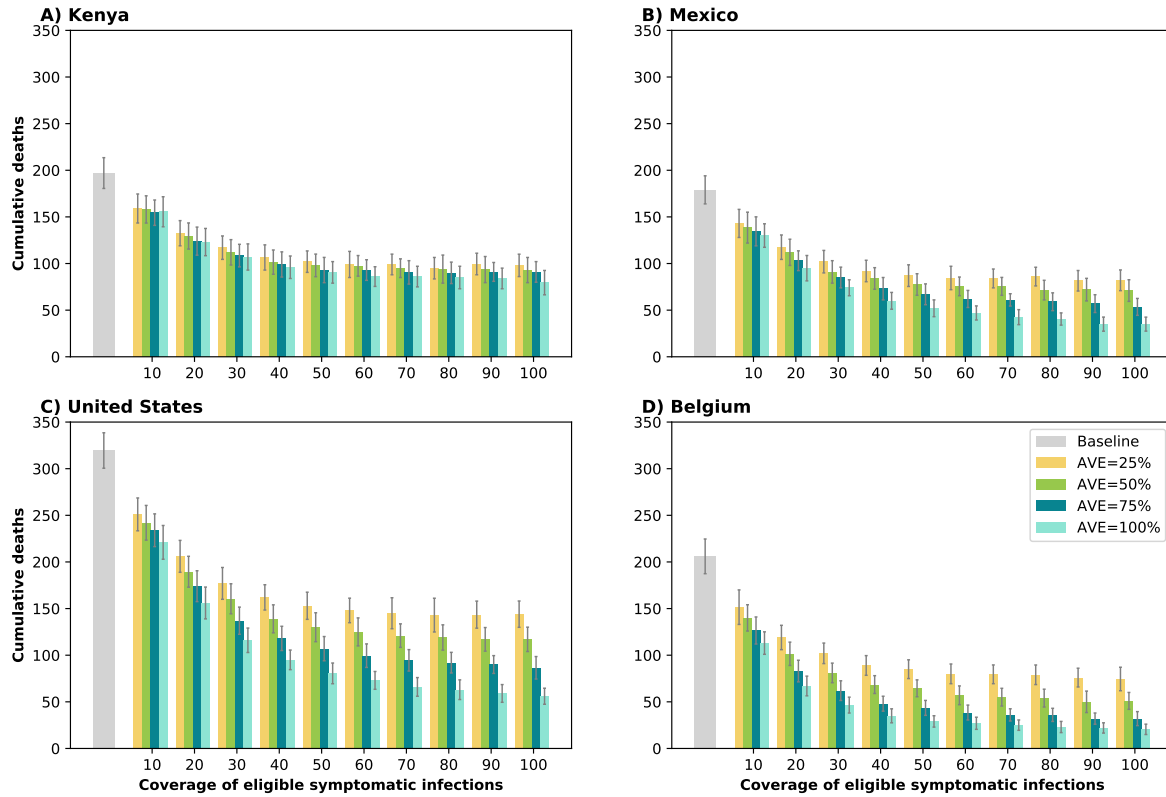


Figure S1: Cumulative deaths over next 6 months for A) Kenya, B) Mexico, C) United States and D) Belgium. For each country, we considered four possible values of AVE (25, 50, 75 or 100% reduction in viral load) and covering 10-100% of eligible symptomatic individuals within the first 5 days of symptoms. Gray bars represent baseline cumulative deaths in absence of antiviral treatment.

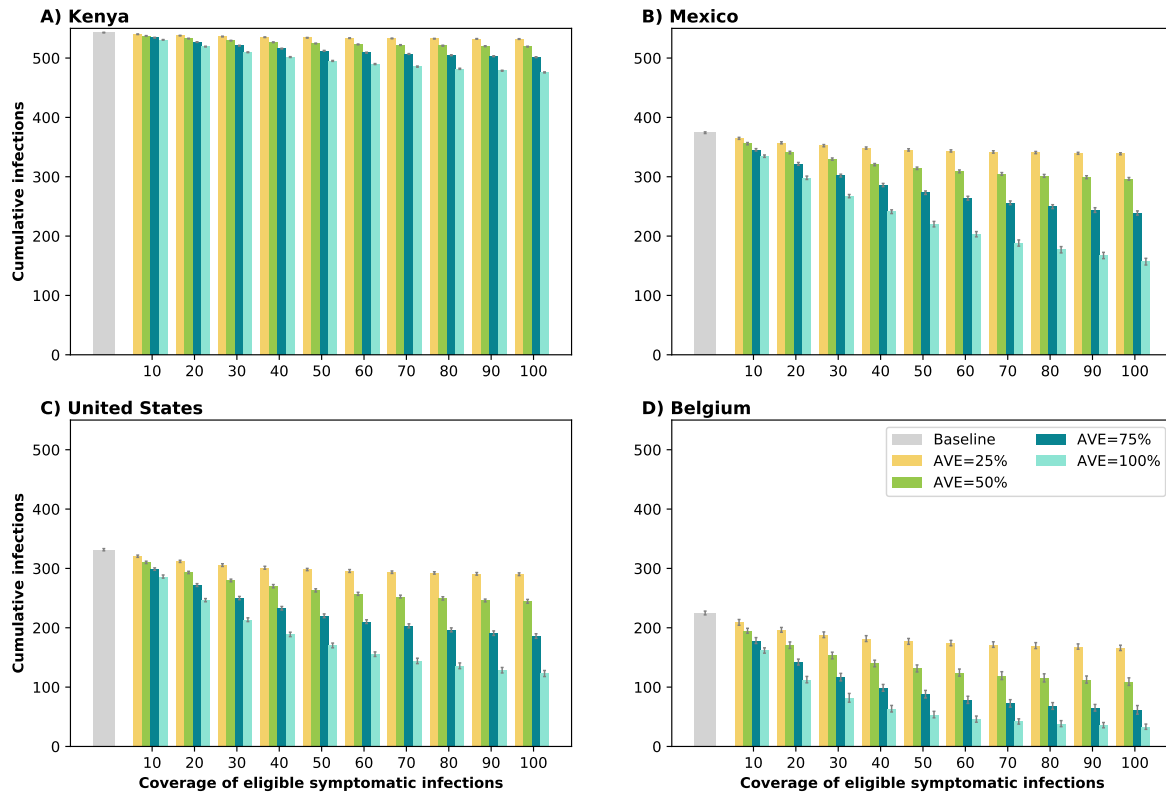


Figure S2: Cumulative infections over next 6 months for A) Kenya, B) Mexico, C) United States and D) Belgium. For each country, we considered four possible values of AVE (25, 50, 75 or 100% reduction in viral load) and covering 10-100% of eligible symptomatic individuals within the first 5 days of symptoms. Gray bars represent baseline cumulative infections in absence of antiviral treatment.

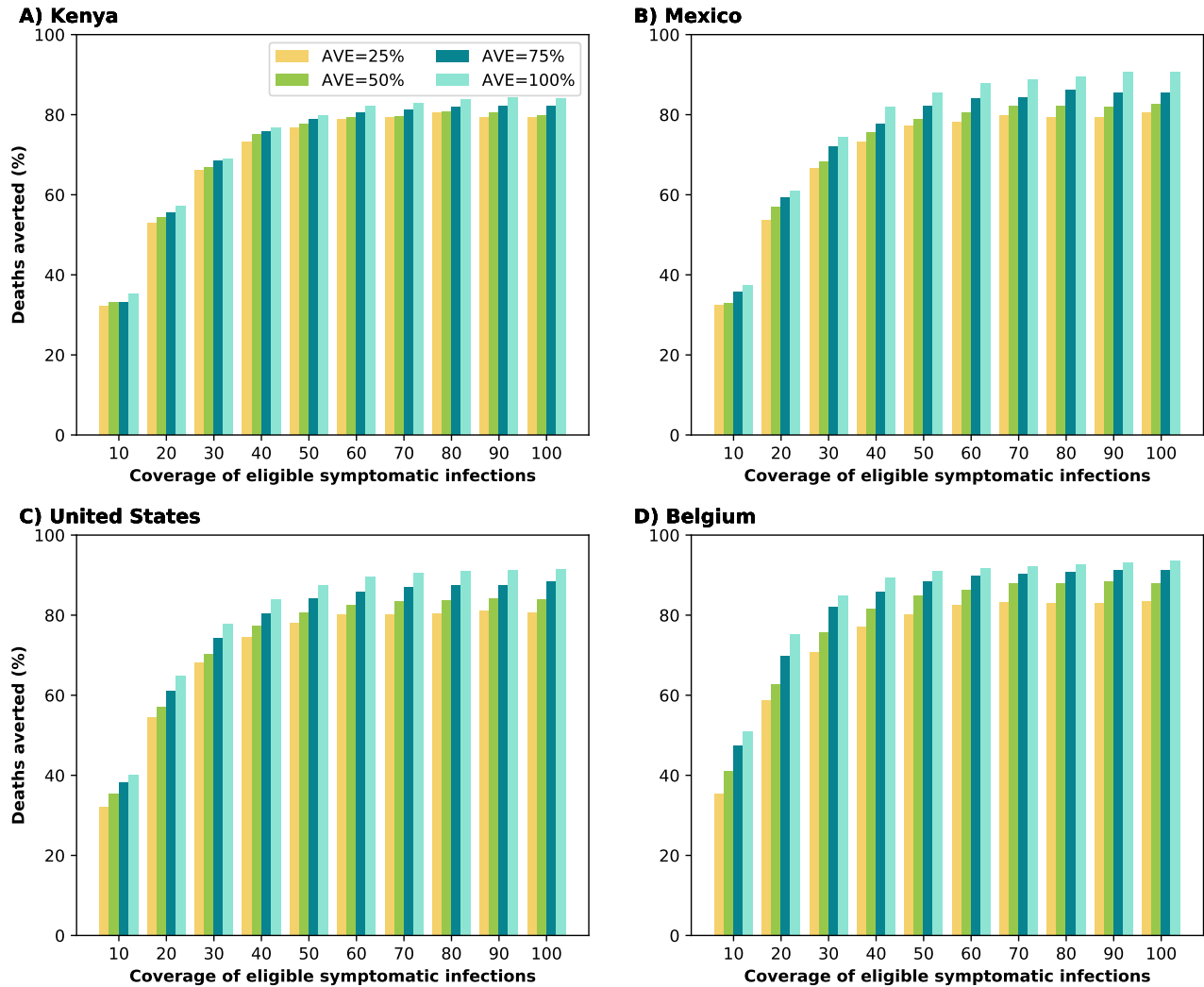


Figure S3: Percentage of deaths averted (compared to a baseline of no antiviral treatment) for A) Kenya, B) Mexico, C) United States and D) Belgium assuming antiviral treatment would reduce hospitalizations by 80%. For each country, we considered four possible values of AVE (25, 50, 75 or 100% reduction in viral load) and covering 10-100% of eligible symptomatic individuals within the first 5 days of symptoms.

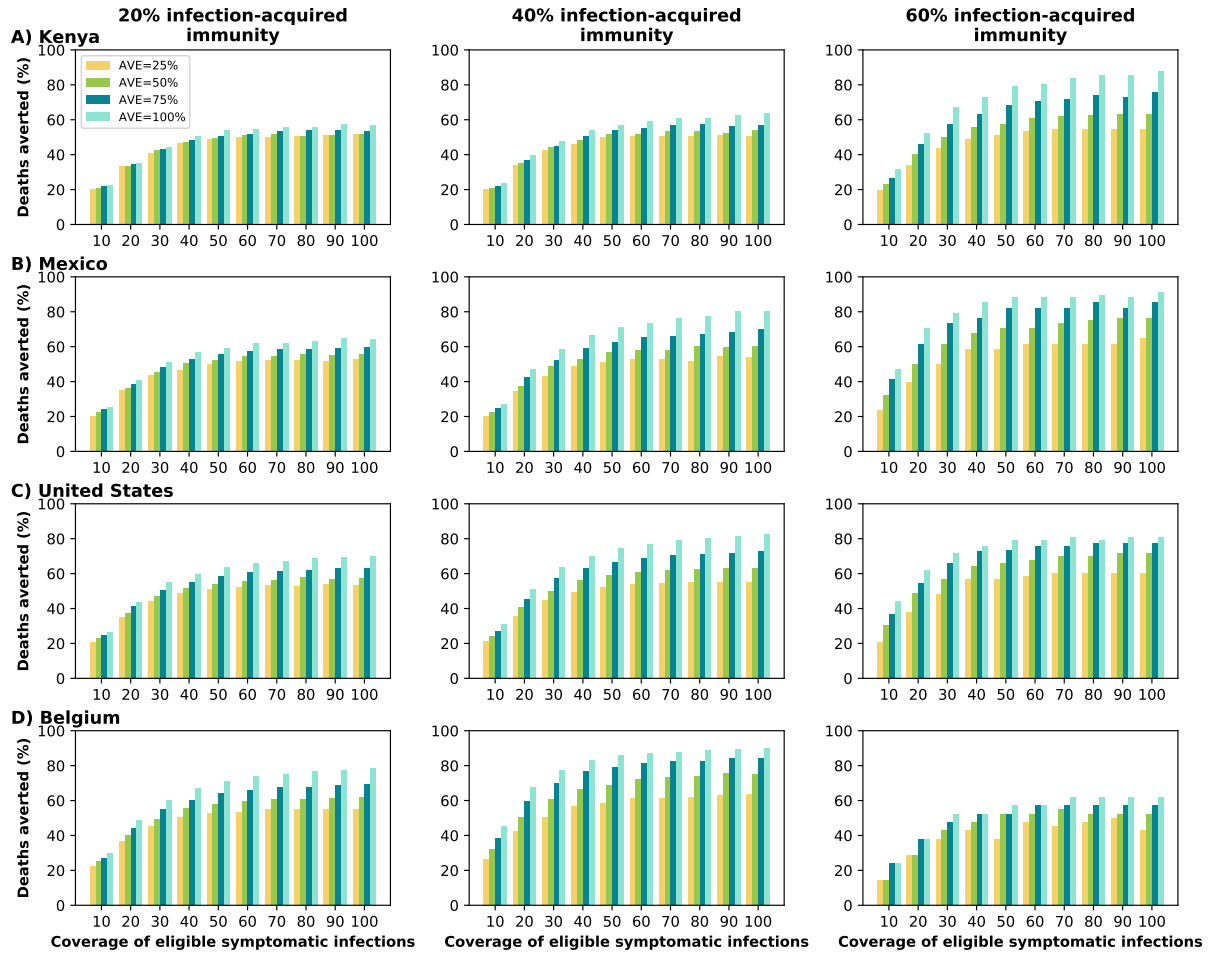


Figure S4: Proportion of deaths averted for A) Kenya, B) Mexico, C) United States and D) Belgium assuming 20 (left), 40 (middle) or 60% (right) of the population has been previously infected and is currently immune. For each country, we considered four possible values of AVE (25, 50, 75 or 100% reduction in viral load) and covering 10-100% of eligible symptomatic individuals within the first 5 days of symptoms. Gray bars represent baseline cumulative deaths in absence of antiviral treatment.

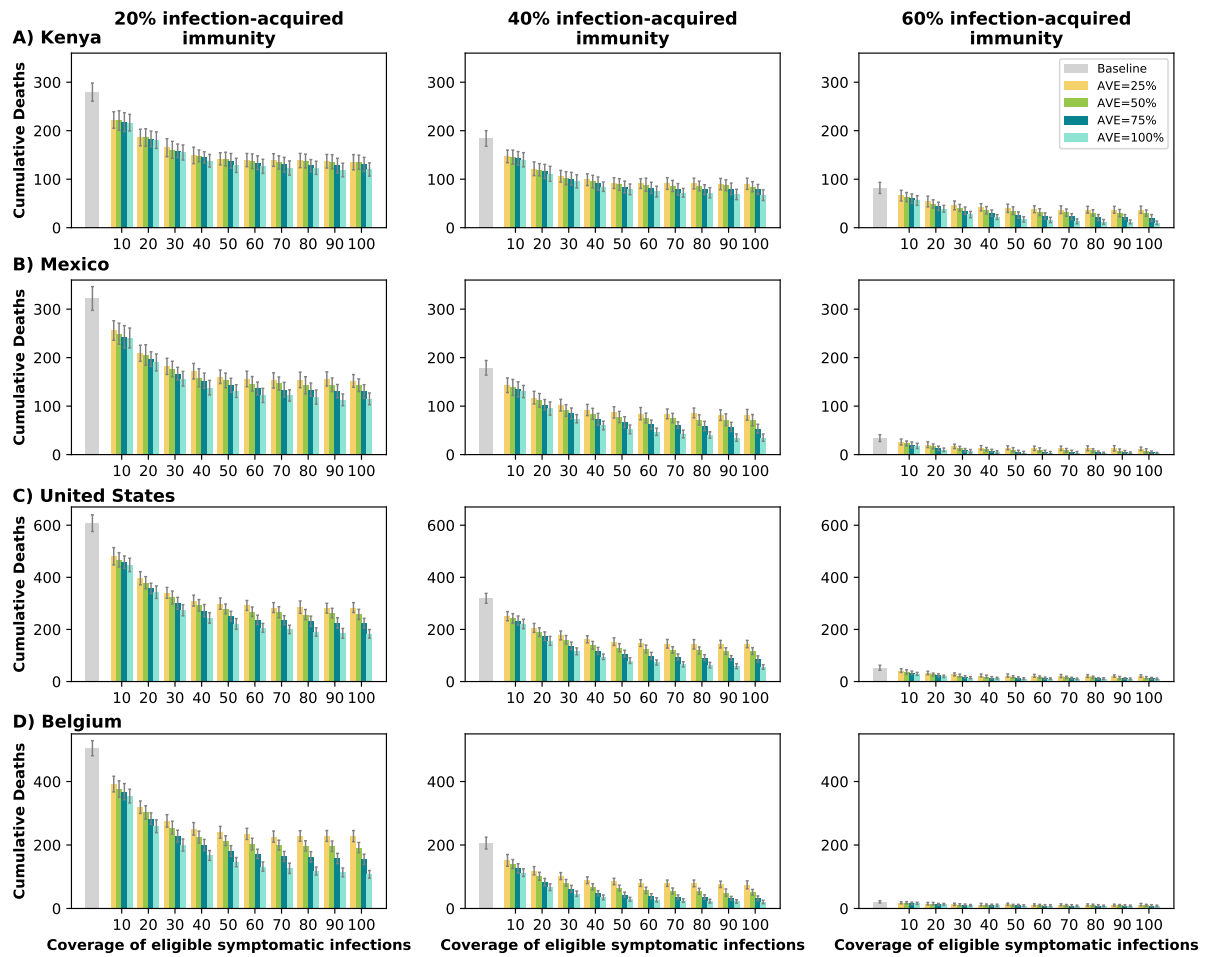


Figure S5: Cumulative deaths for A) Kenya, B) Mexico, C) United States and D) Belgium assuming 20 (left), 40 (middle) or 60% (right) of the population has been previously infected and is currently immune. For each country, we considered four possible values of AVE (25, 50, 75 or 100% reduction in viral load) and covering 10-100% of eligible symptomatic individuals within the first 5 days of symptoms. Gray bars represent baseline cumulative deaths in absence of antiviral treatment.

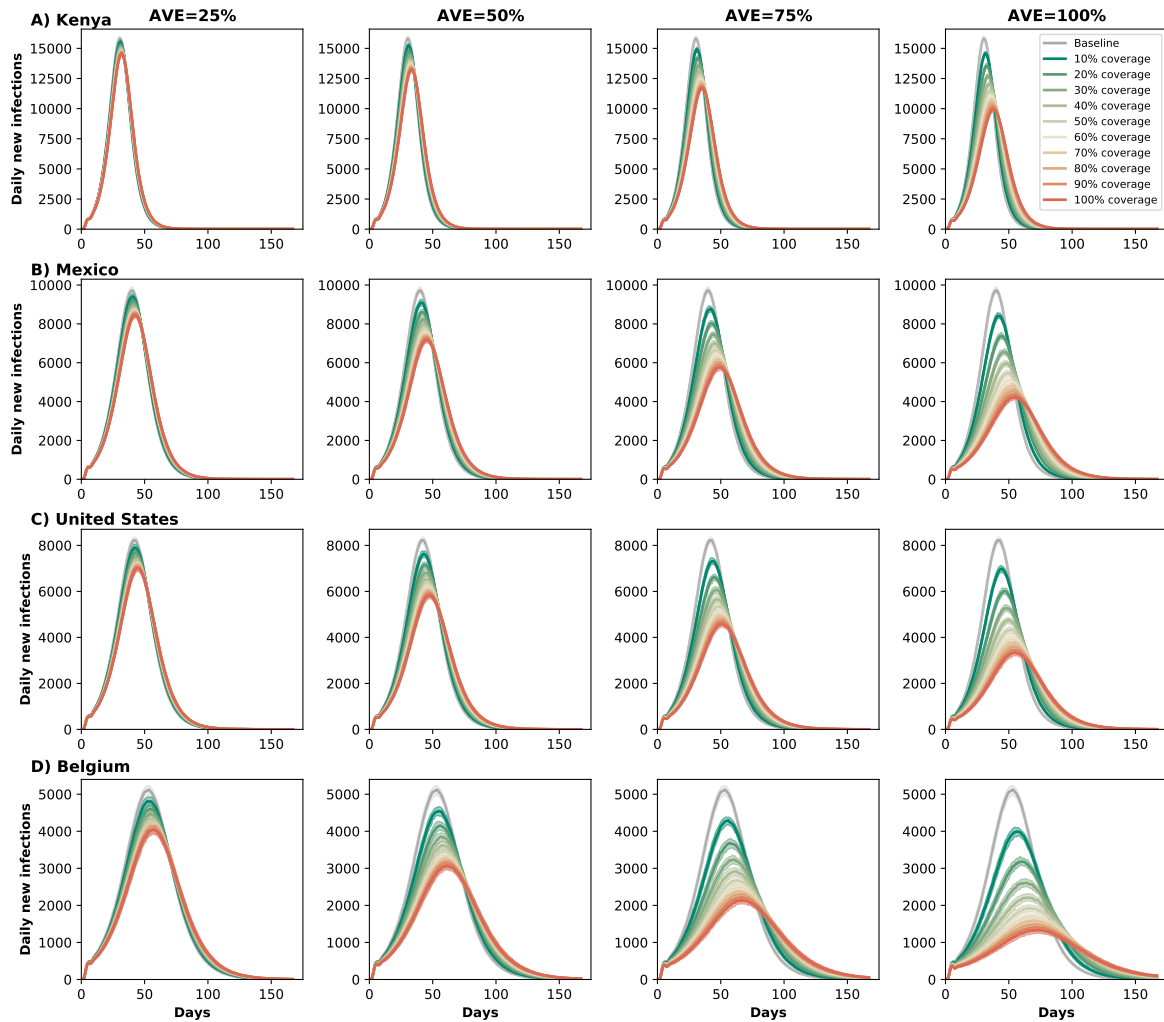


Figure S6: Daily new infections assuming no antiviral treatment (Baseline) or assuming coverage of 10-100% of eligible symptomatic individuals in A) Kenya, B) Mexico, C) United States and D) Belgium assuming 20% of the population has been previously infected and is now recovered. For each country, each column represents a different value of AVE (25, 50, 75 or 100% reduction in viral load).

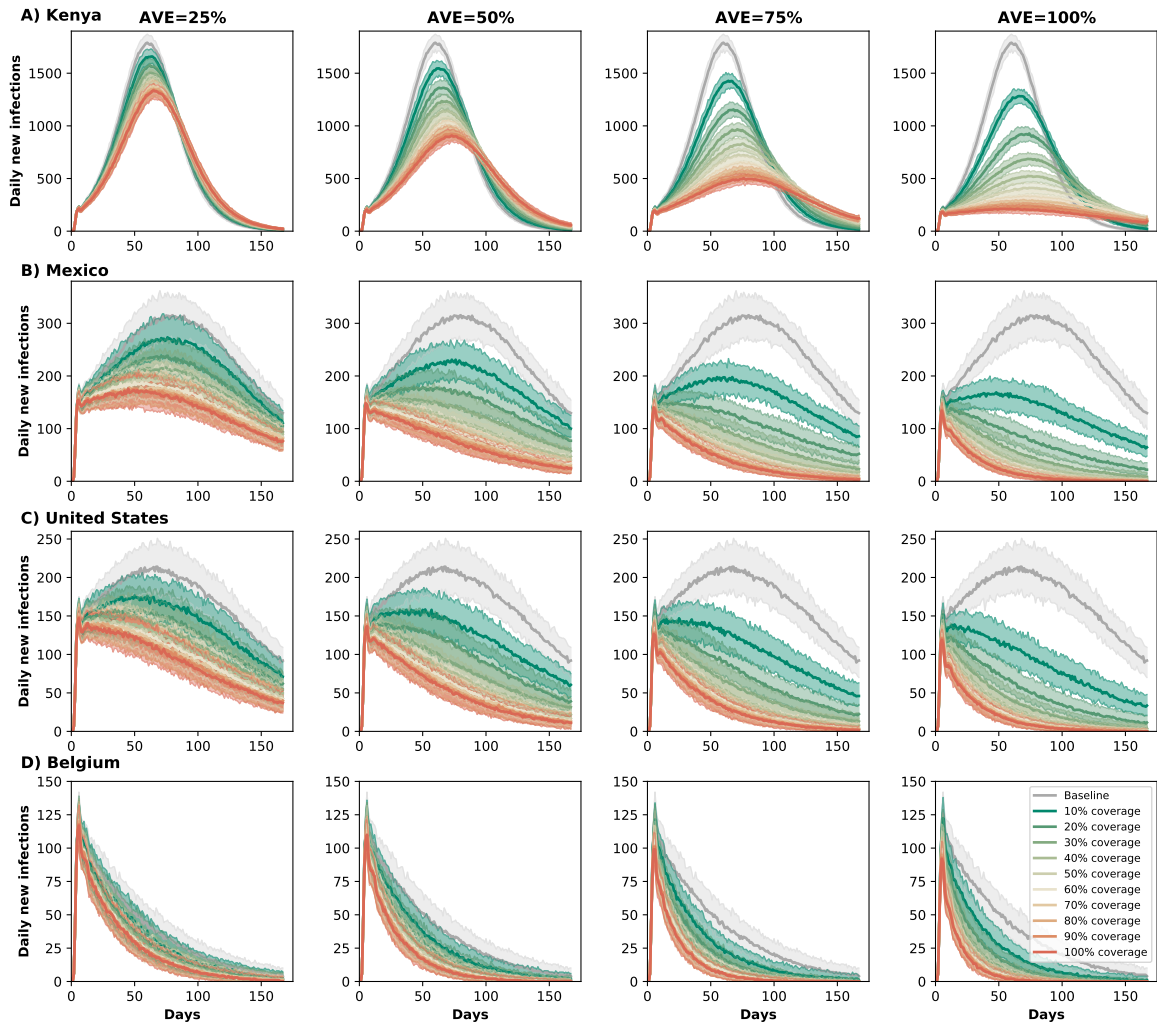


Figure S7: Daily new infections assuming no antiviral treatment (Baseline) or assuming coverage of 10-100% of eligible symptomatic individuals in A) Kenya, B) Mexico, C) United States and D) Belgium assuming 60% of the population has been previously infected and is now recovered. For each country, each column represents a different value of AVE (25, 50, 75 or 100% reduction in viral load).

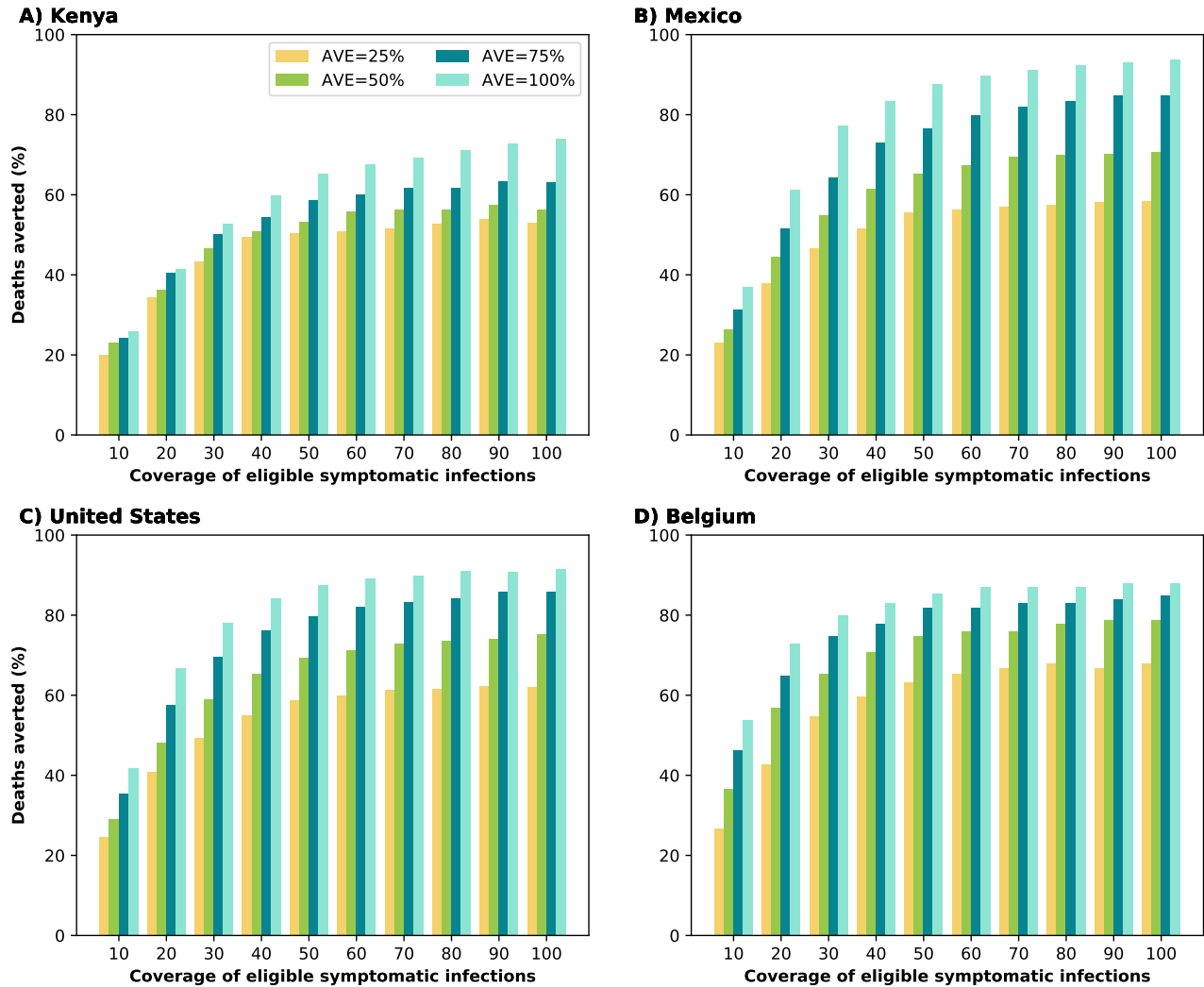


Figure S8: Percentage of deaths averted (compared to a baseline of no antiviral treatment) for A) Kenya, B) Mexico, C) United States and D) Belgium assuming asymptomatic infections are 50% less infectious. For each country, we considered four possible values of AVE (25, 50, 75 or 100% reduction in viral load) and covering 10-100% of eligible symptomatic individuals within the first 5 days of symptoms.