

COVID-19 situation report for WHO Africa Region

10/04/2020

Produced by the TIBA COVID-19 Epidemic Response Unit

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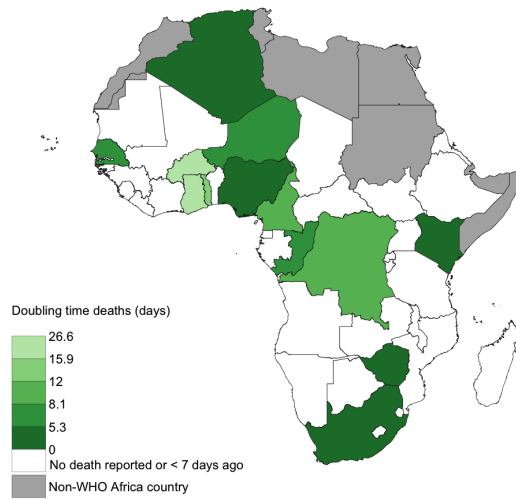
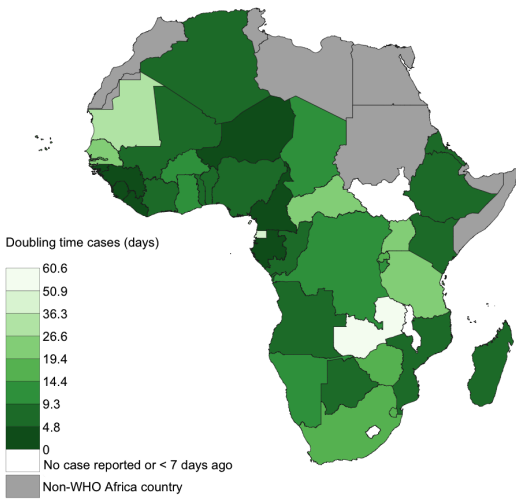
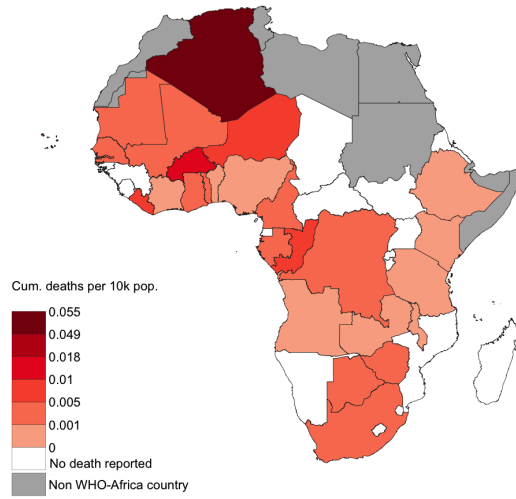
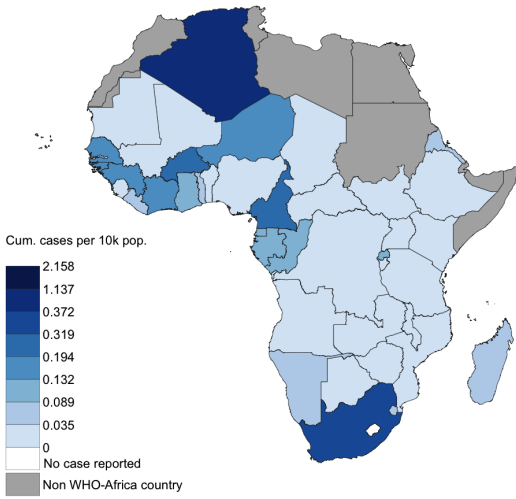
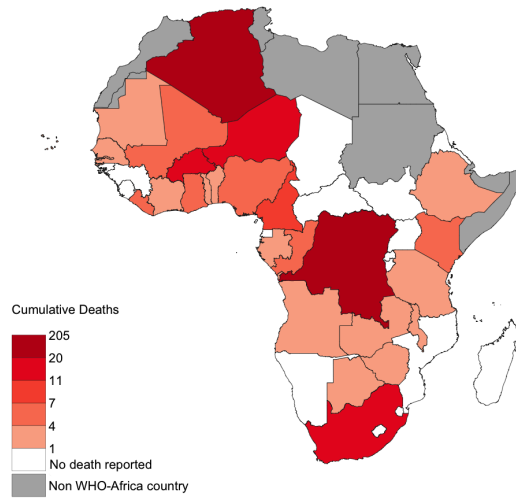
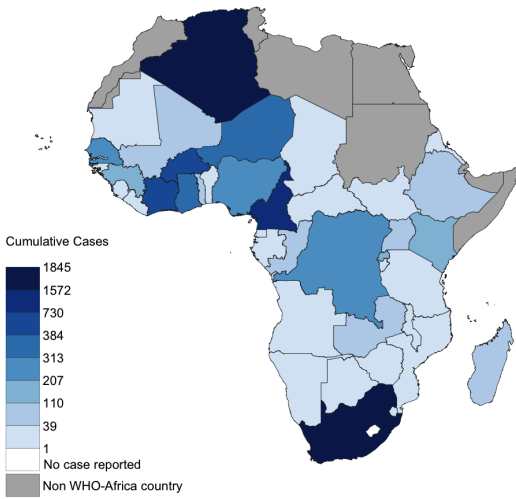
Section 1: Overview of WHO Africa situation



We compare the size and rate of increase of the COVID-19 epidemic across the countries included in WHO Africa Region.

The maps below summarise the in-country situations:

- Top row: cumulative reported cases (left) and deaths (right).
- Middle row: cumulative reported cases (left) and deaths (right) per 10,000 population on a log10 scale.
- Bottom row: overview of doubling time of cumulative reported cases (left) and deaths (right). Doubling times are estimated over a 7 day period up to 09/04/2020.



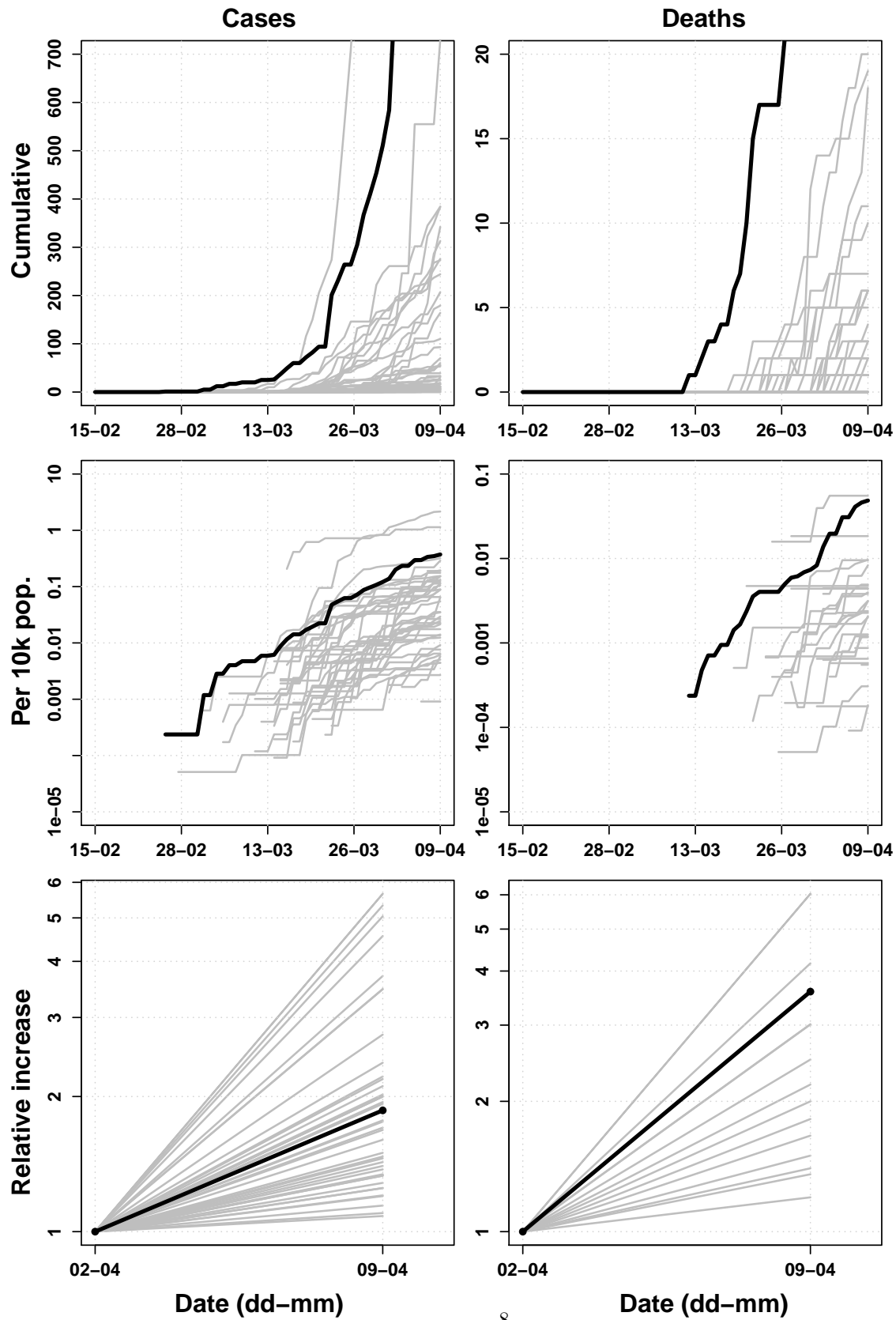
Section 2: Individual countries situations

As of 09/04/2020, each panel below shows for each country:

- Top row: cumulative reported cases (left) and deaths (right).
- Middle row: cumulative reported cases (left) and deaths (right) per 10,000 population on a log10 scale.
- Bottom row: relative increase in number of cases (left) and deaths (right) based on the doubling times (of cases and deaths respectively) estimated over a 7 day period up to 09/04/2020.

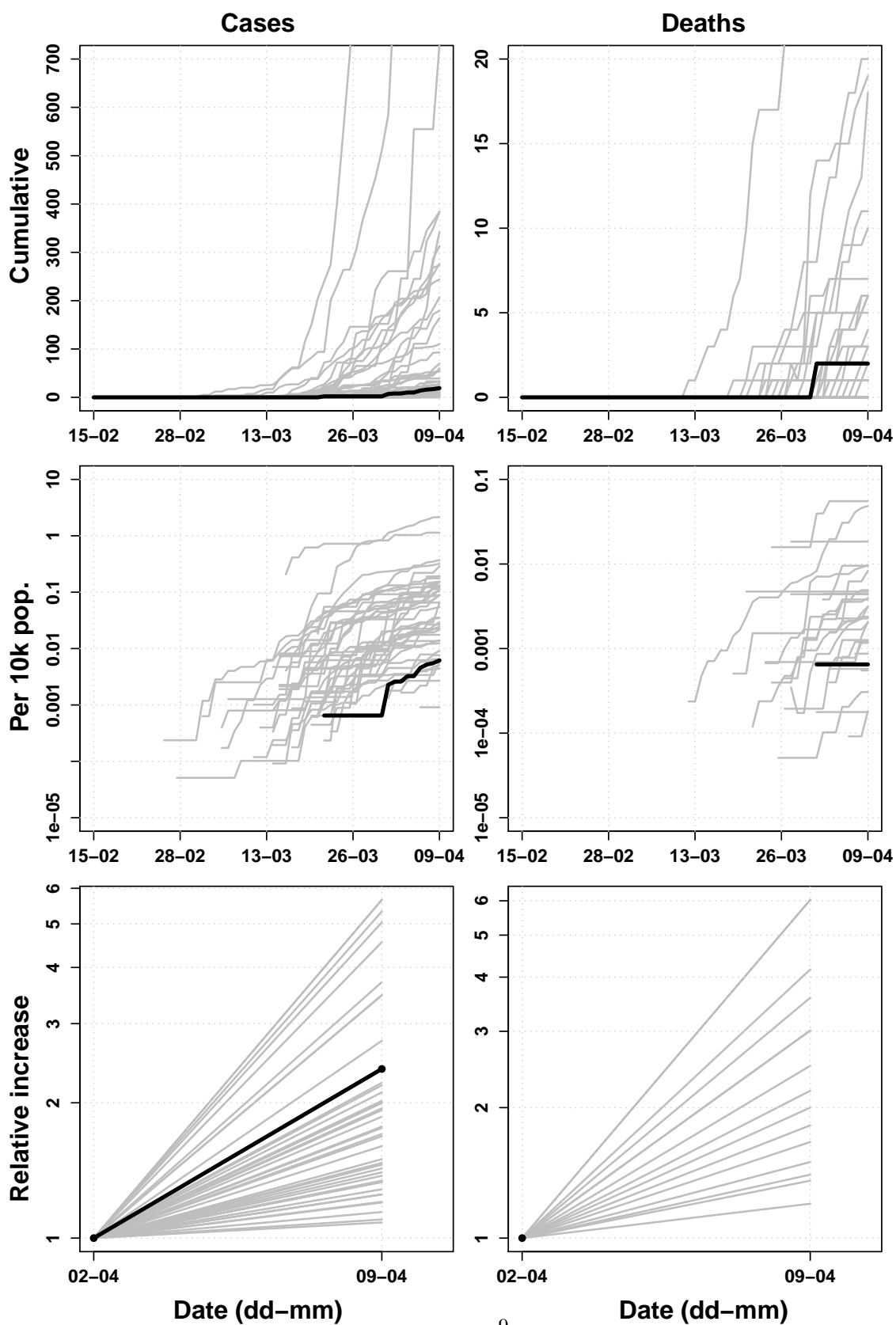
Algeria

Algeria



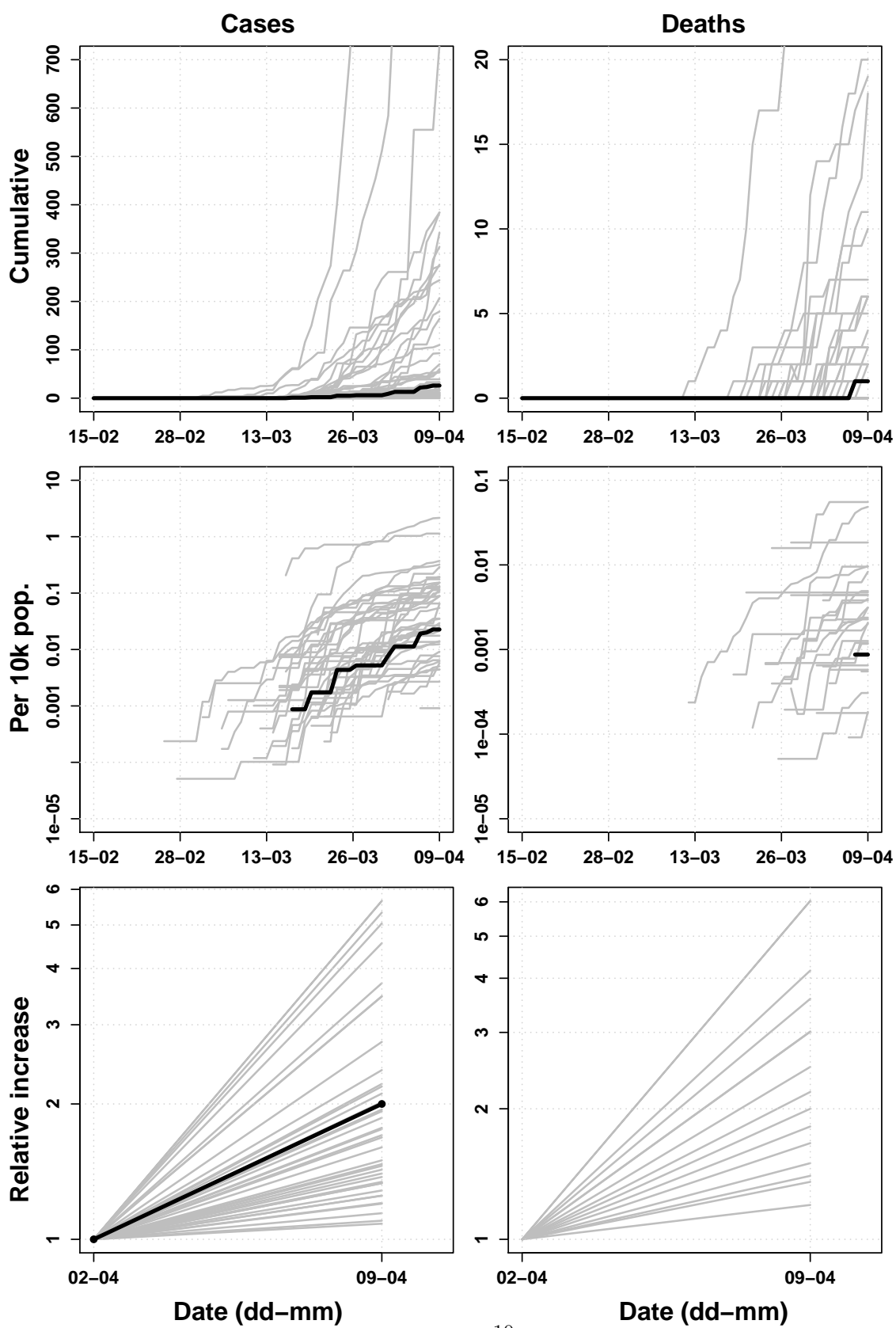
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Angola

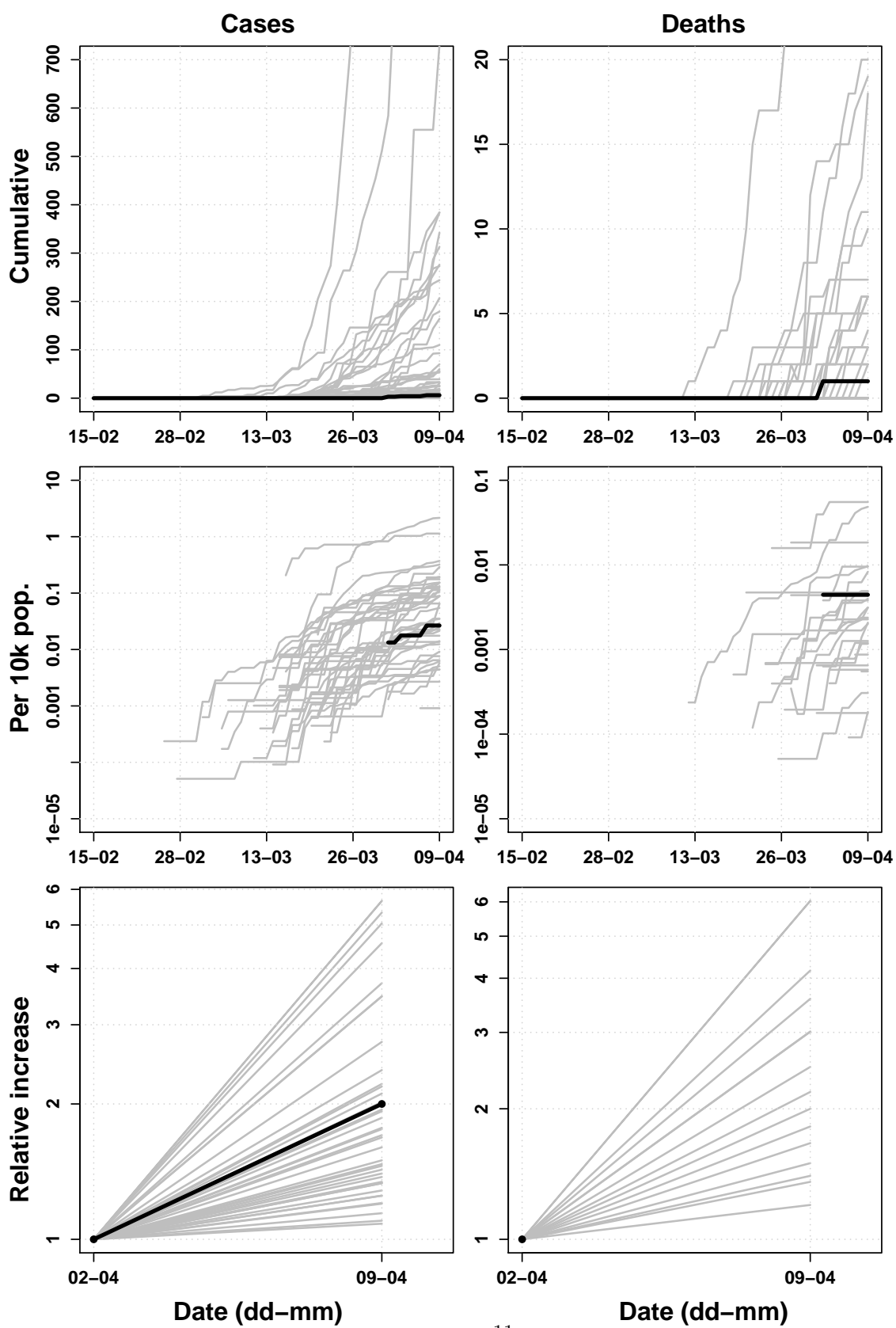


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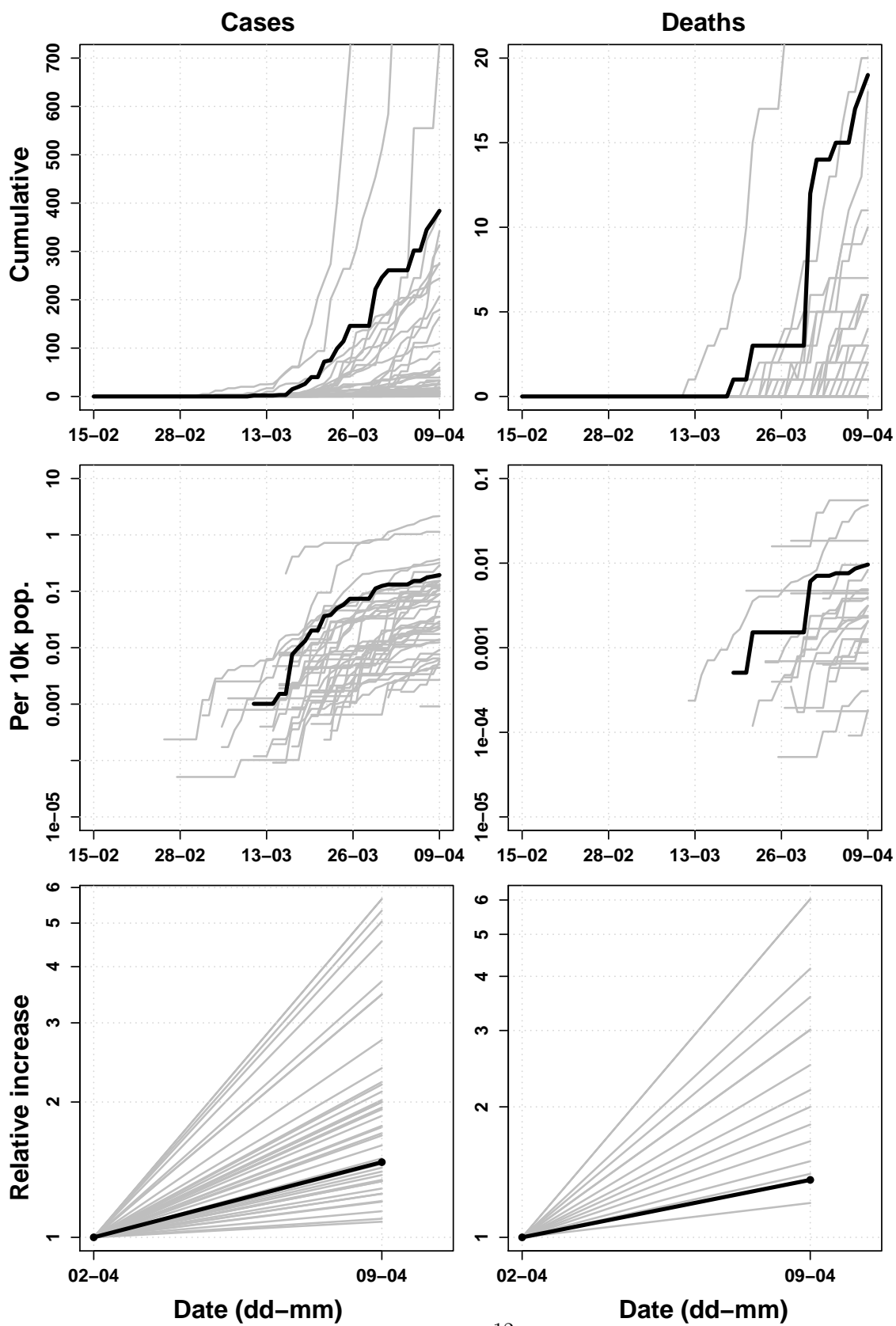
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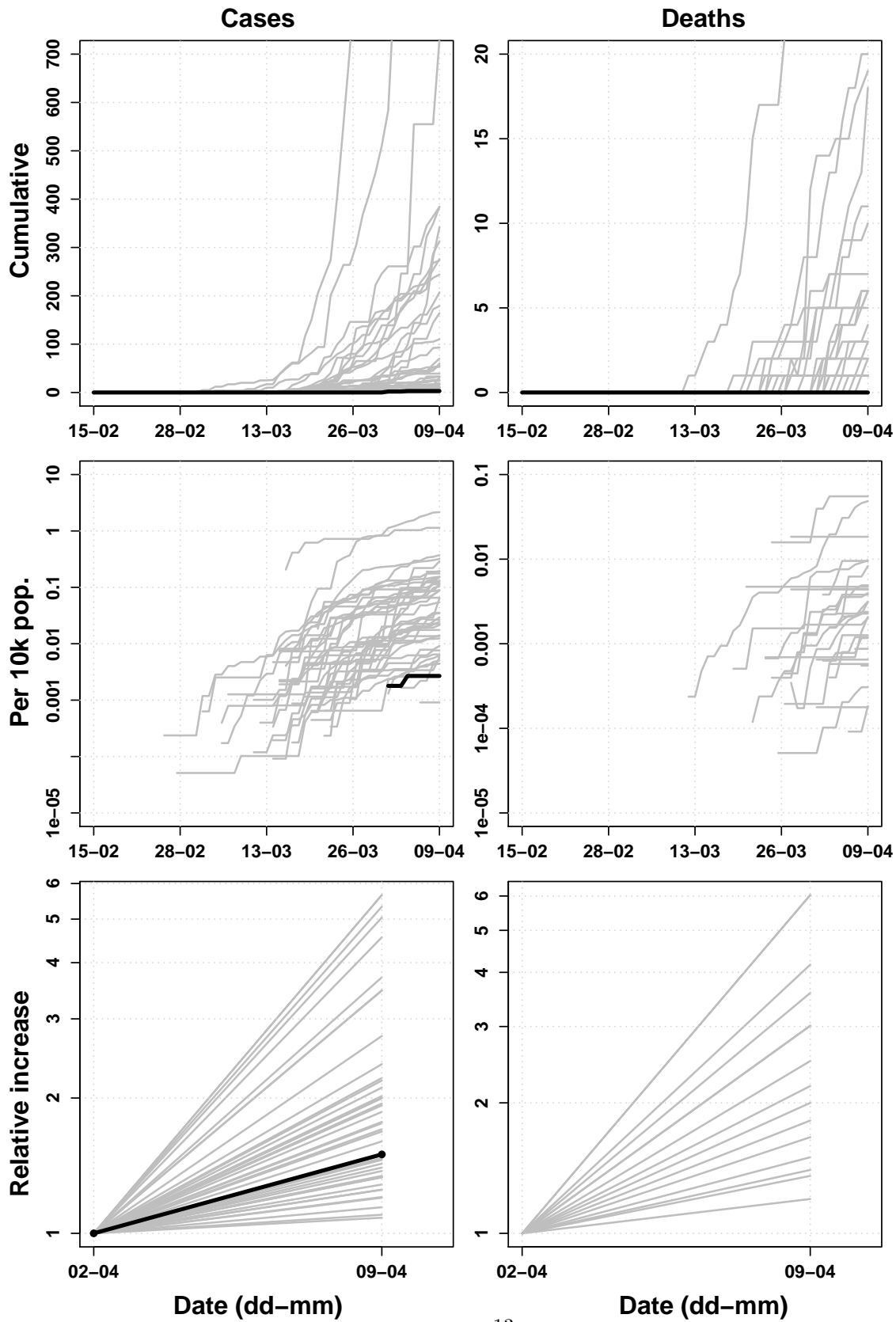
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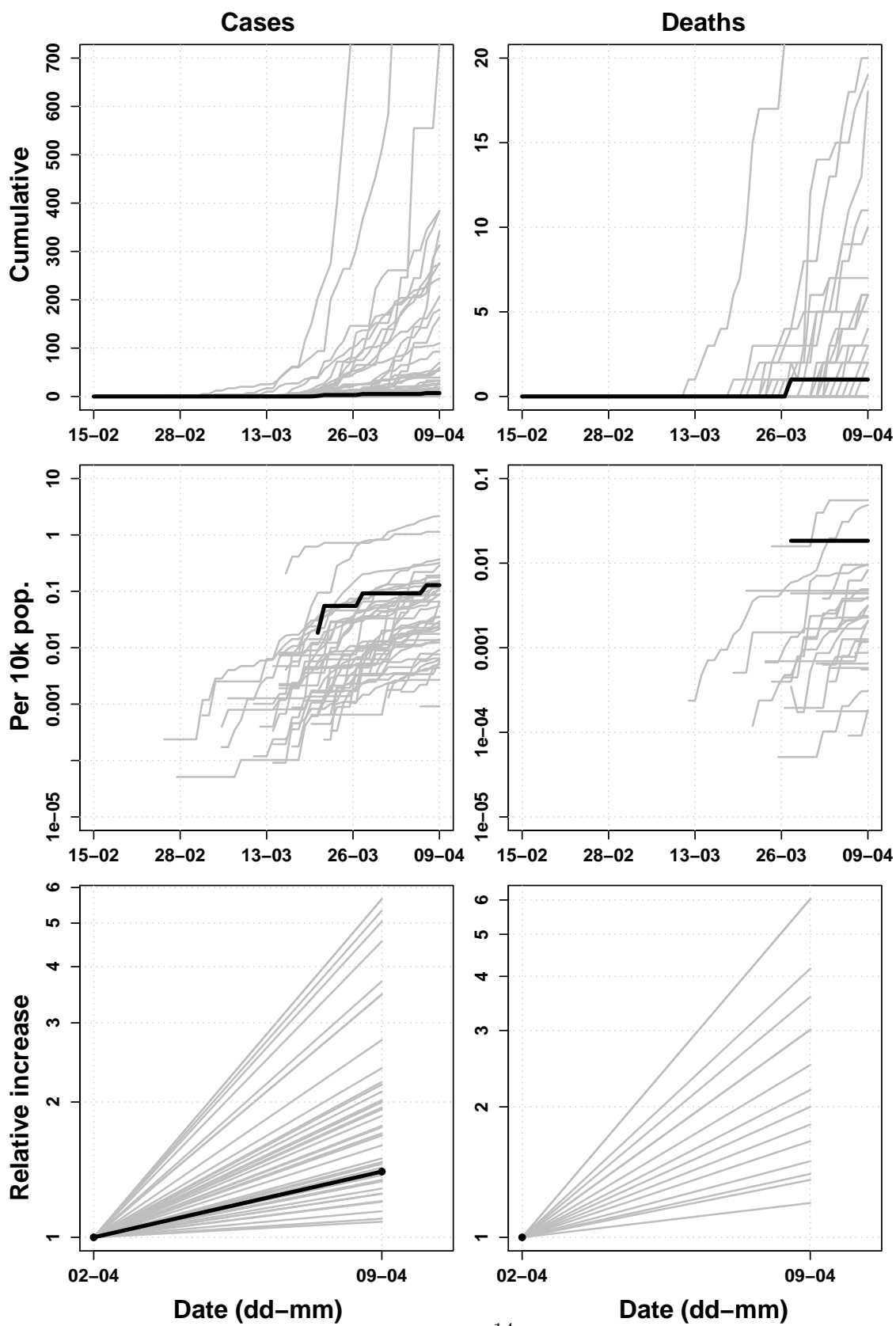
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Burundi

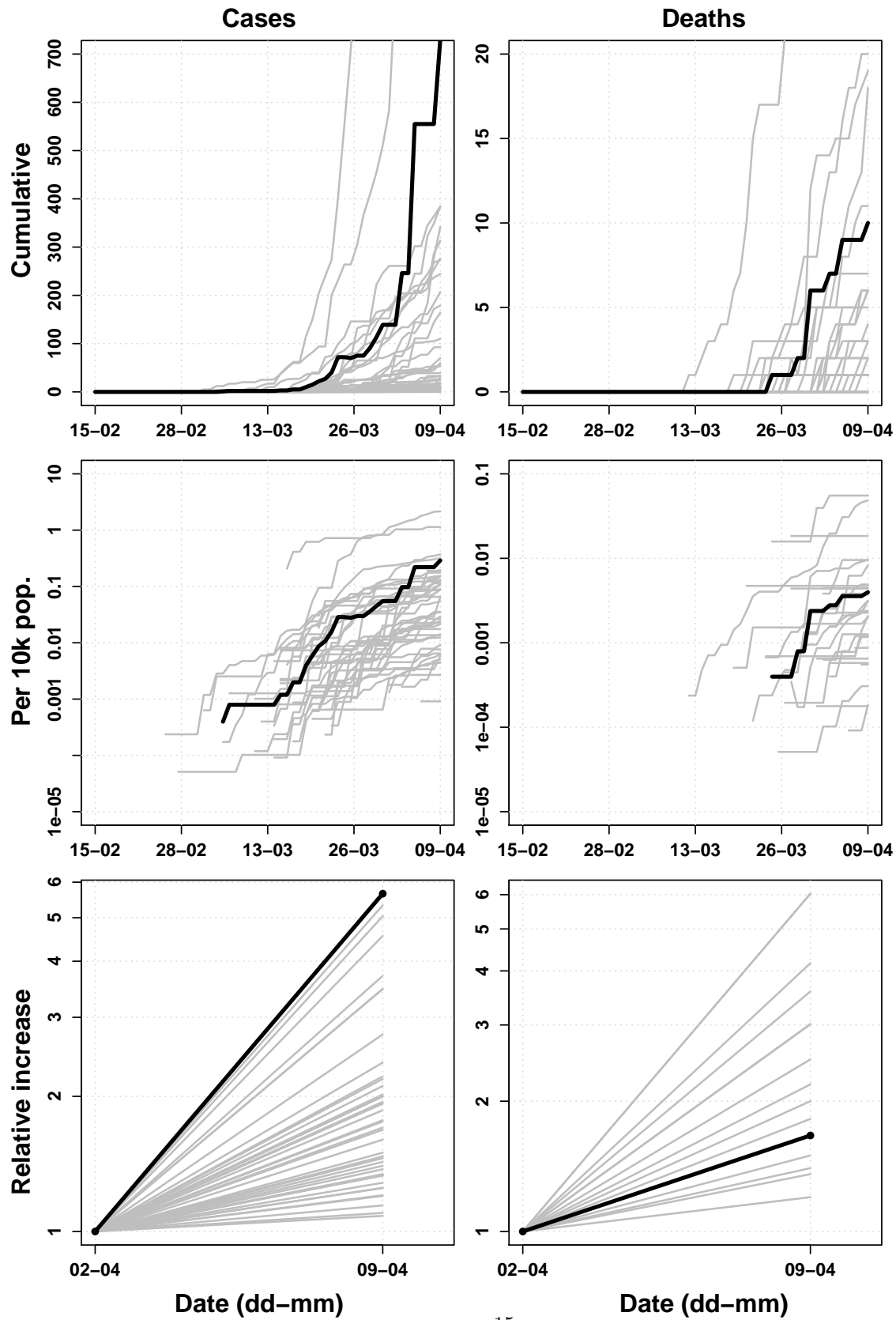


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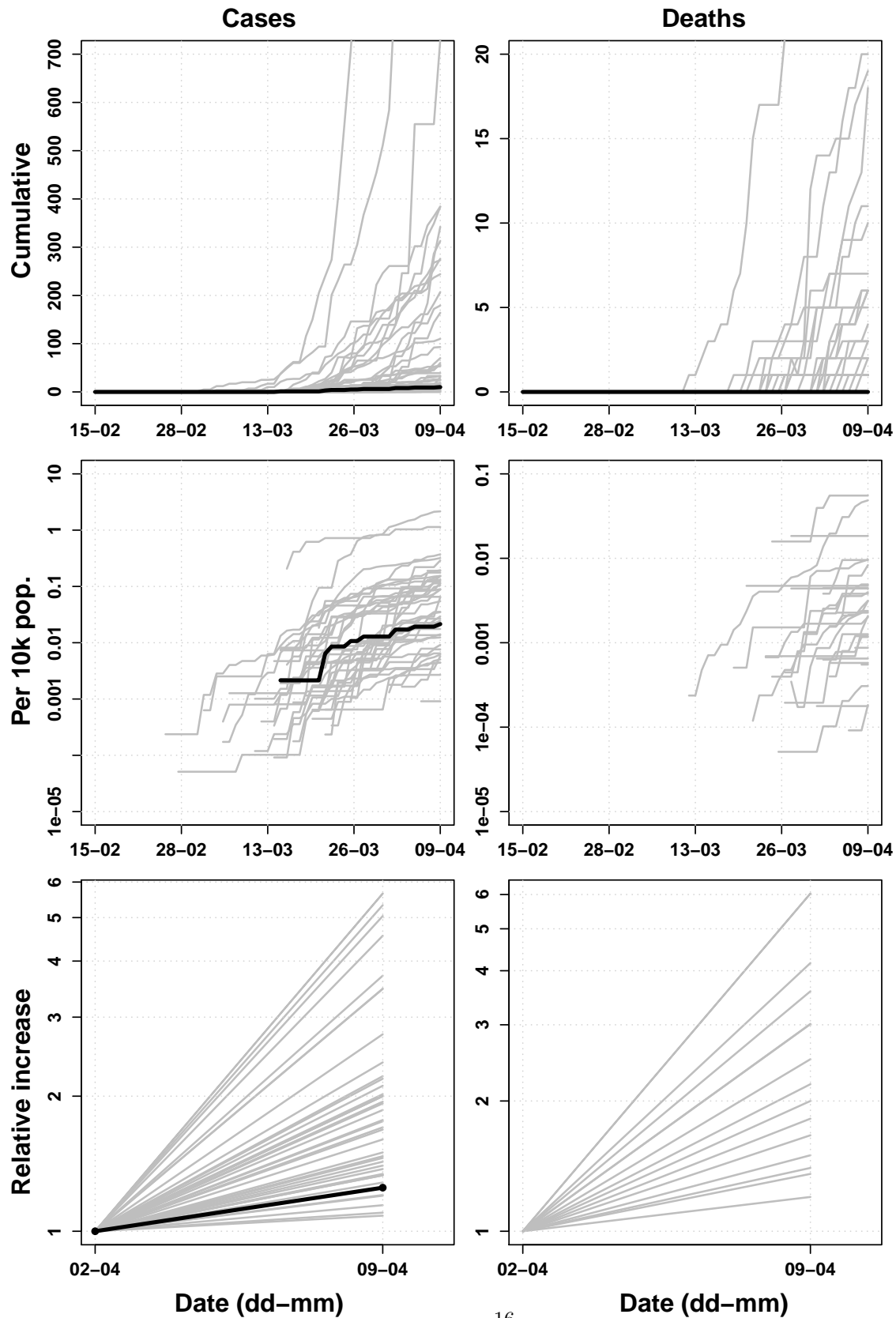


Cameroon

Cameroon

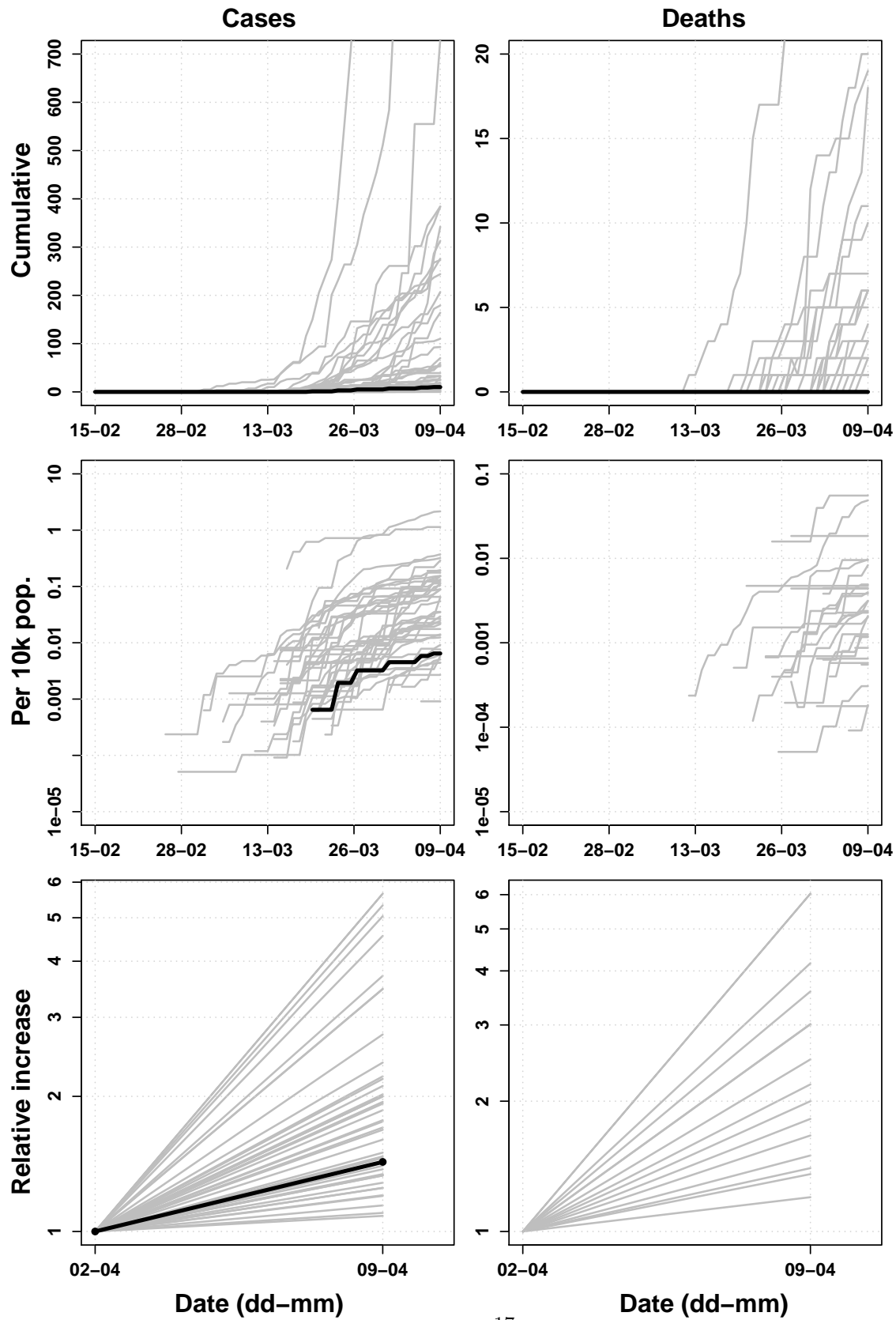


Central African Republic

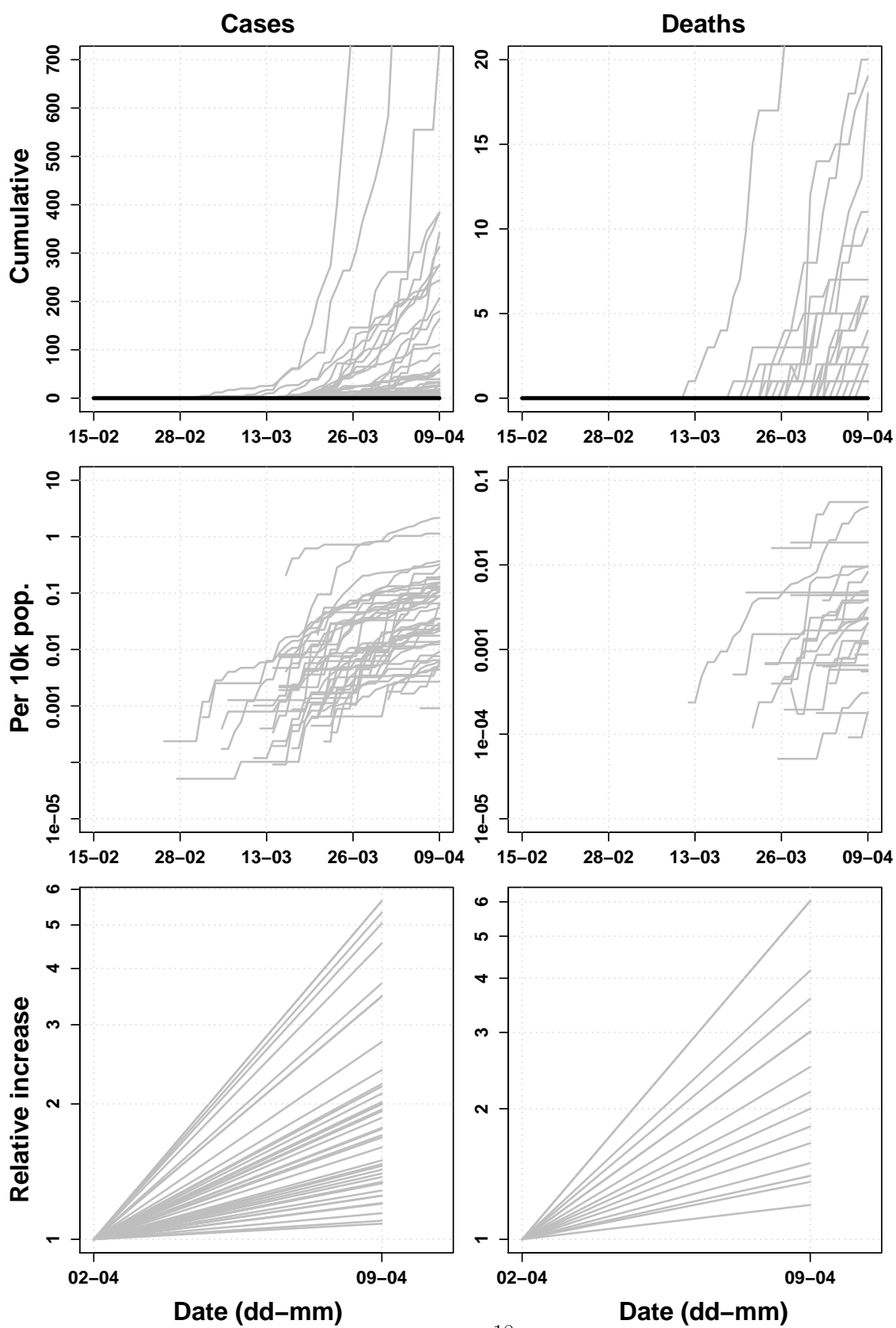


Chad

Chad

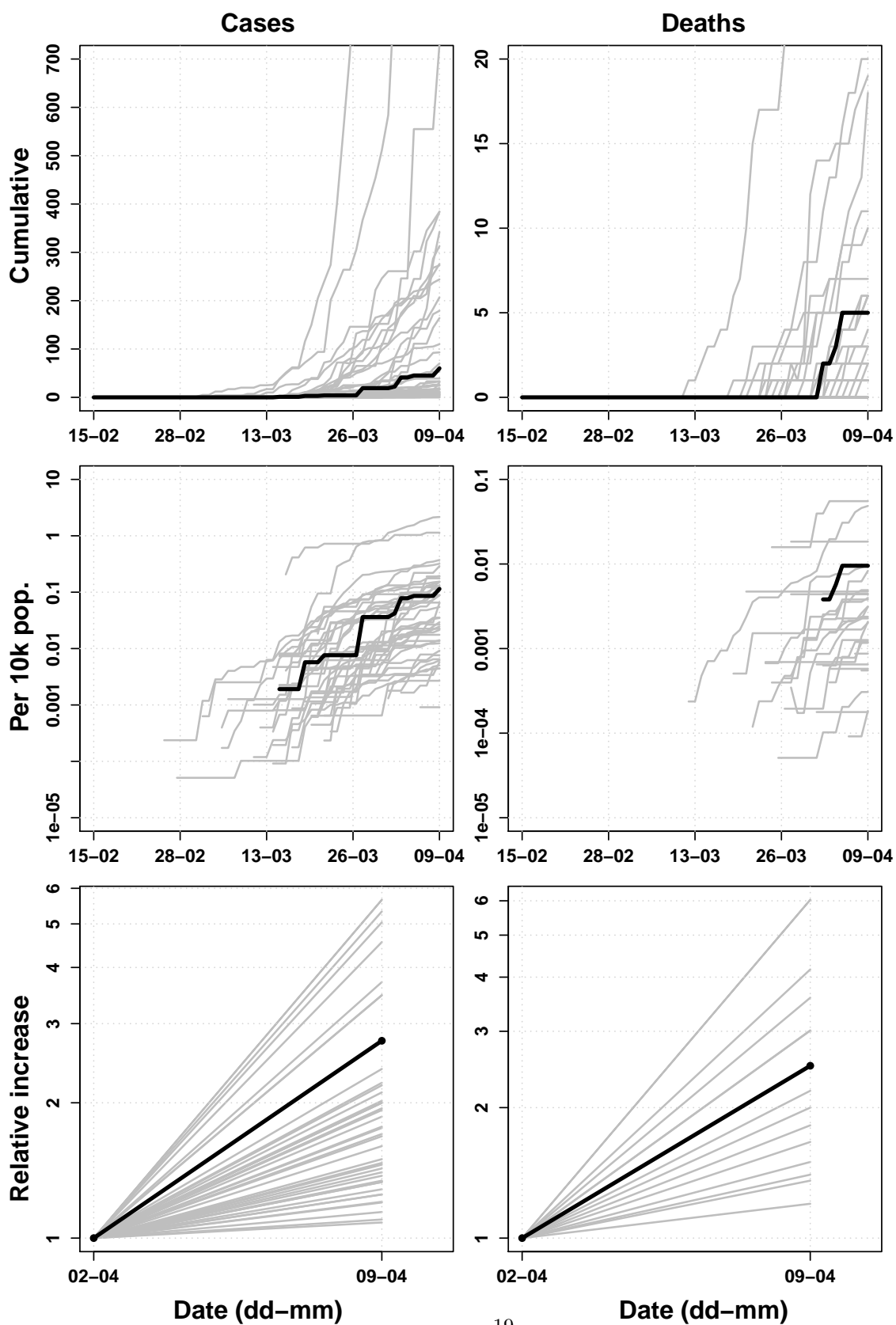


Comoros

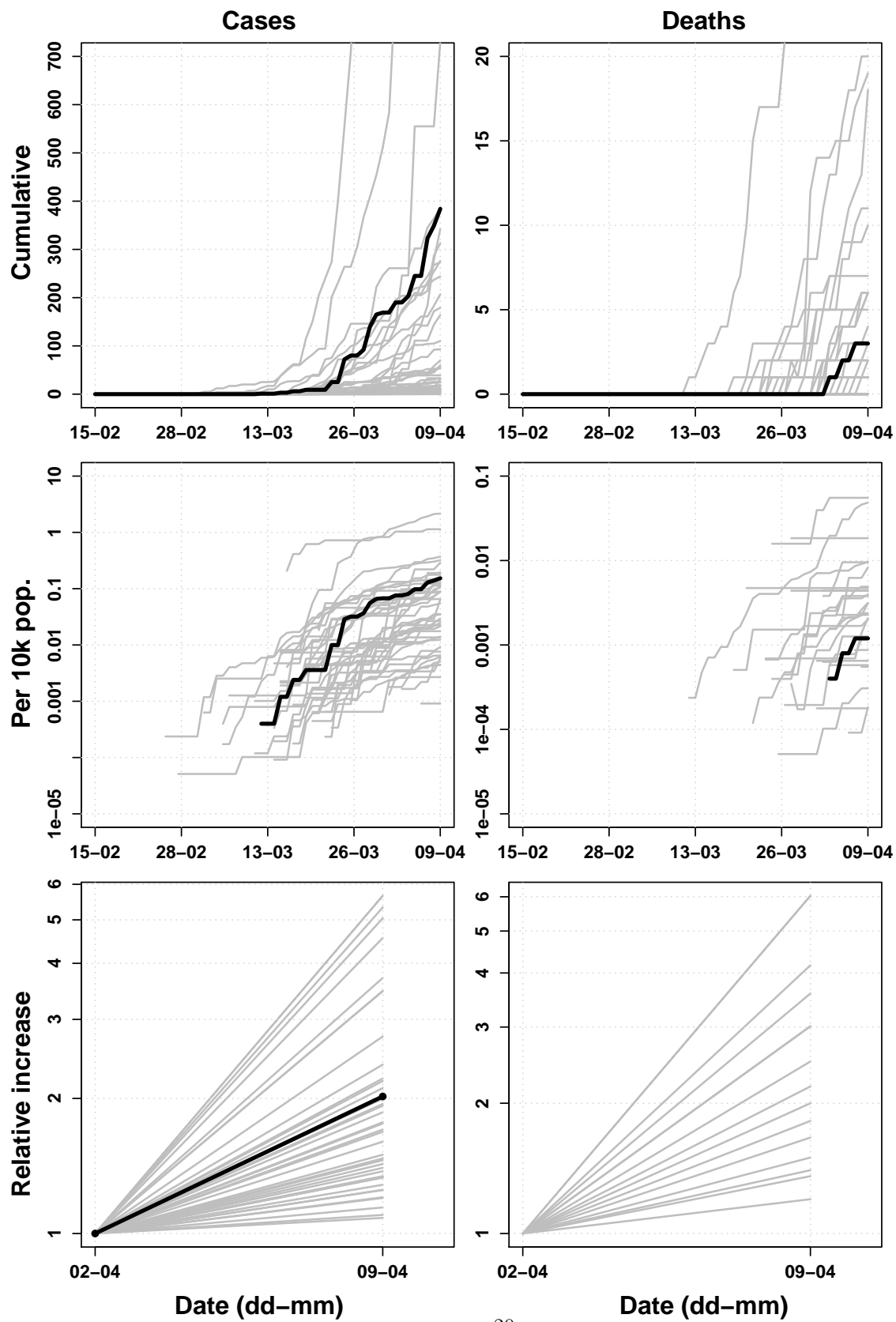


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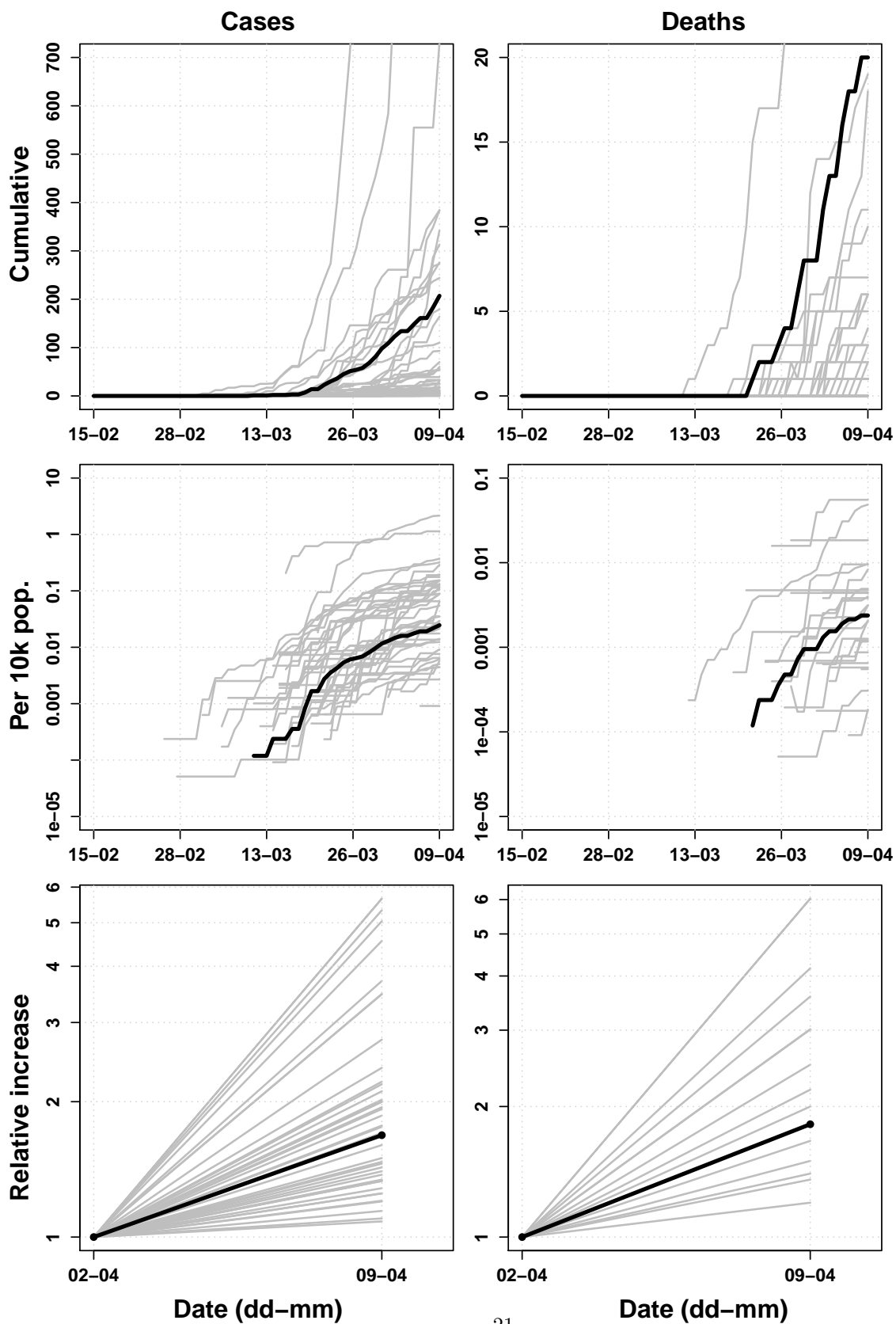
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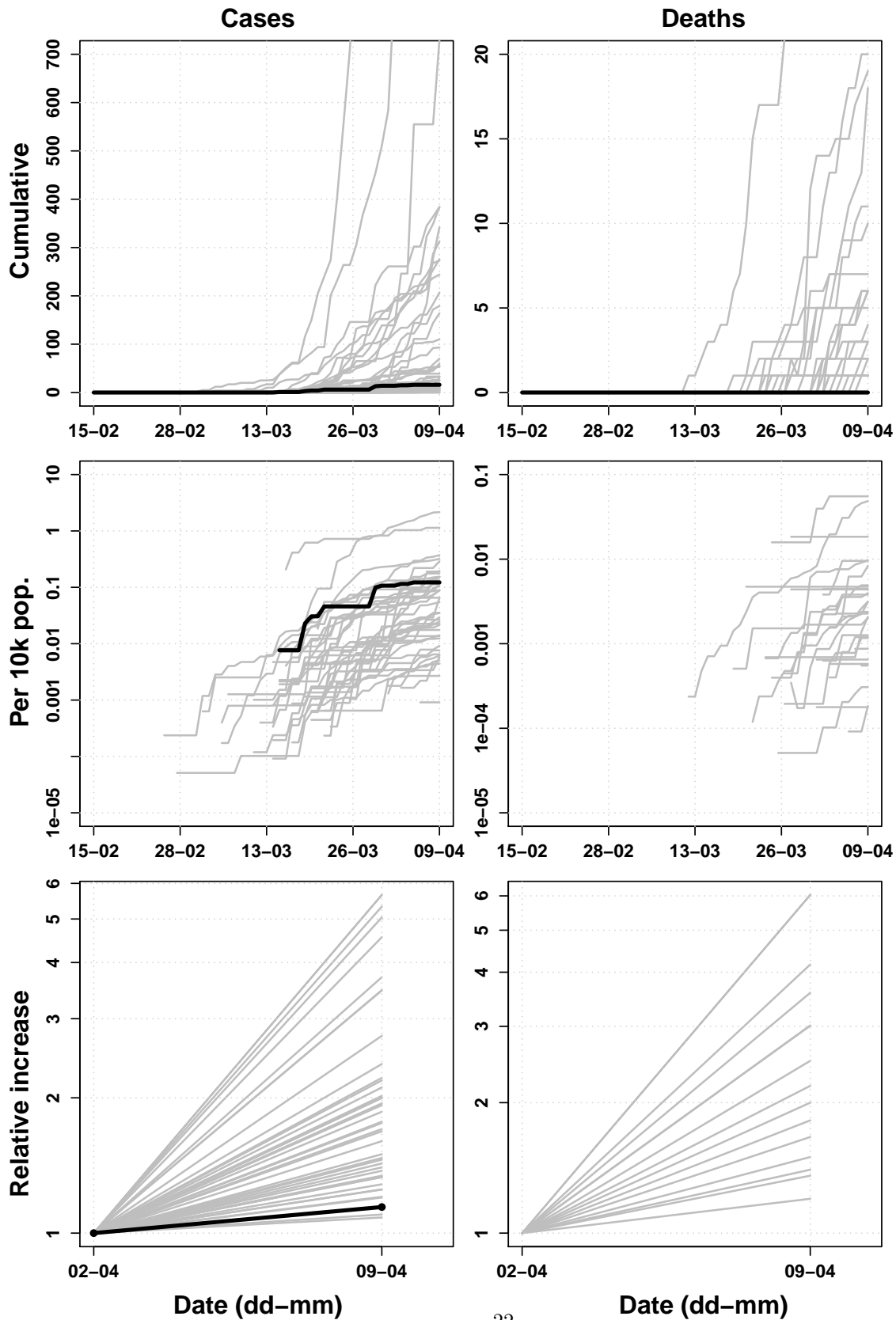
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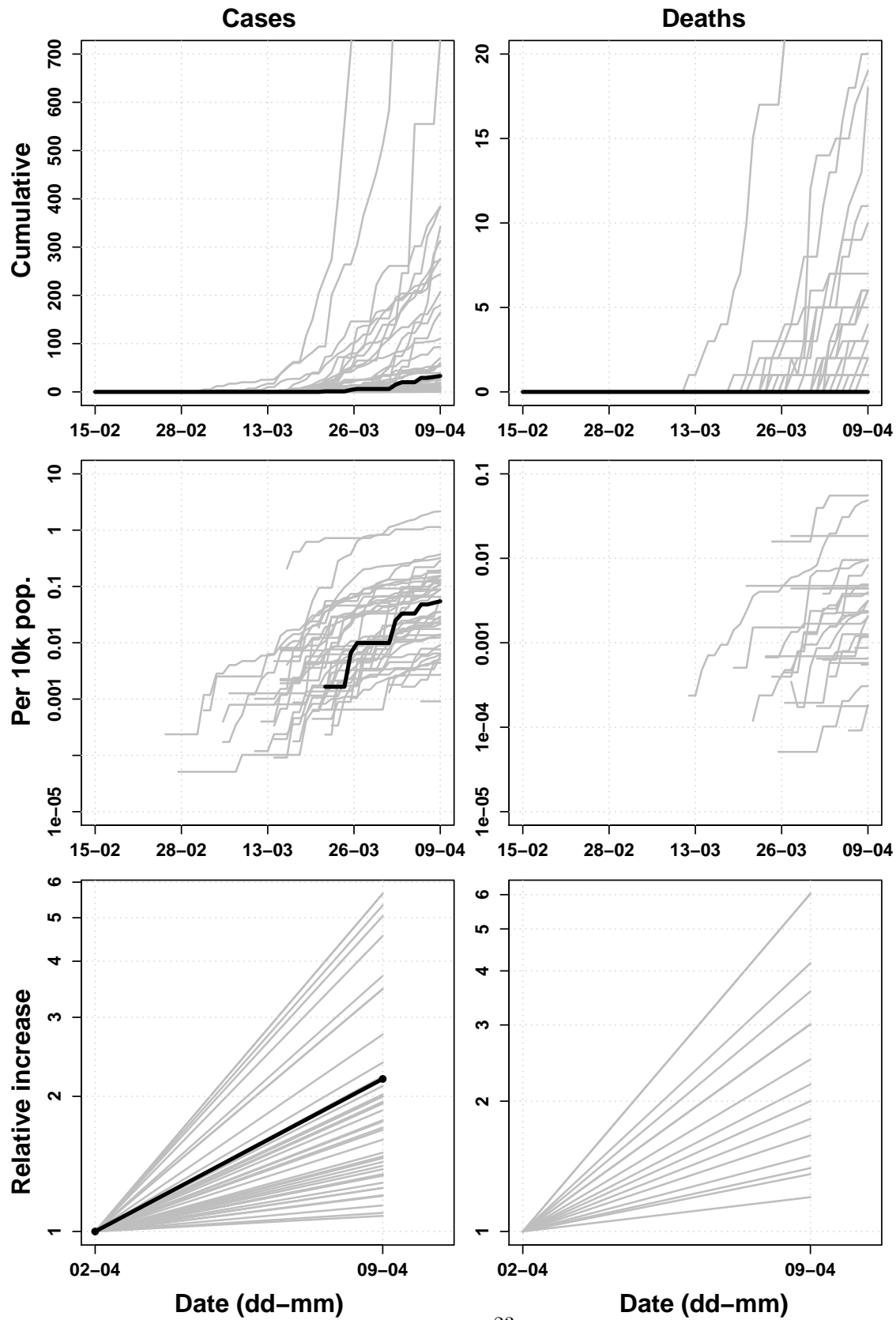
Democratic Republic of the Congo



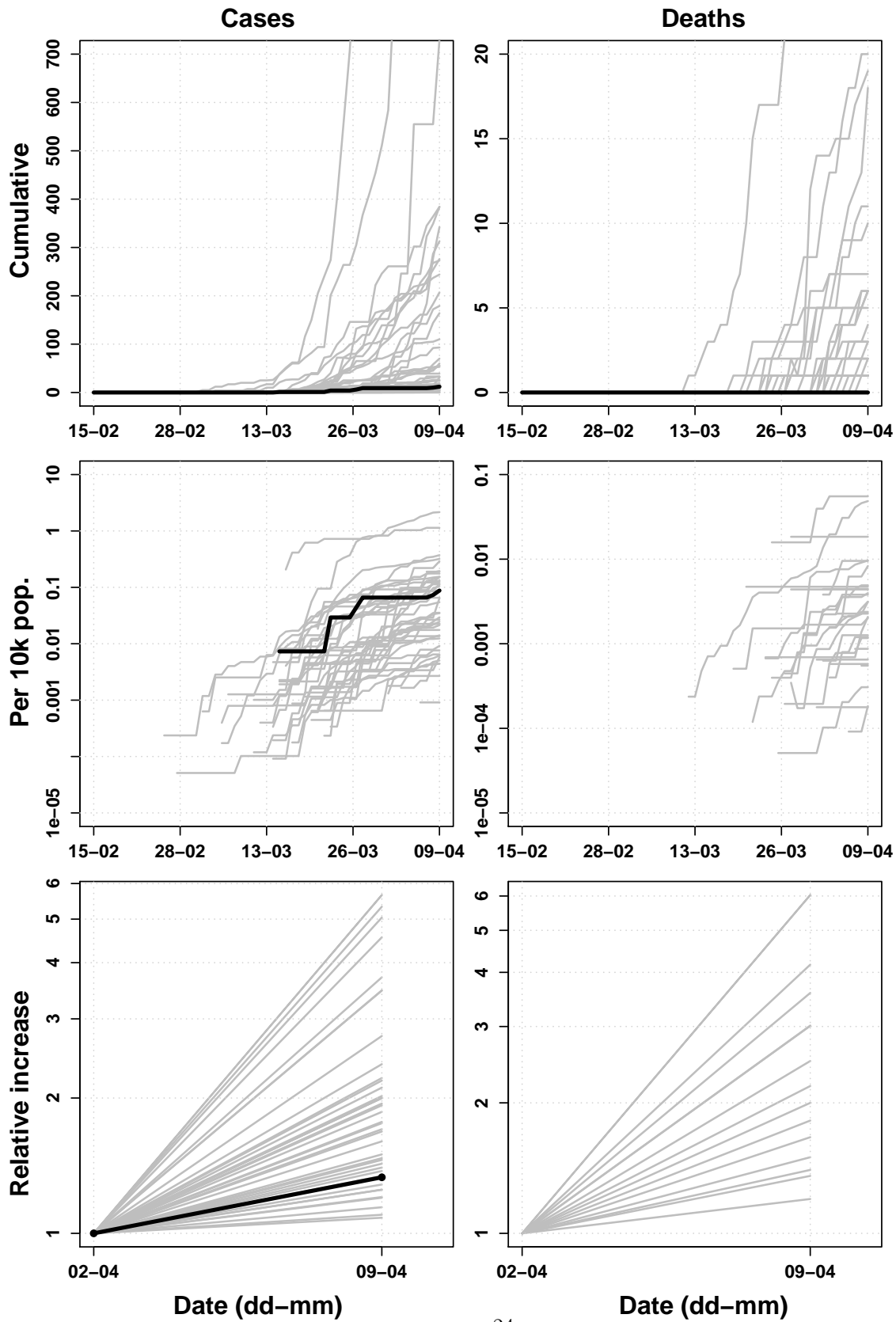
Equatorial Guinea



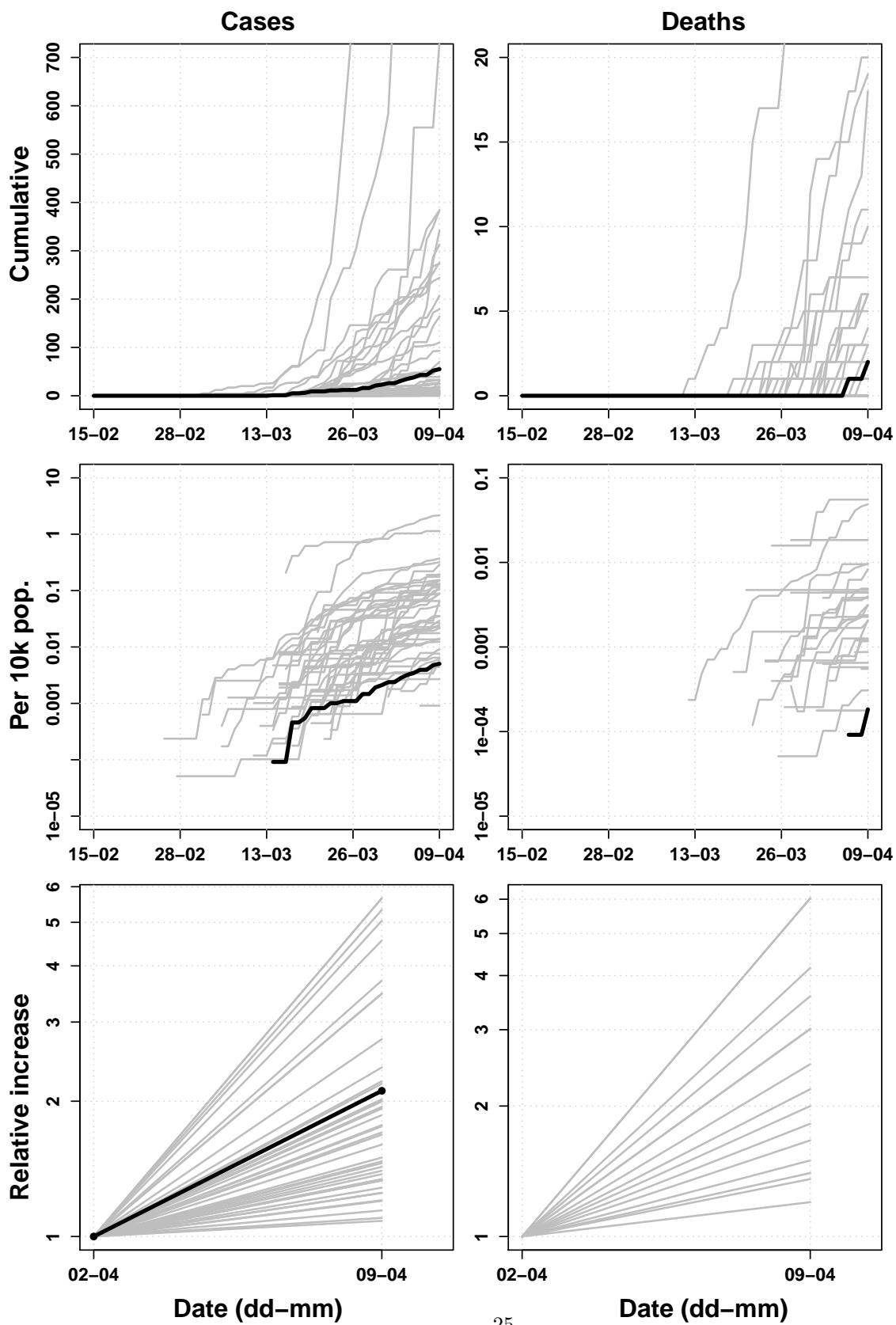
Eritrea



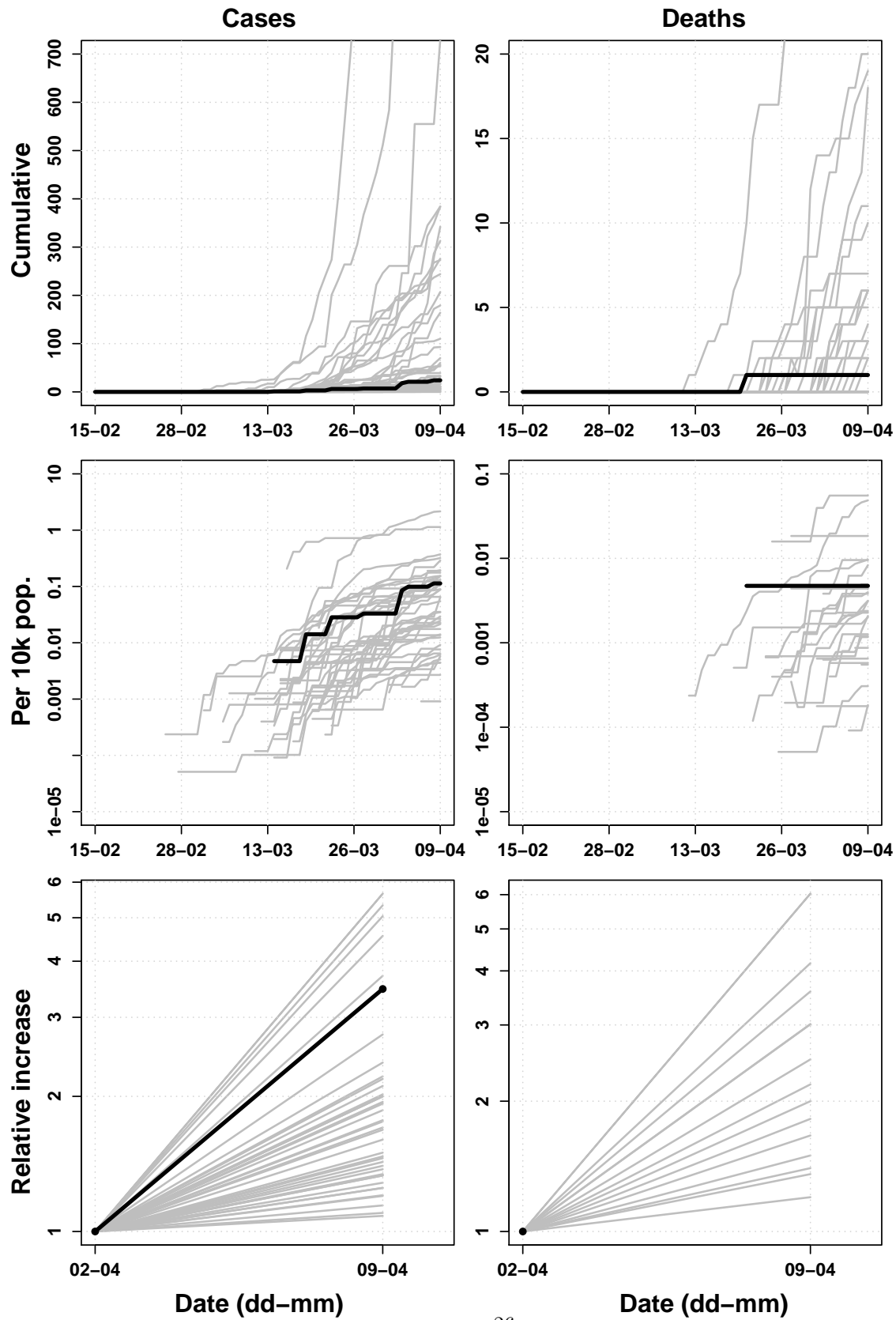
Eswatini



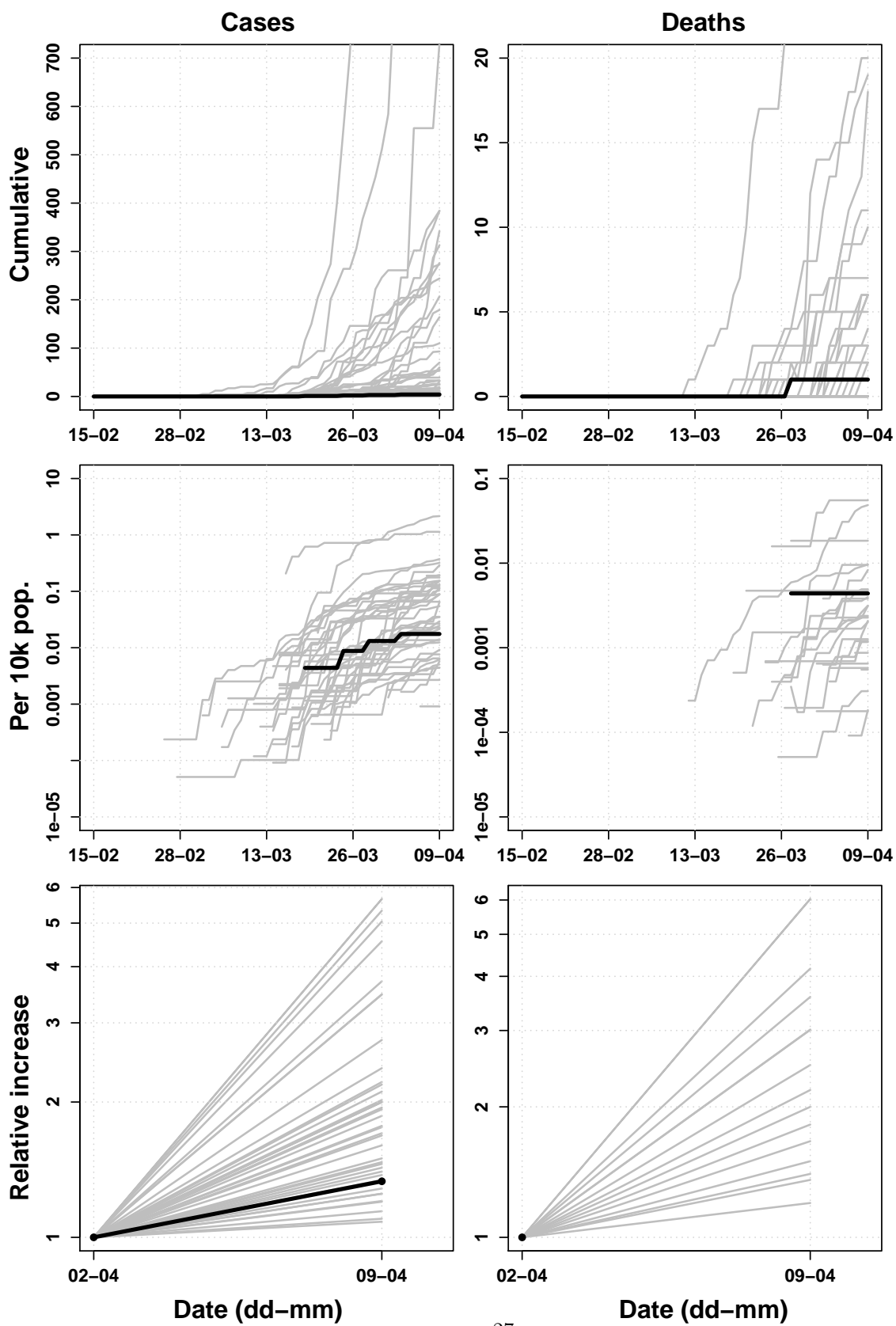
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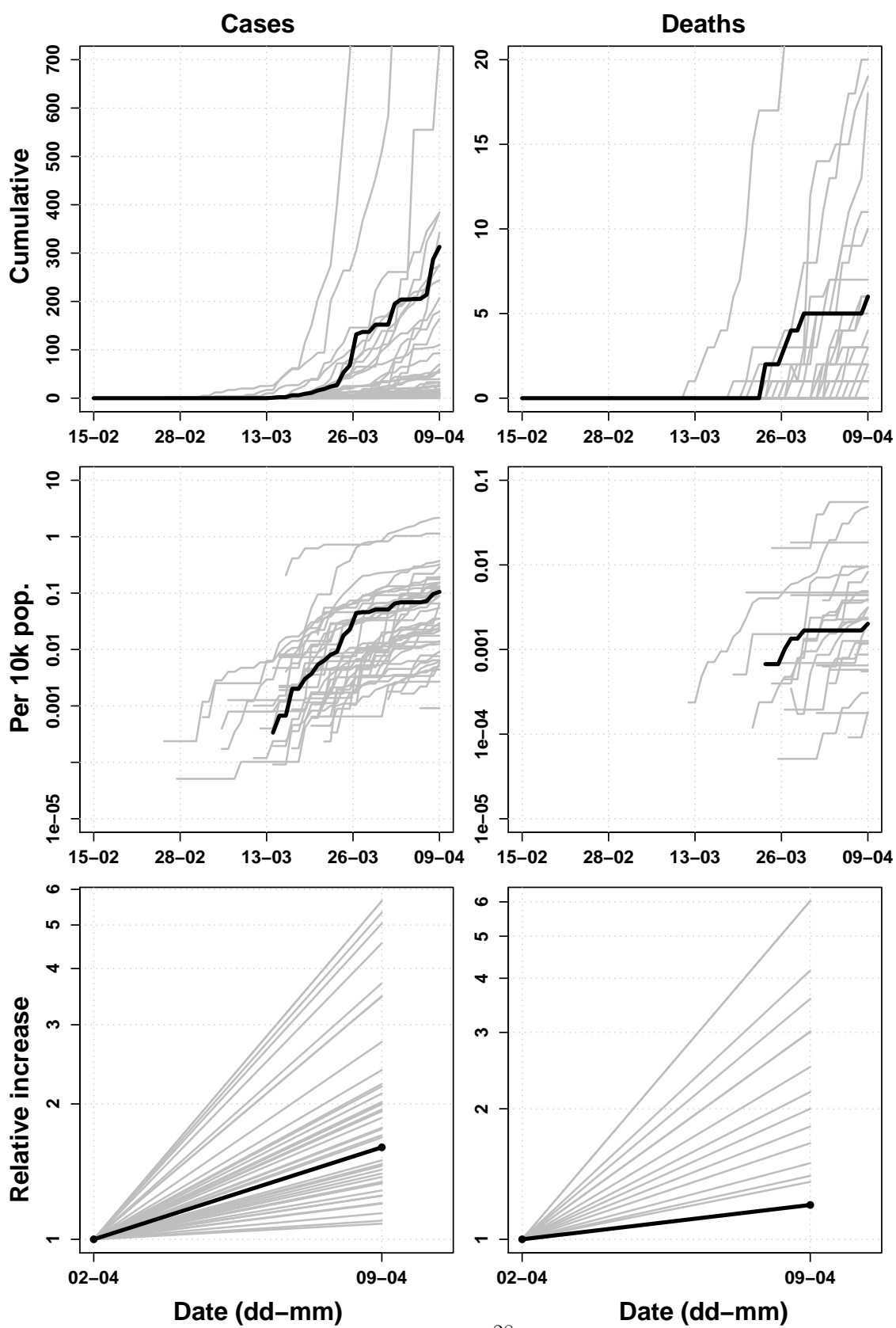
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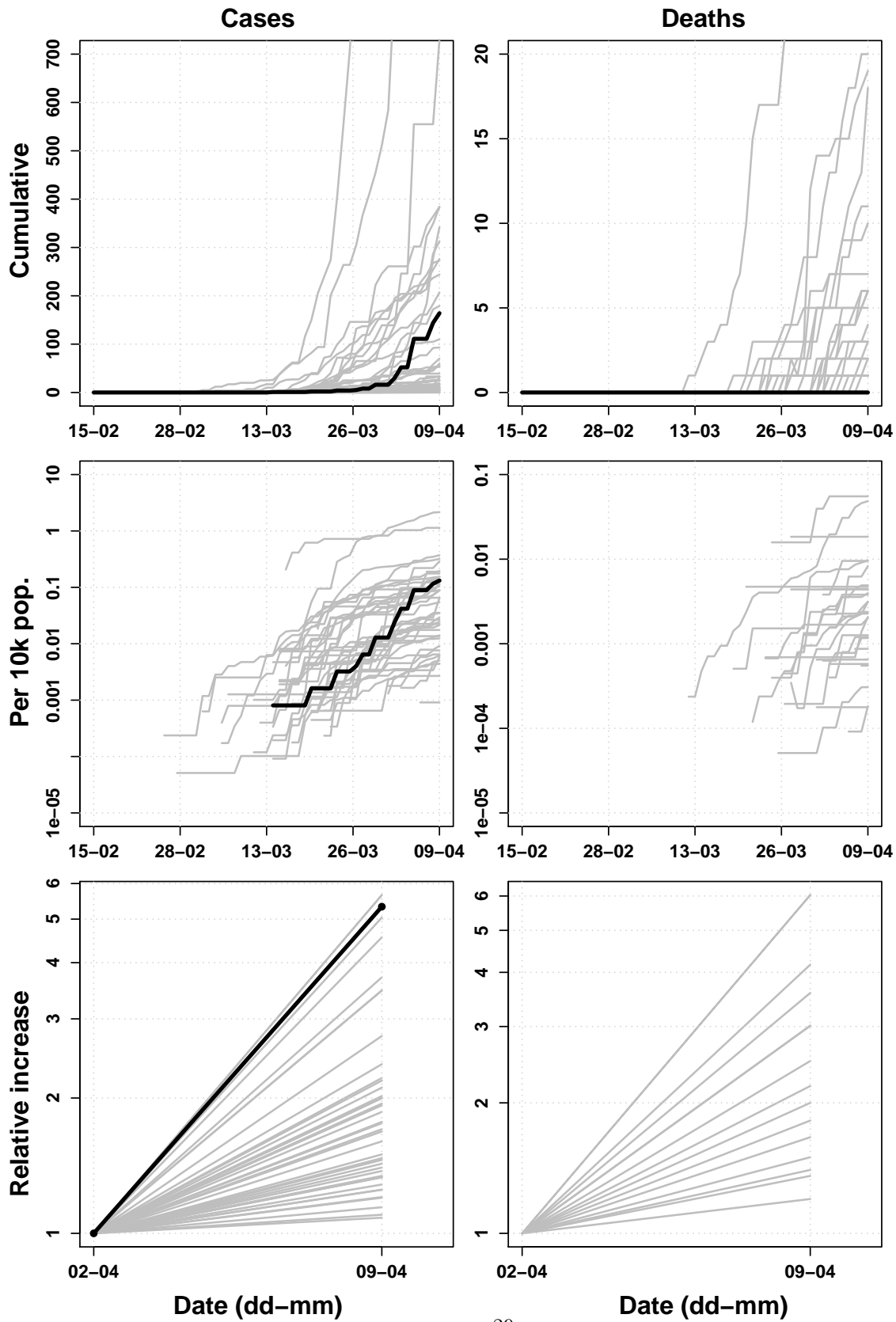
Gambia



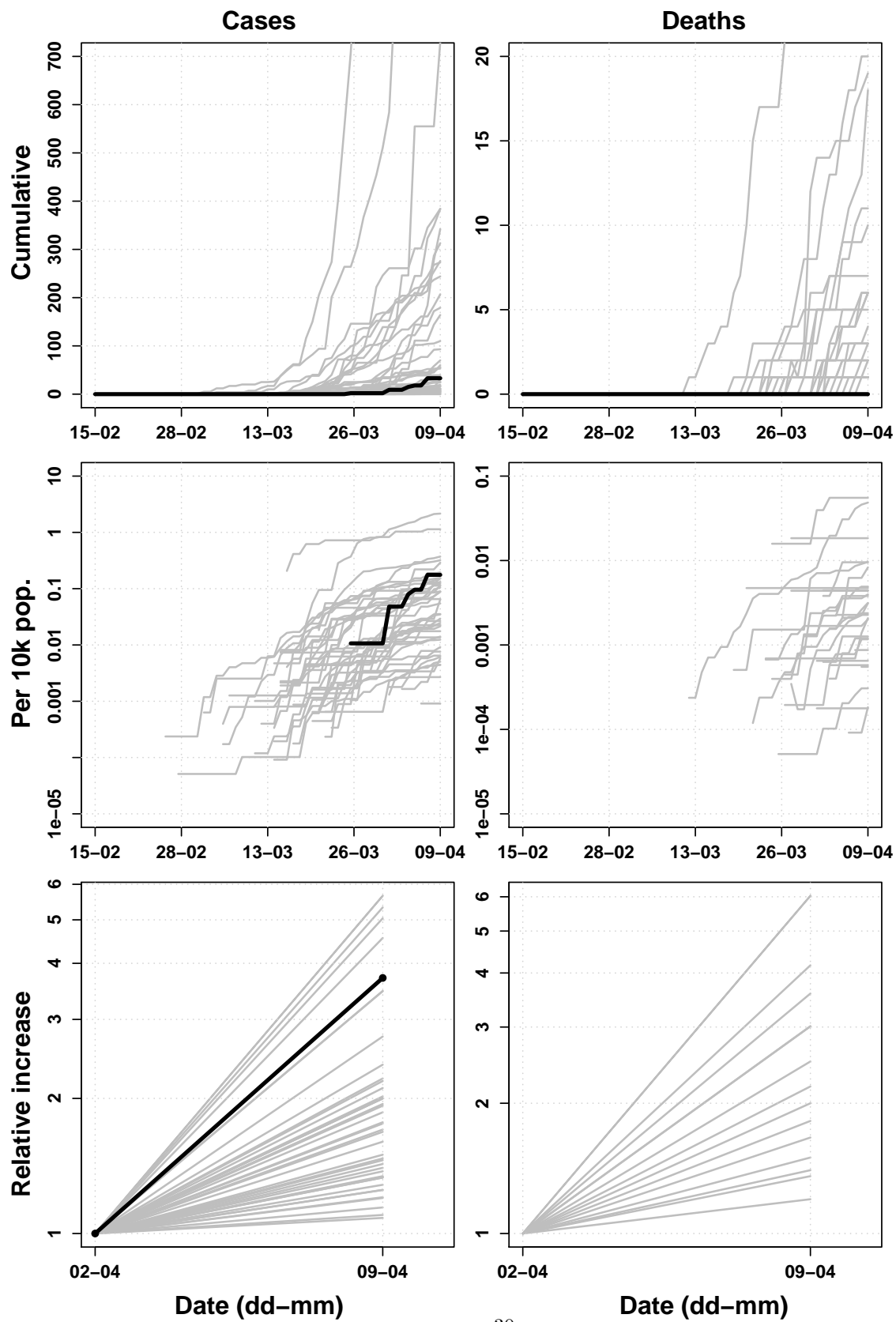
Ghana



Guinea

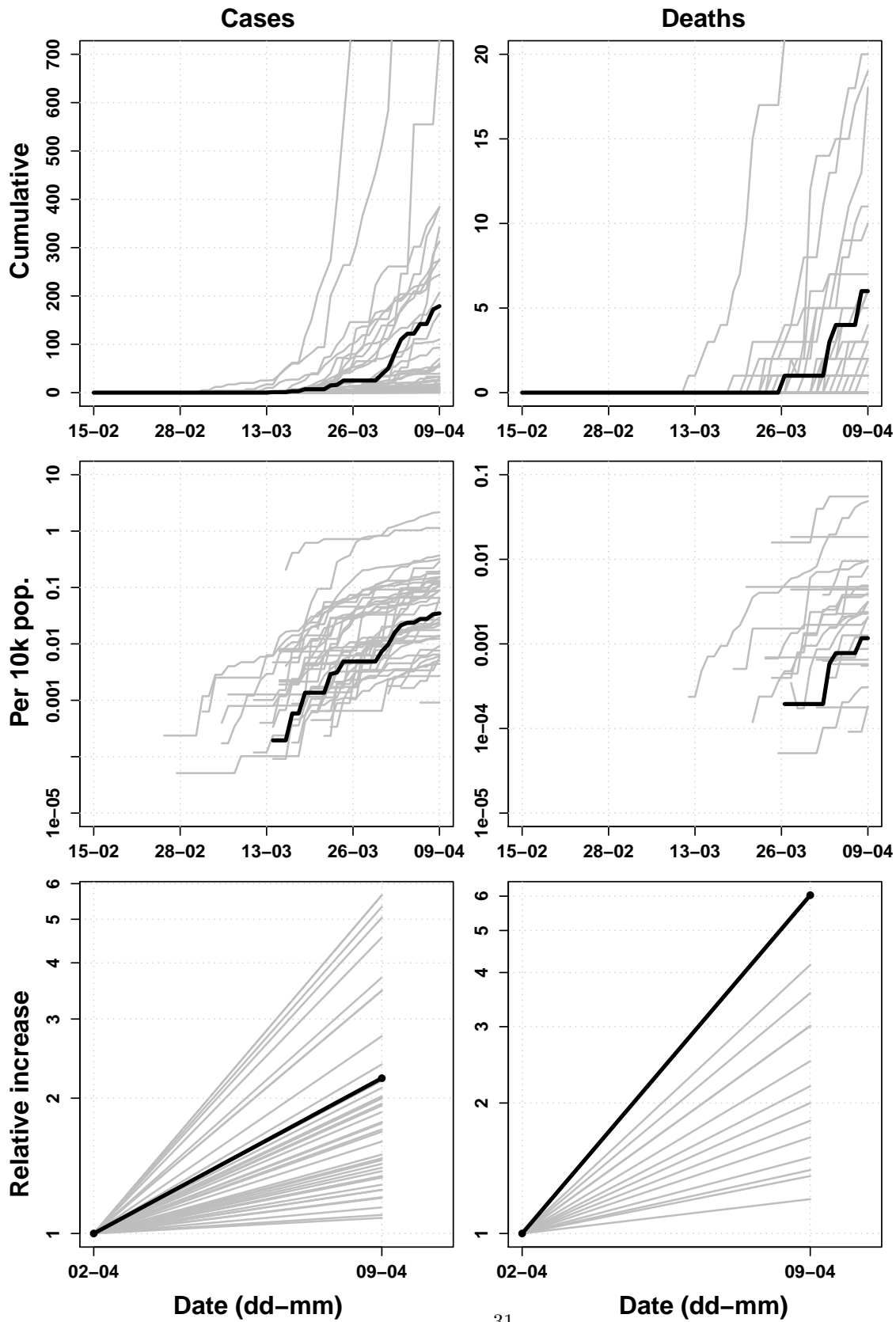


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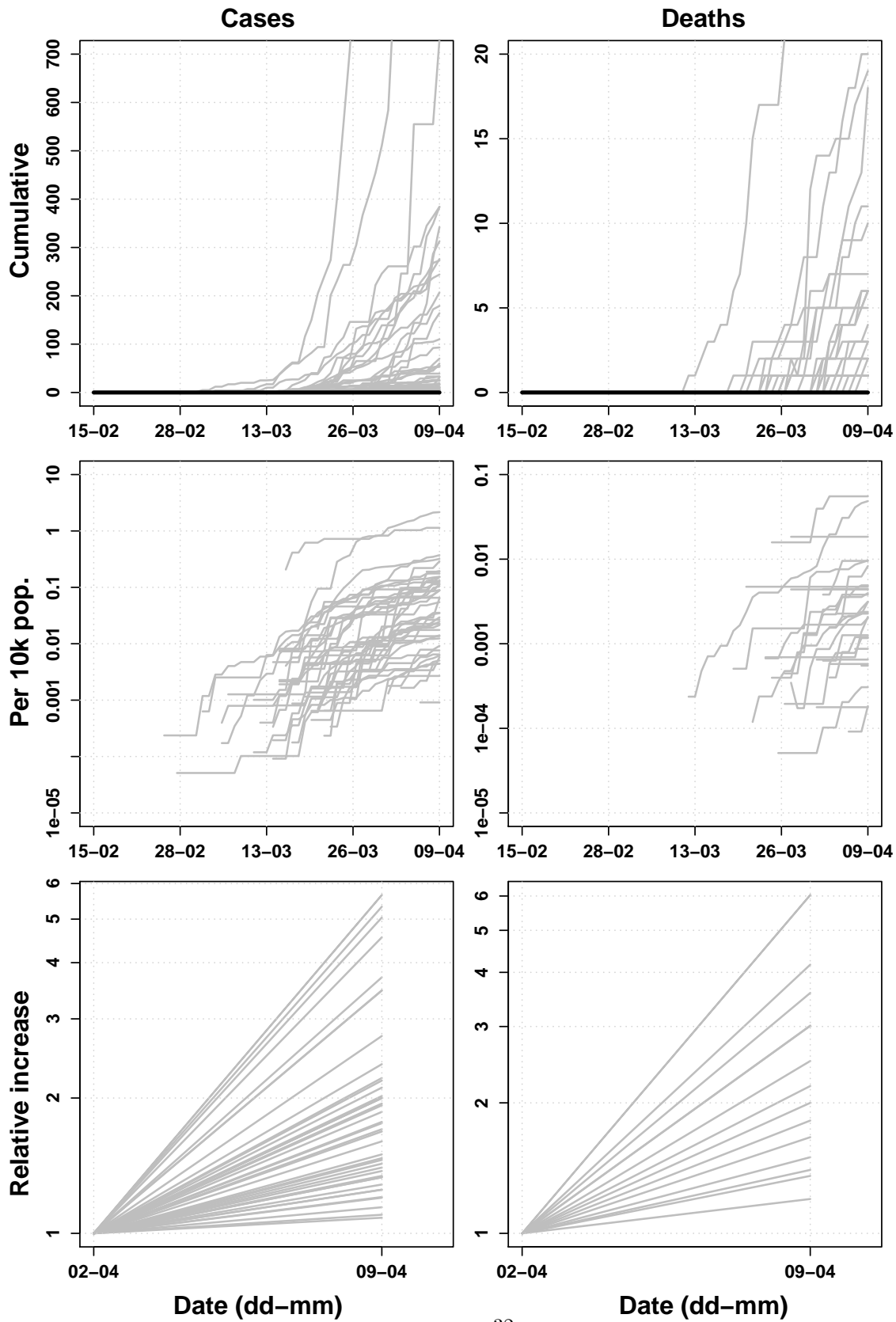


Kenya

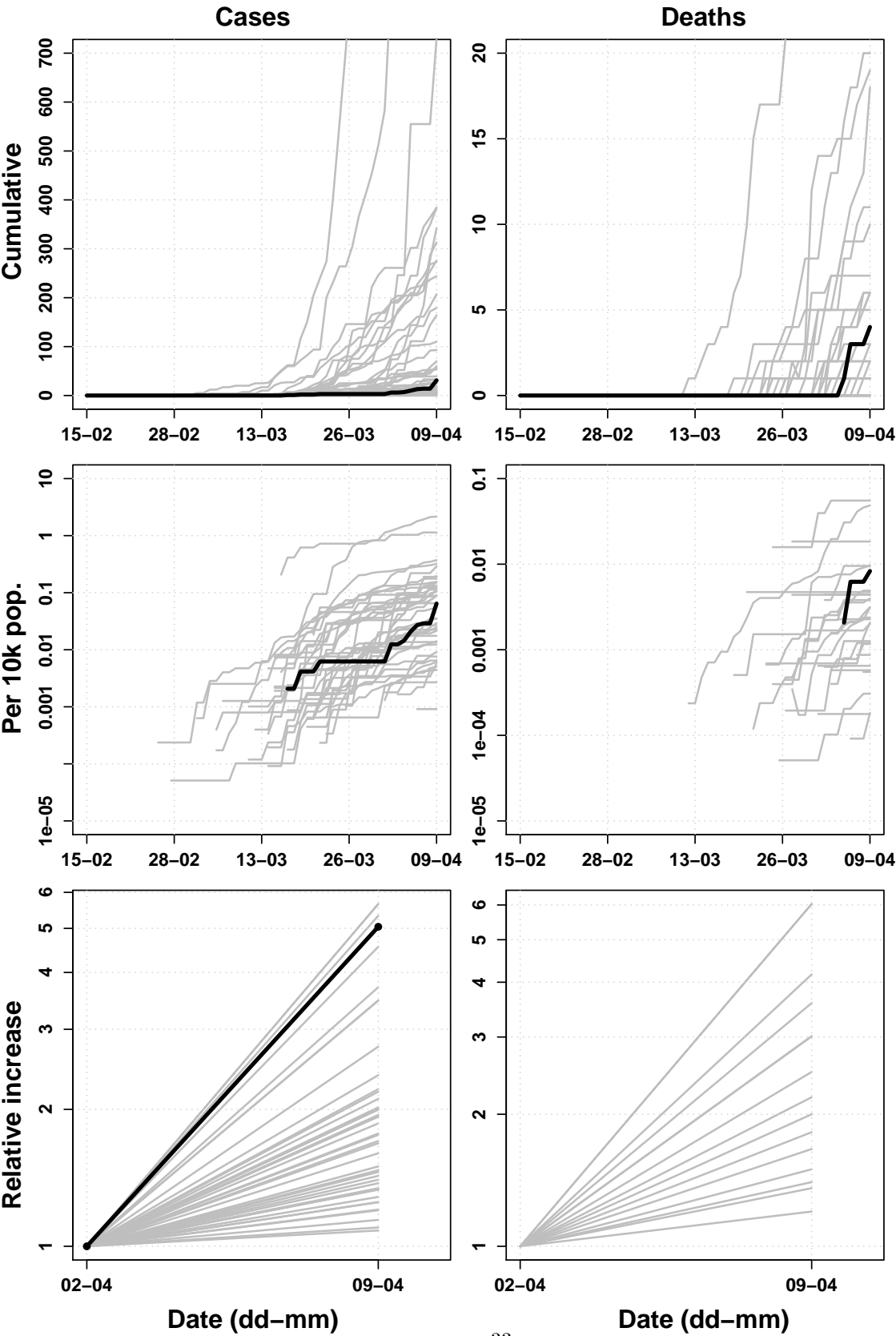
Kenya



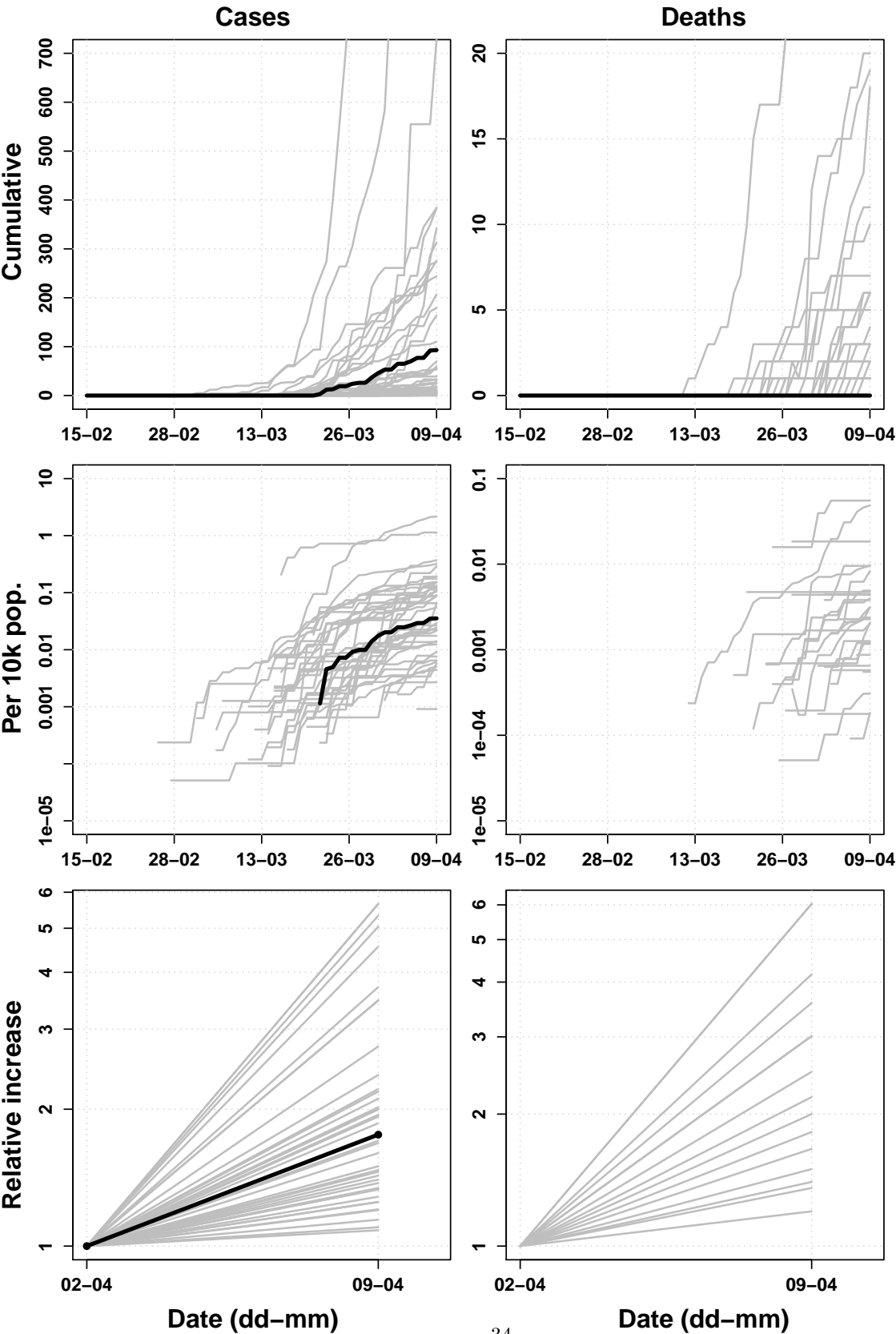
Lesotho



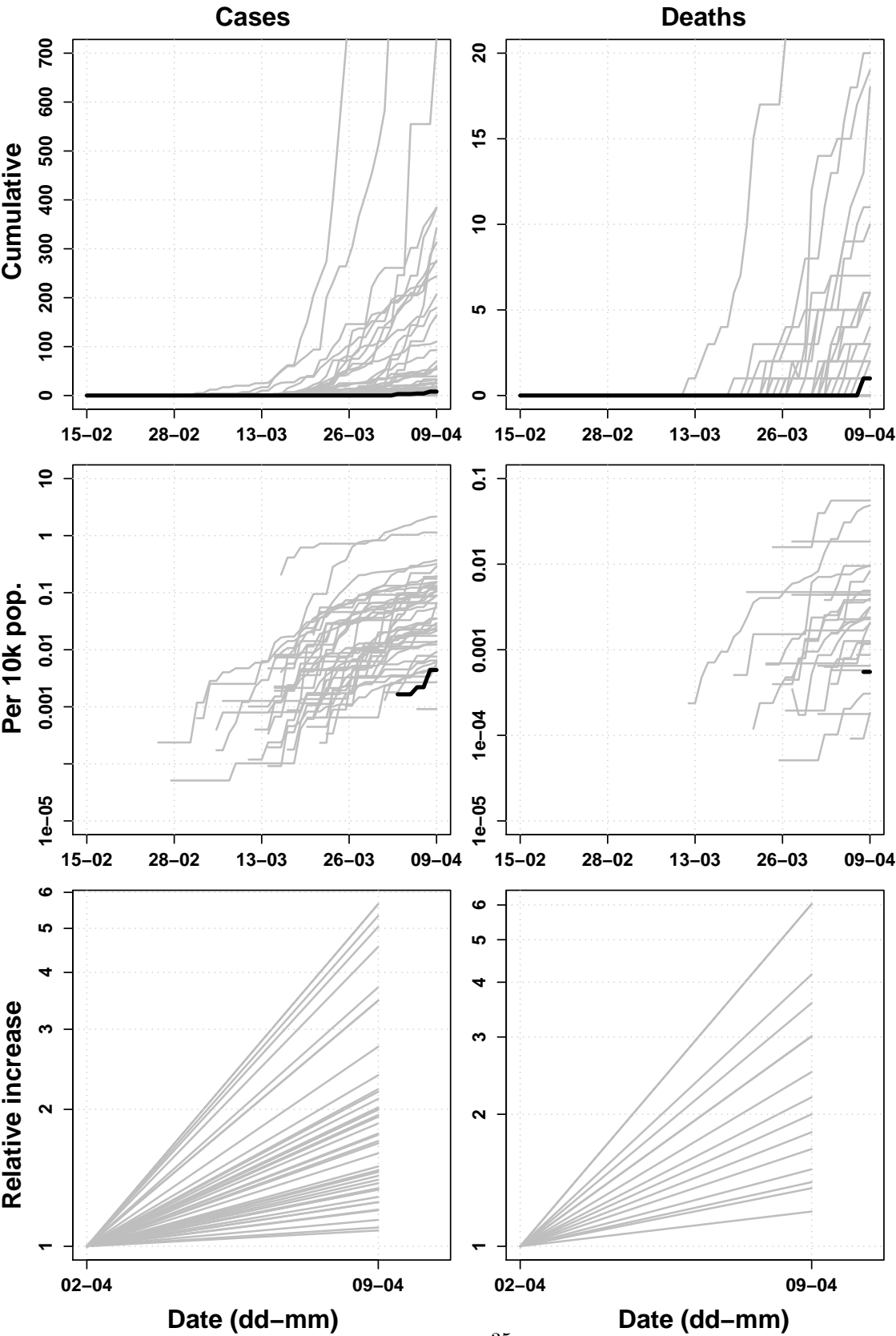
Liberia



Madagascar

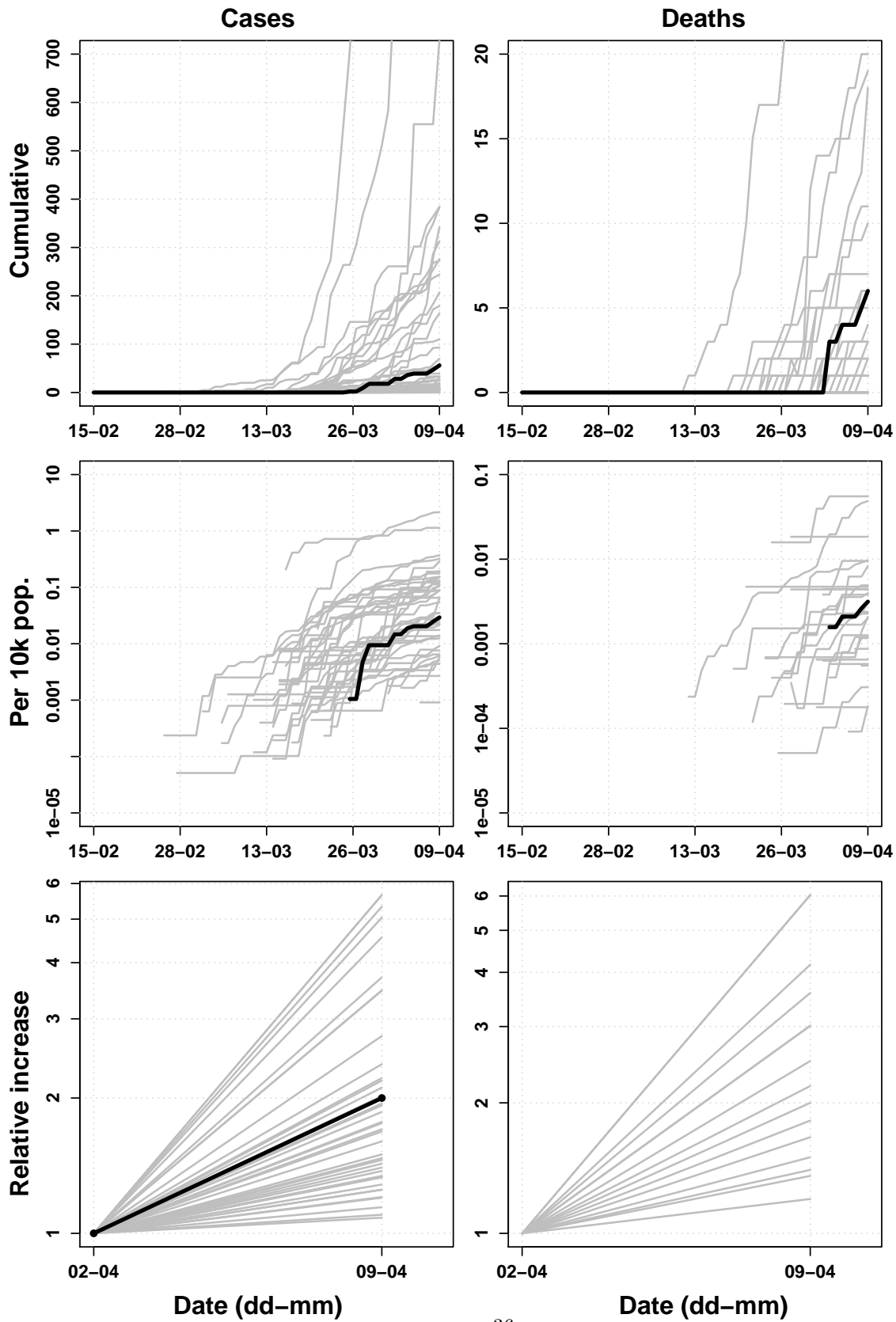


Malawi

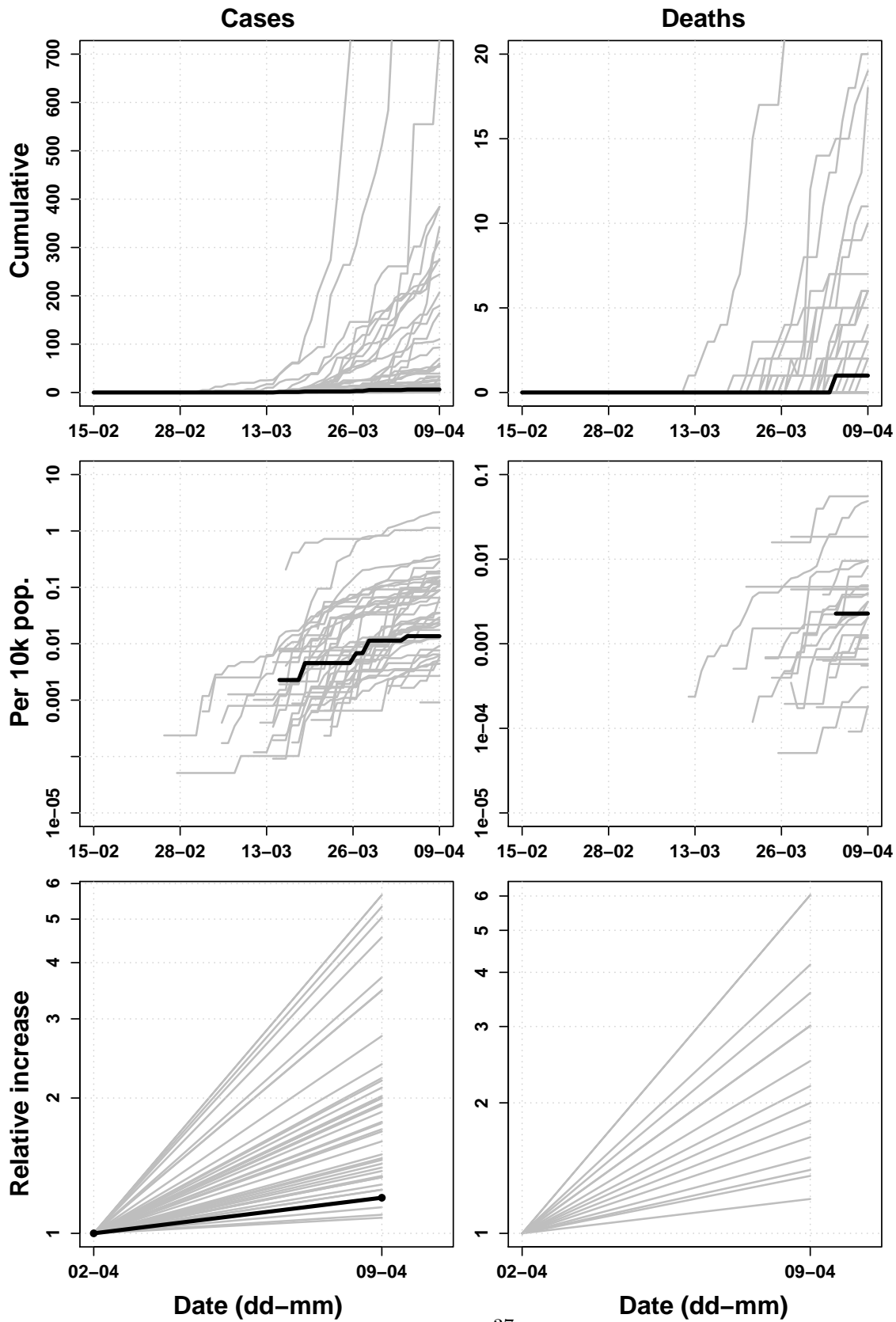


Mali

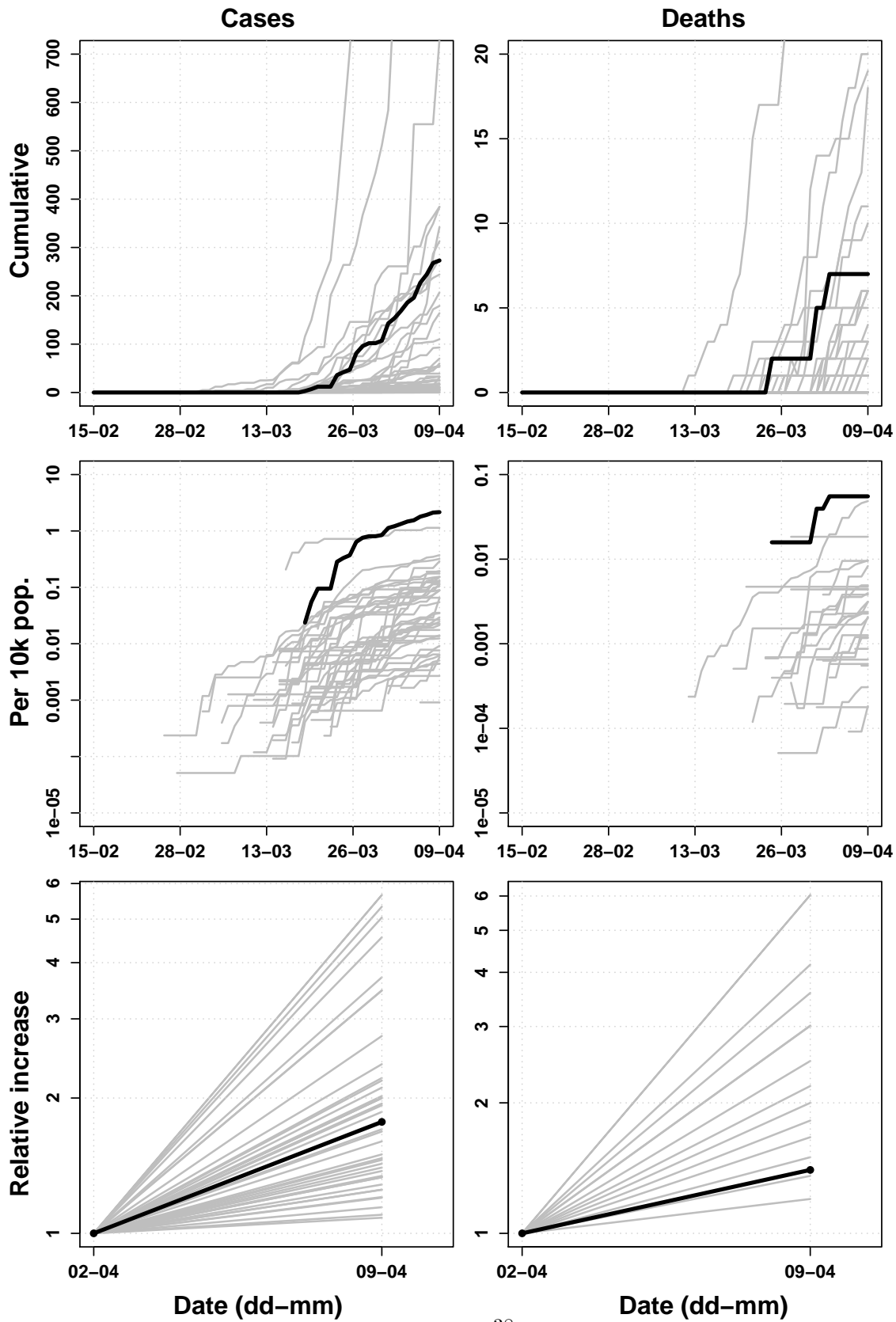
Mali



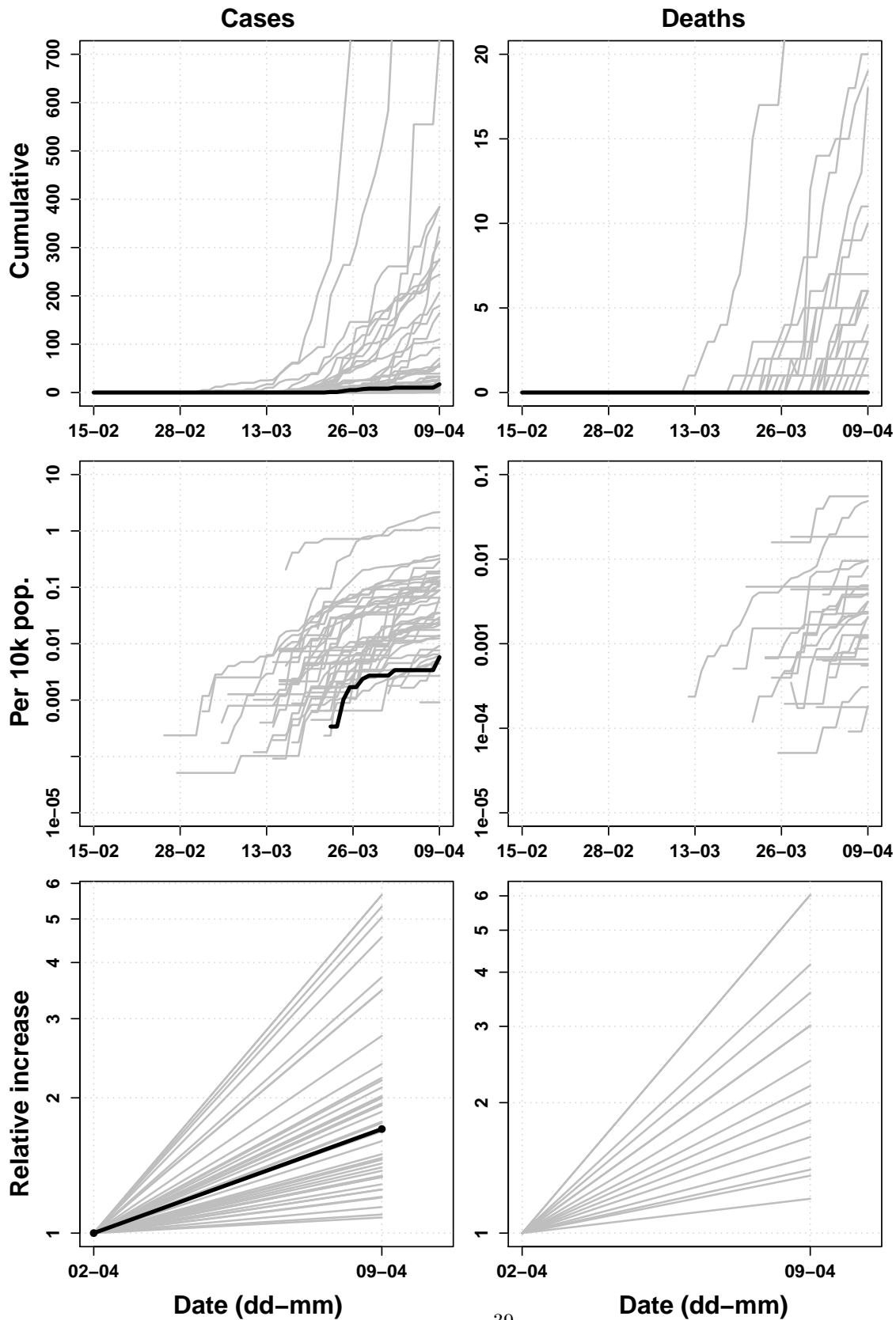
Mauritania



Mauritius

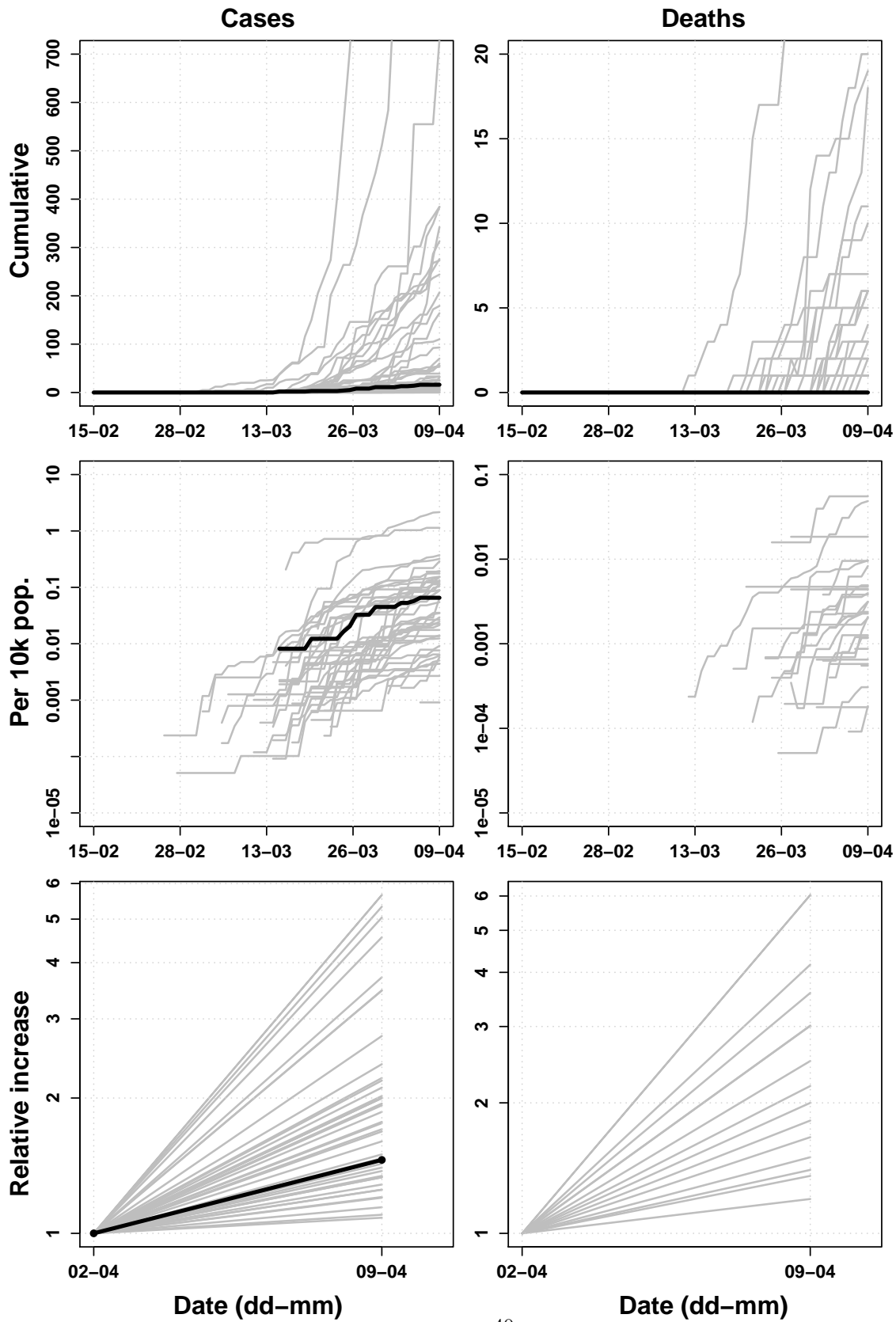


Mozambique

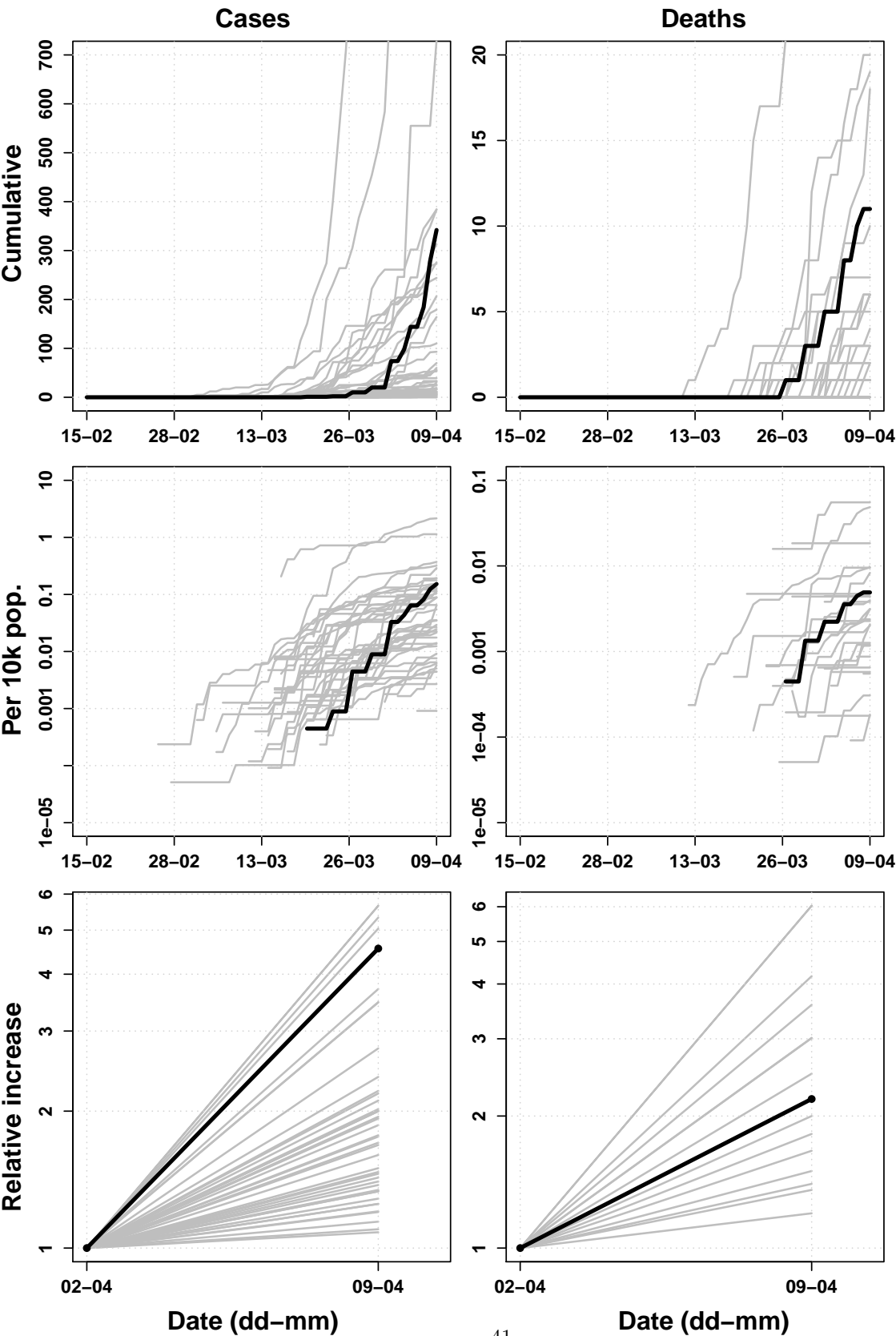


Namibia

Namibia

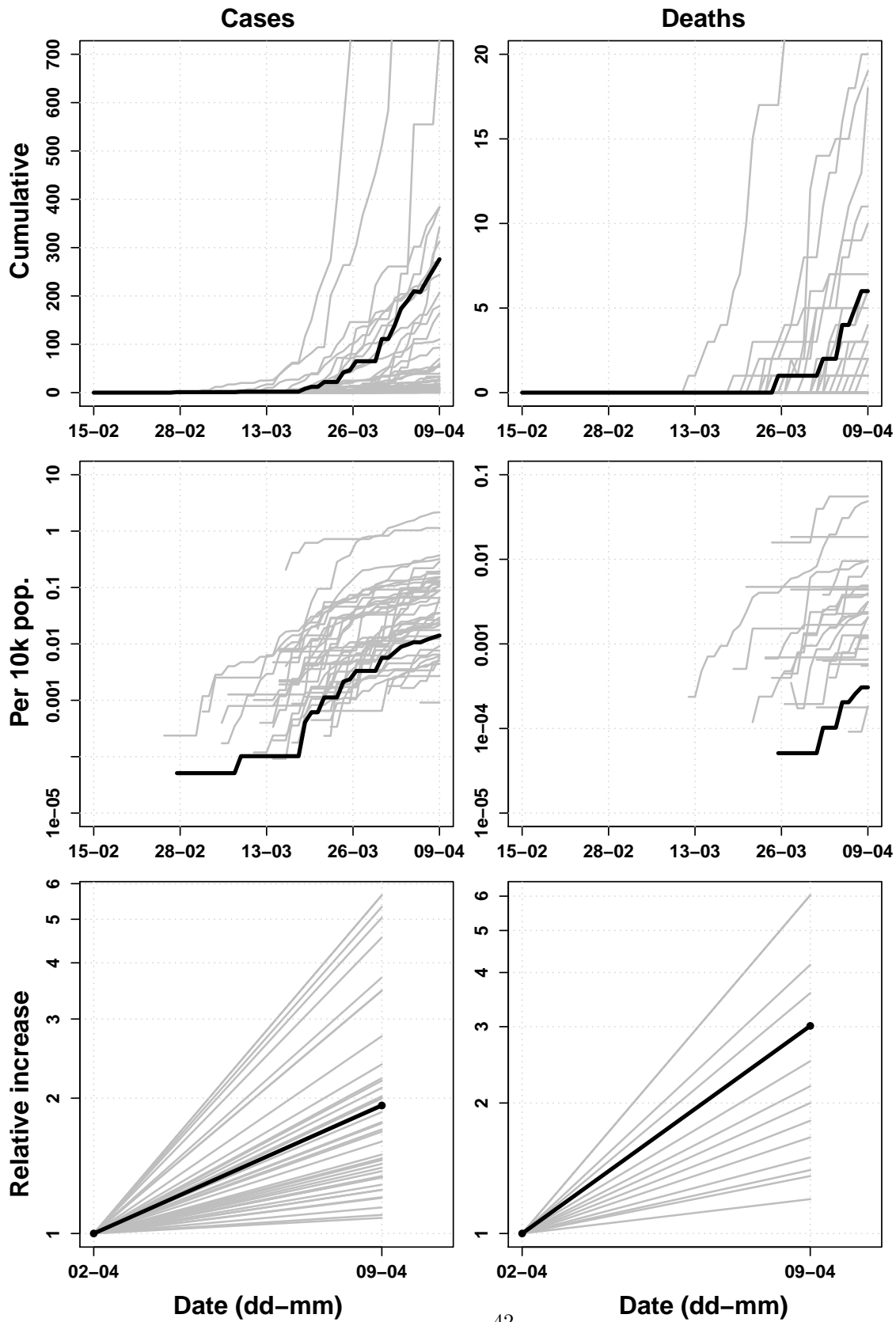


Niger

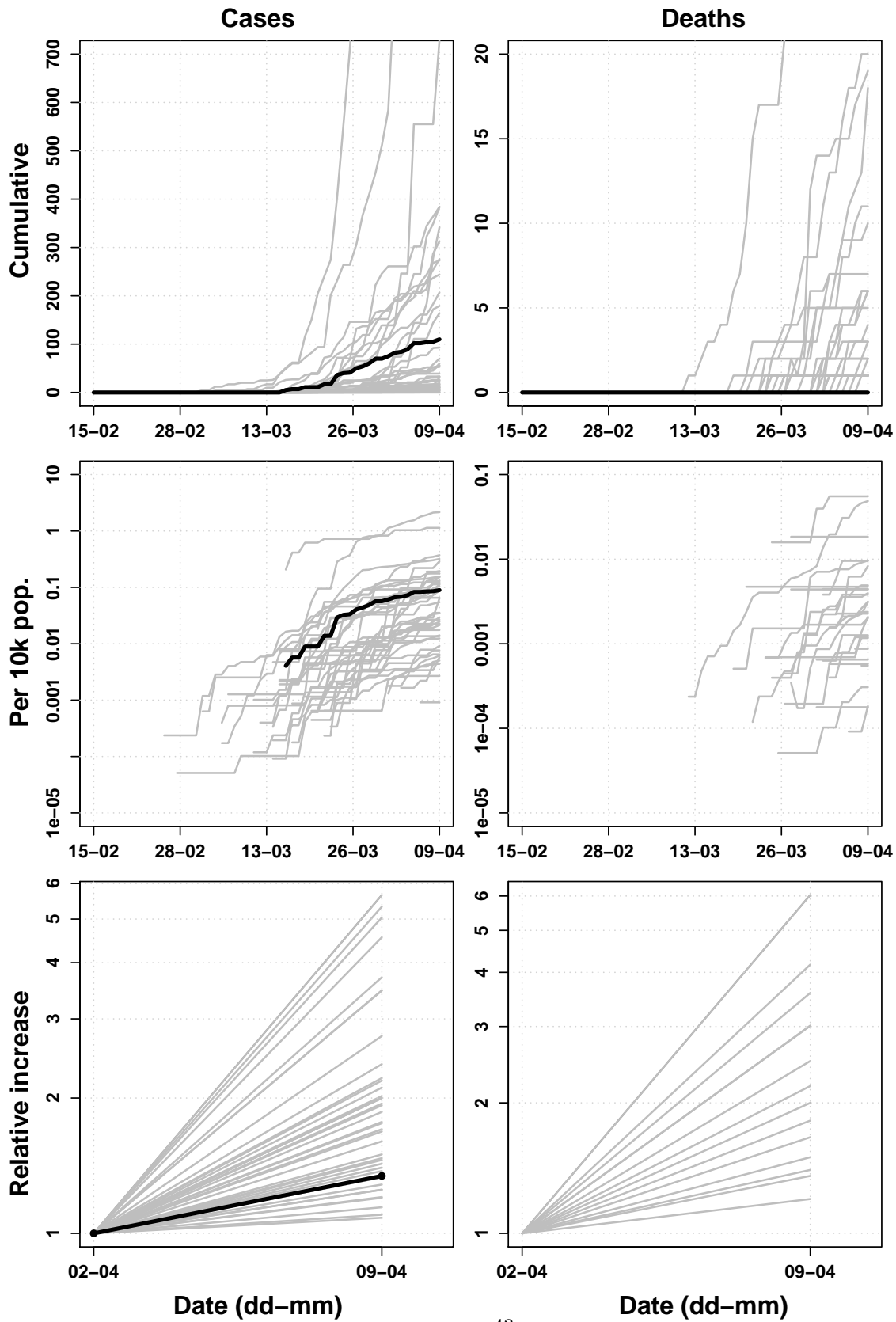


Nigeria

Nigeria

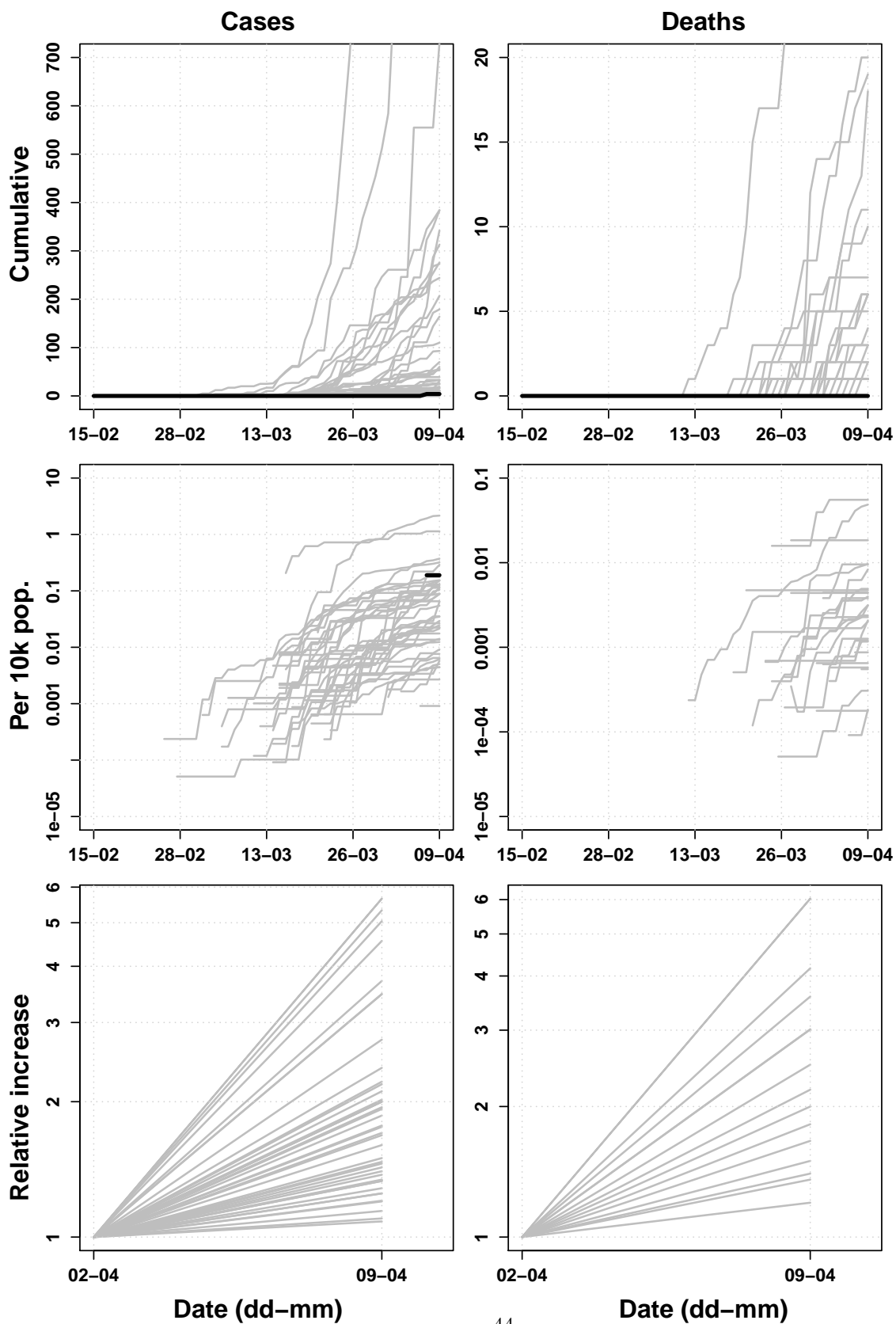


Rwanda

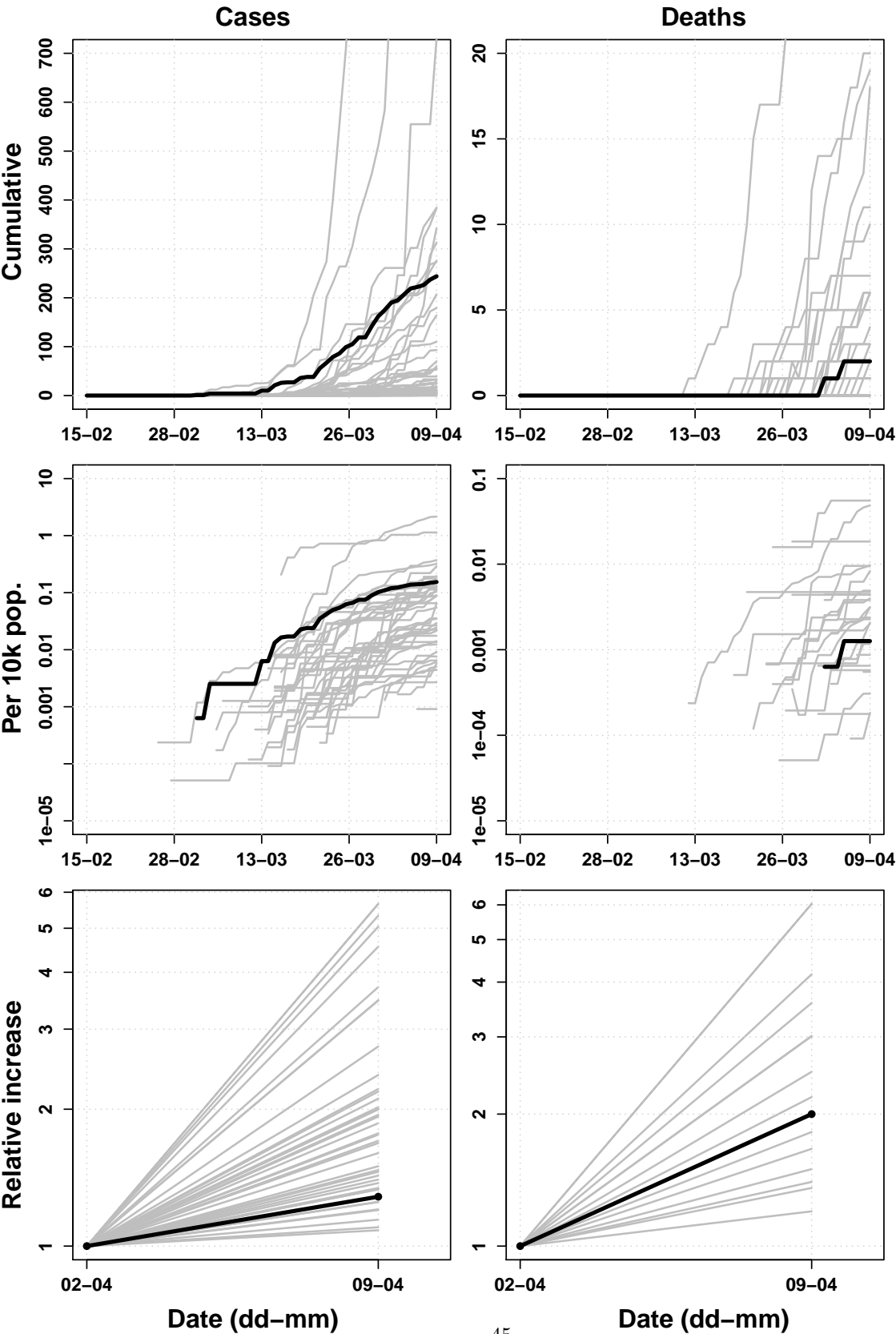


Sao Tome and Principe

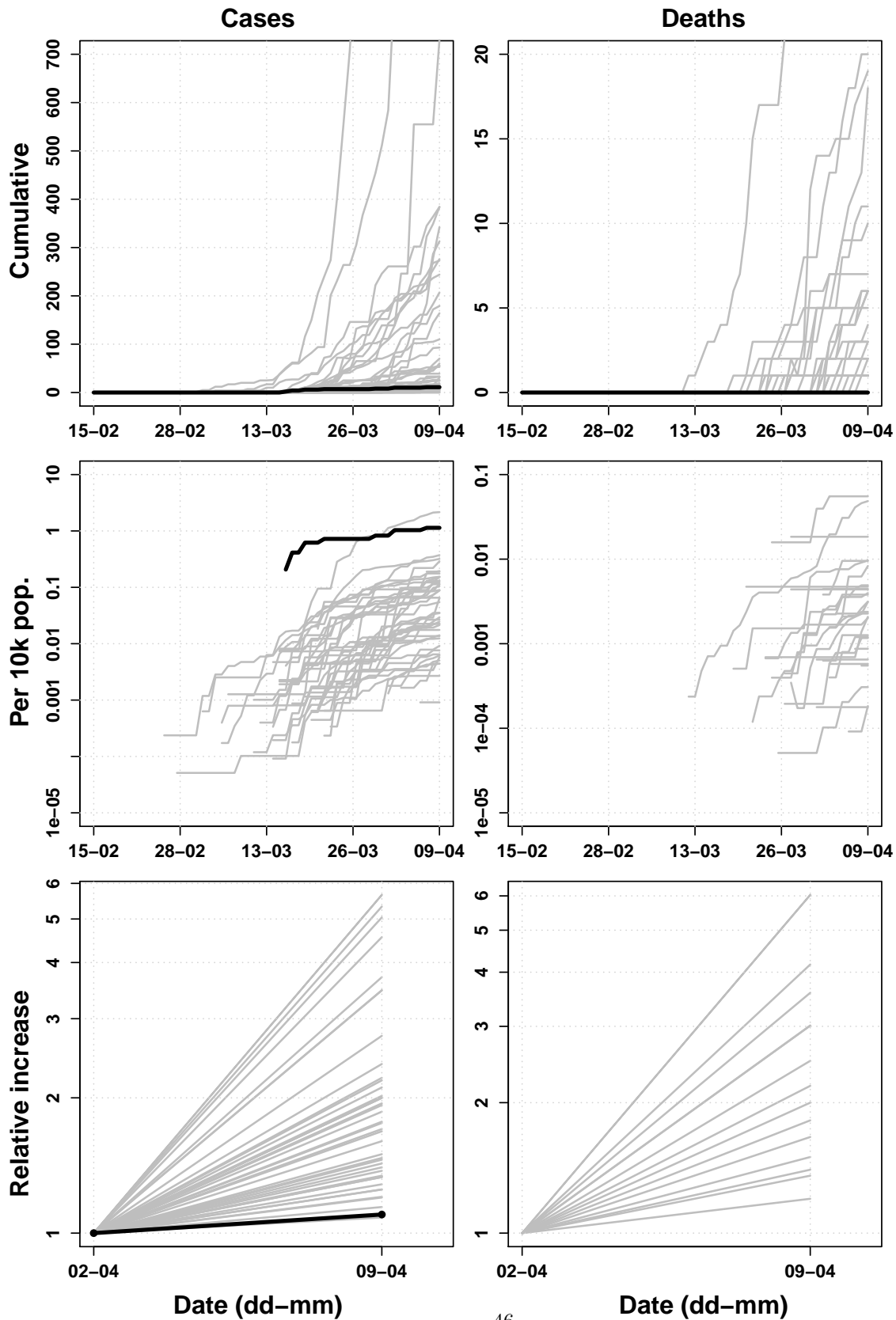
Sao Tome and Principe



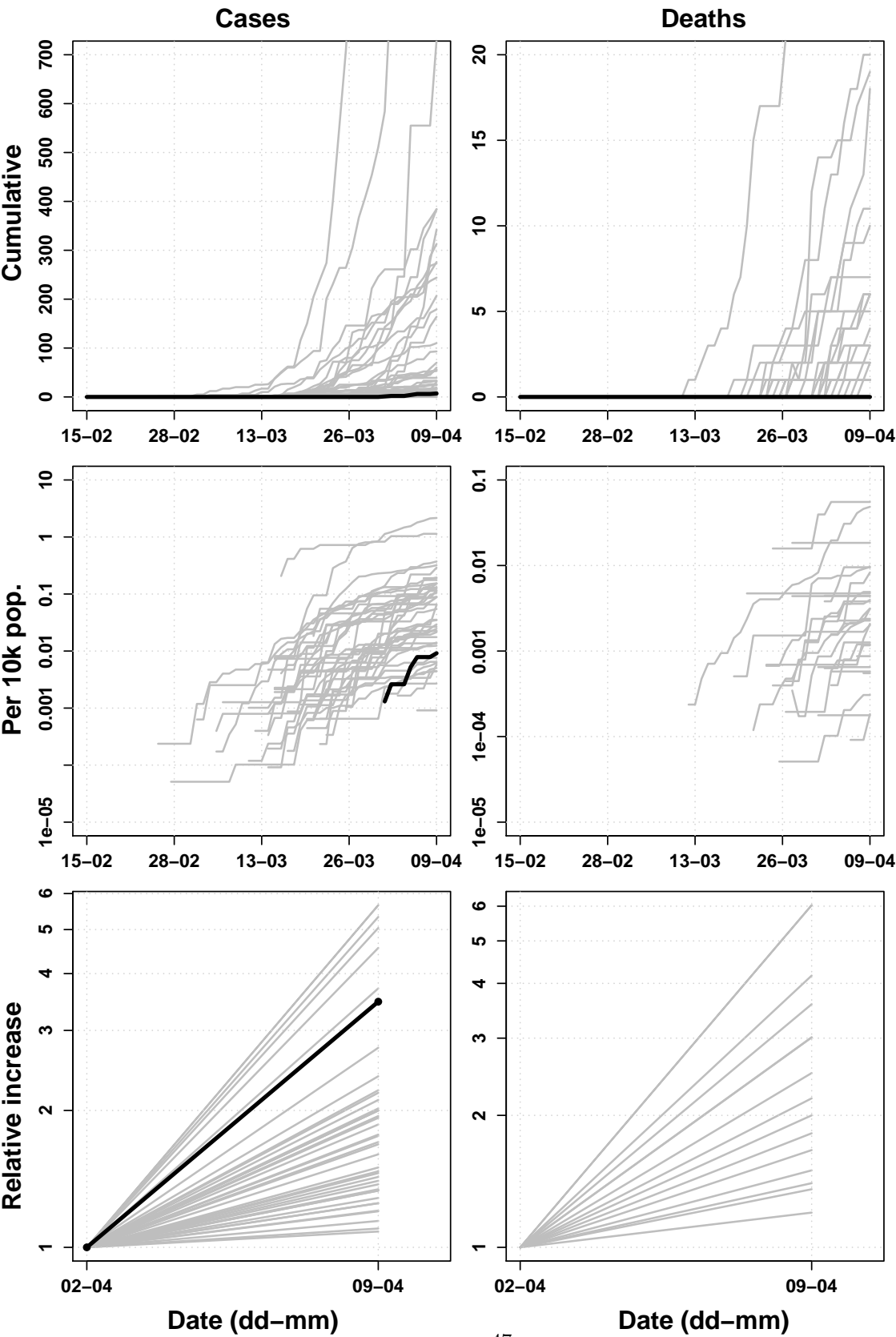
Senegal



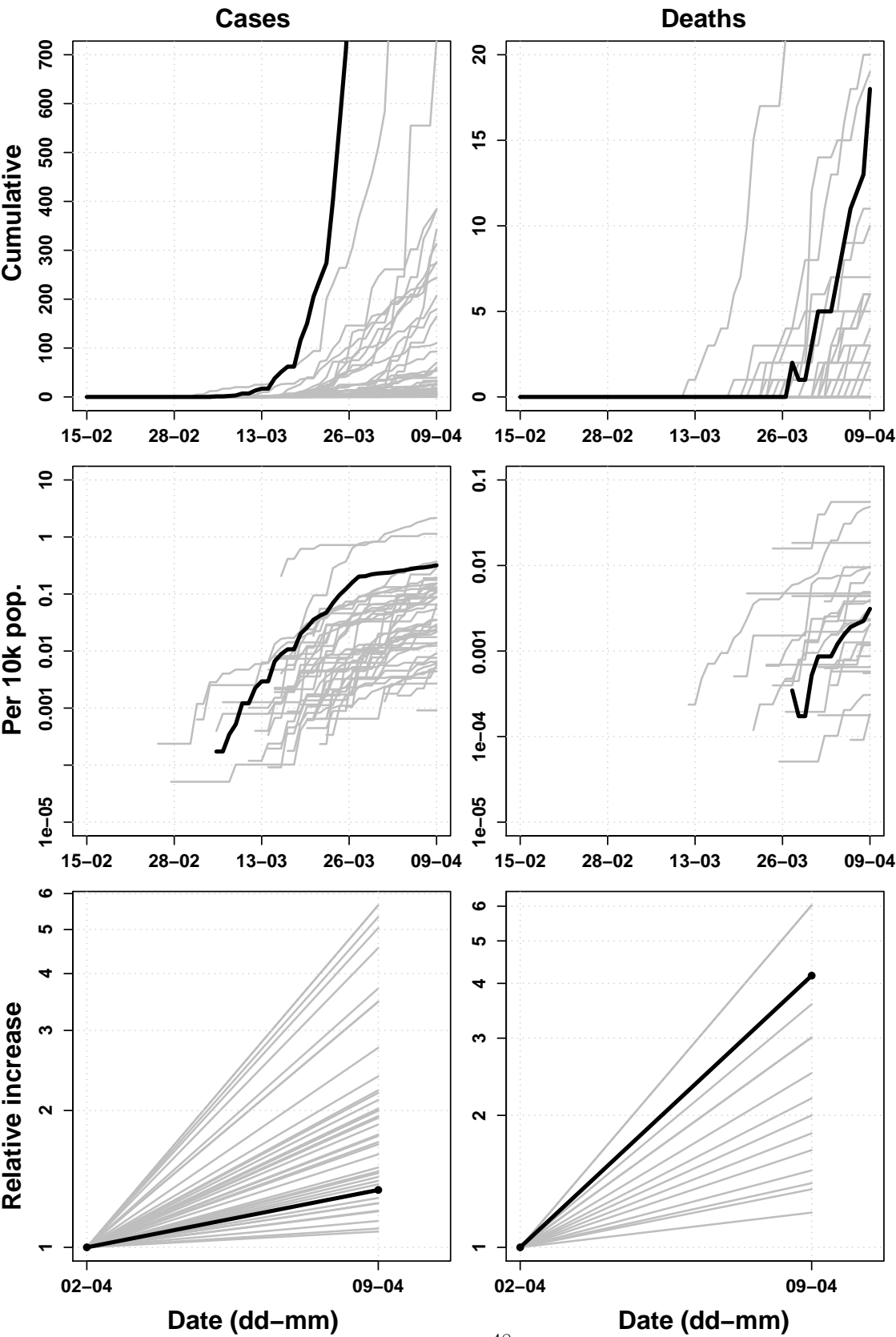
Seychelles



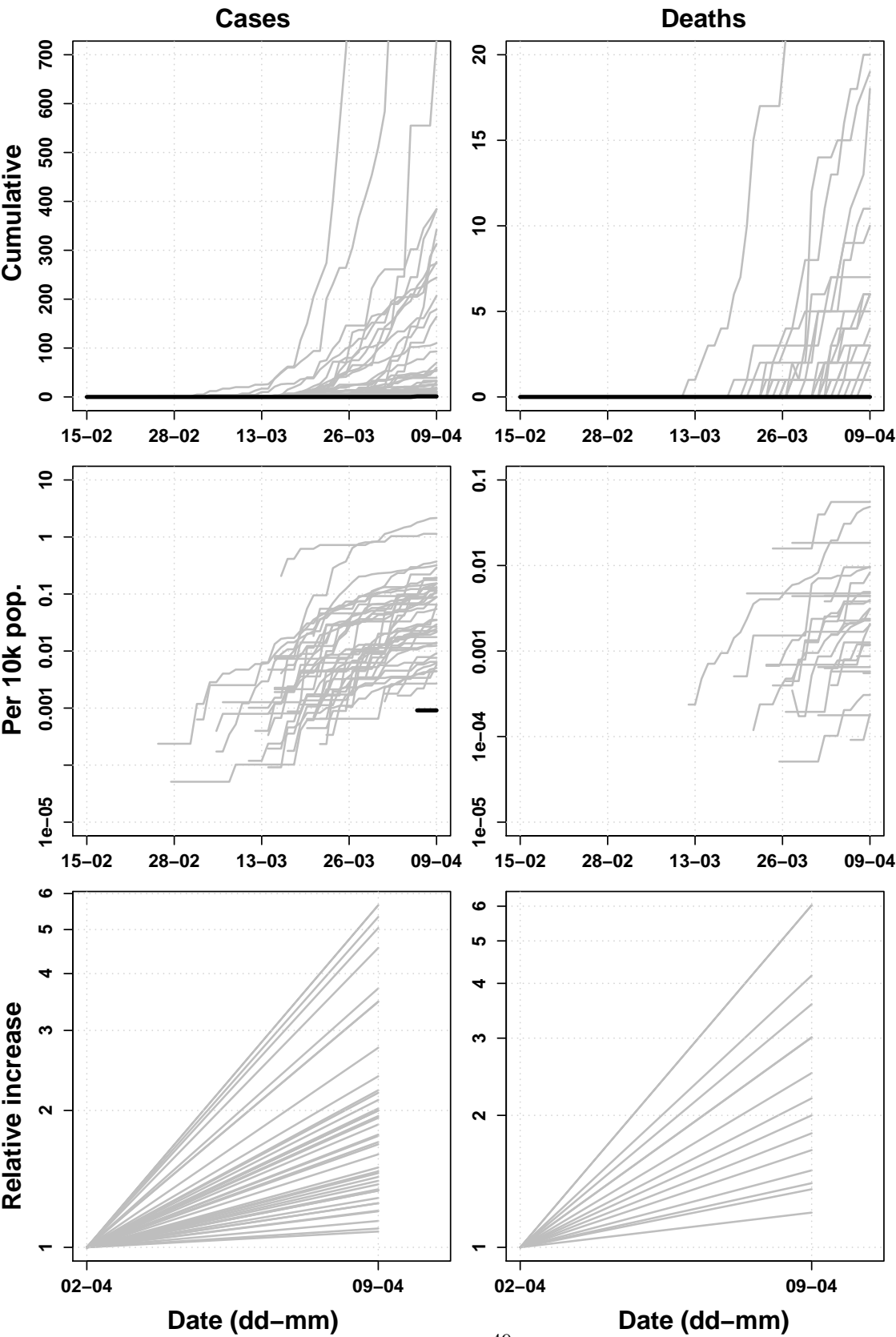
Sierra Leone



South Africa

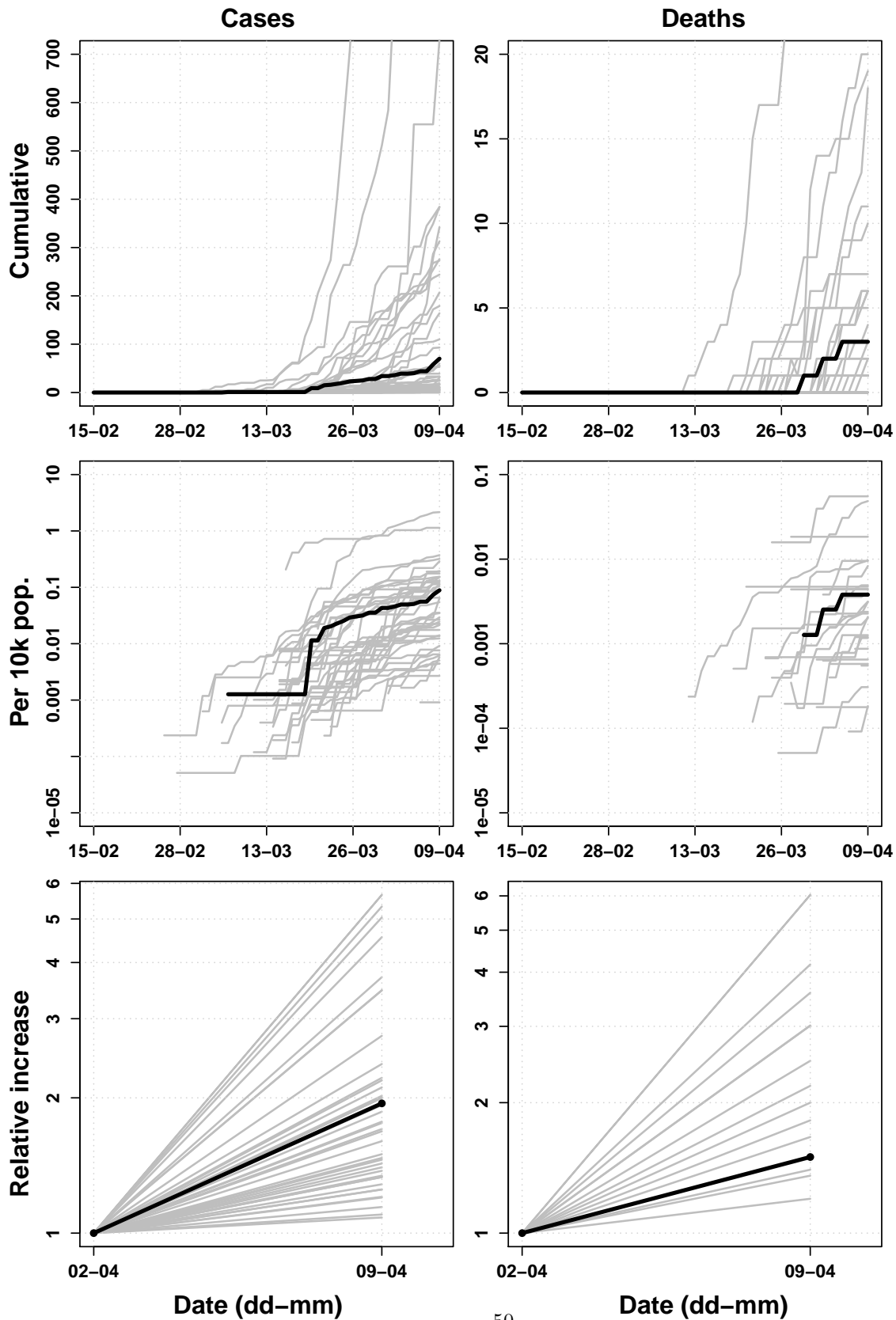


South Sudan



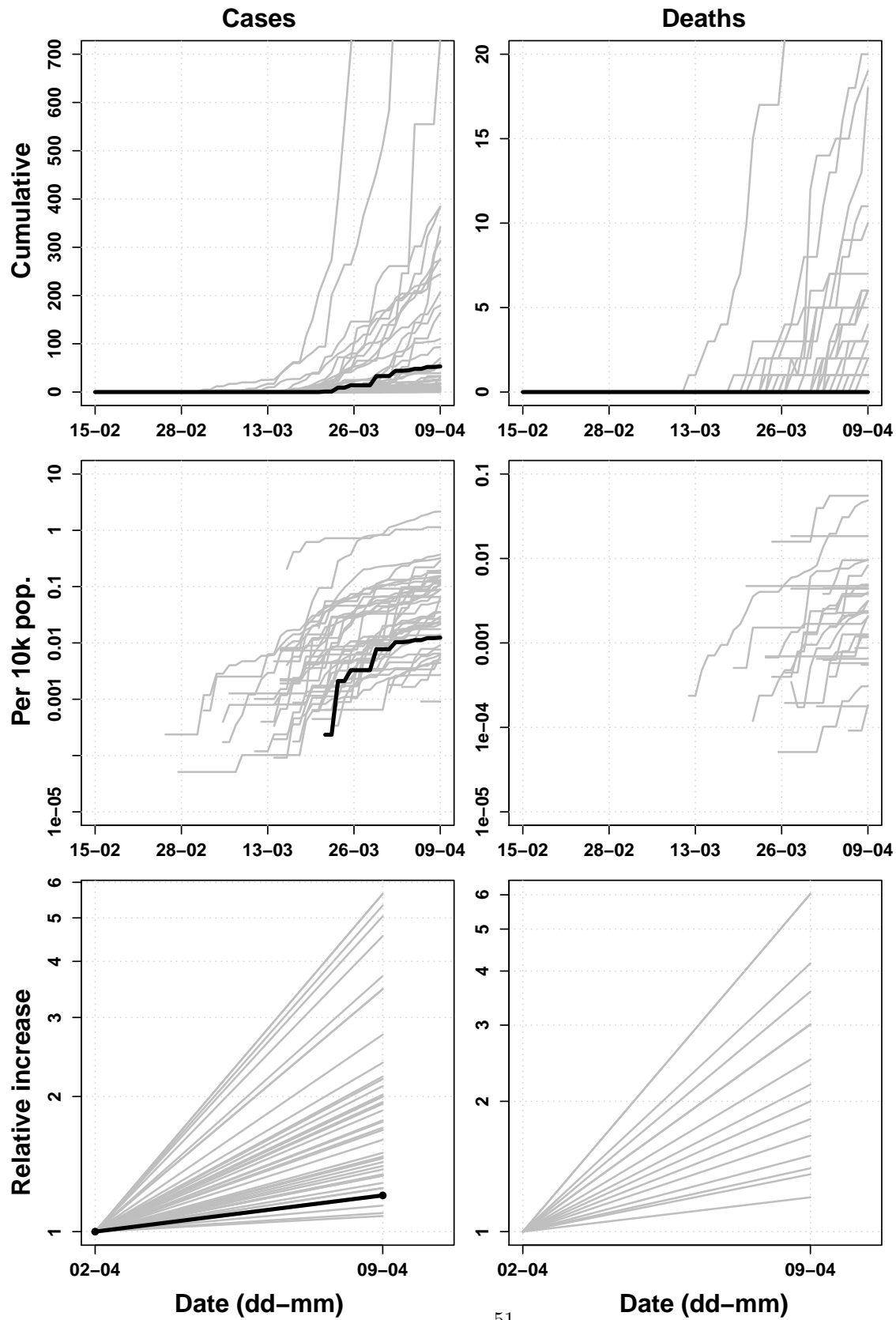
Togo

Togo



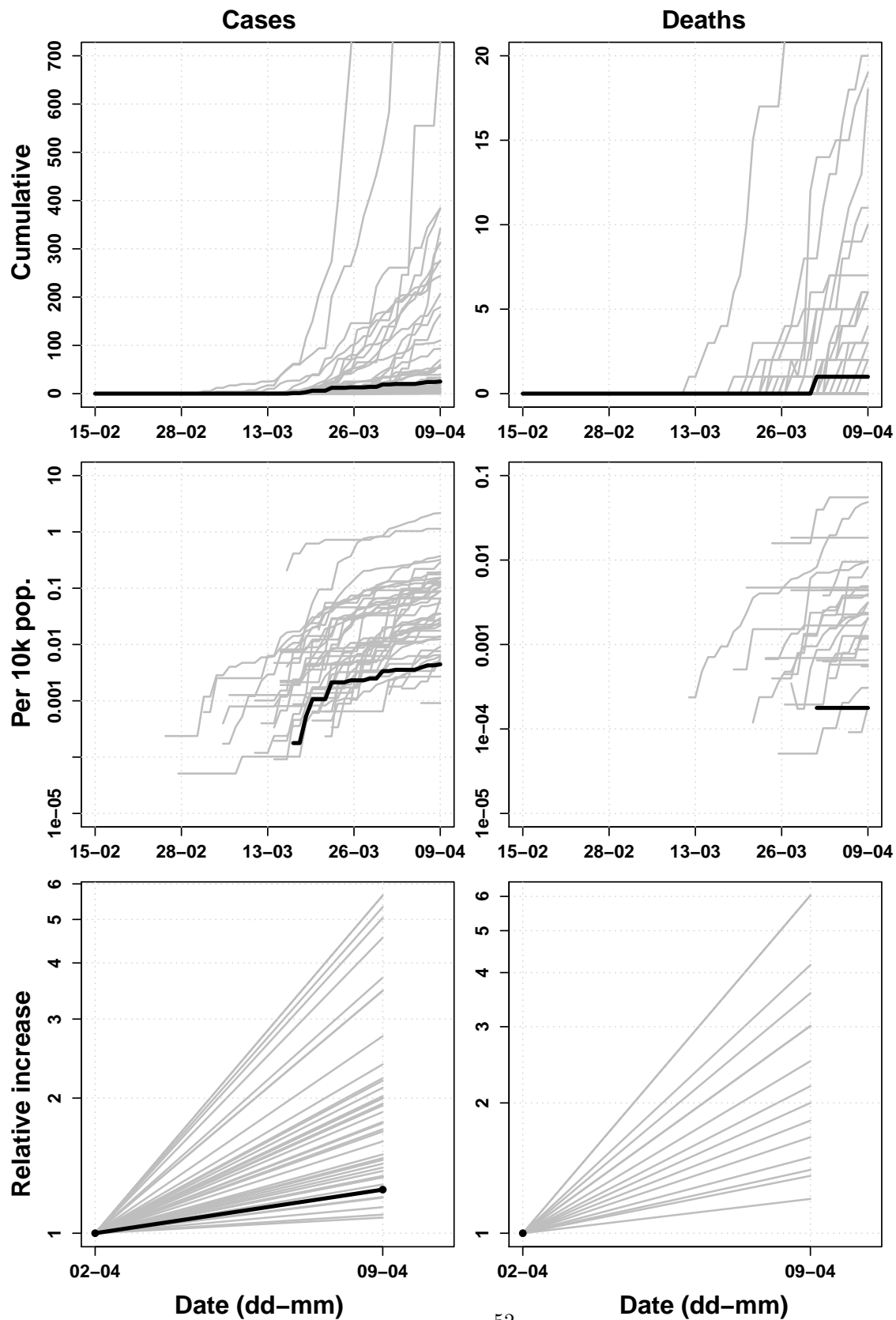
Uganda

Uganda

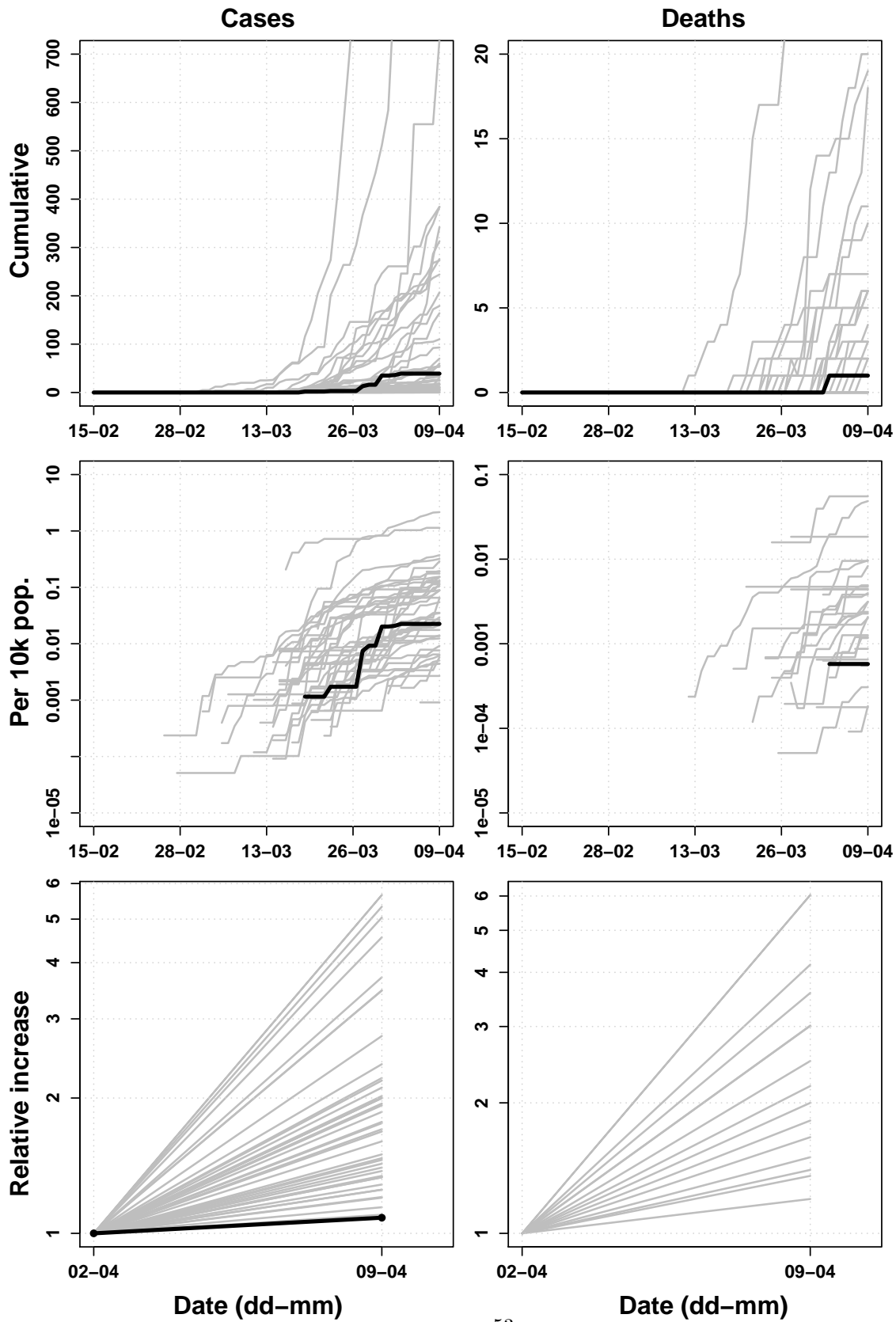


United Republic of Tanzania

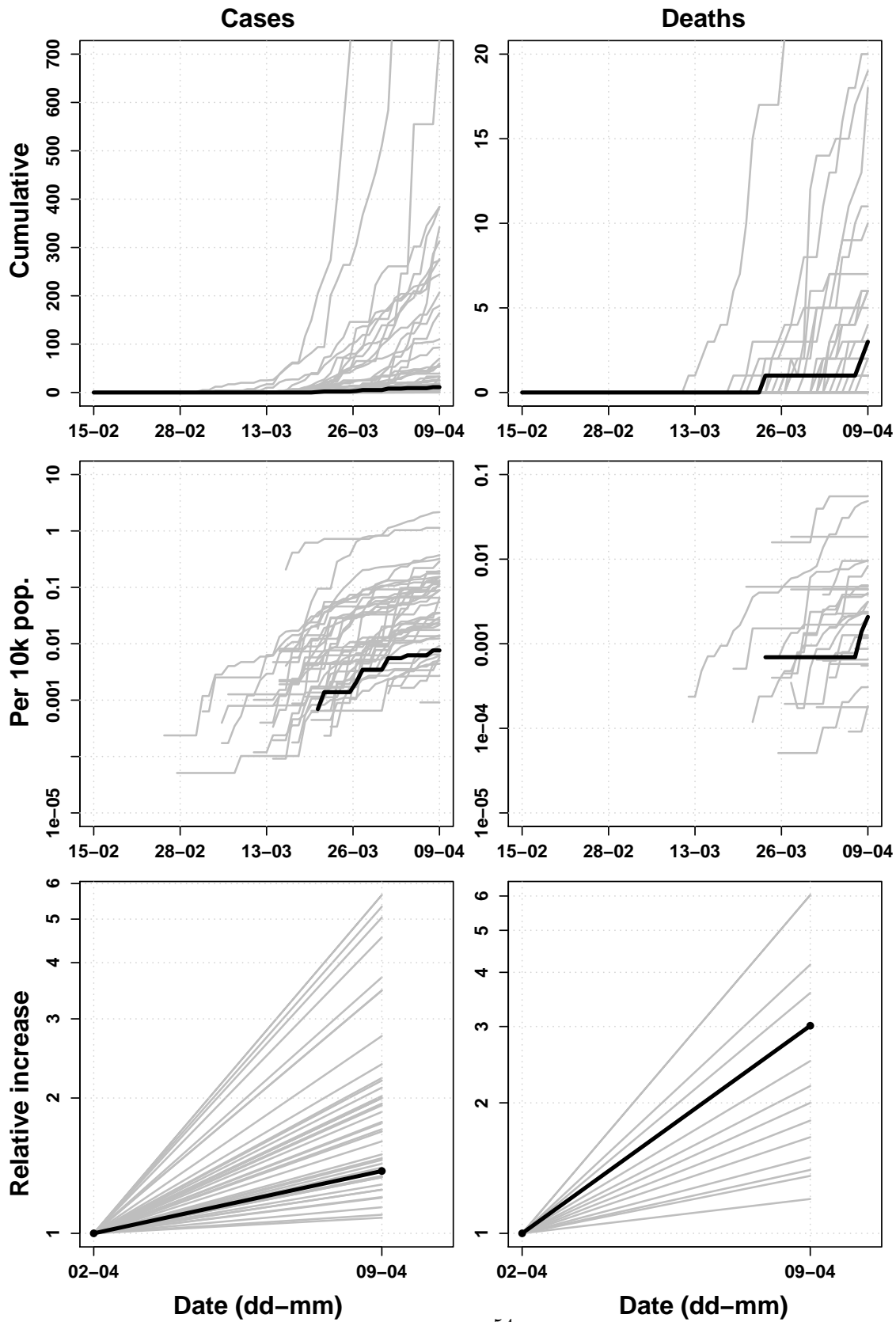
United Republic of Tanzania



Zambia



Zimbabwe



Appendix

Data

Sources and access

- Case counts for countries in WHO African region from WHO Coronavirus disease (COVID-2019) situation reports <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports> (accessed 2400 09/04/2020).
- Death counts for countries in WHO African region from WHO Coronavirus disease (COVID-2019) situation reports <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports> (accessed 2400 09/04/2020).
- Population counts from the World Bank (2018) <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=ZG> (accessed 0900 30/03/2020).

Doubling time calculations

Calculated over prior 7 days using method described by *E. Vynnycky & R. White (2010) An Introduction to Infectious Disease Modelling*, page 74.

Confidence intervals calculated using bootstrapping of a simulated dataset with Poisson error structure, using method published here: <https://doi.org/10.1101/2020.02.05.20020750>.

Caveats

- Case count data are affected by any changes in testing strategy or testing effort over time and/or any variation in testing strategy or testing effort between regions.
- Case count data are likely a substantial under-representation of the true number of COVID-19 infections.
- Death data are considered more reliable but may lag behind case data by as much as 3 weeks.

Extended data tables

Cumulative reported cases

Country	Cum. reported cases	95%CI lower	95%CI upper
South Africa	1845	1779	1916
Algeria	1572	1506	1642
Cameroon	716	671	762
Burkina Faso	384	352	414
Cote d'Ivoire	384	353	417
Niger	342	313	374
Ghana	313	282	343
Mauritius	273	246	303
Nigeria	267	241	295
Senegal	244	219	269
Democratic Republic of the Congo	207	184	231
Kenya	179	156	201
Guinea	164	143	184
Rwanda	110	94	129
Madagascar	93	77	109
Togo	70	57	84
Congo	60	47	73
Mali	56	45	69
Ethiopia	55	44	68
Uganda	53	41	65
Zambia	39	30	49
Eritrea	33	24	43
Guinea Bissau	33	24	42
Liberia	31	22	40
Benin	26	18	35
United Republic of Tanzania	25	17	34
Gabon	24	17	32
Angola	19	12	26
Mozambique	17	10	24
Equatorial Guinea	16	10	23
Namibia	16	9	23
Eswatini	12	7	18
Zimbabwe	11	6	17
Seychelles	11	6	17
Central African Republic	10	5	16
Chad	10	5	15
Malawi	8	4	13
Cabo Verde	7	3	12
Sierra Leone	7	3	11
Botswana	6	2	10
Mauritania	6	2	10
Gambia	4	1	7
Sao Tome and Principe	4	1	7
Burundi	3	0	6
South Sudan	1	0	3
Comoros	0	NA	NA
Lesotho	0	NA	NA

Cumulative reported cases per 10,000 population

Country	Cum. reported cases per 10k pop.	95%CI lower	95%CI upper
Mauritius	2.1576	1.9442	2.3947
Seychelles	1.1368	0.6201	1.7569
Algeria	0.3723	0.3566	0.3888
South Africa	0.3193	0.3079	0.3316
Cameroon	0.2839	0.2661	0.3022
Burkina Faso	0.1944	0.1782	0.2096
Sao Tome and Principe	0.1895	0.0474	0.3317
Guinea Bissau	0.1761	0.1280	0.2241
Senegal	0.1539	0.1381	0.1697
Cote d'Ivoire	0.1532	0.1408	0.1663
Niger	0.1524	0.1395	0.1666
Guinea	0.1321	0.1152	0.1483
Cabo Verde	0.1287	0.0552	0.2207
Equatorial Guinea	0.1222	0.0764	0.1757
Congo	0.1144	0.0896	0.1392
Gabon	0.1132	0.0802	0.1510
Ghana	0.1051	0.0947	0.1152
Rwanda	0.0894	0.0764	0.1049
Togo	0.0887	0.0723	0.1065
Eswatini	0.0878	0.0512	0.1317
Namibia	0.0654	0.0368	0.0939
Liberia	0.0643	0.0457	0.0831
Eritrea	0.0545	0.0397	0.0711
Madagascar	0.0354	0.0293	0.0415
Kenya	0.0348	0.0304	0.0391
Mali	0.0294	0.0236	0.0362
Botswana	0.0266	0.0089	0.0444
Democratic Republic of the Congo	0.0246	0.0219	0.0275
Benin	0.0226	0.0157	0.0305
Zambia	0.0225	0.0173	0.0282
Central African Republic	0.0214	0.0107	0.0343
Gambia	0.0175	0.0044	0.0307
Nigeria	0.0136	0.0123	0.0151
Mauritania	0.0136	0.0045	0.0227
Uganda	0.0124	0.0096	0.0152
Sierra Leone	0.0092	0.0039	0.0144
Zimbabwe	0.0076	0.0042	0.0118
Chad	0.0065	0.0032	0.0097
Angola	0.0062	0.0039	0.0084
Mozambique	0.0058	0.0034	0.0081
Ethiopia	0.0050	0.0040	0.0062
United Republic of Tanzania	0.0044	0.0030	0.0060
Malawi	0.0044	0.0022	0.0072
Burundi	0.0027	0.0000	0.0054
South Sudan	0.0009	0.0000	0.0027
Comoros	0	NA	NA
Lesotho	0	NA	NA

Cumulative deaths

Country	Cum. reported deaths
Algeria	205
Democratic Republic of the Congo	20
Burkina Faso	19
South Africa	18
Niger	11
Cameroon	10
Mauritius	7
Ghana	6
Kenya	6
Mali	6
Nigeria	6
Congo	5
Liberia	4
Cote d'Ivoire	3
Togo	3
Zimbabwe	3
Angola	2
Ethiopia	2
Senegal	2
Benin	1
Botswana	1
Cabo Verde	1
Gabon	1
Gambia	1
Malawi	1
Mauritania	1
United Republic of Tanzania	1
Zambia	1
Burundi	0
Central African Republic	0
Chad	0
Comoros	0
Equatorial Guinea	0
Eritrea	0
Eswatini	0
Guinea	0
Guinea-Bissau	0
Lesotho	0
Madagascar	0
Mozambique	0
Namibia	0
Rwanda	0
Sao Tome and Principe	0
Seychelles	0
Sierra Leone	0
South Sudan	0
Uganda	0

Cumulative deaths per 10,000 populations

Country	Cum. reported deaths per 10k pop.
Mauritius	0.0553
Algeria	0.0485
Cabo Verde	0.0184
Burkina Faso	0.0096
Congo	0.0095
Liberia	0.0083
Niger	0.0049
Gabon	0.0047
Botswana	0.0044
Gambia	0.0044
Cameroon	0.0040
Togo	0.0038
Mali	0.0031
South Africa	0.0031
Democratic Republic of the Congo	0.0024
Mauritania	0.0023
Zimbabwe	0.0021
Ghana	0.0020
Senegal	0.0013
Cote d'Ivoire	0.0012
Kenya	0.0012
Benin	0.0009
Angola	0.0006
Zambia	0.0006
Malawi	0.0006
Nigeria	0.0003
Ethiopia	0.0002
United Republic of Tanzania	0.0002
Burundi	0.0000
Central African Republic	0.0000
Chad	0.0000
Comoros	0.0000
Equatorial Guinea	0.0000
Eritrea	0.0000
Eswatini	0.0000
Guinea	0.0000
Guinea-Bissau	0.0000
Lesotho	0.0000
Madagascar	0.0000
Mozambique	0.0000
Namibia	0.0000
Rwanda	0.0000
Sao Tome and Principe	0.0000
Seychelles	0.0000
Sierra Leone	0.0000
South Sudan	0.0000
Uganda	0.0000

Doubling time (cases)

The following two tables summarise the doubling times (for cumulative reported cases and deaths respectively) reported in the above figures. Note that a “NA” value notifies countries where no cases/deaths have been reported yet or have if the first cases/deaths occurred less than 7 days ago, preventing the computation of doubling time over the chosen 7 day period. A “Inf” value notifies countries where cases/deaths have been reported more than 7 days ago but have not increased since, leading to a zero denominator quotient in the doubling time calculation. A “Inf” value may appear for the 95% CIs while an estimated doubling time is provided. This occurs when the number of cases/deaths is still very low, leading to the common occurrence of flat epicurves in the simulated Poisson error bootstrap from which the confidence intervals are estimated. More cases/deaths are required to provide more reliable 95% CIs in those cases.

Country	Doubling time (days)	95%CI lower	95%CI upper
Cameroon	2.8	2.6	3.0
Guinea	2.9	2.4	3.3
Liberia	3.0	2.0	4.3
Niger	3.2	2.8	3.5
Guinea-Bissau	3.7	2.5	5.3
Gabon	3.9	2.5	6.1
Sierra Leone	3.9	2.3	10.3
Congo	4.8	3.6	6.6
Angola	5.6	3.4	10.3
Kenya	6.1	5.2	7.3
Eritrea	6.2	4.2	9.3
Ethiopia	6.5	4.7	9.1
Cote d'Ivoire	6.9	6.1	7.8
Benin	7.0	4.4	12.0
Botswana	7.0	3.0	41.2
Mali	7.0	5.1	9.8
Togo	7.3	5.4	9.9
Nigeria	7.4	6.4	8.6
Algeria	7.8	7.4	8.4
Mauritius	8.5	7.3	9.9
Madagascar	8.6	6.8	11.4
Mozambique	9.1	5.1	21.7
Democratic Republic of the Congo	9.3	7.9	11.4
Ghana	10.3	8.8	12.0
Burundi	12.0	4.4	Inf
Burkina Faso	12.6	10.9	14.8
Namibia	12.9	7.0	38.9
Chad	13.6	5.3	Inf
Cabo Verde	14.4	5.3	Inf
Zimbabwe	15.2	7.0	Inf
Rwanda	16.5	12.3	23.9
South Africa	16.7	15.5	18.1
Eswatini	16.9	7.7	80.5
Gambia	16.9	4.4	Inf
Senegal	19.4	15.7	24.6
Central African Republic	21.7	9.0	Inf
United Republic of Tanzania	21.7	12.0	65.5
Uganda	26.1	16.5	55.8
Mauritania	26.6	7.0	Inf
Equatorial Guinea	36.3	14.9	Inf
Seychelles	50.9	16.9	Inf
Zambia	60.6	28.6	220.8
Comoros	NA	NA	NA
Lesotho	NA	NA	NA
Malawi	NA	NA	NA
Sao Tome and Principe	NA	NA	NA
South Sudan	NA	NA	NA

Doubling time (deaths)

Country	Doubling time (days)	95%CI lower	95%CI upper
Kenya	2.7	2.2	7.0
South Africa	3.4	2.0	5.7
Algeria	3.8	3.3	4.4
Nigeria	4.4	2.5	14.0
Zimbabwe	4.4	3.0	Inf
Congo	5.3	2.7	16.9
Niger	6.2	3.1	14.4
Senegal	7.0	4.4	Inf
Democratic Republic of the Congo	8.1	4.8	15.6
Cameroon	9.5	4.4	29.4
Togo	12.0	4.4	Inf
Mauritius	14.4	5.3	Inf
Burkina Faso	15.9	8.4	46.1
Ghana	26.6	8.3	Inf
Angola	Inf	Inf	Inf
Botswana	Inf	Inf	Inf
Cabo Verde	Inf	Inf	Inf
Gabon	Inf	Inf	Inf
Gambia	Inf	Inf	Inf
United Republic of Tanzania	Inf	Inf	Inf
Benin	NA	NA	NA
Burundi	NA	NA	NA
Central African Republic	NA	NA	NA
Chad	NA	NA	NA
Comoros	NA	NA	NA
Cote d'Ivoire	NA	NA	NA
Equatorial Guinea	NA	NA	NA
Eritrea	NA	NA	NA
Eswatini	NA	NA	NA
Ethiopia	NA	NA	NA
Guinea	NA	NA	NA
Guinea-Bissau	NA	NA	NA
Lesotho	NA	NA	NA
Liberia	NA	NA	NA
Madagascar	NA	NA	NA
Malawi	NA	NA	NA
Mali	NA	NA	NA
Mauritania	NA	NA	NA
Mozambique	NA	NA	NA
Namibia	NA	NA	NA
Rwanda	NA	NA	NA
Sao Tome and Principe	NA	NA	NA
Seychelles	NA	NA	NA
Sierra Leone	NA	NA	NA
South Sudan	NA	NA	NA
Uganda	NA	NA	NA
Zambia	NA	NA	NA