COVID-19 situation report for WHO Africa Region

10/04/2020

Produced by the TIBA COVID-19 Pandemic Response Unit



NIHR Global Health Research Unit Tackling Infections to Benefit Africa
at the University of Edinburgh

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Section 1: Overview of WHO Africa Region

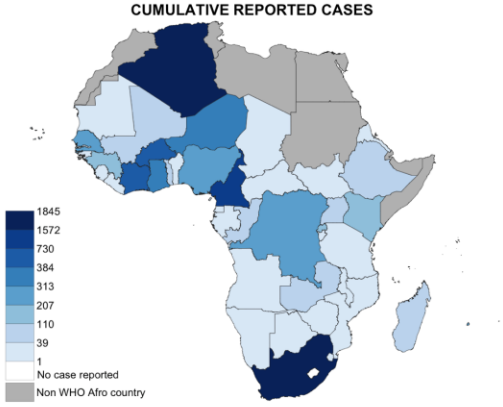


We compare the size and rate of increase of the COVID-19 epidemic across the countries included in WHO Africa Region.

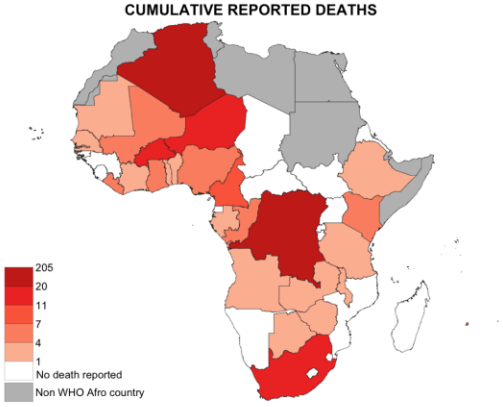
The maps below summarise the in-country situations:

- 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.

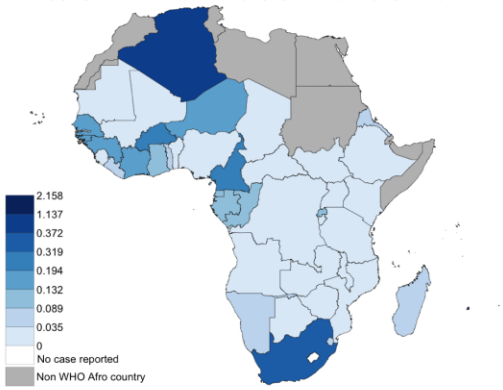
CUMULATIVE REPORTED CASES



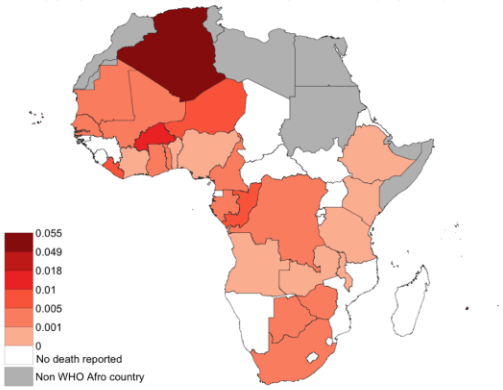
CUMULATIVE REPORTED DEATHS



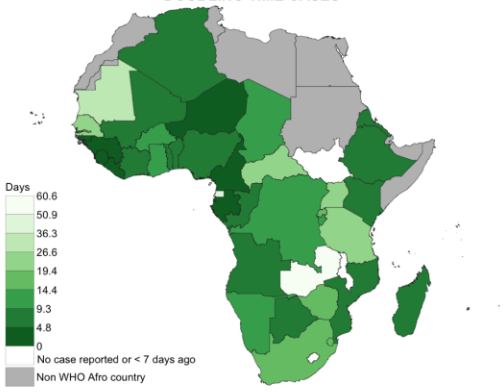
CUMULATIVE REPORTED CASES PER 10k POPULATION



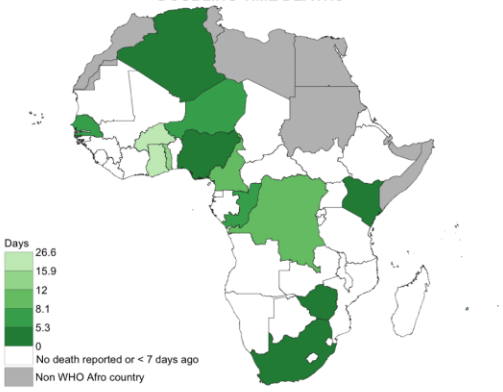
CUMULATIVE REPORTED DEATHS PER 10k POPULATION



DOUBLING TIME CASES



DOUBLING TIME DEATHS

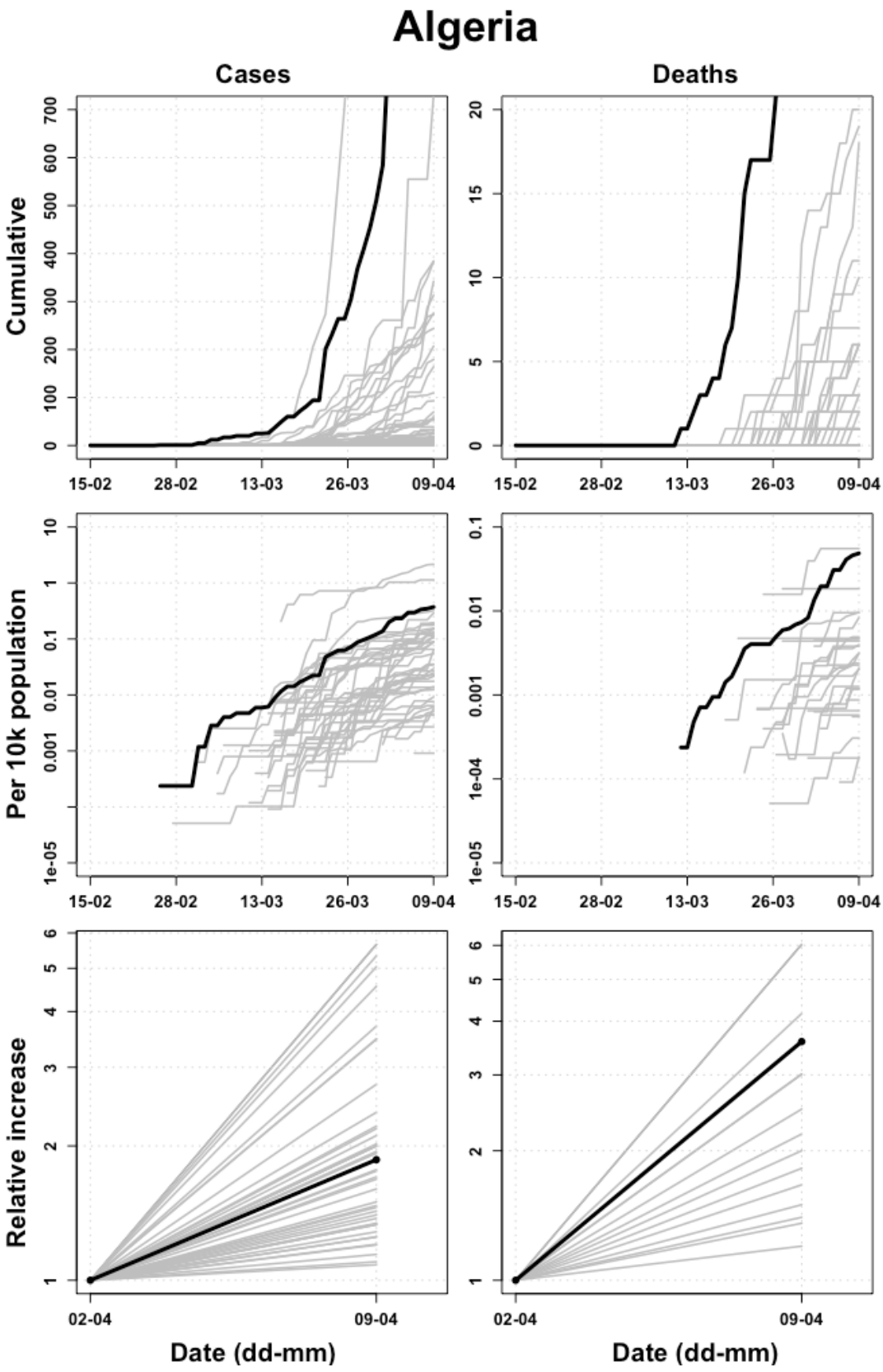


Section 2: Individual country situations

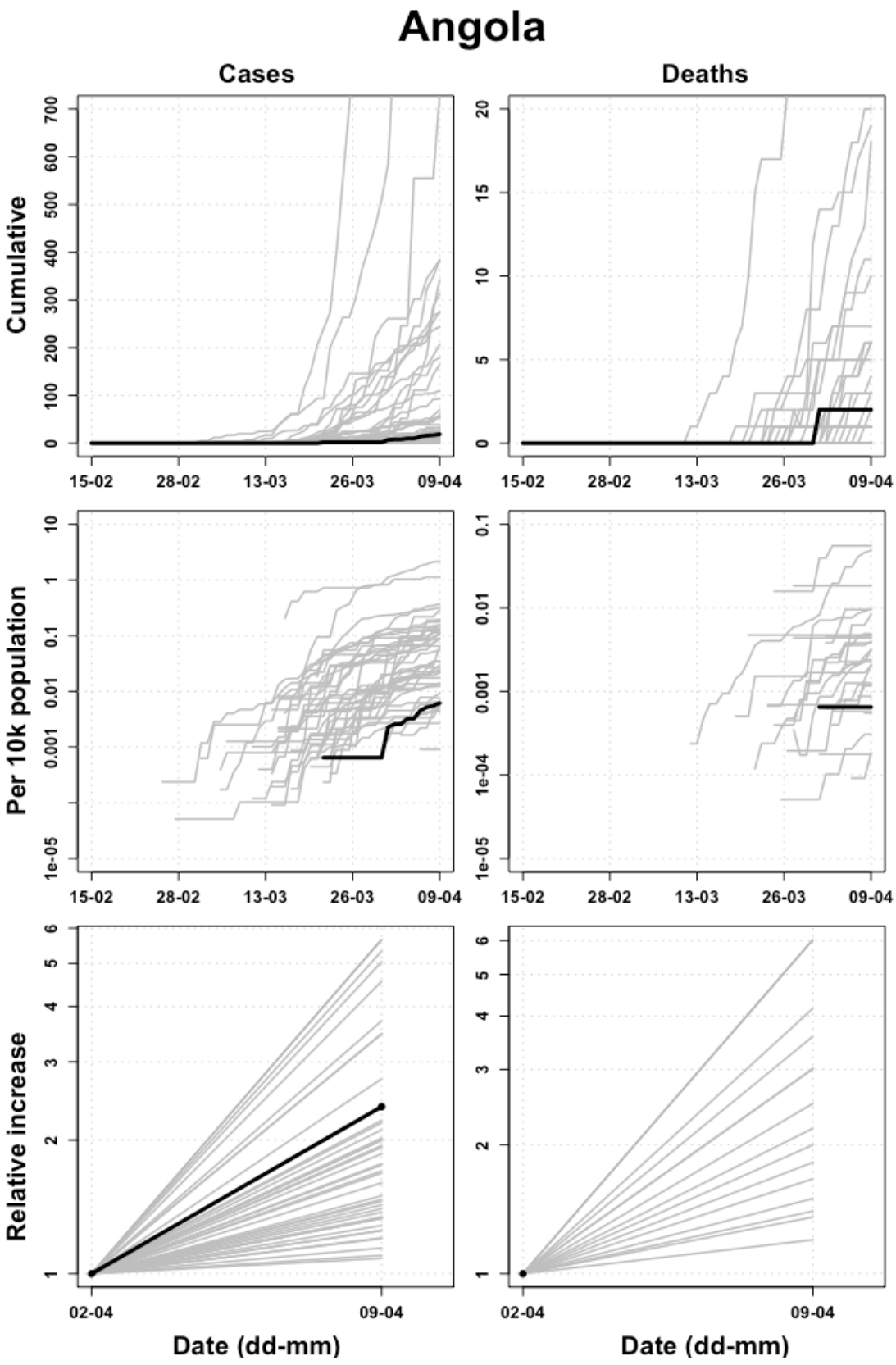
As of 09/04/2020, each panel below shows for each country:

- 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.

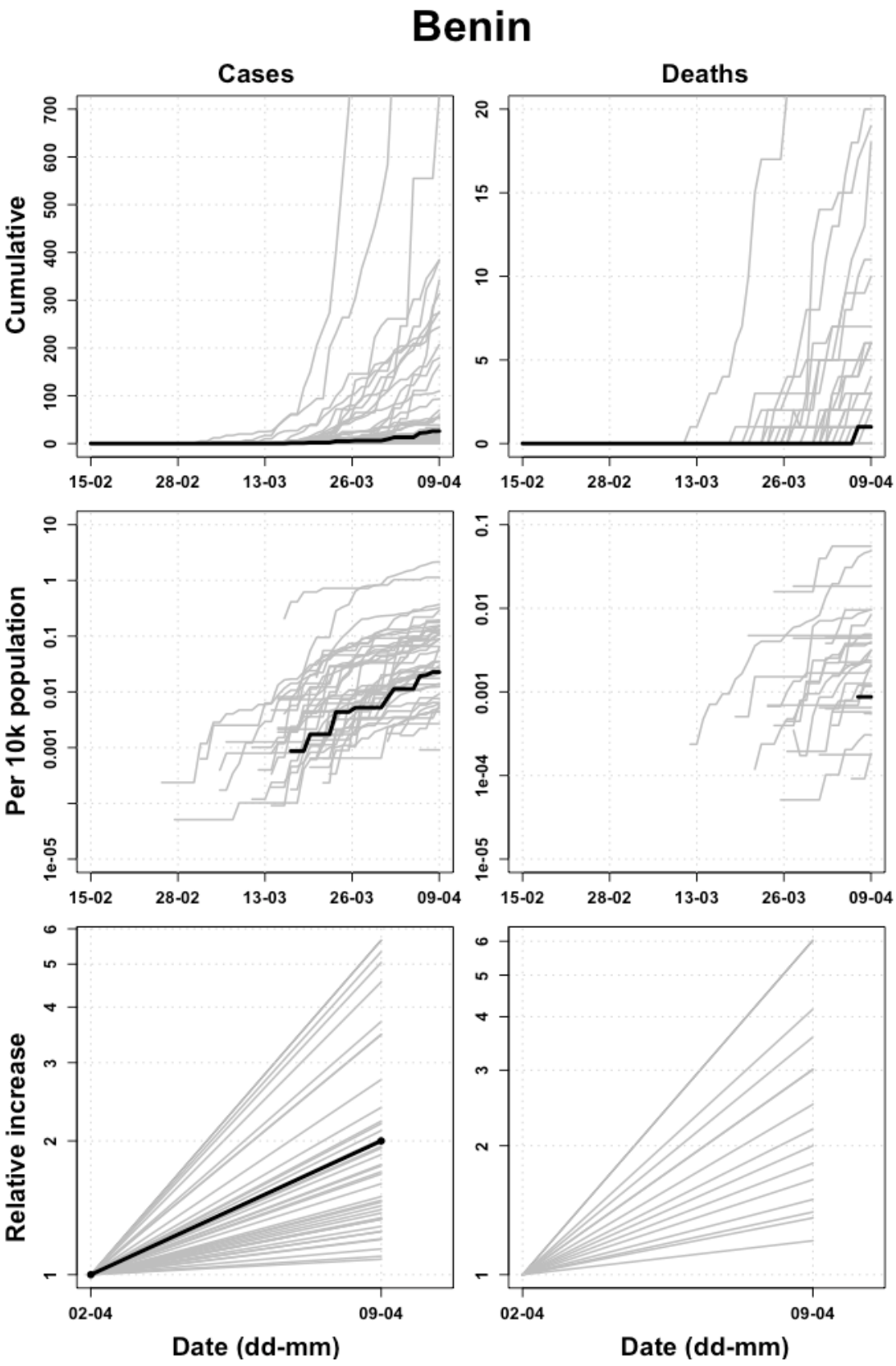
Algeria


Algeria
Cases
Deaths
Cumulative
0
100
200
300
400
500
600
700
0
5
10
15
20
15-02
28-02
13-03
26-03
09-04
Per 10k population
1e-05
0.001
0.01
0.1
1
10
1e-04
0.001
0.01
0.1
Relative increase
1
2
3
4
5
6
02-04
09-04
Date (dd-mm)

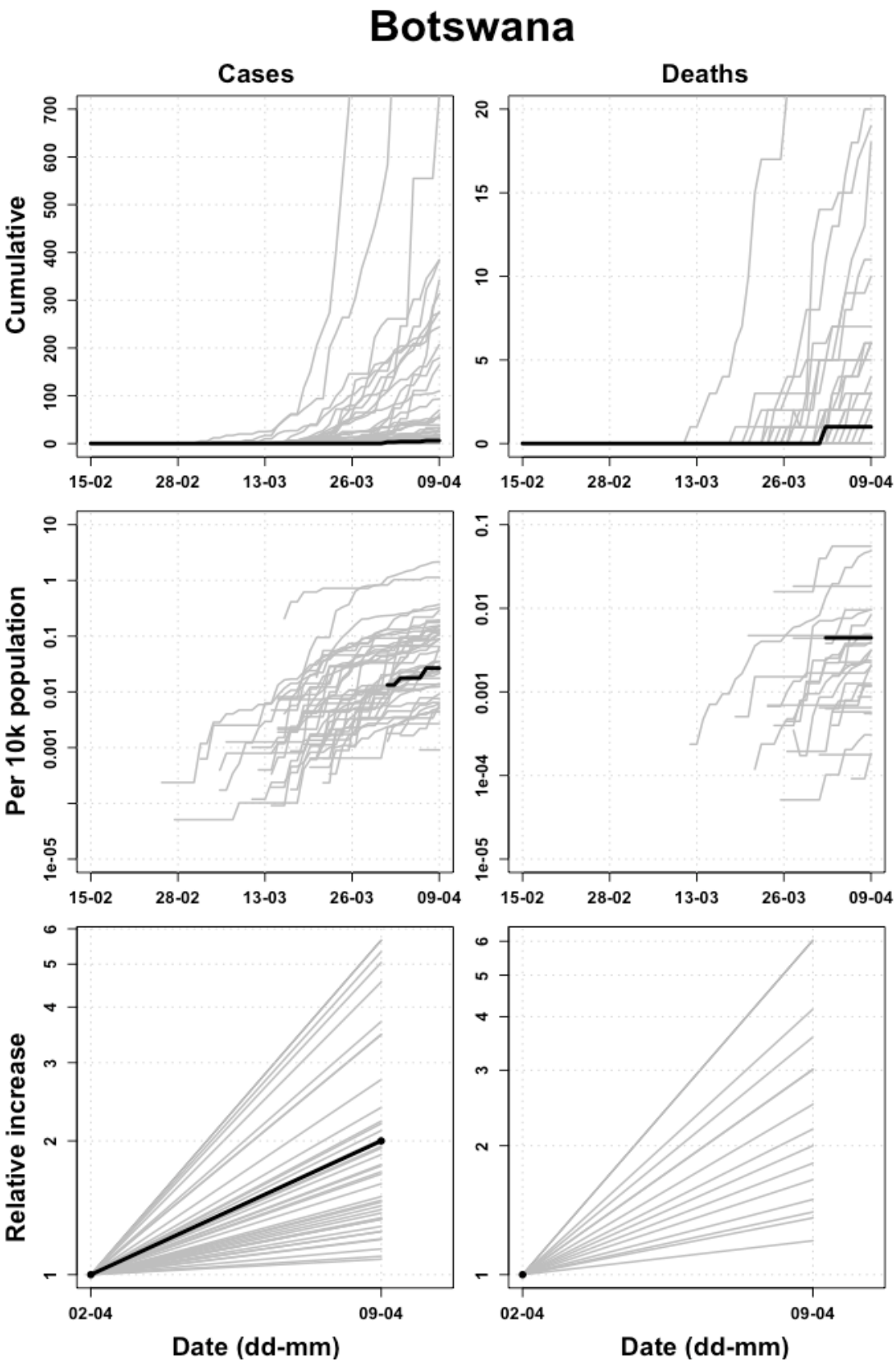
Angola


Angola
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

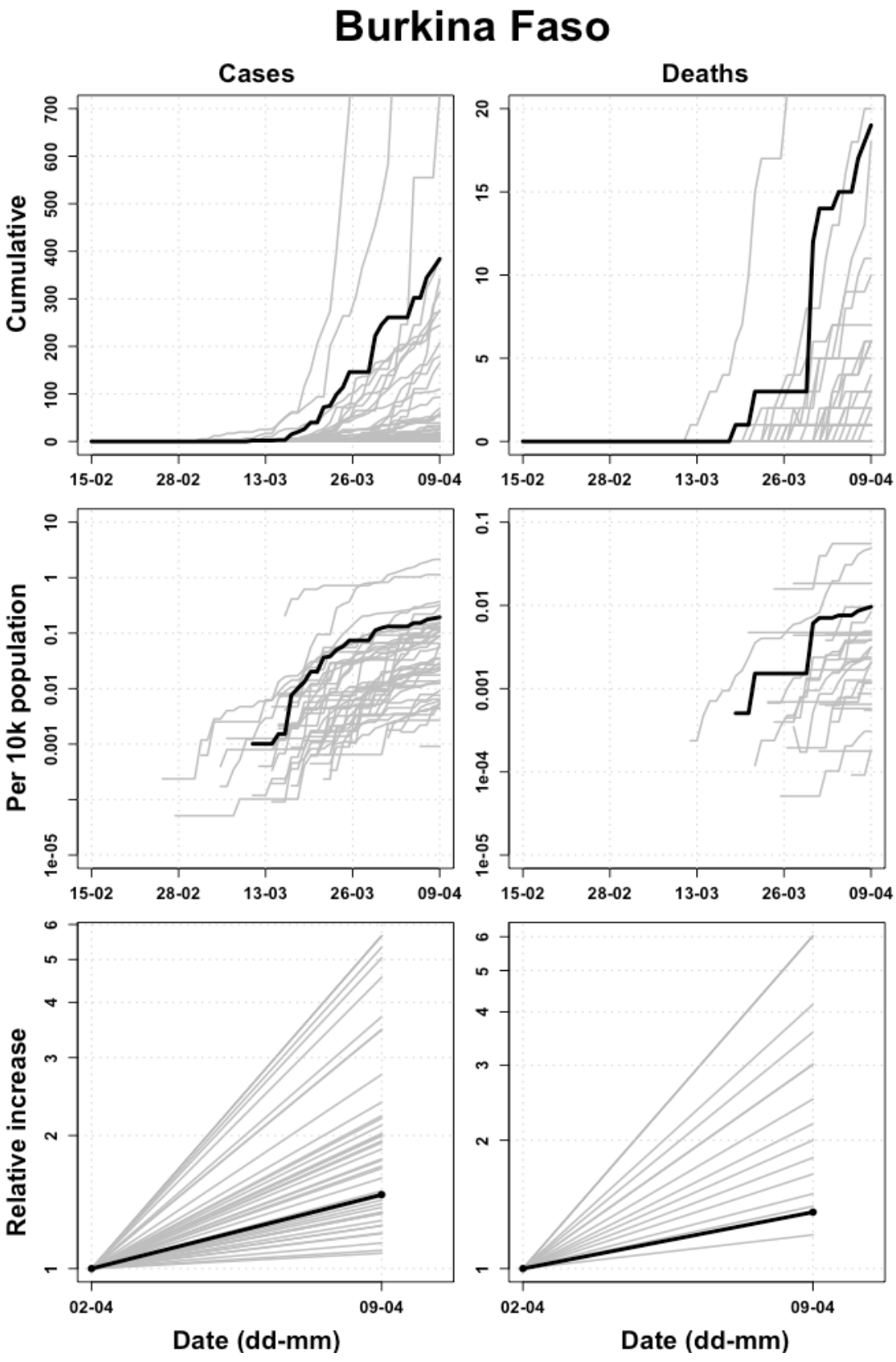
Benin


Benin
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

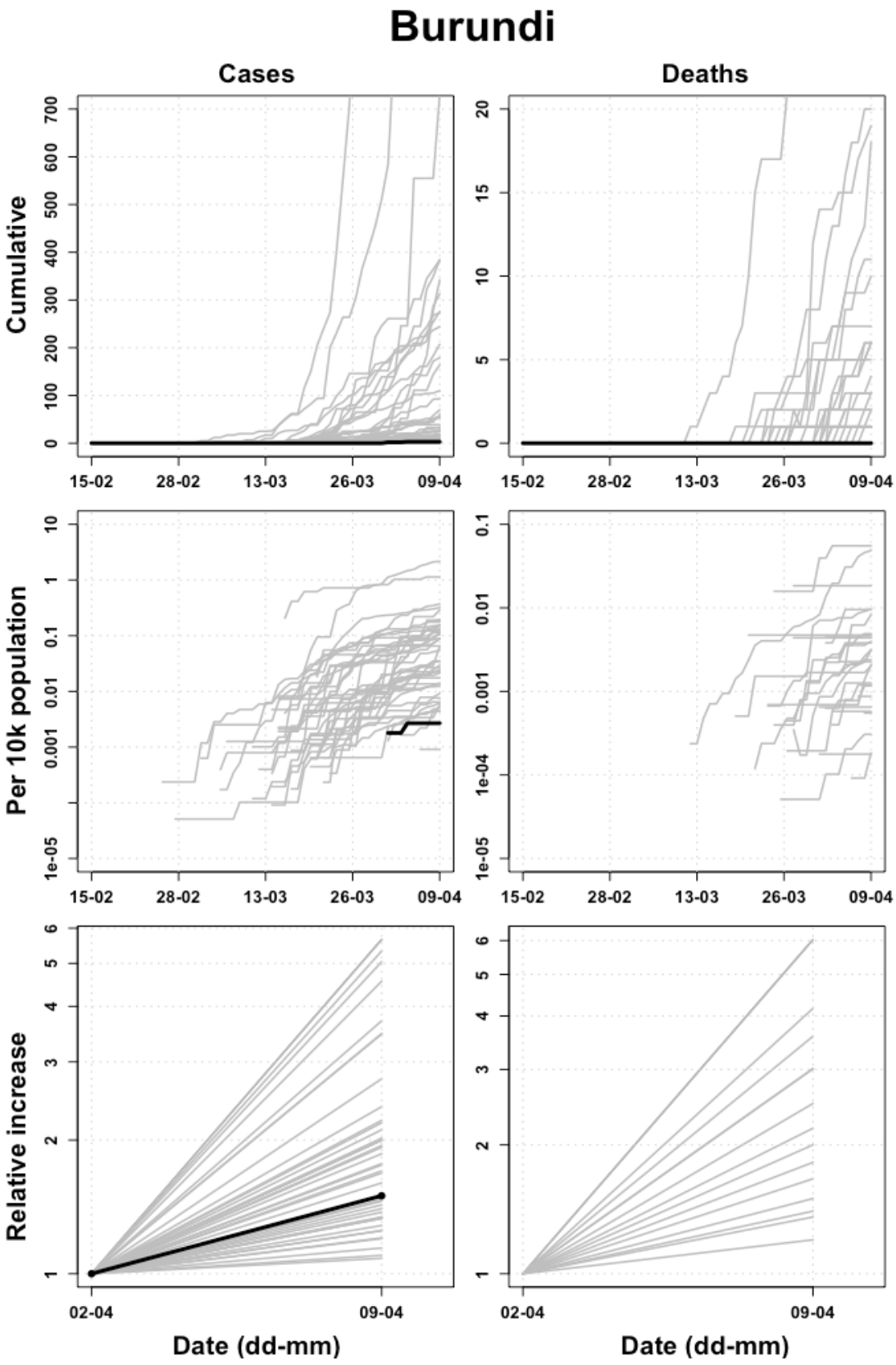
Botswana


Botswana
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

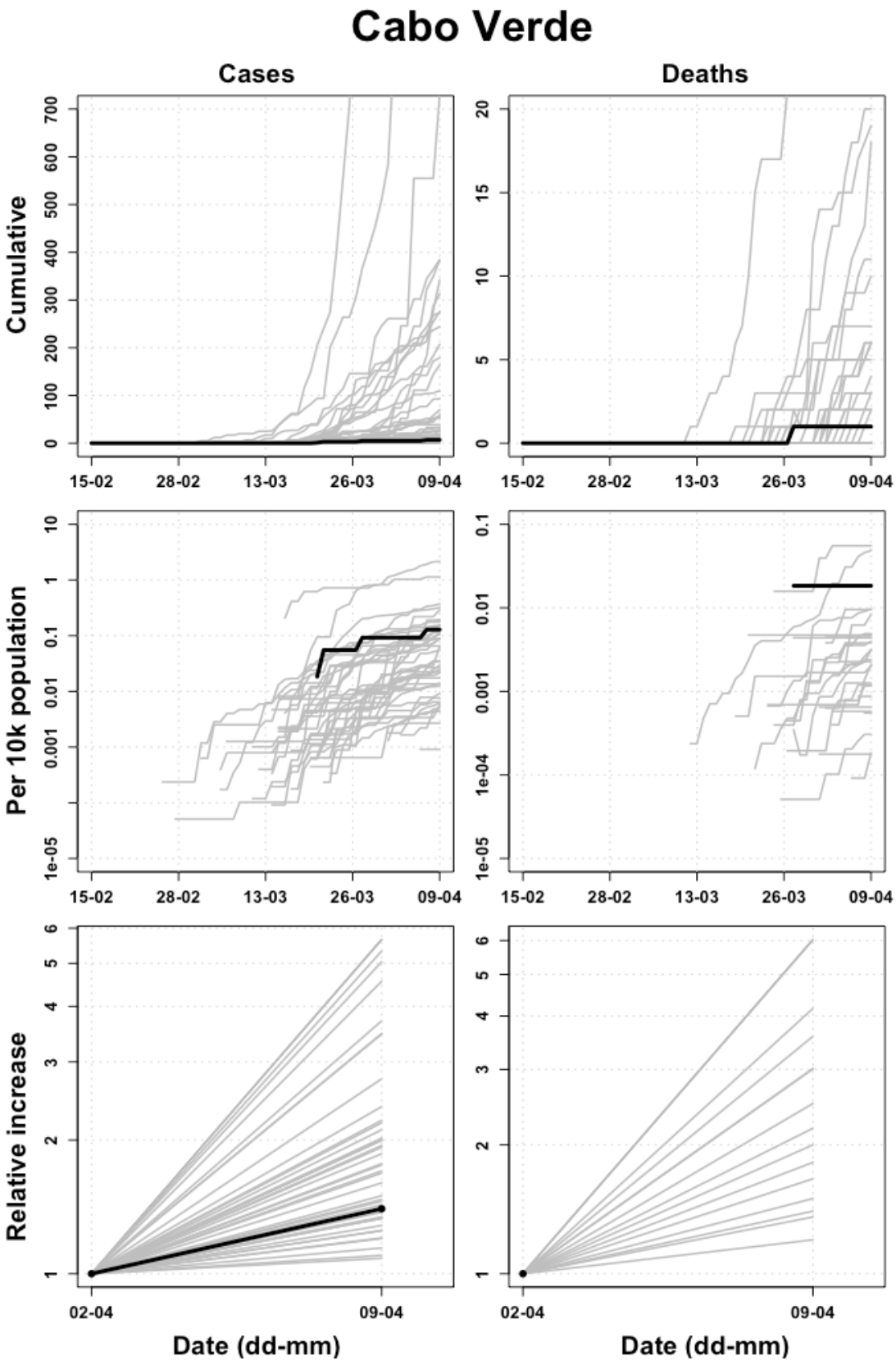
Burkina Faso



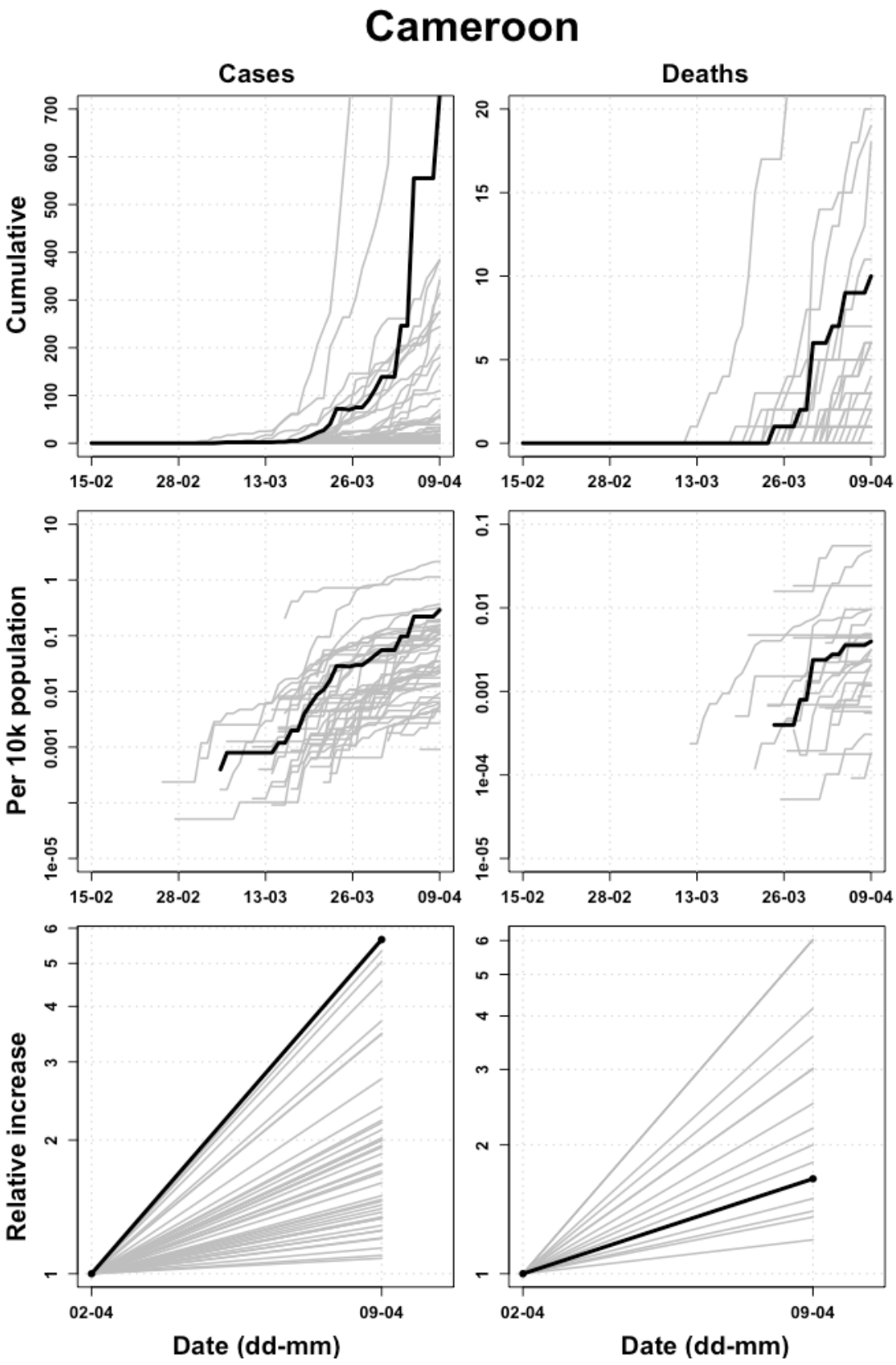
Burundi


Burundi
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

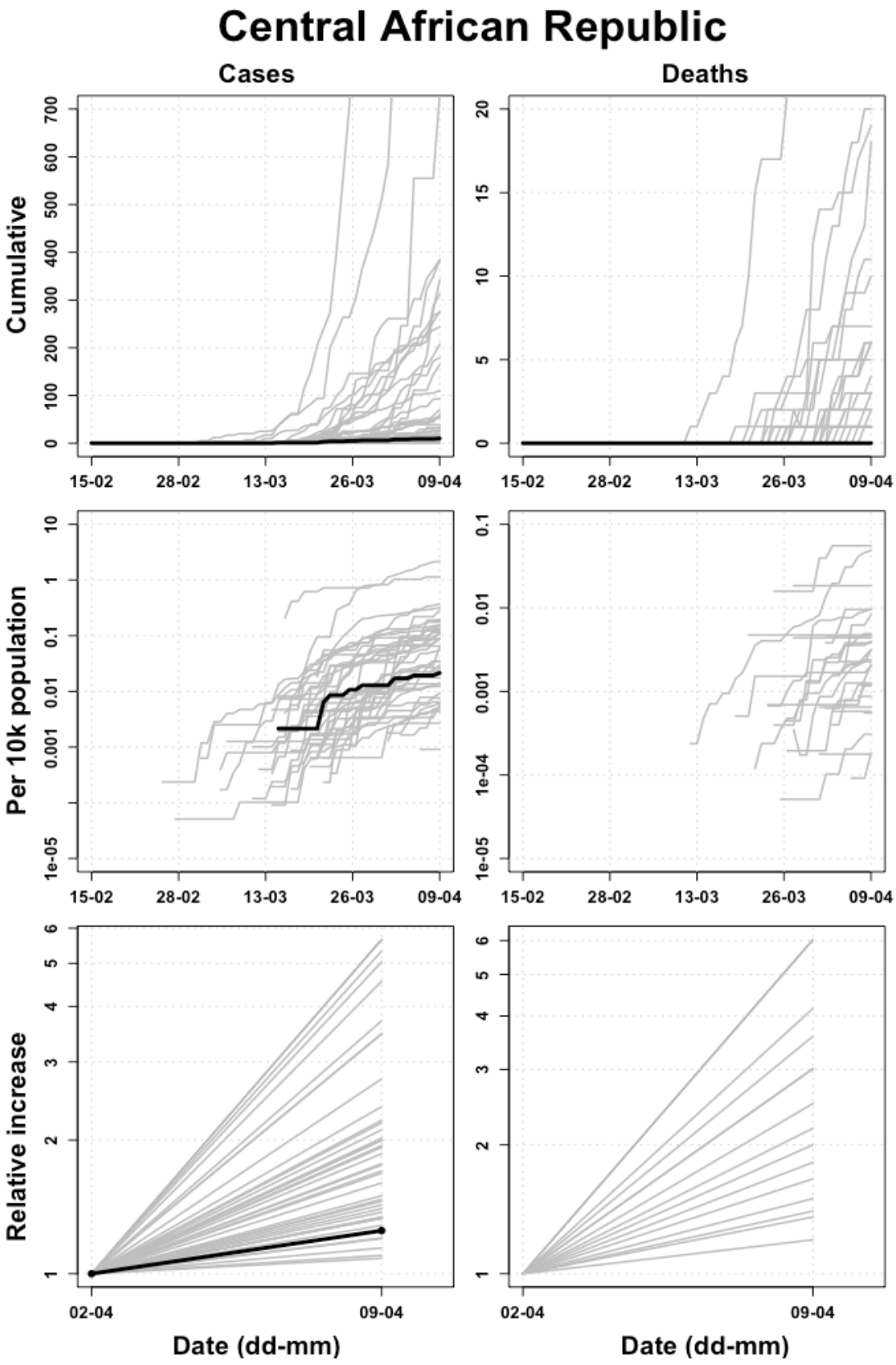
Cabo Verde


Cabo Verde
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

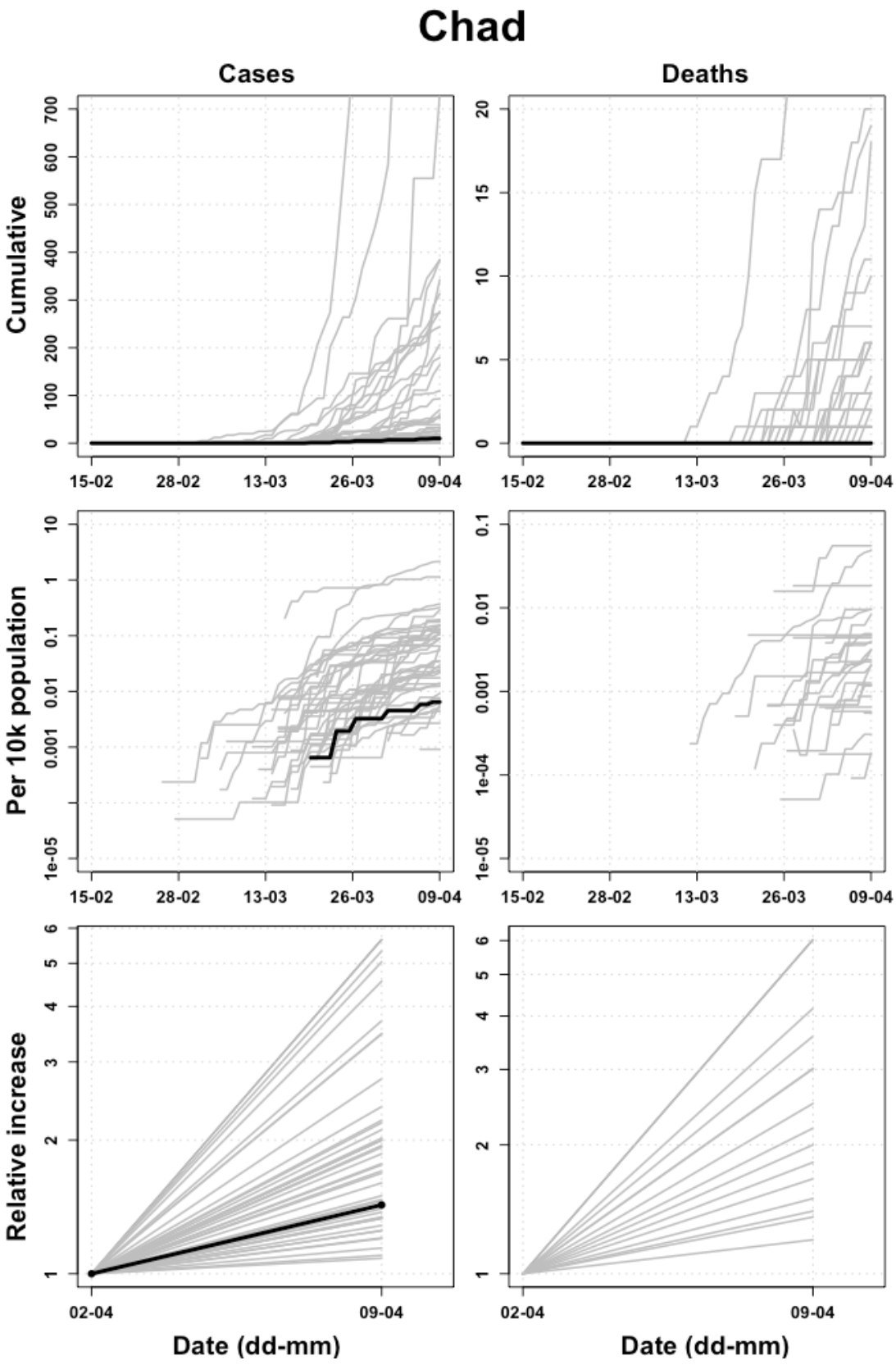
Cameroon


Cameroon
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

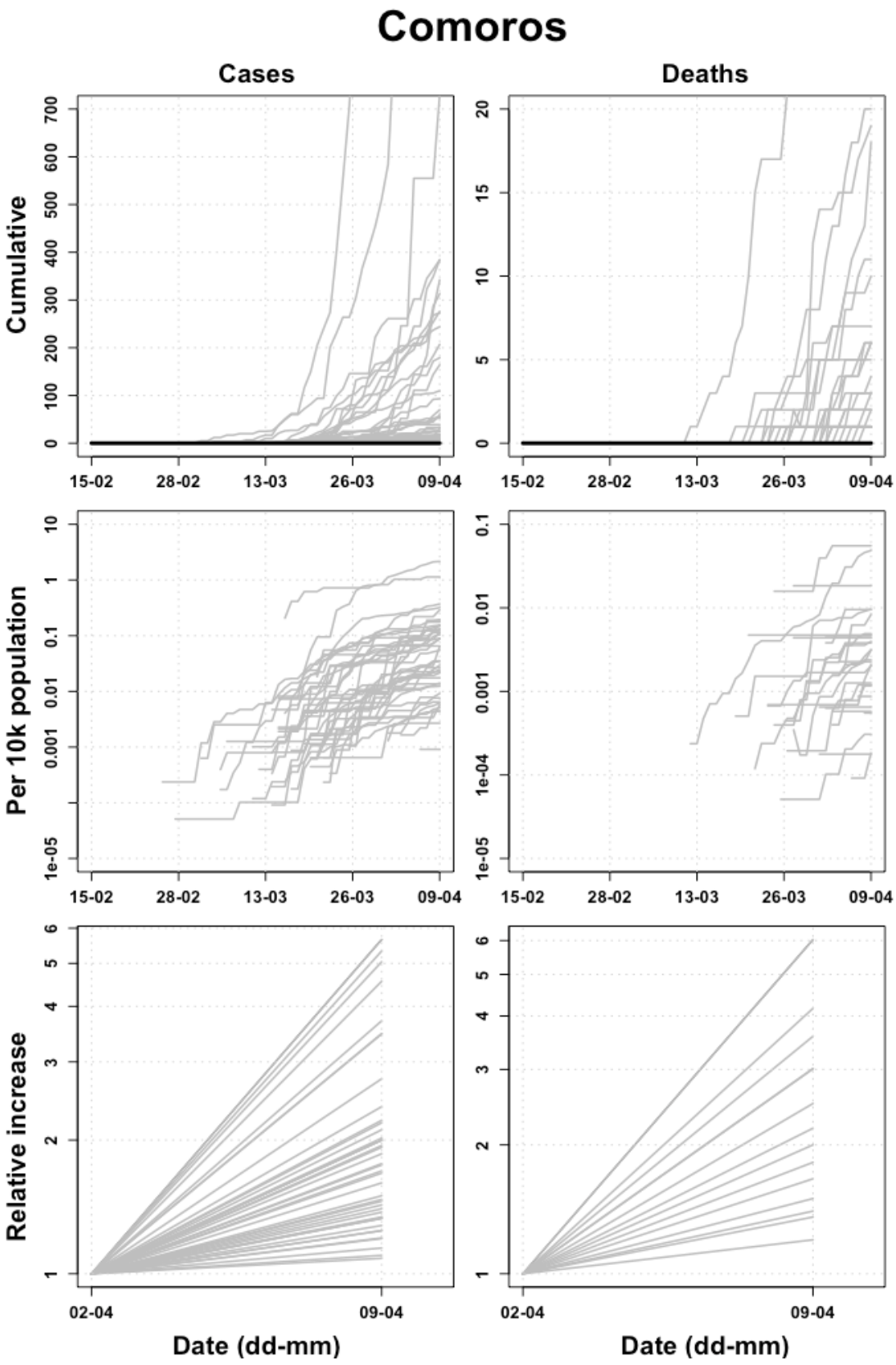
Central African Republic



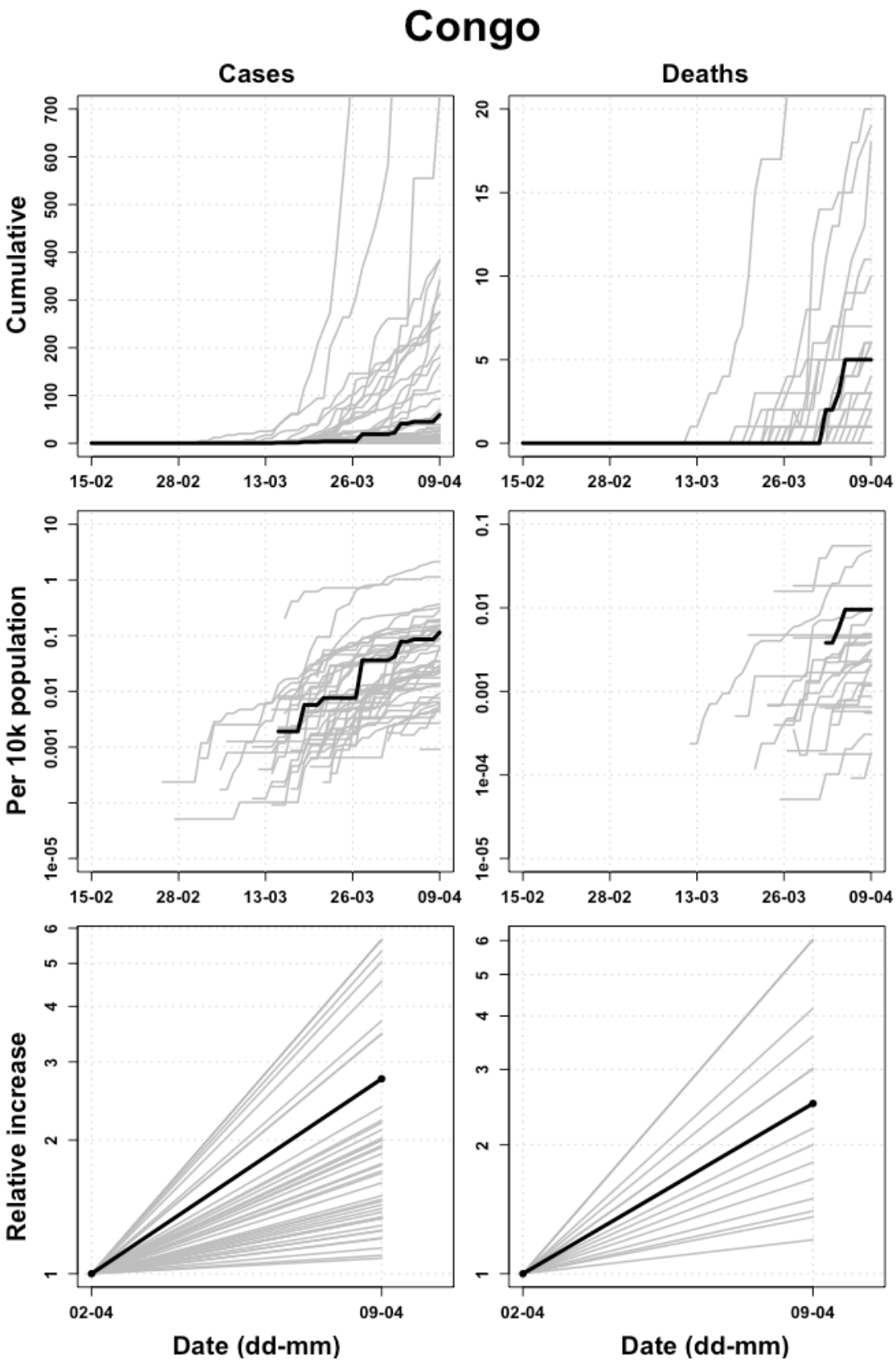
Chad


Chad
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

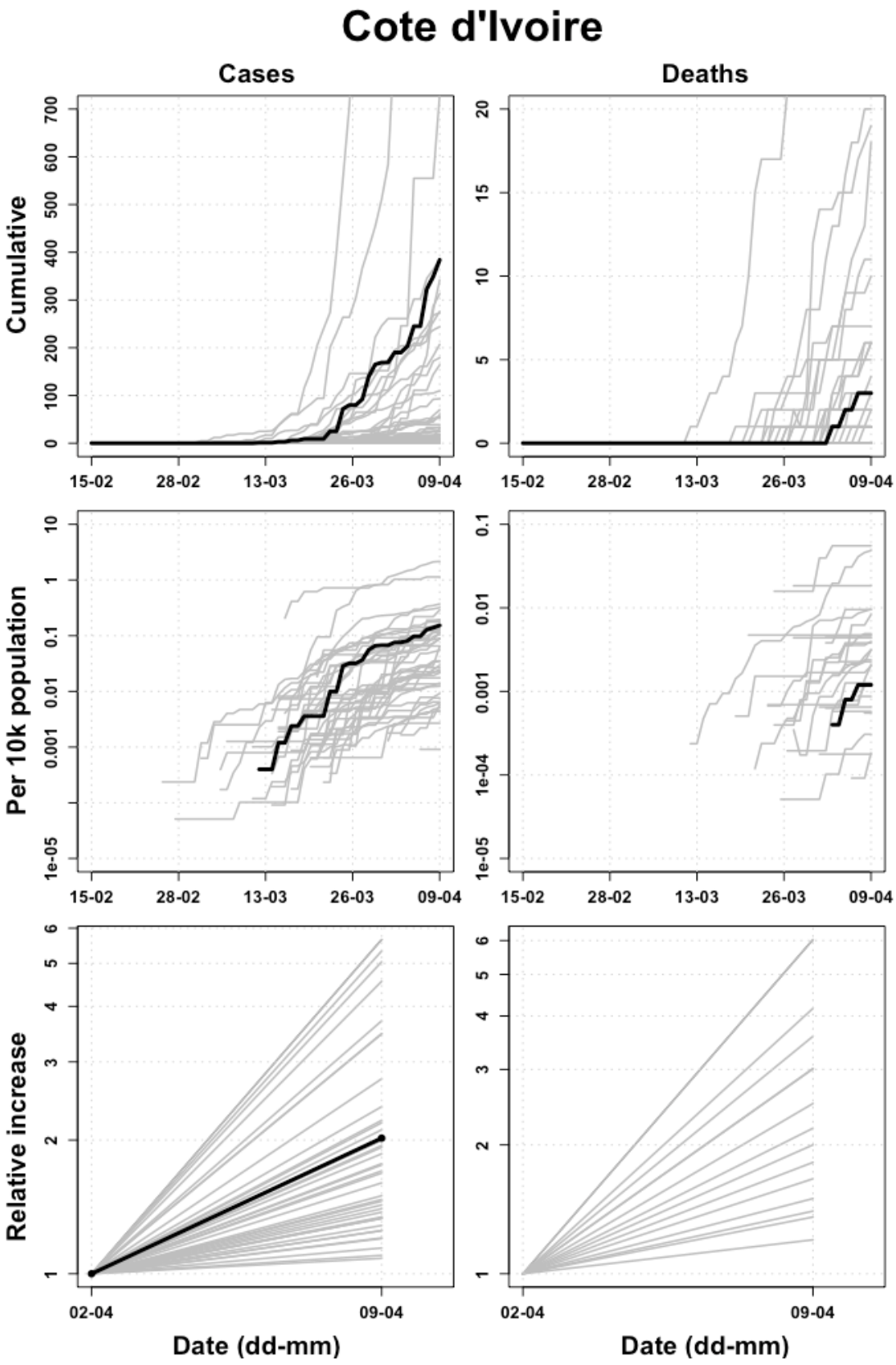
Comoros


Comoros
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

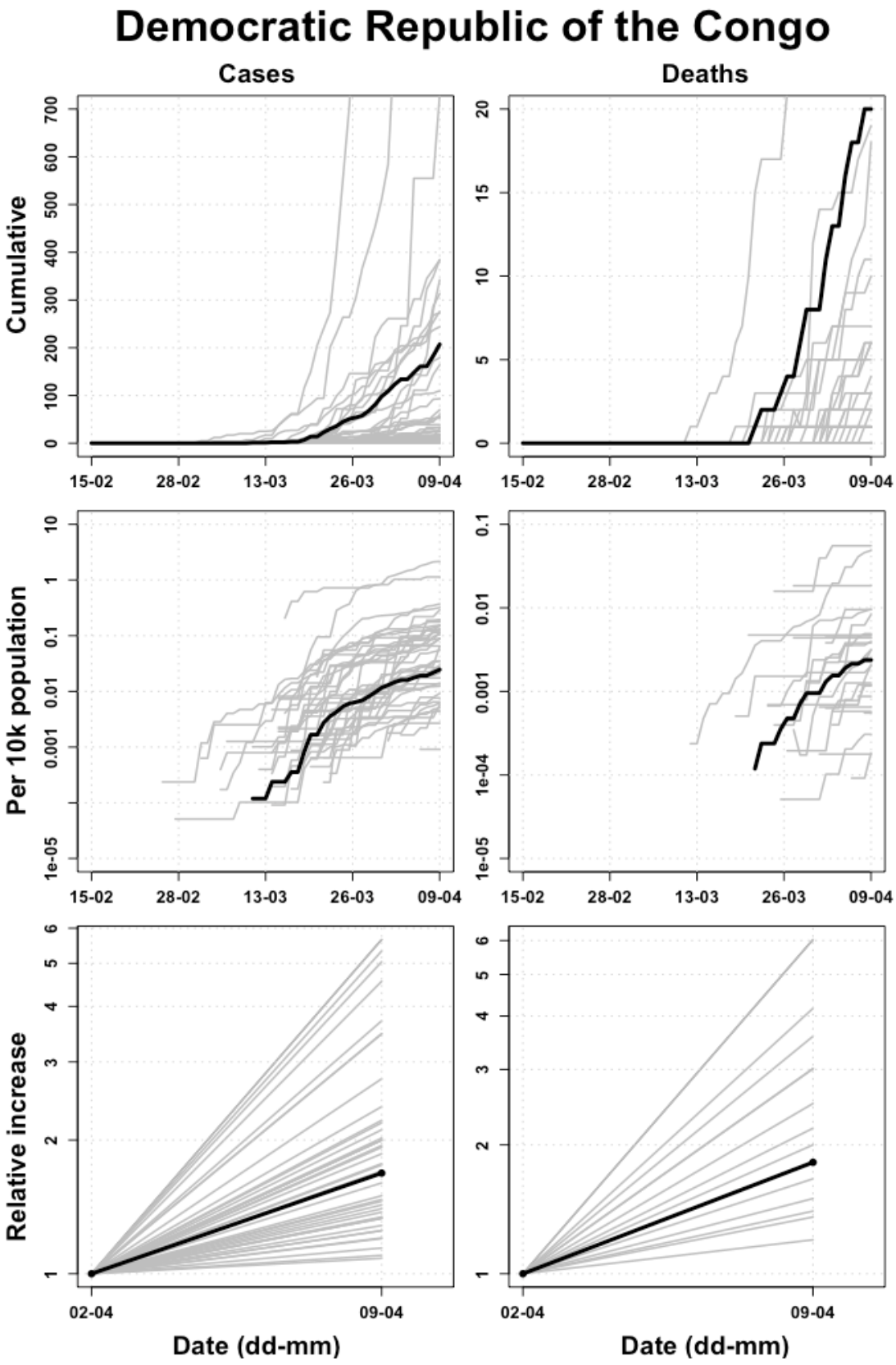
Congo


Congo
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

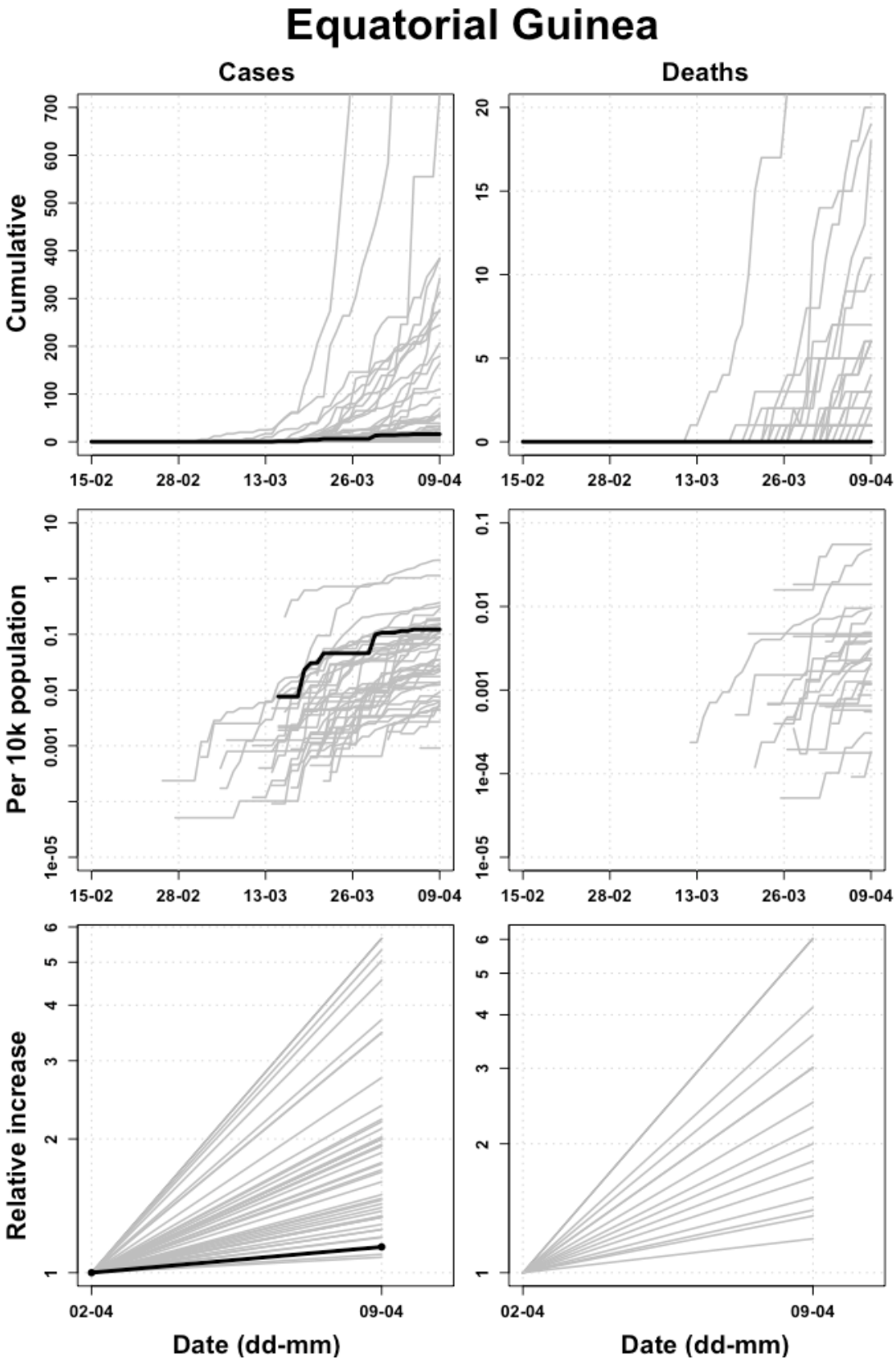
Cote d’Ivoire



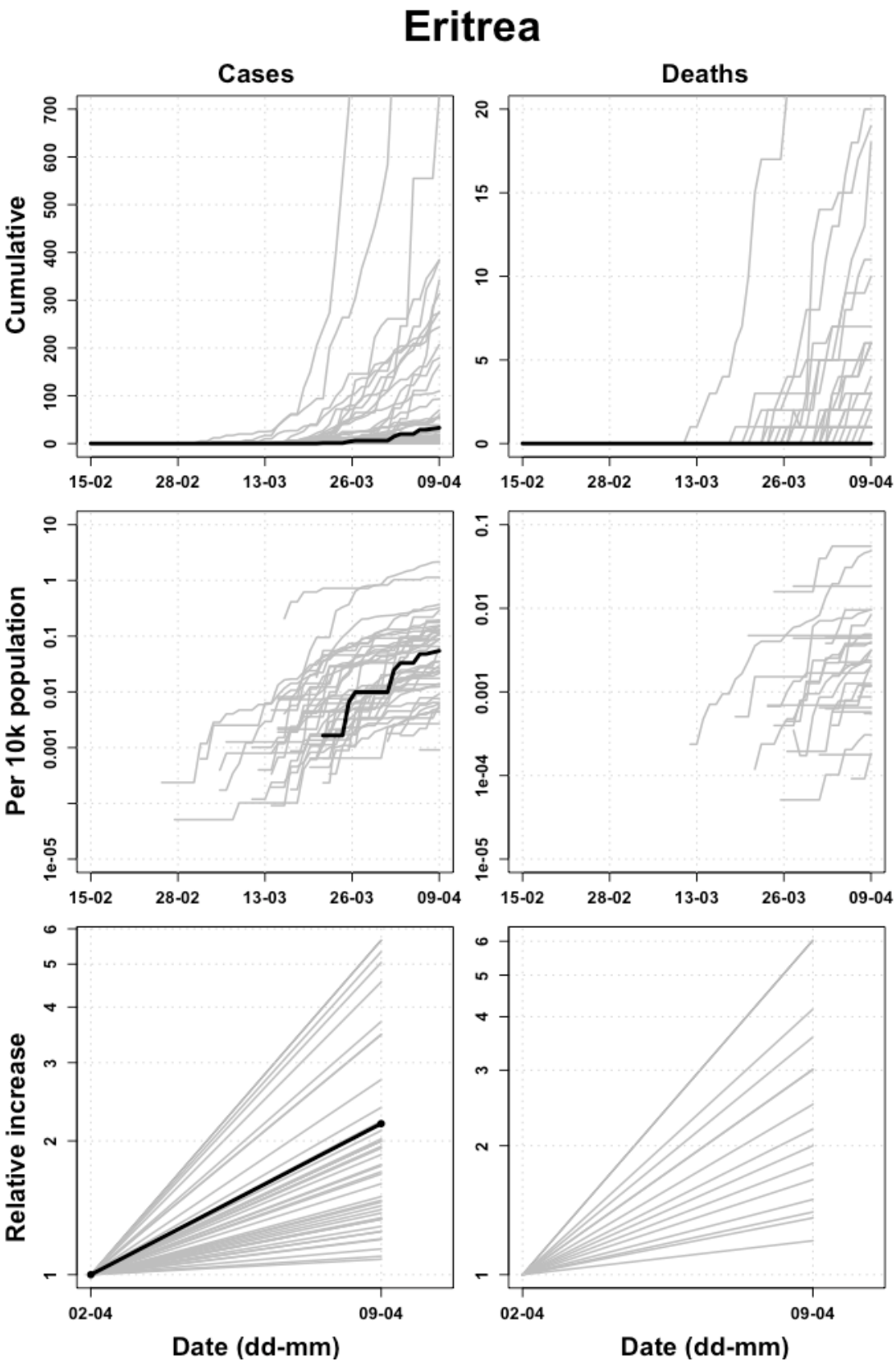
Democratic Republic of the Congo



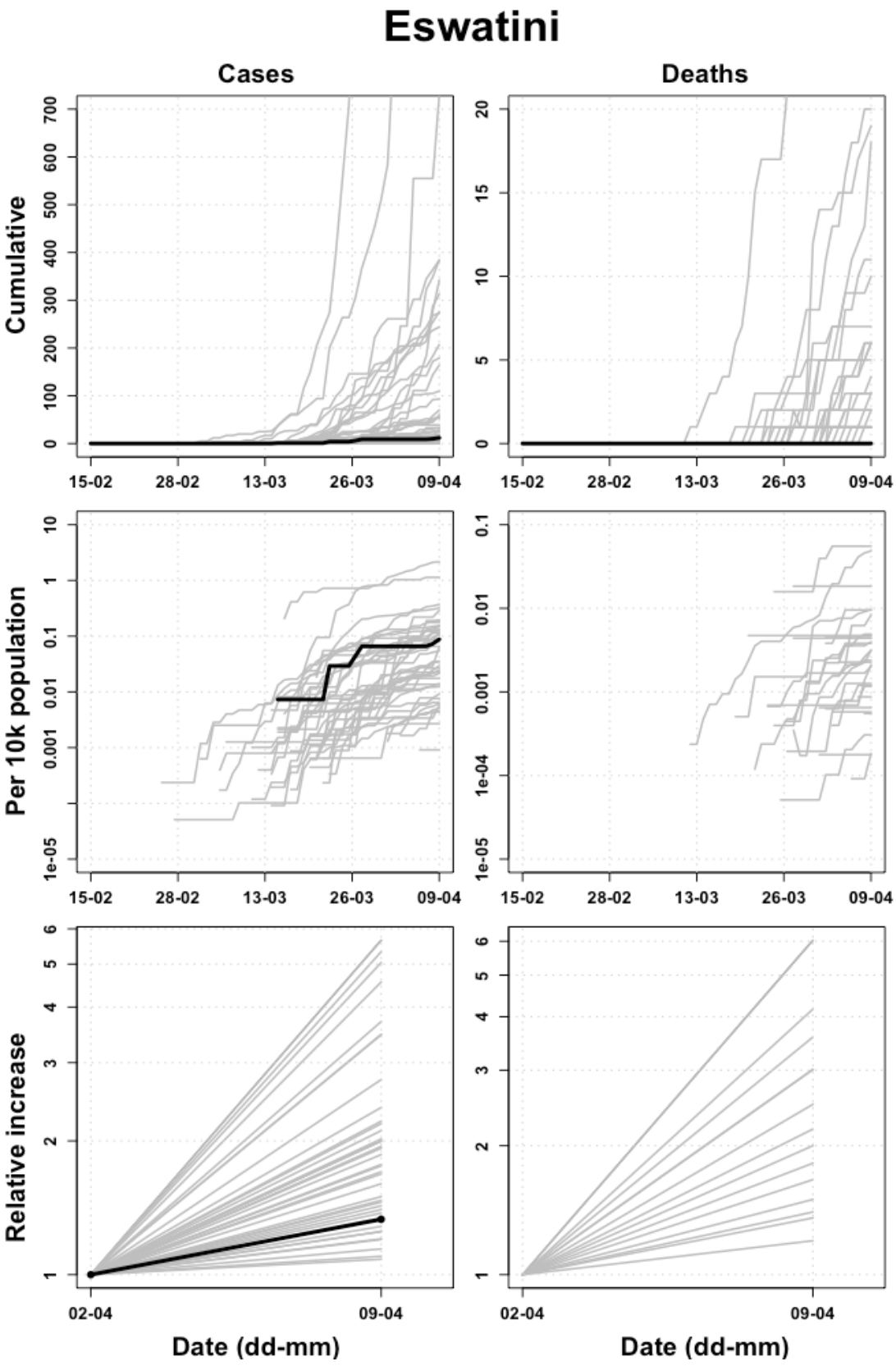
Equatorial Guinea



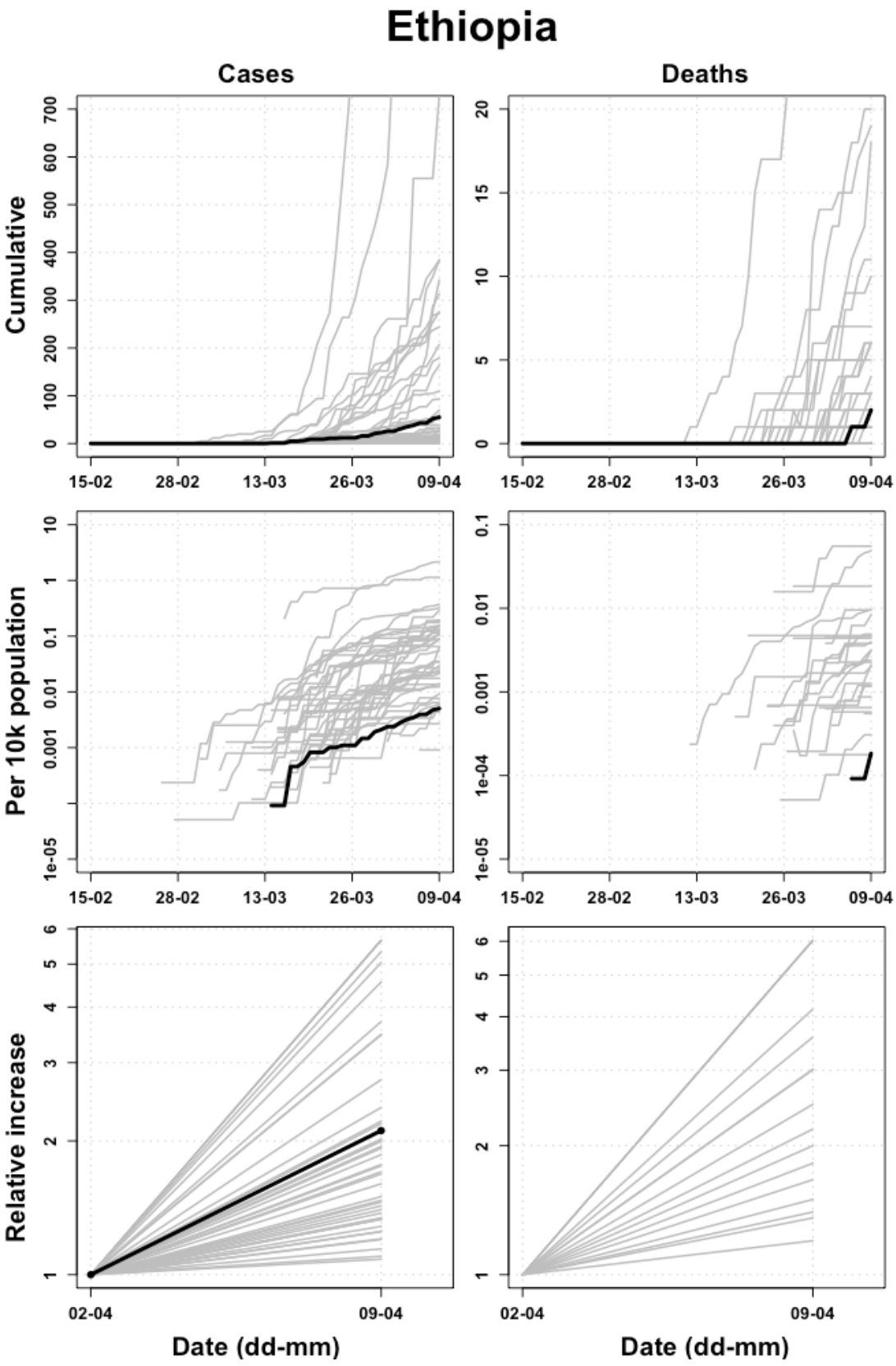
Eritrea


Eritrea
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

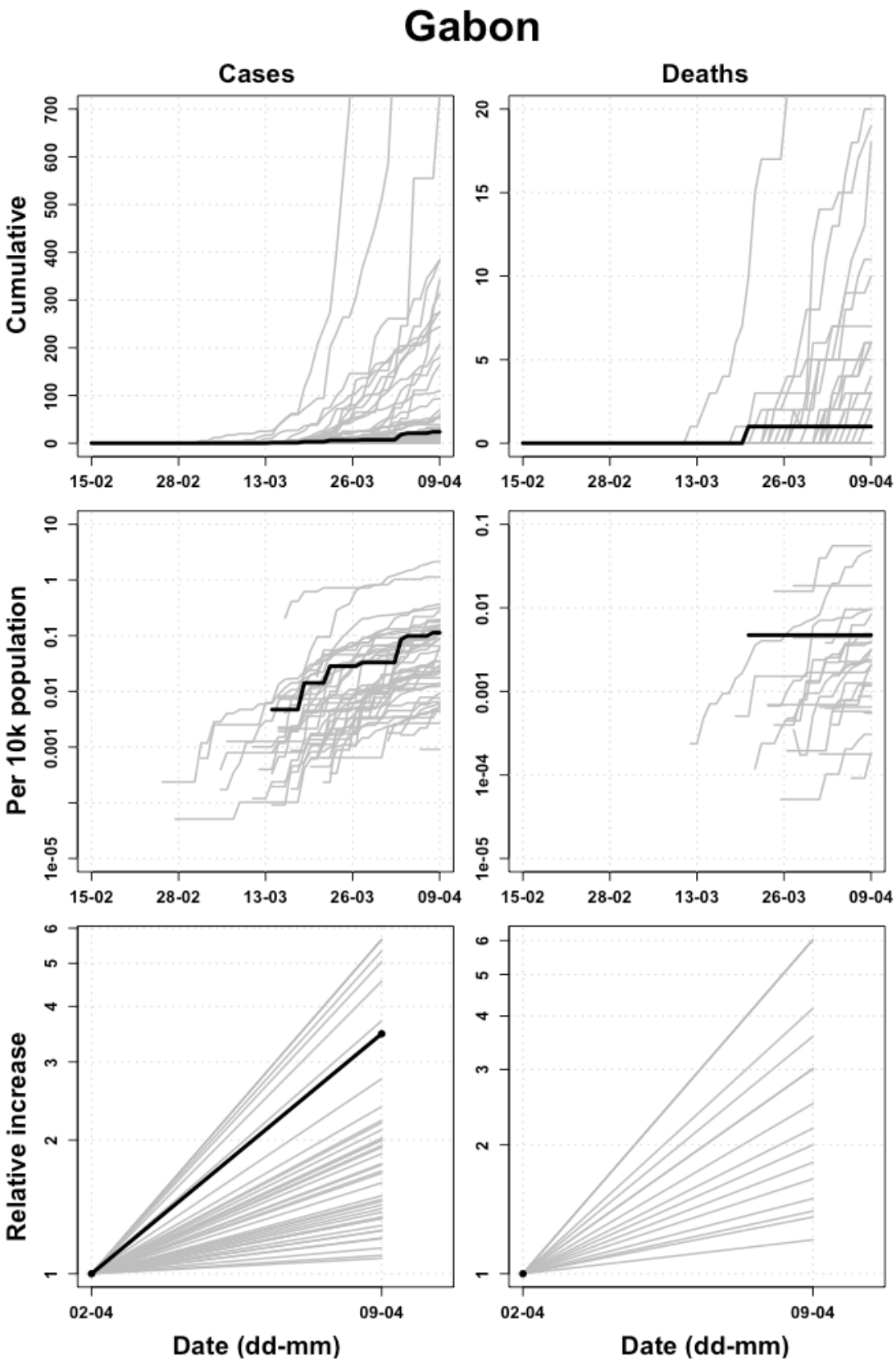
Eswatini


Eswatini
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

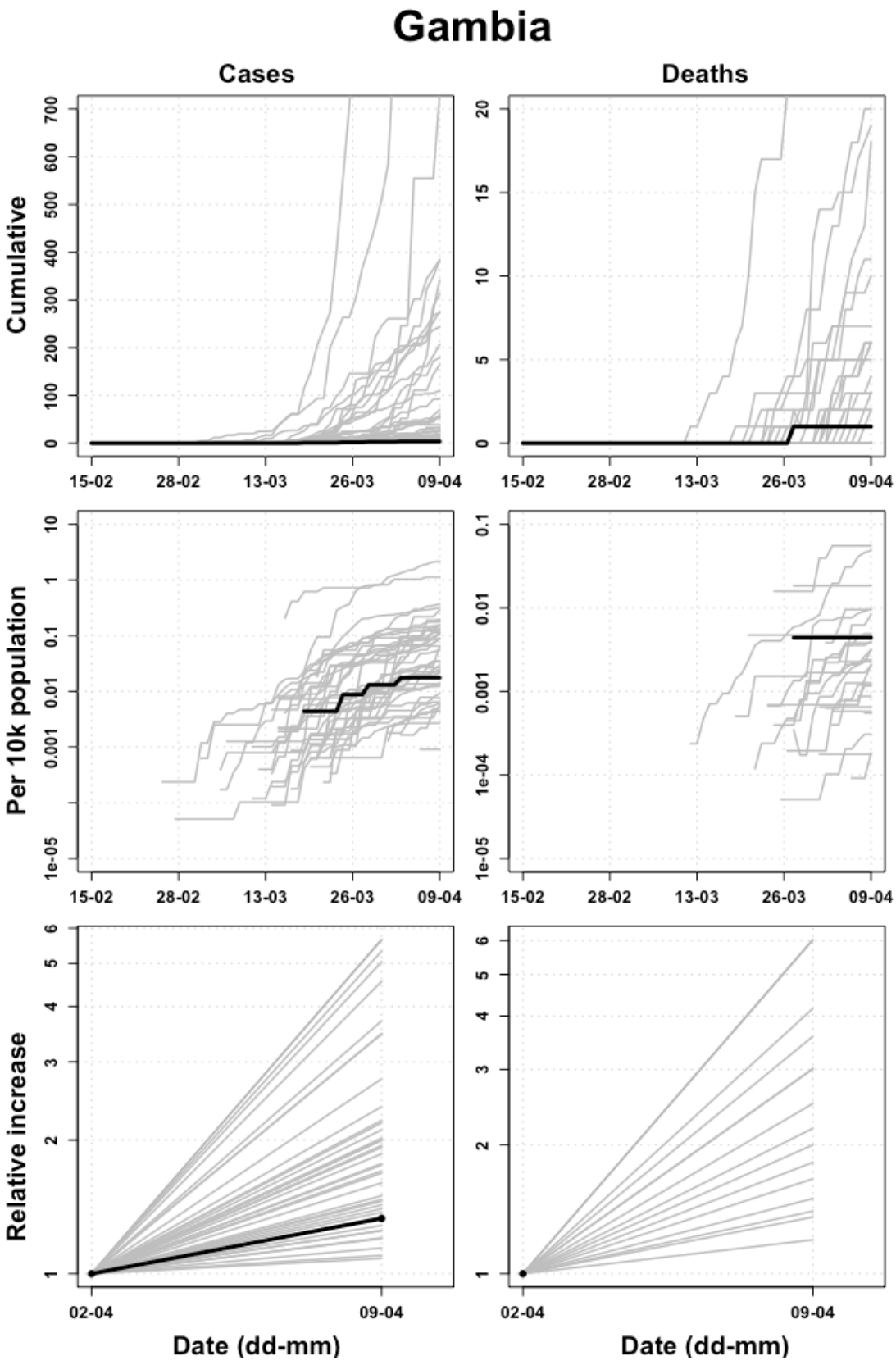
Ethiopia


Ethiopia
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

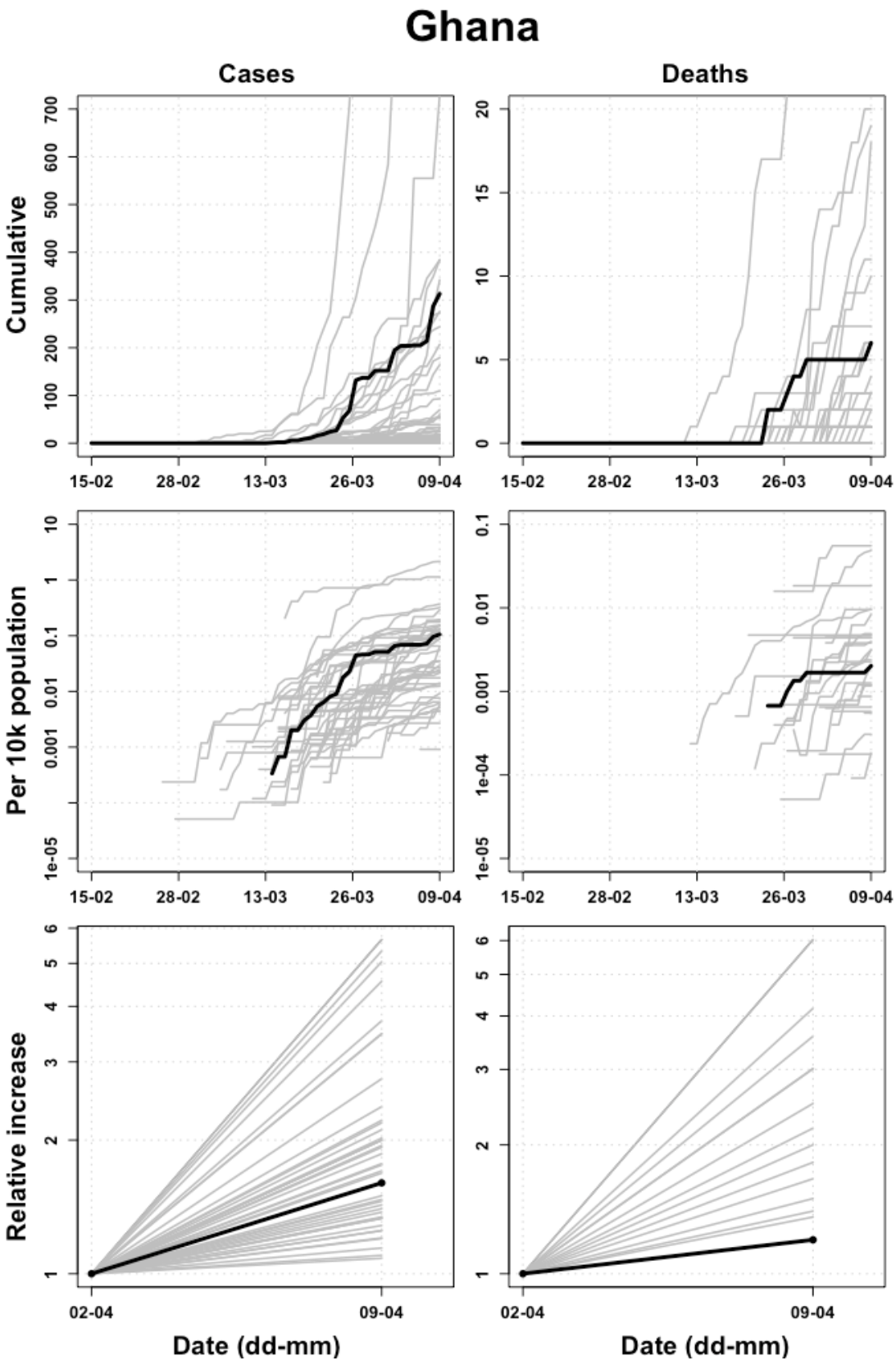
Gabon


Gabon
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

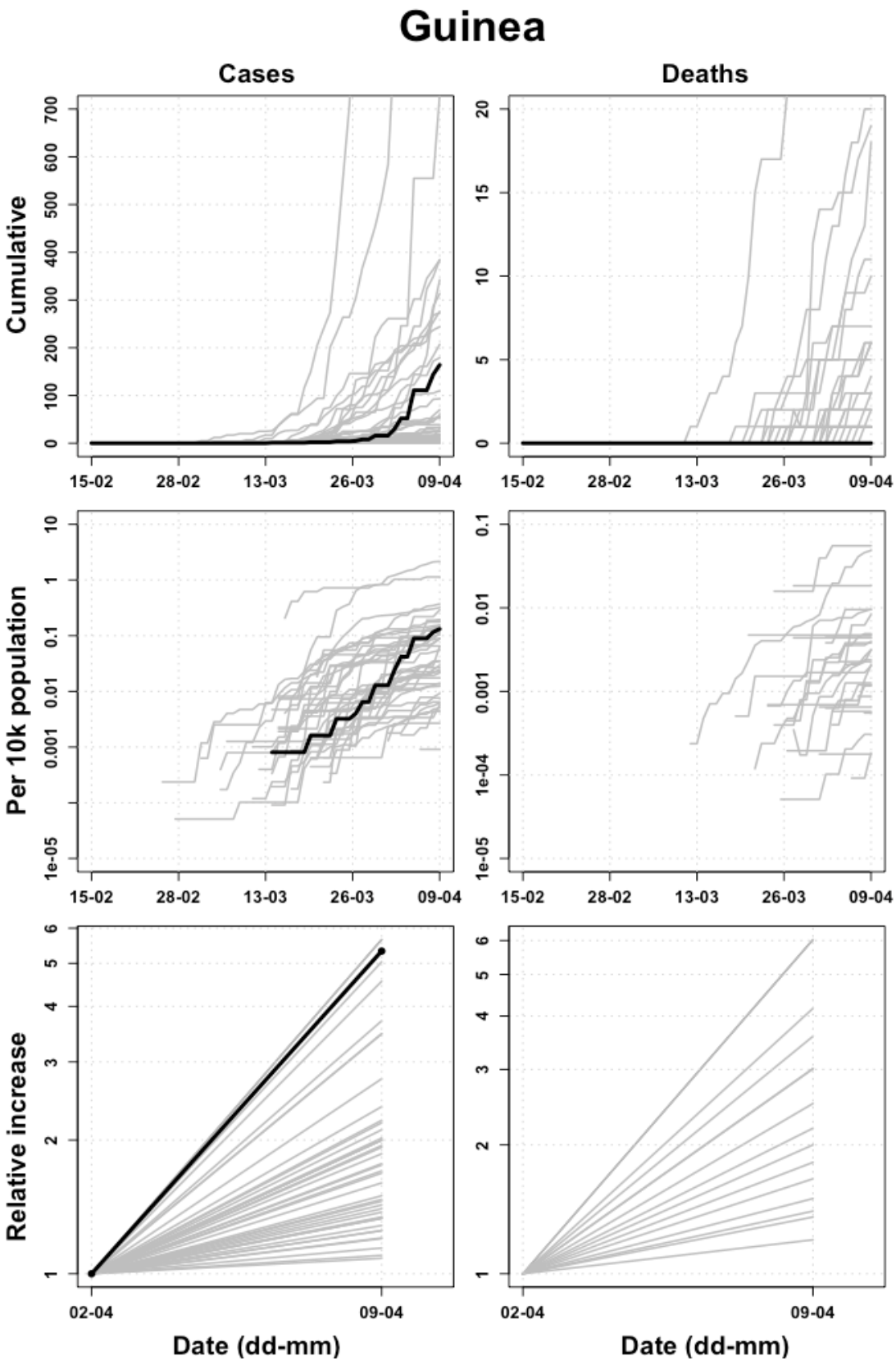
Gambia


Gambia
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

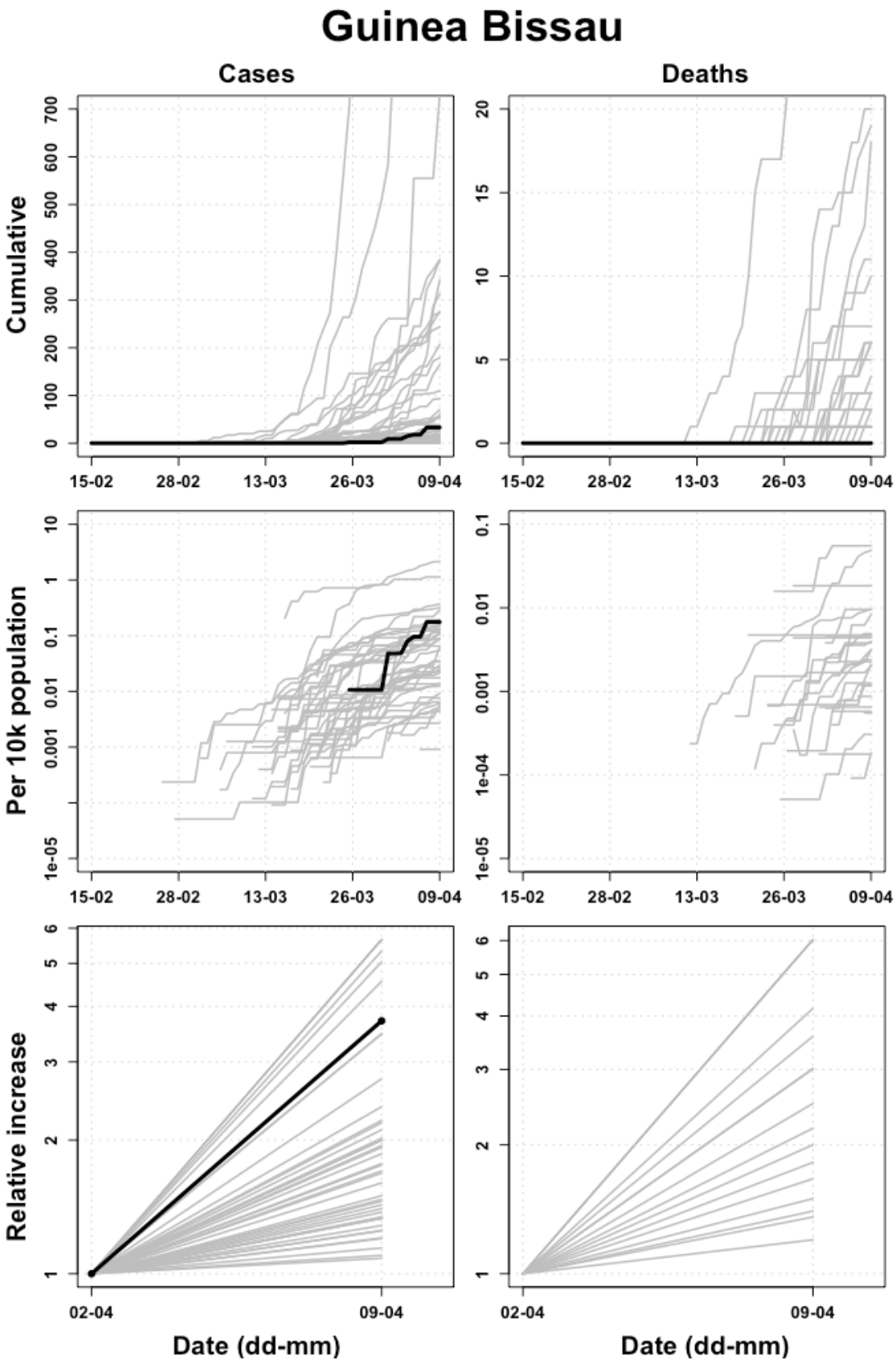
Ghana


Ghana
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

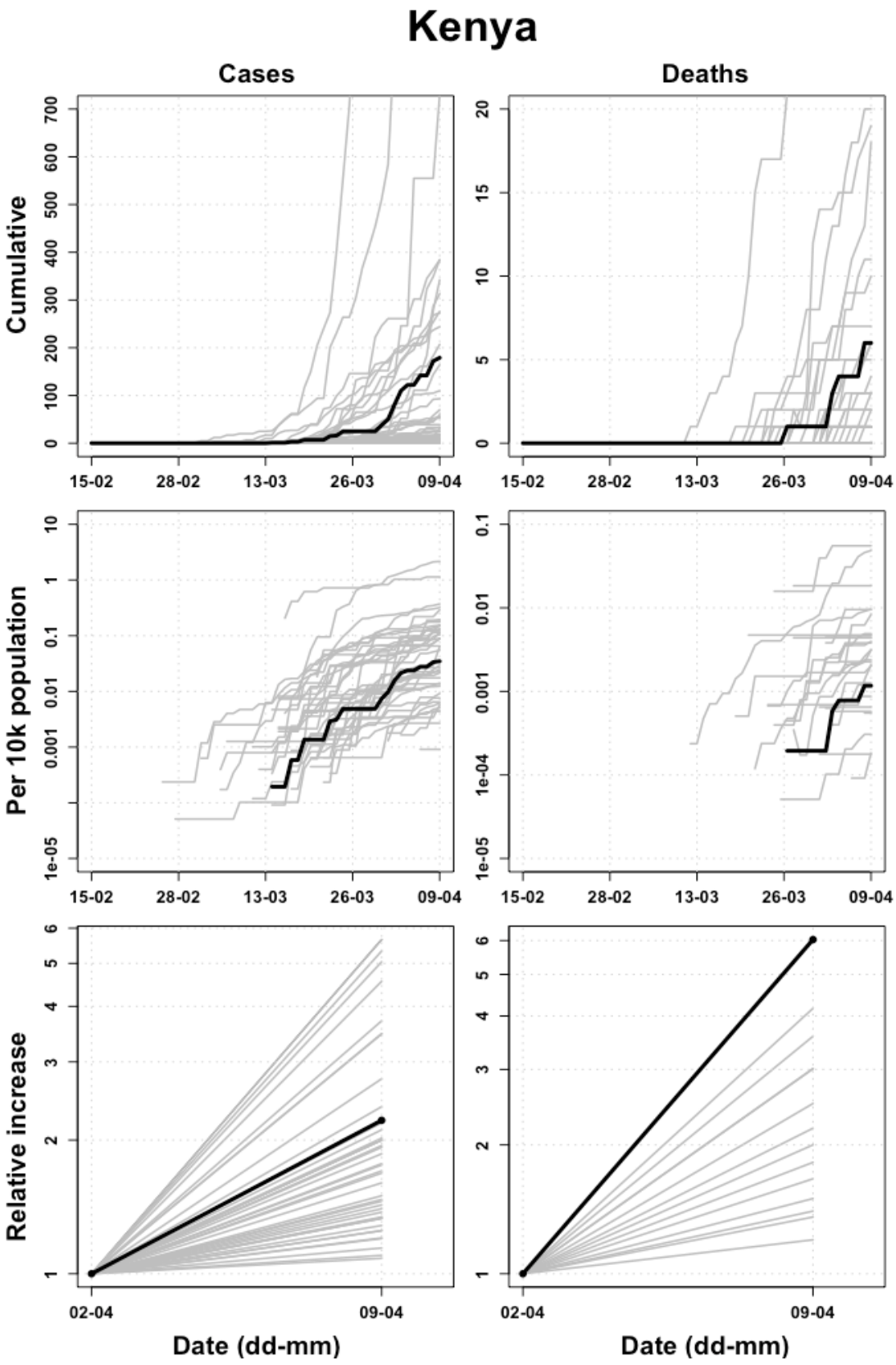
Guinea


Guinea
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

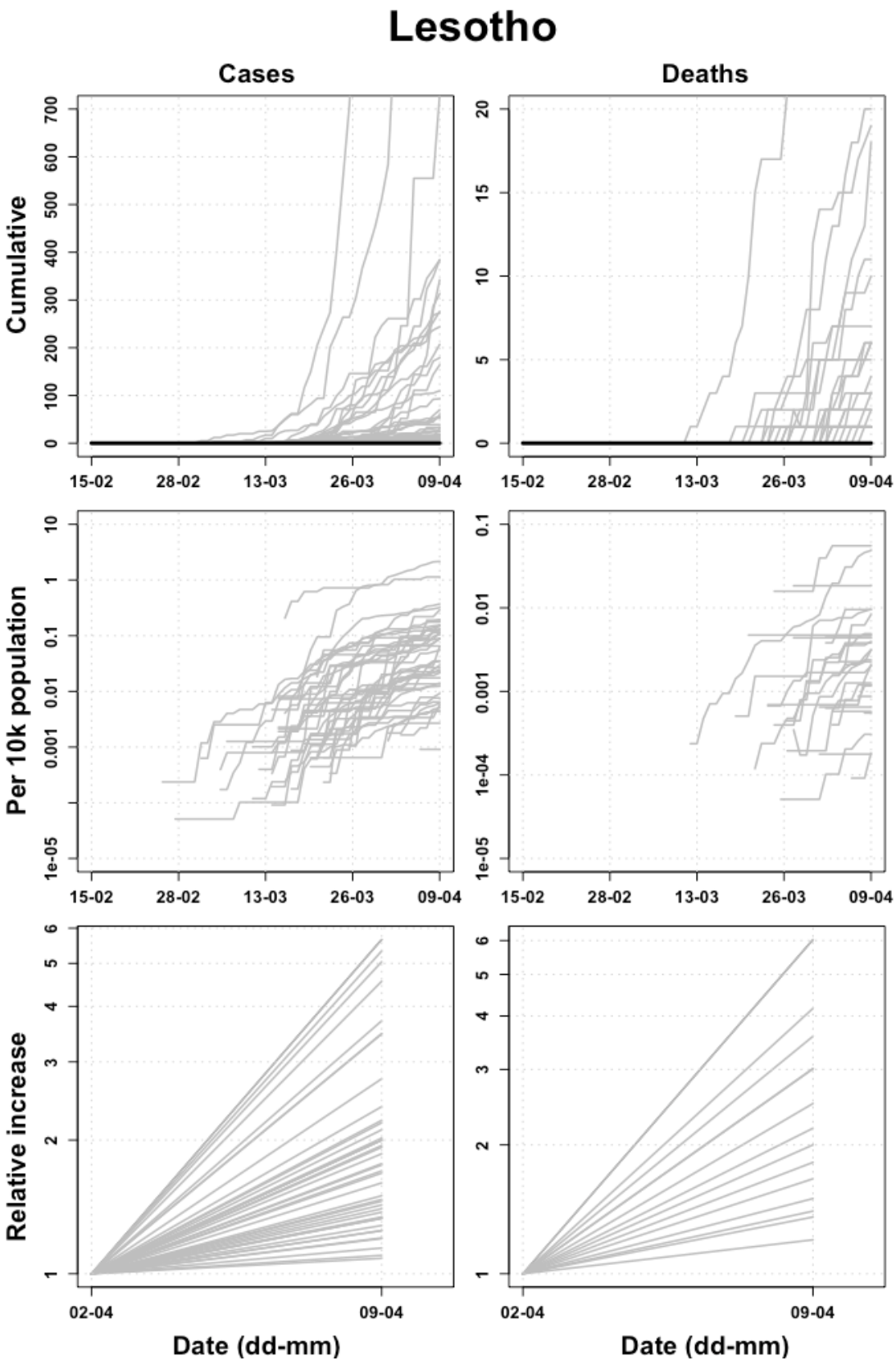
Guinea Bissau



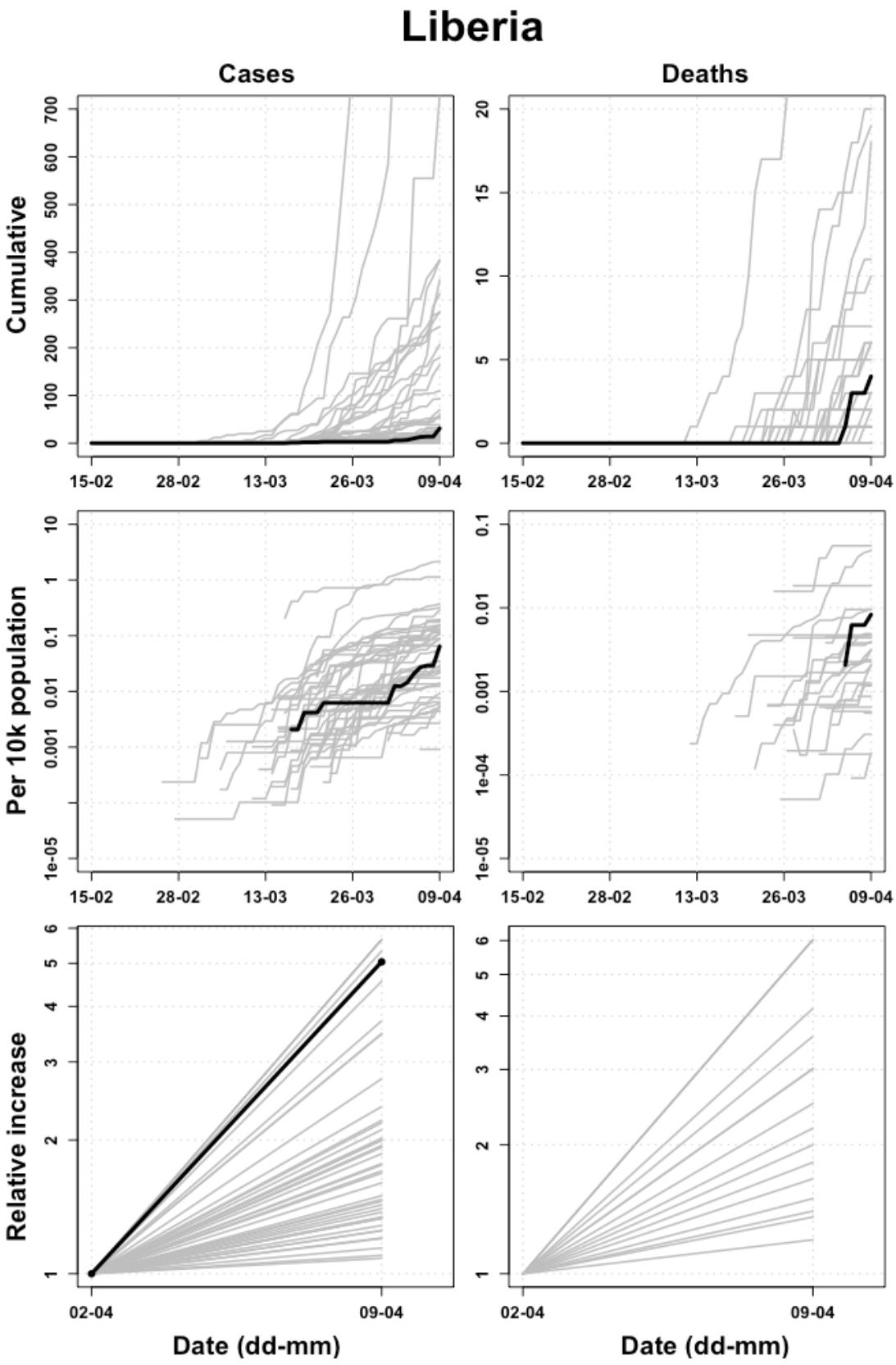
Kenya


Kenya
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

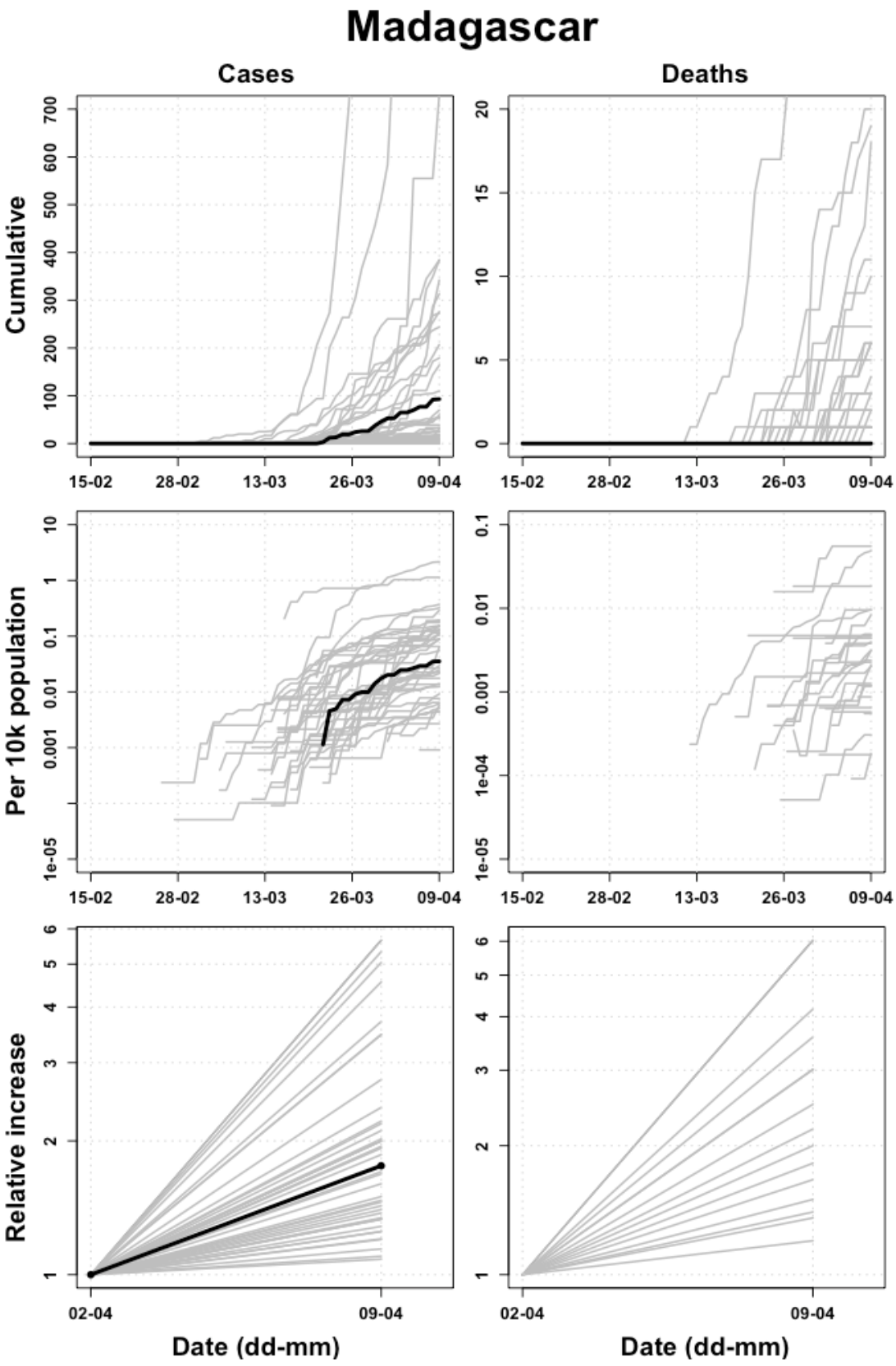
Lesotho


Lesotho
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

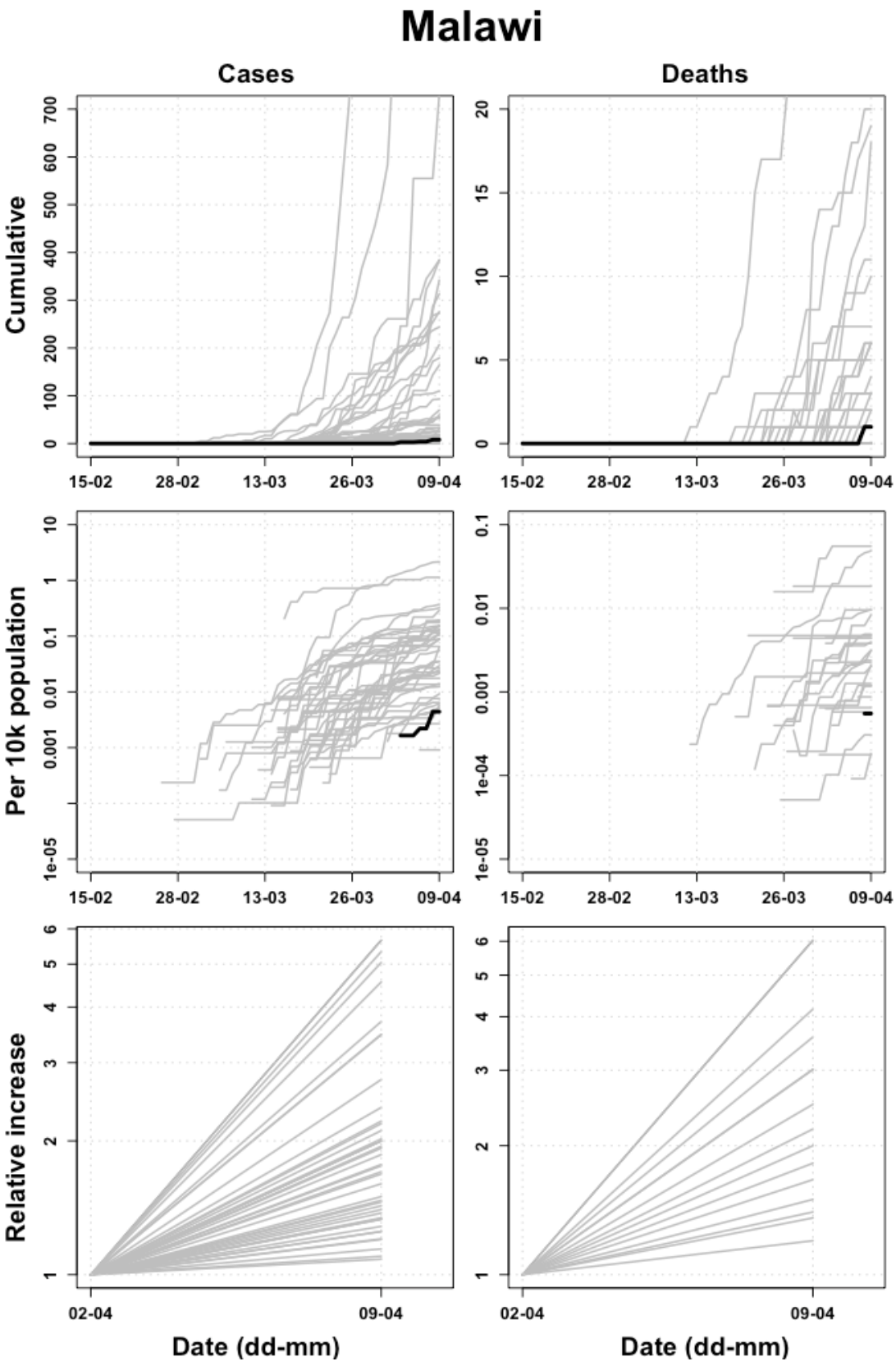
Liberia


Liberia
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

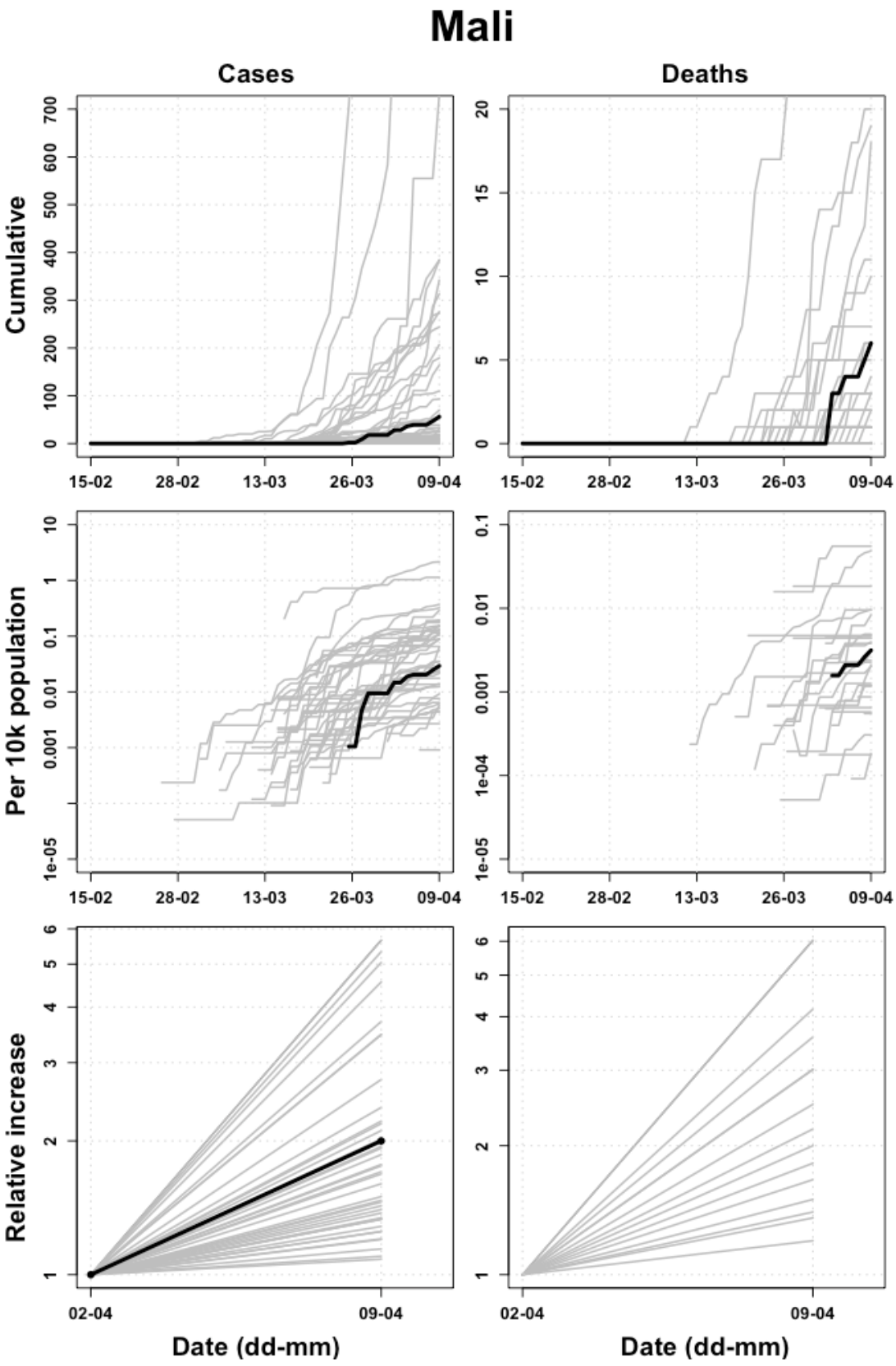
Madagascar


Madagascar
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

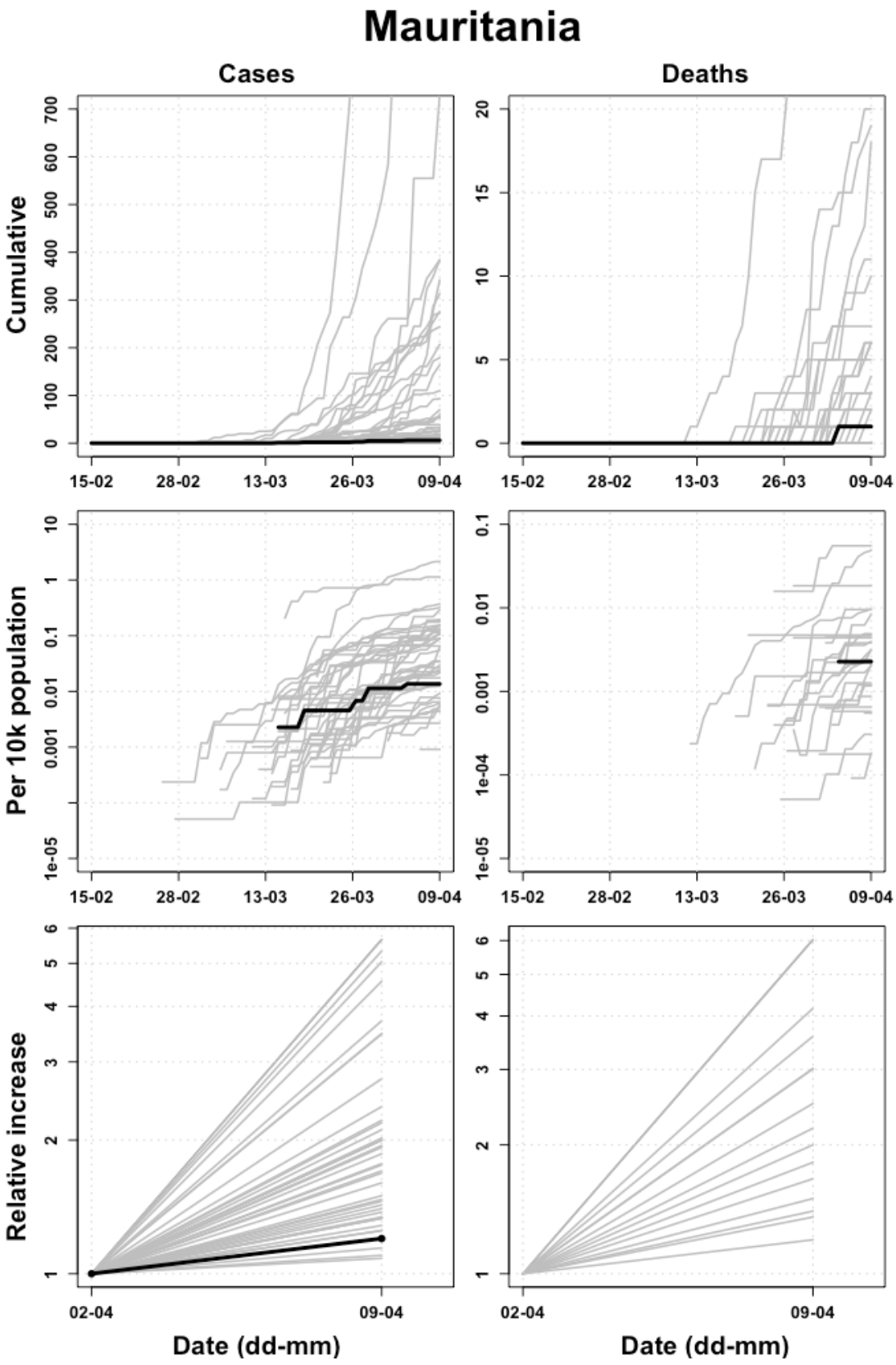
Malawi


Malawi
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

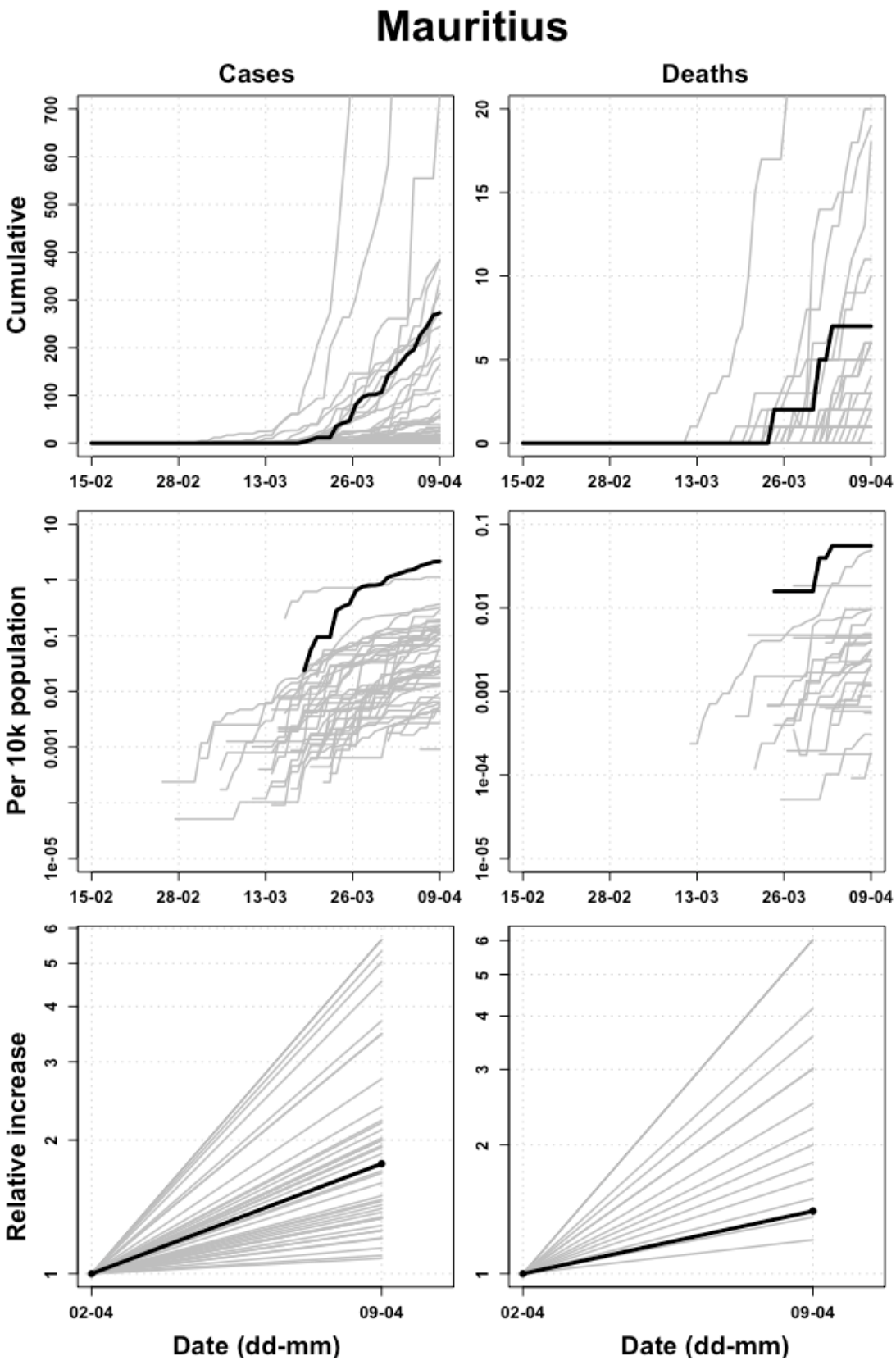
Mali


Mali
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

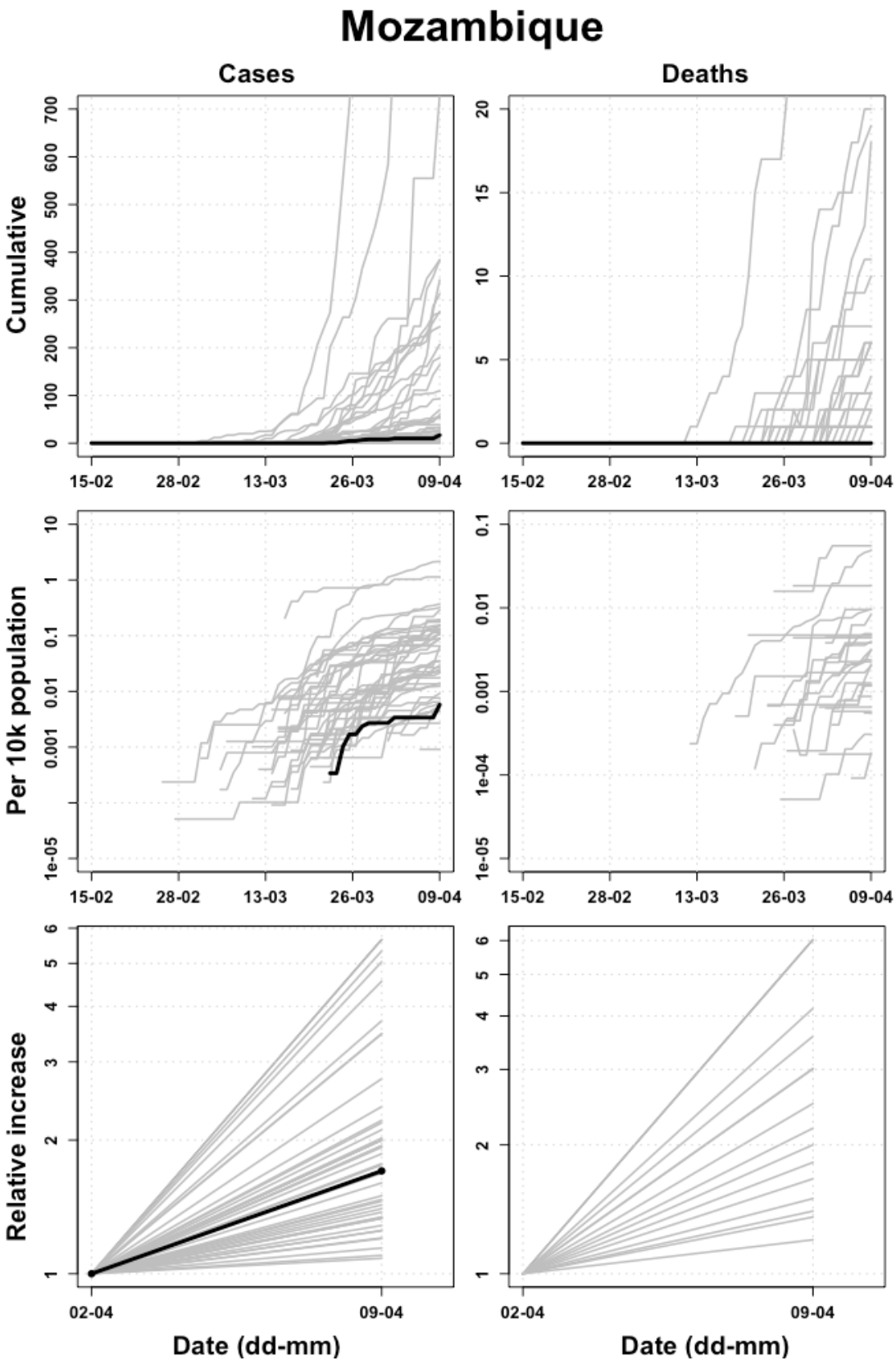
Mauritania


Mauritania
Cases
Deaths
Cumulative
Per 10k population
Relative increase
0
100
200
300
400
500
600
700
5
10
15
20
0.001
0.01
0.1
1
10
1e-04
0.0001
0.001
0.01
0.1
1
2
3
4
5
6
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

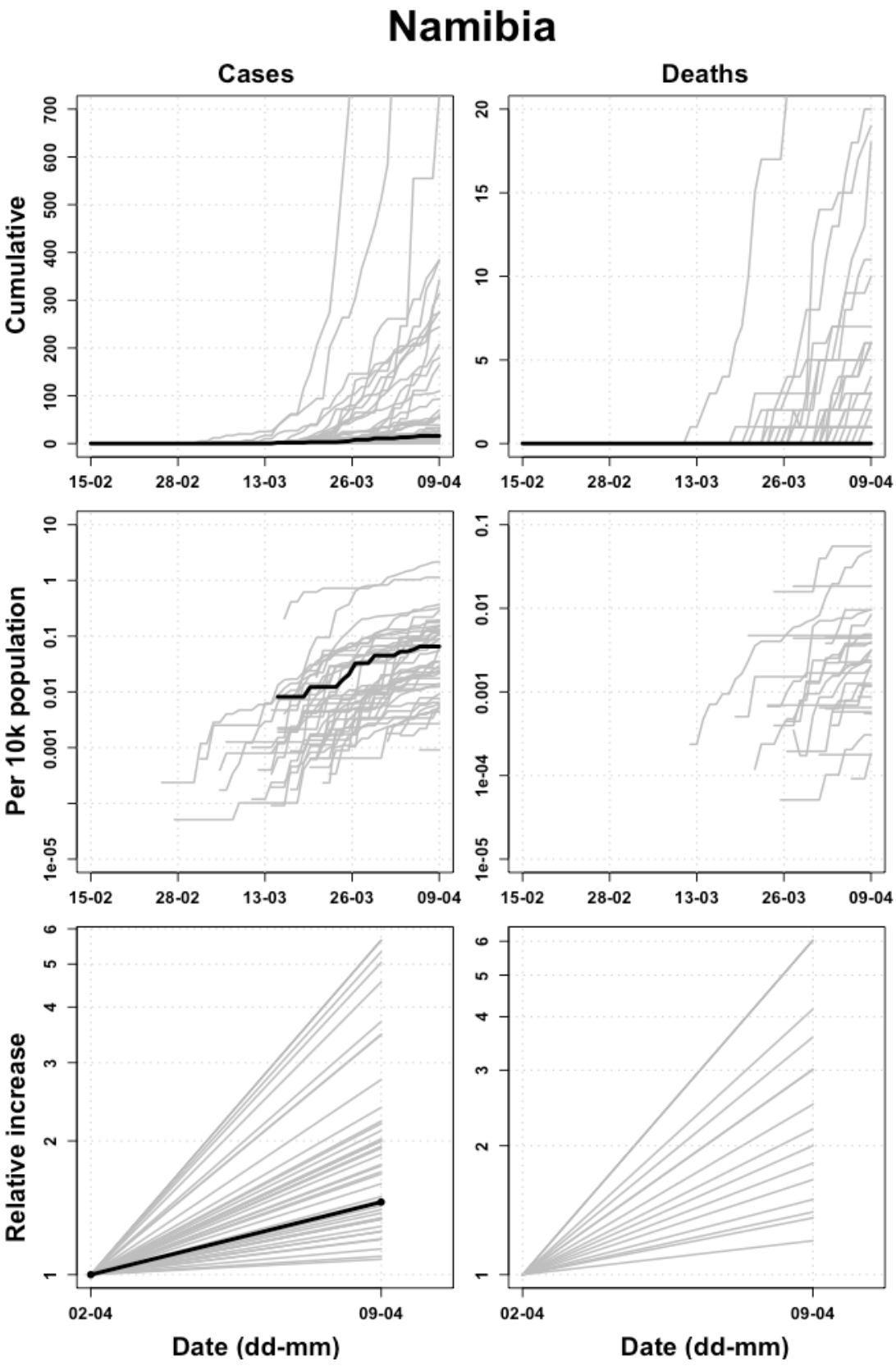
Mauritius


Mauritius
Cases
Deaths
Cumulative
Per 10k population
Relative increase
0
100
200
300
400
500
600
700
5
10
15
20
0.001
0.01
0.1
1
10
1e-05
1e-04
0.001
0.01
0.1
1
2
3
4
5
6
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

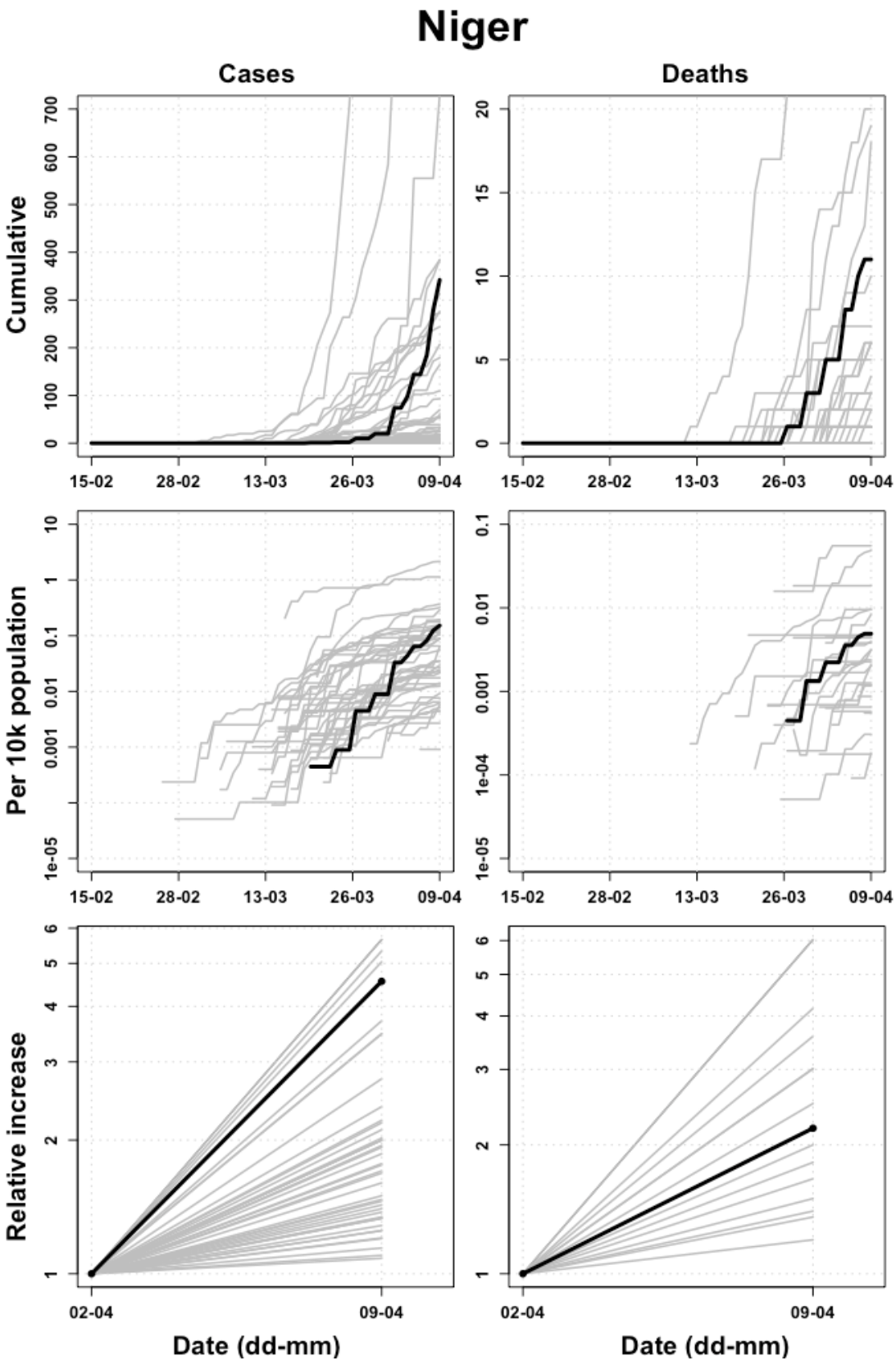
Mozambique


Mozambique
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

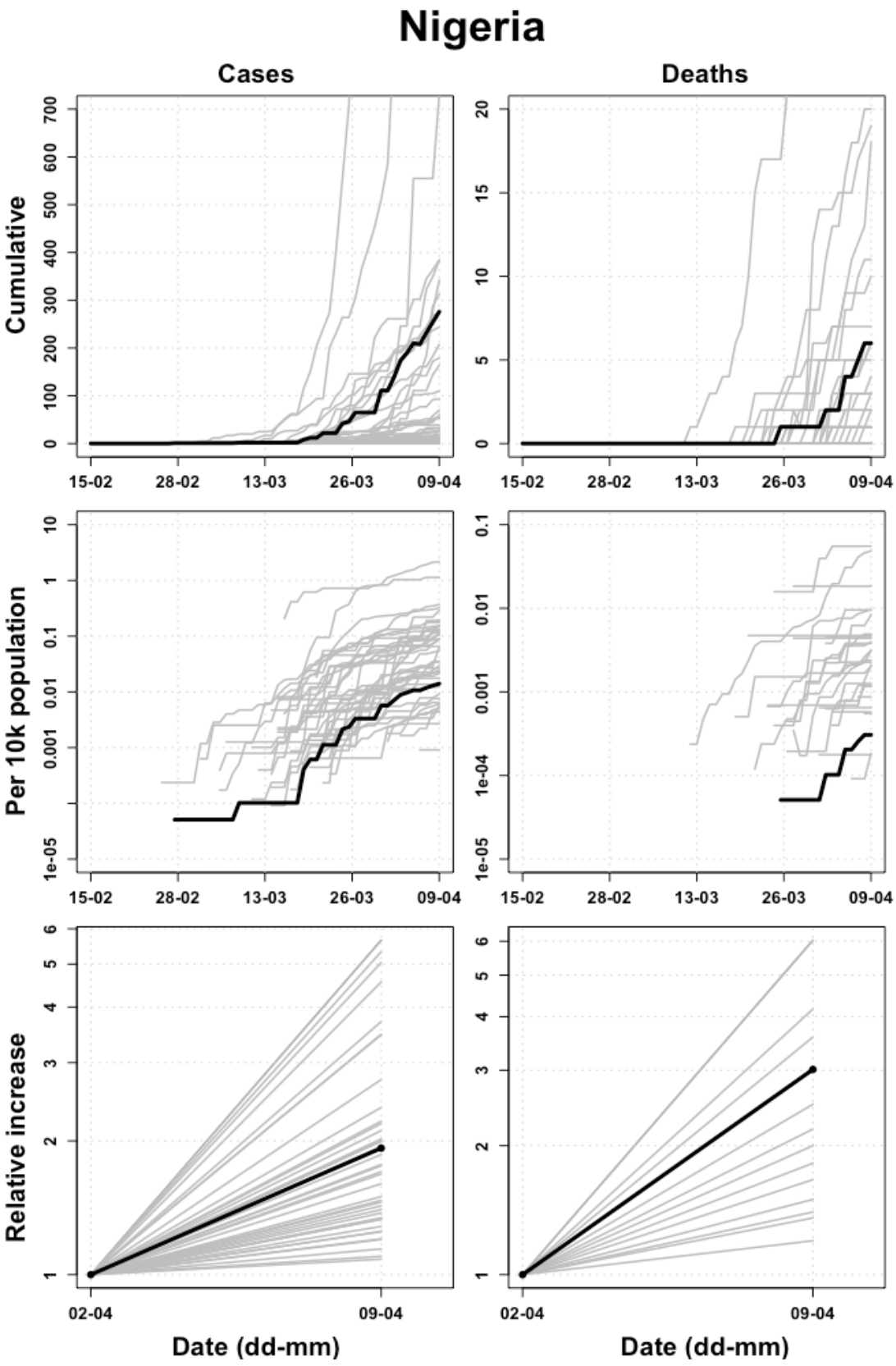
Namibia


Namibia
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

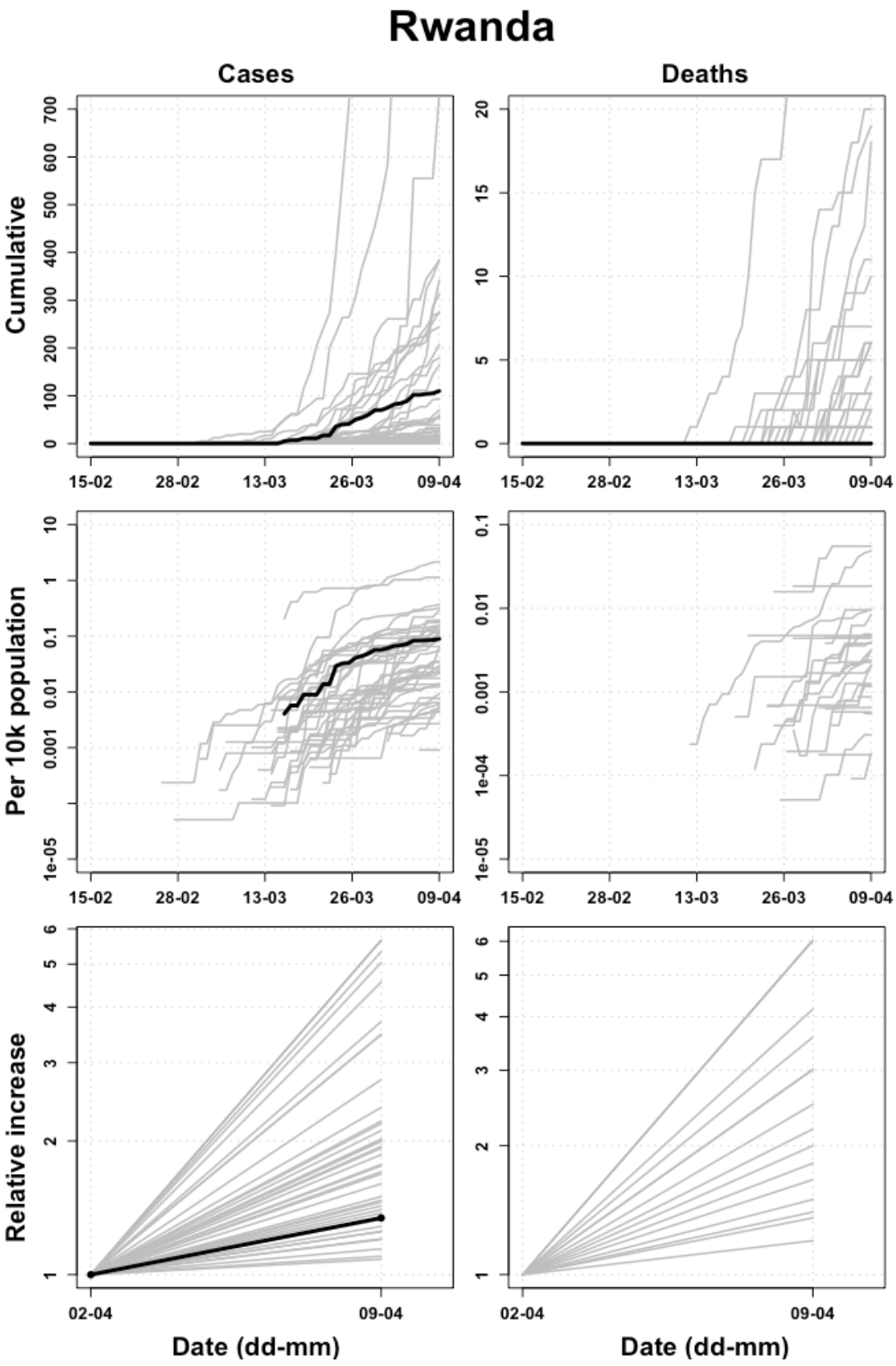
Niger


Niger
Cases
Deaths
Cumulative
Per 10k population
Relative increase
0
100
200
300
400
500
600
700
5
10
15
20
1e-05
0.001
0.01
0.1
1
10
1e-04
0.001
0.01
0.1
1
2
3
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6
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

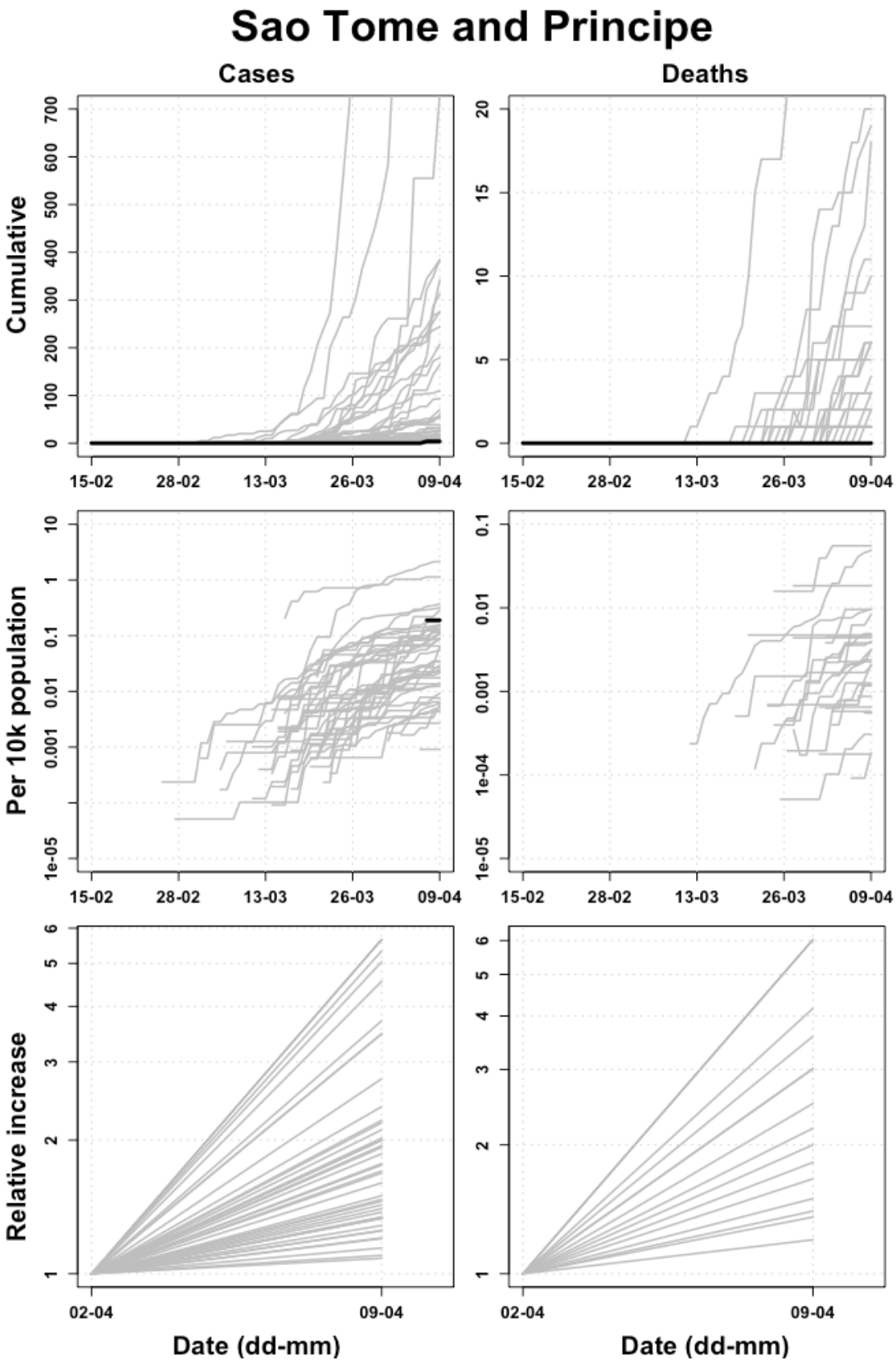
Nigeria


Nigeria
Cases
Deaths
Cumulative
Per 10k population
Relative increase
0
100
200
300
400
500
600
700
5
10
15
20
1e-05
0.001
0.01
0.1
1
10
1e-04
0.001
0.01
0.1
1
2
3
4
5
6
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

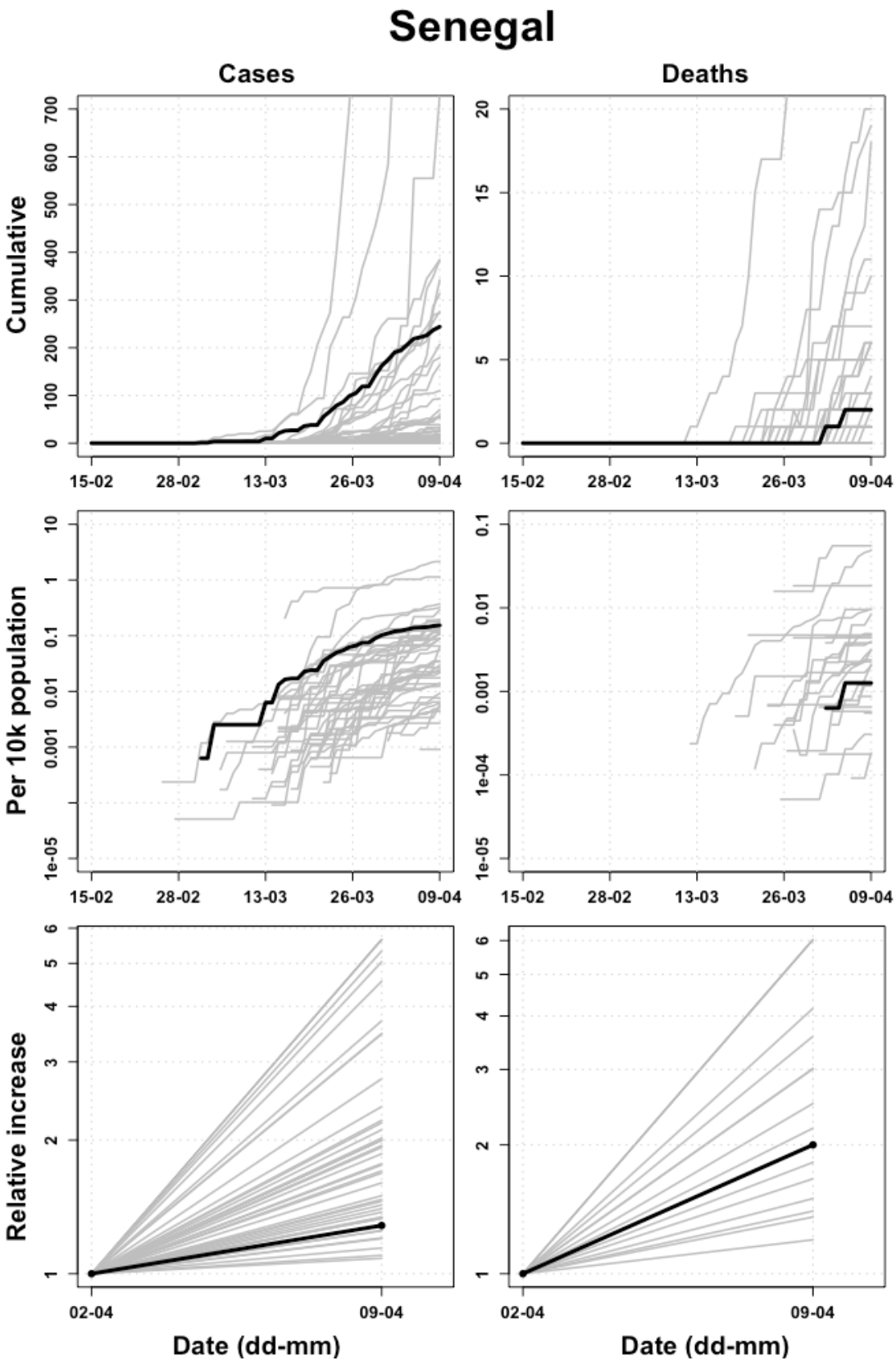
Rwanda


Rwanda
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

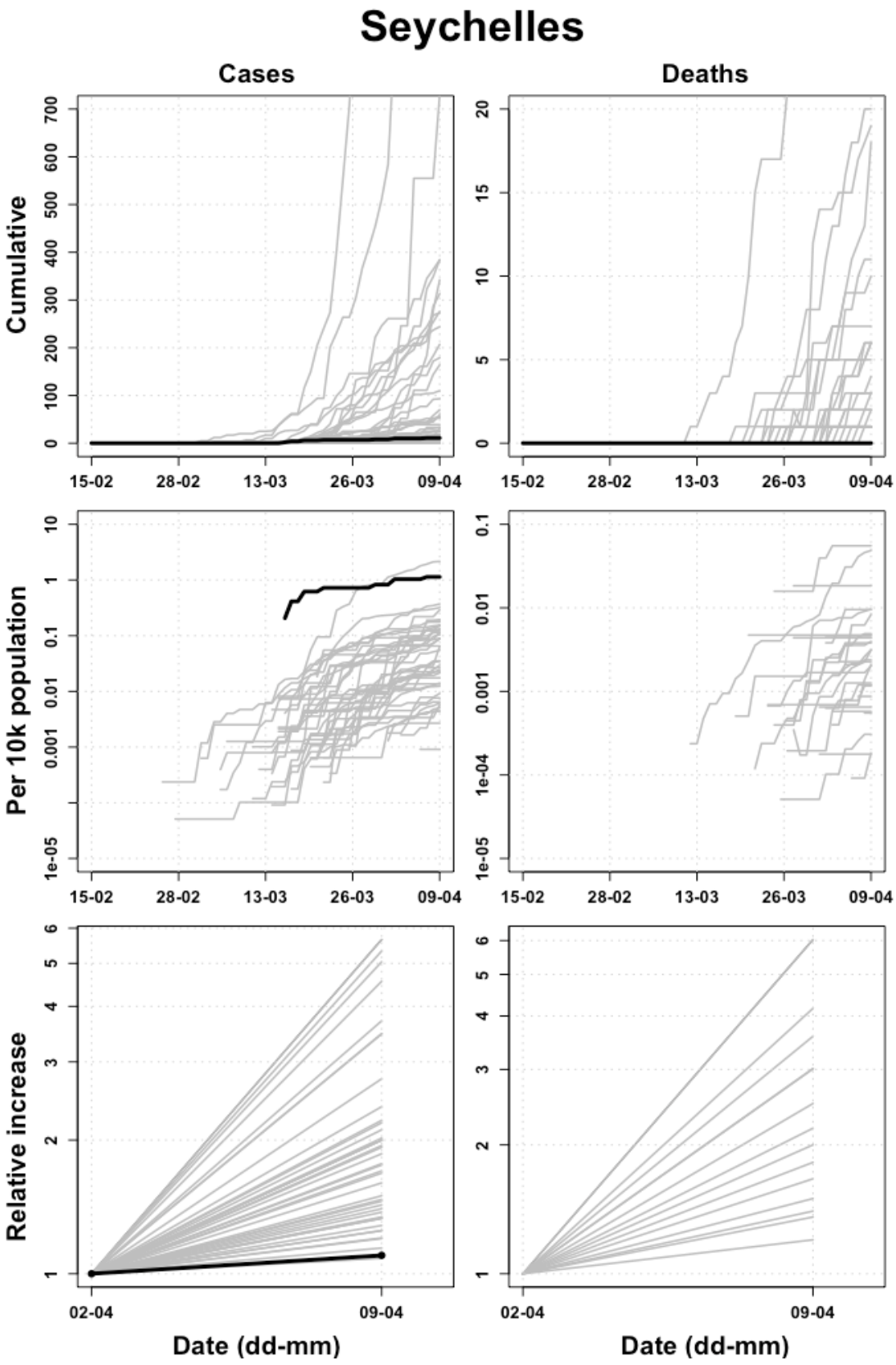
Sao Tome and Principe



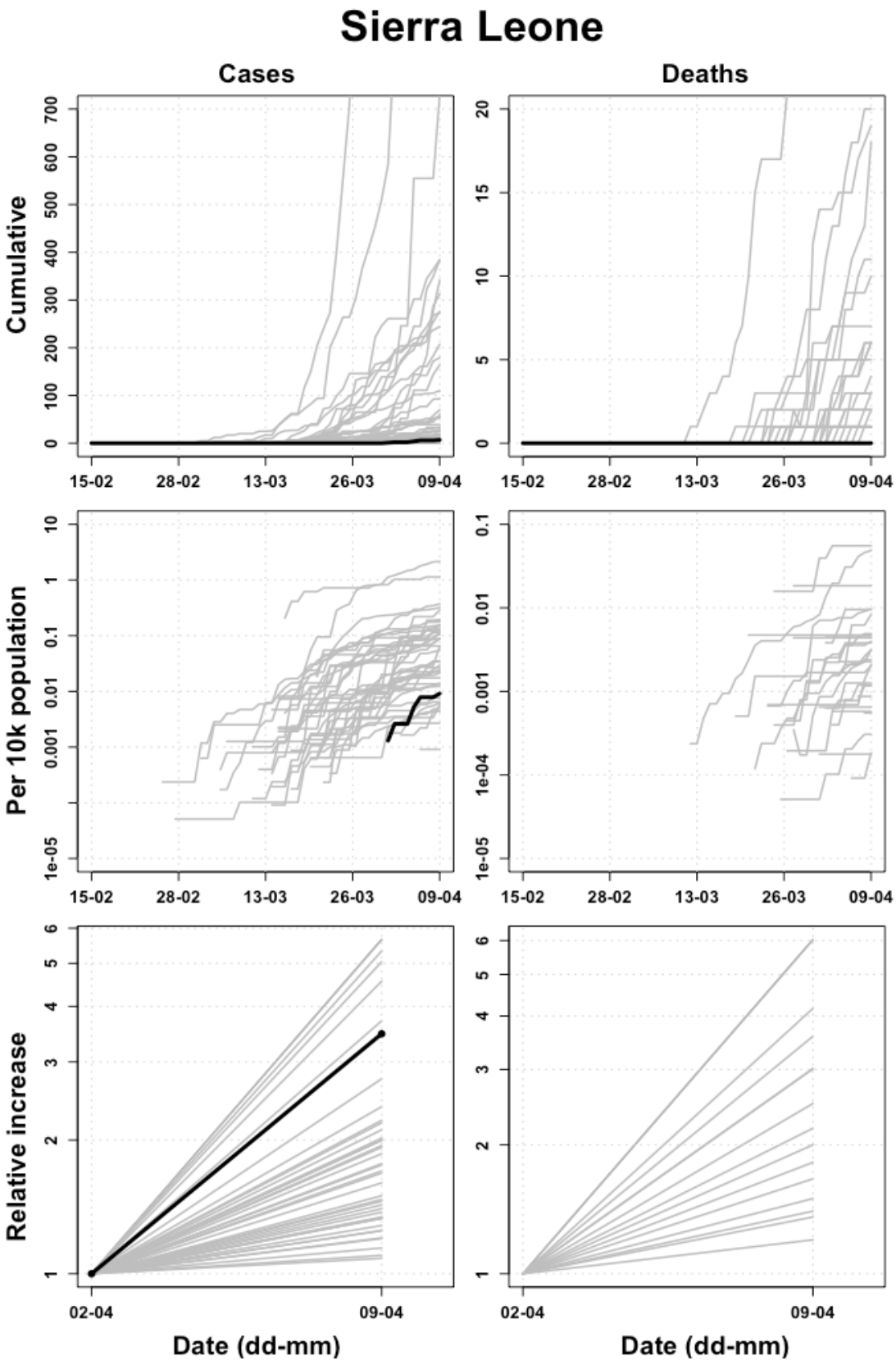
Senegal


Senegal
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

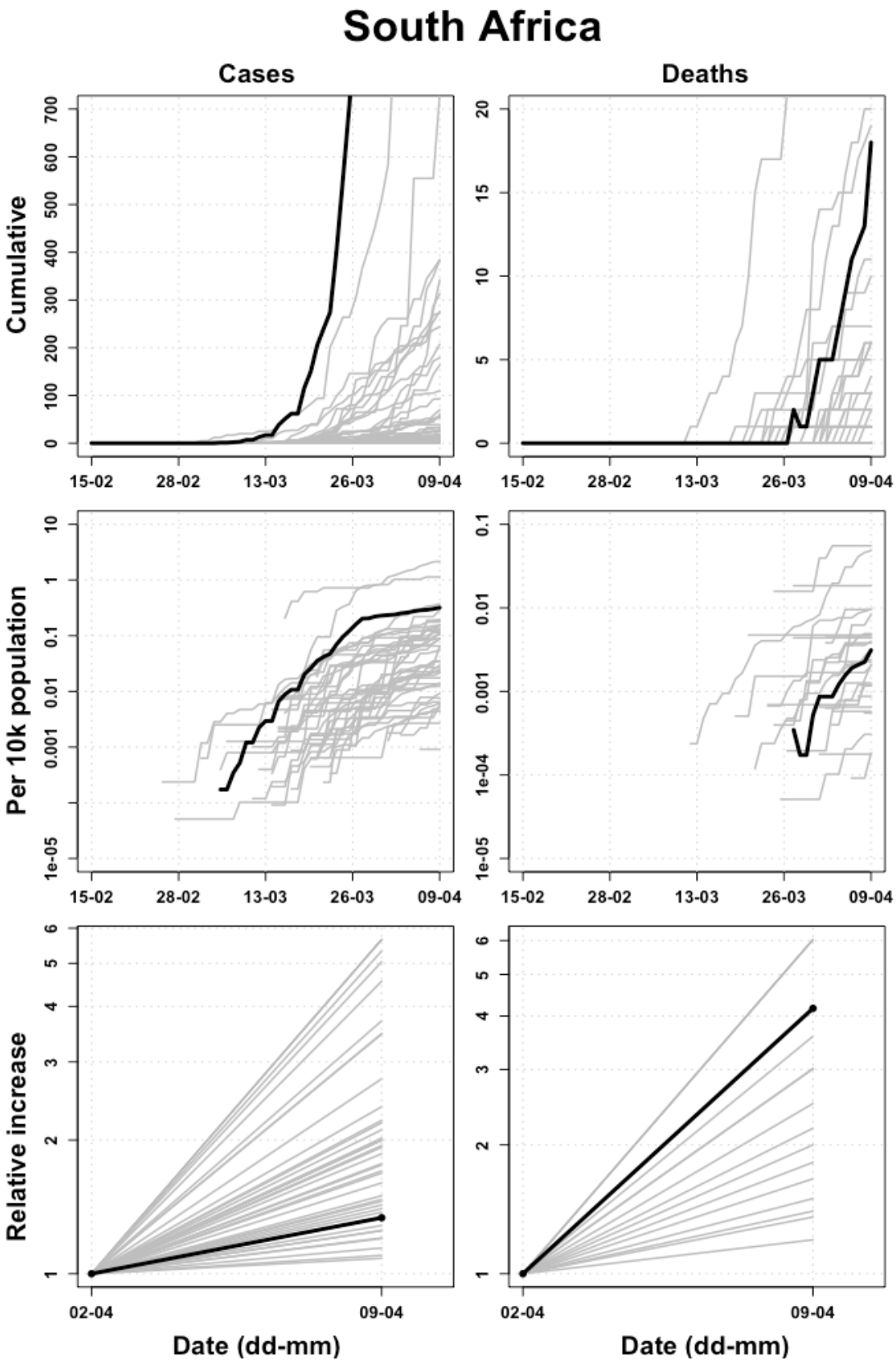
Seychelles


Seychelles
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

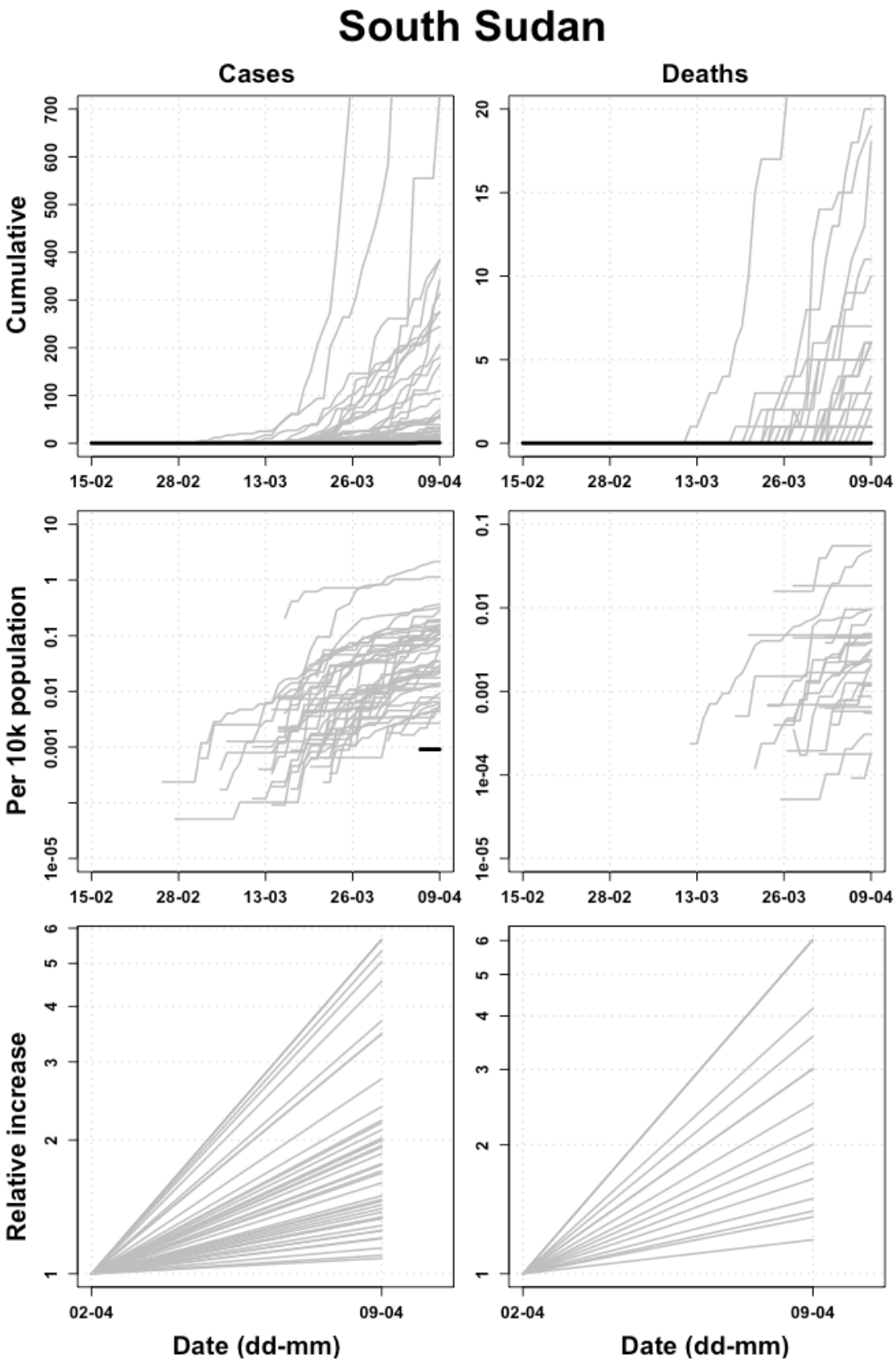
Sierra Leone



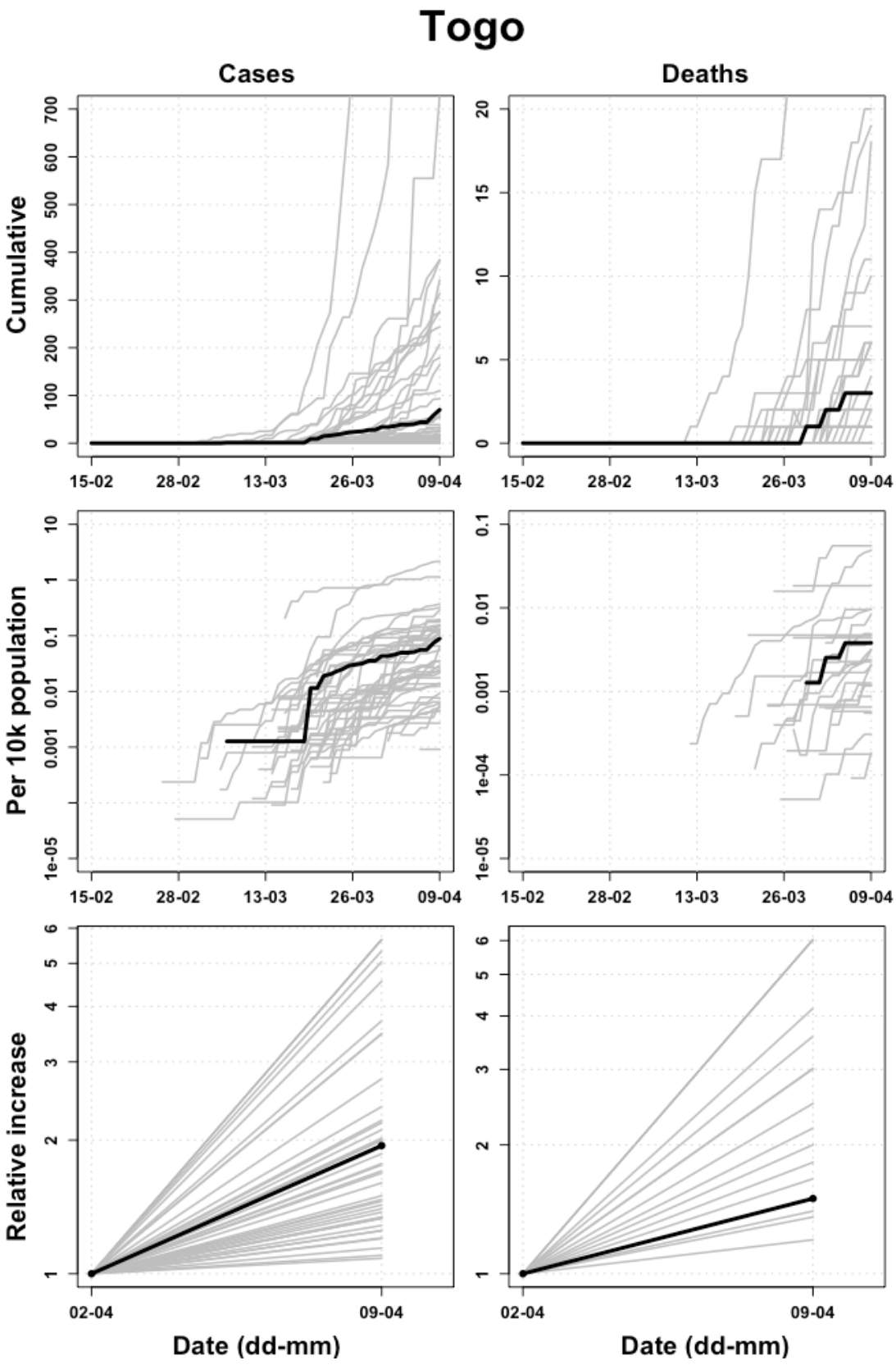
South Africa



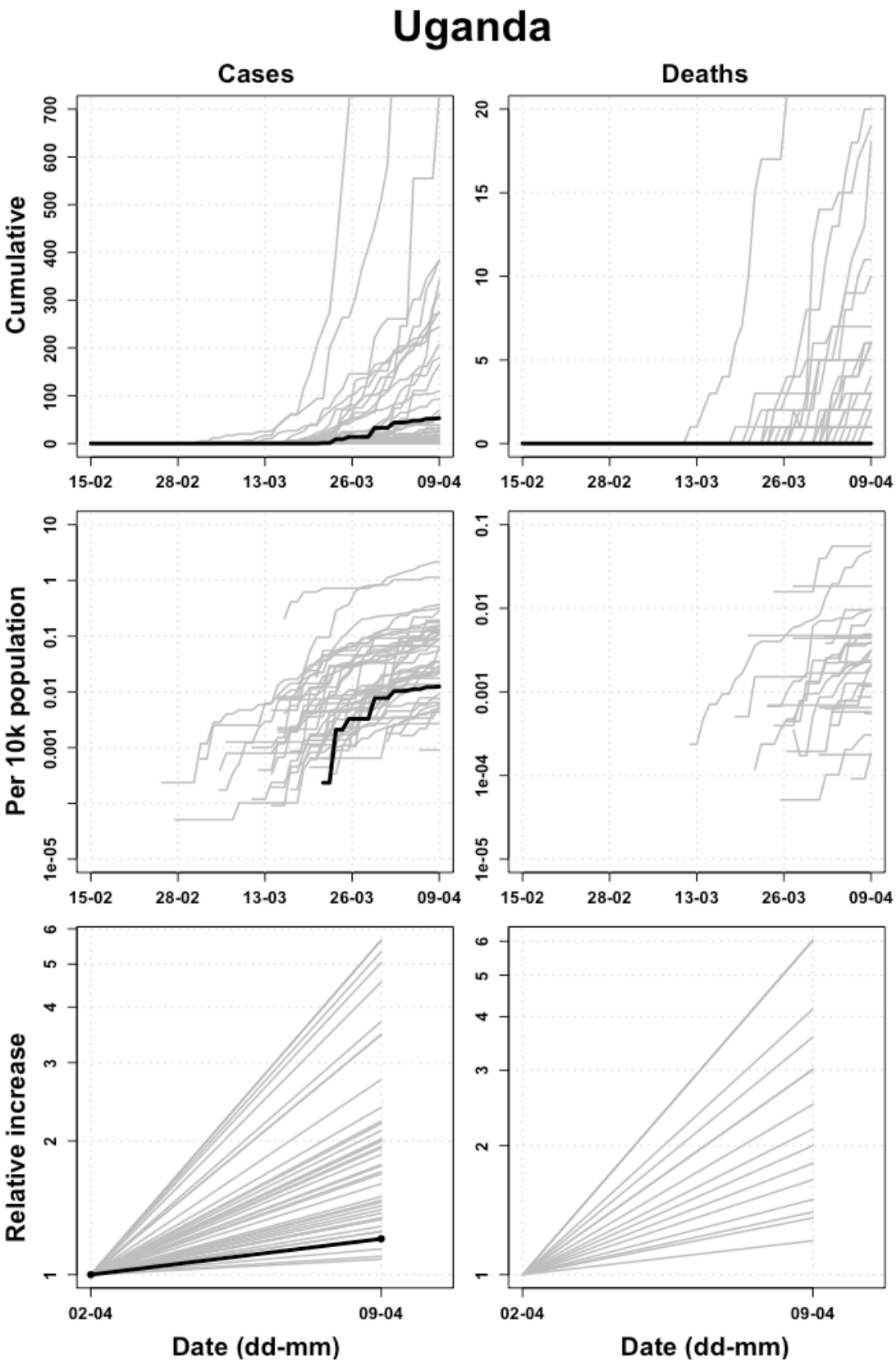
South Sudan


South Sudan
Cases
Deaths
Cumulative
Per 10k population
Relative increase
0
100
200
300
400
500
600
700
5
10
15
20
0.001
0.01
0.1
1
10
1e-05
1e-04
0.001
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6
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

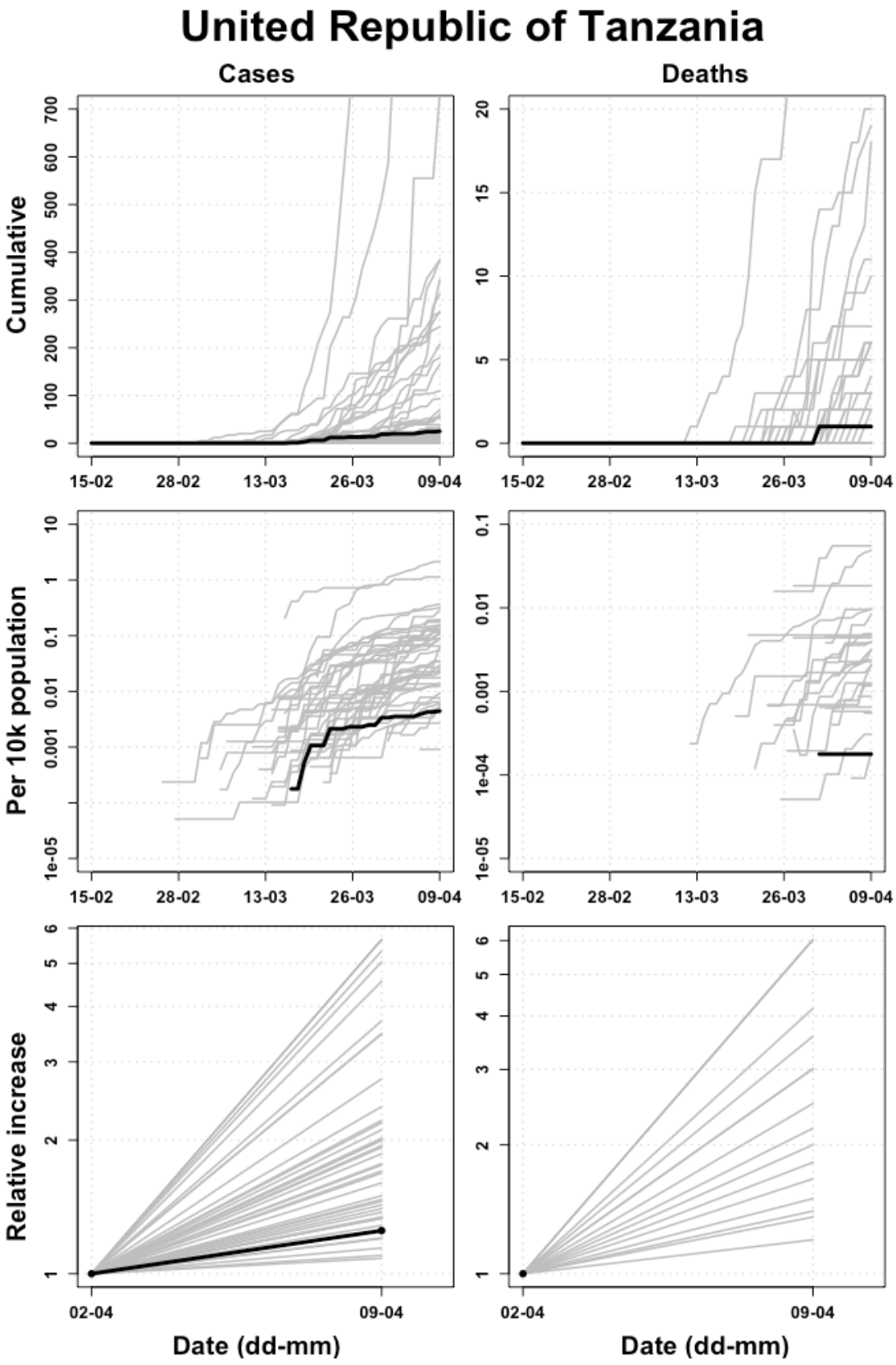
Togo


Togo
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

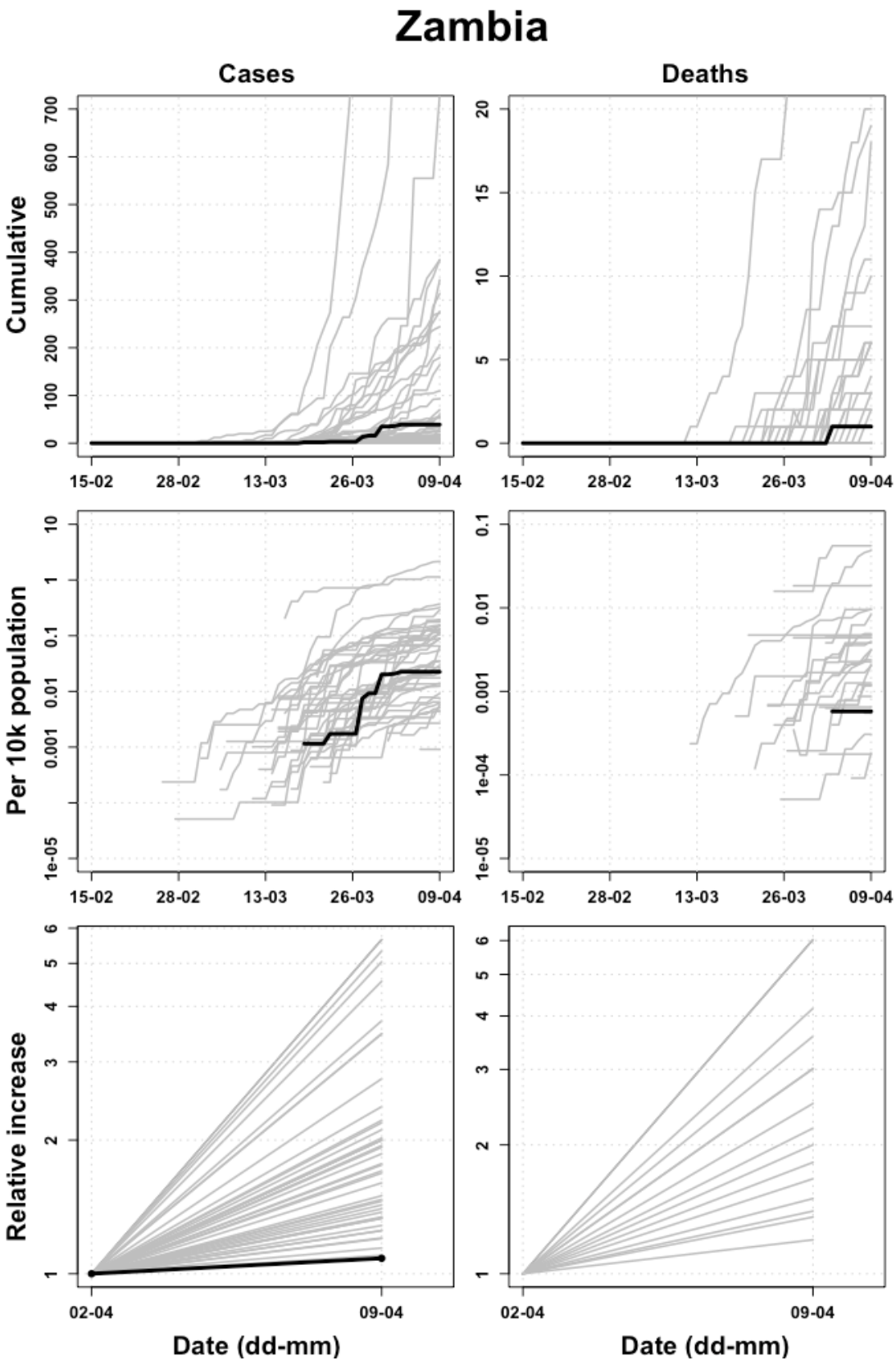
Uganda


Uganda
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

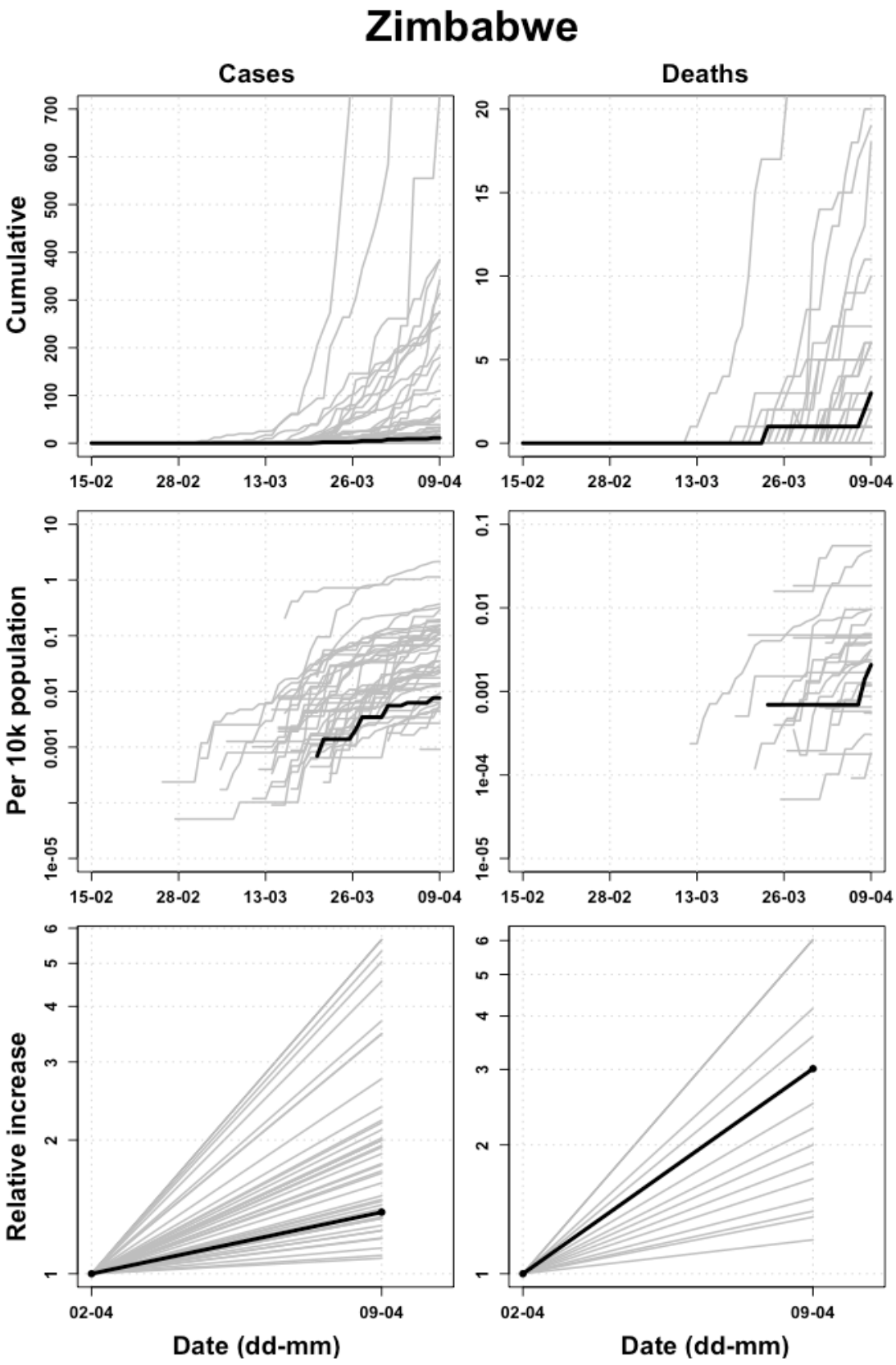
United Republic of Tanzania



Zambia


Zambia
Cases
Deaths
Cumulative
Per 10k population
Relative increase
0
100
200
300
400
500
600
700
5
10
15
20
0.001
0.01
0.1
1
10
1e-05
1e-04
0.001
0.01
0.1
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5
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15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

Zimbabwe


Zimbabwe
Cases
Deaths
Cumulative
Per 10k population
Relative increase
15-02
28-02
13-03
26-03
09-04
02-04
Date (dd-mm)

Appendix

Data

Sources and access

- Case counts for countries in WHO Africa 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.

- Data are provided by WHO Afro but were smoothed where necessary (e.g. if a decrease in cumulative count was reported) for doubling time calculations.

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)

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