

Supplementary Information

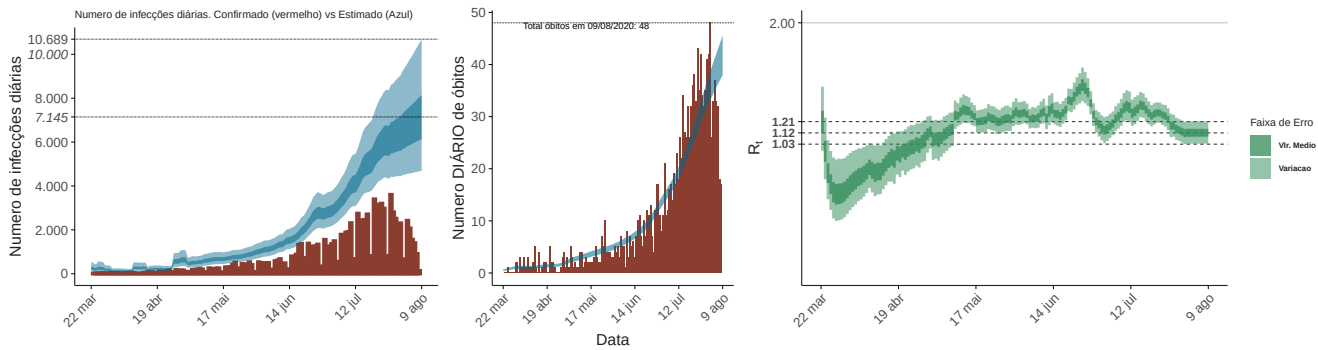
Model	RMSE7		RMSE30	
	pred	conf	pred	conf
base	2.55	2.46	5.79	3.57
base-ron	2.29	2.55	2.92	3.06
base-rnn	2.48	2.55	3.14	3.10
base-ror	2.28	2.20	3.05	2.82
base-rnr	2.31	2.43	3.02	3.01

Model	MAE7		MAE30	
	pred	conf	pred	conf
base	2.19 (± 1.05)	2.09 (± 1.05)	4.77 (± 2.71)	2.96 (± 1.60)
base-ron	1.96 (± 0.95)	2.21 (± 1.01)	2.40 (± 1.32)	2.51 (± 1.38)
base-rnn	2.13 (± 0.98)	2.18 (± 1.06)	2.56 (± 1.45)	2.54 (± 1.41)
base-ror	1.97 (± 0.92)	1.86 (± 0.96)	2.52 (± 1.36)	2.27 (± 1.32)
base-rnr	1.97 (± 0.96)	2.07 (± 1.01)	2.48 (± 1.37)	2.45 (± 1.38)

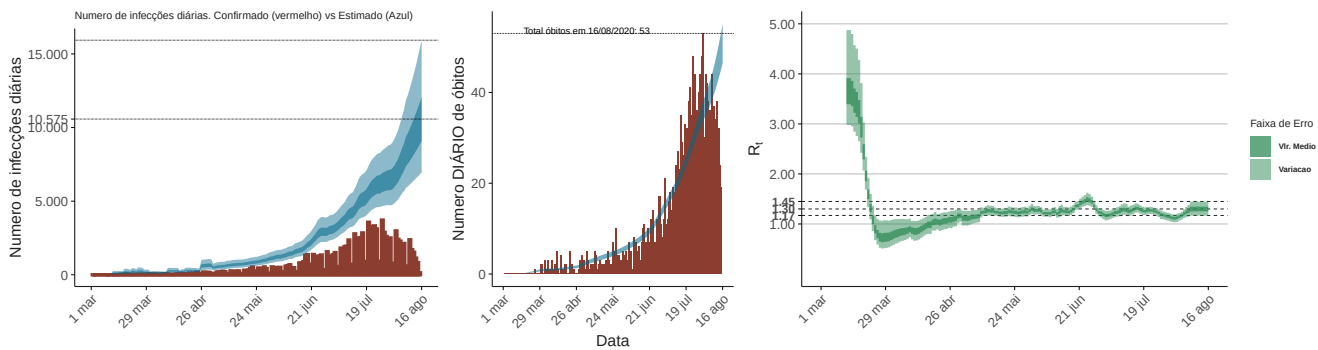
Table S1. This table shows the error values (RMSE and $avg(\pm std)$ MAE) for the predicted value and their confidence interval counterparts in a 7 and 30-day forecasting window.

Region	Model	RMSE7		RMSE30	
		pred	conf	pred	conf
Alto Vale do Itajaí	base	2.44	2.09	7.17	3.06
	base-ron	1.94	2.32	2.39	2.81
	base-rnn	2.11	2.39	2.69	2.87
	base-ror	1.91	1.99	2.32	2.50
	base-rnr	2.13	2.28	2.72	2.79
Foz do Rio Itajaí	base	2.40	2.44	4.61	3.47
	base-ron	2.14	2.36	2.65	2.79
	base-rnn	2.21	2.43	3.03	2.96
	base-ror	2.17	2.12	2.74	2.59
	base-rnr	2.17	2.32	2.81	2.87
Grande Florianopolis	base	2.91	2.75	8.94	4.31
	base-ron	2.65	2.77	3.43	3.30
	base-rnn	2.50	2.65	3.34	3.10
	base-ror	2.67	2.41	3.72	3.10
	base-rnr	2.49	2.62	3.44	3.06
Grande Oeste	base	1.52	1.60	2.96	2.35
	base-ron	1.64	1.62	2.22	2.26
	base-rnn	2.93	1.60	3.00	2.29
	base-ror	1.52	1.46	2.23	2.09
	base-rnr	1.60	1.52	2.19	2.15
Meio Oeste e Serra Catarinense	base	2.10	2.02	3.60	2.75
	base-ron	1.90	2.23	2.22	2.56
	base-rnn	1.93	2.32	2.29	2.71
	base-ror	1.83	1.86	2.27	2.22
	base-rnr	2.01	2.15	2.35	2.54
Planalto Norte e Nordeste	base	2.80	3.14	4.59	4.17
	base-ron	2.59	2.98	3.37	3.77
	base-rnn	2.67	3.10	3.69	3.95
	base-ror	2.58	2.51	3.42	3.34
	base-rnr	2.63	2.90	3.52	3.77
Sul	base	3.66	3.21	8.66	4.86
	base-ron	3.17	3.58	4.13	3.91
	base-rnn	3.01	3.37	3.96	3.85
	base-ror	3.28	3.08	4.62	3.91
	base-rnr	3.11	3.19	4.10	3.86

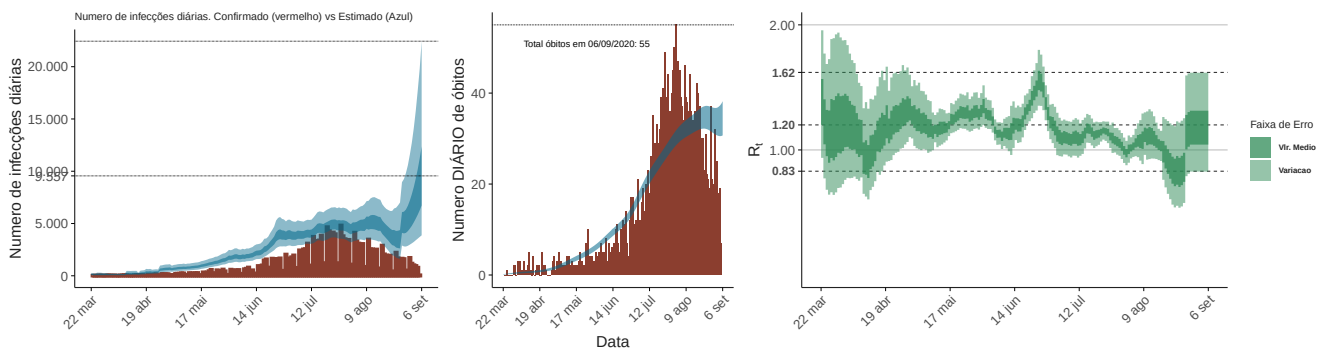
Table S2. This table shows the error values (RMSE) for the predicted value and their confidence interval counterparts in a 7 and 30-day forecasting window, aggregated over each region the model was ran for.



(a) Diagnostic plots for base model for 10/08/2020

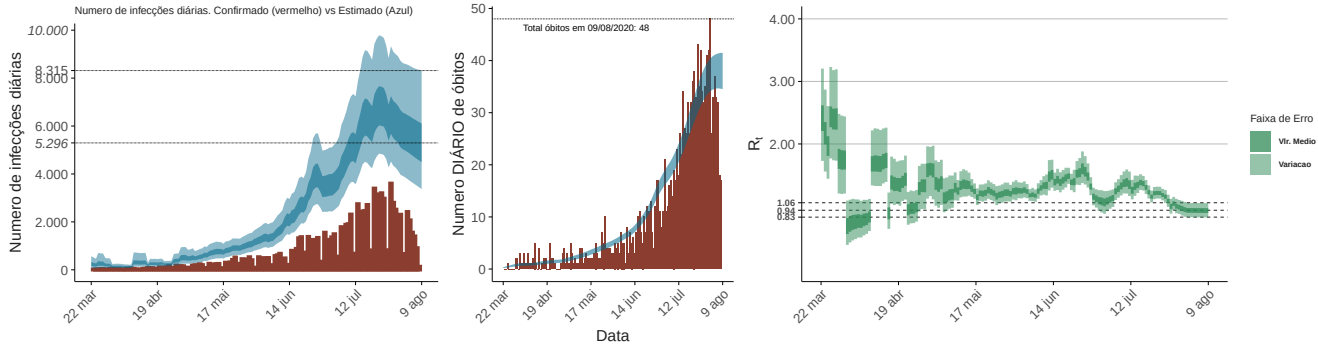


(b) Diagnostic plots for base model for 17/08/2020

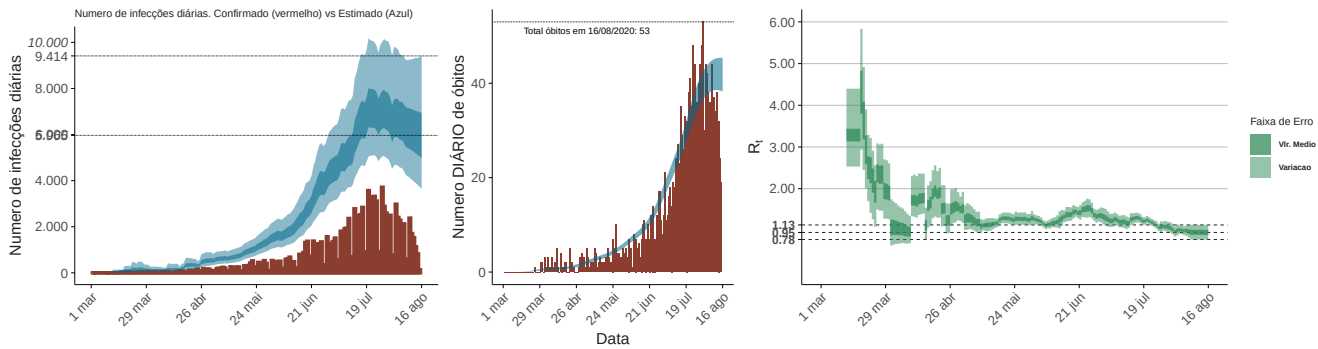


(c) Diagnostic plots for base model for 07/09/2020

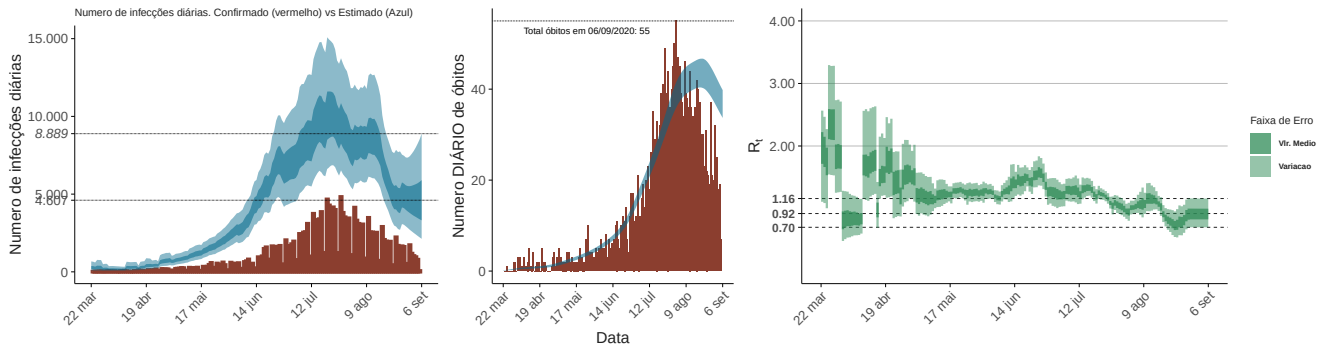
Figure S1. Diagnostics plots for simulations with base model for three selected dates for the state of Santa Catarina. From left to right, the plots indicate: i) number of new reported infections per day (red) and the probable actual number of infections as estimated by the algorithm (blue) ii) number of confirmed deaths per day (red) and the probable actual number of deaths as fitted by the algorithm (blue) iii) the effective reproduction number R_t for the state over the period up until the snapshot date.



(a) Diagnostic plots for base-ron model for 10/08/2020



(b) Diagnostic plots for base-ron model for 17/08/2020



(c) Diagnostic plots for base-ron model for 07/09/2020

Figure S2. Diagnostics plots for simulations with base-ron model for three selected dates for the state of Santa Catarina. From left to right, the plots indicate: i) number of new reported infections per day (red) and the probable actual number of infections as estimated by the algorithm (blue) ii) number of confirmed deaths per day (red) and the probable actual number of deaths as fitted by the algorithm (blue) iii) the effective reproduction number R_t for the state over the period up until the snapshot date.

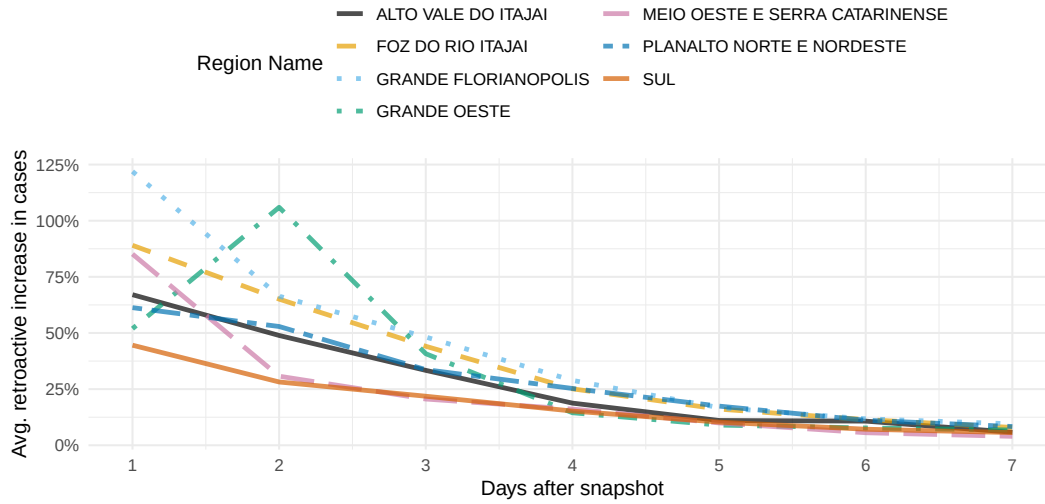


Figure S3. Distribution of retroactively-added cases on the last date. For example, if for a region there are 100% average retroactive increase in cases 2 days after the snapshot, it means that, on the date two days earlier than the snapshot's date, the number of cases should be doubled to represent the true value.

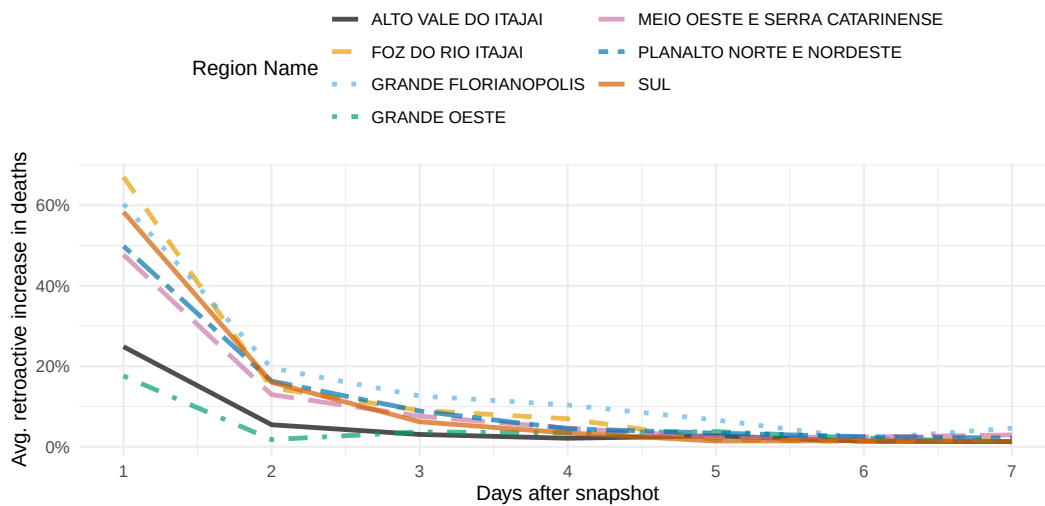


Figure S4. Distribution of retroactively-added deaths on the last date. For example, if for a region there are 100% average retroactive increase in deaths 2 days after the snapshot, it means that, on the date two days earlier than the snapshot's date, the number of deaths should be doubled to represent the true value.

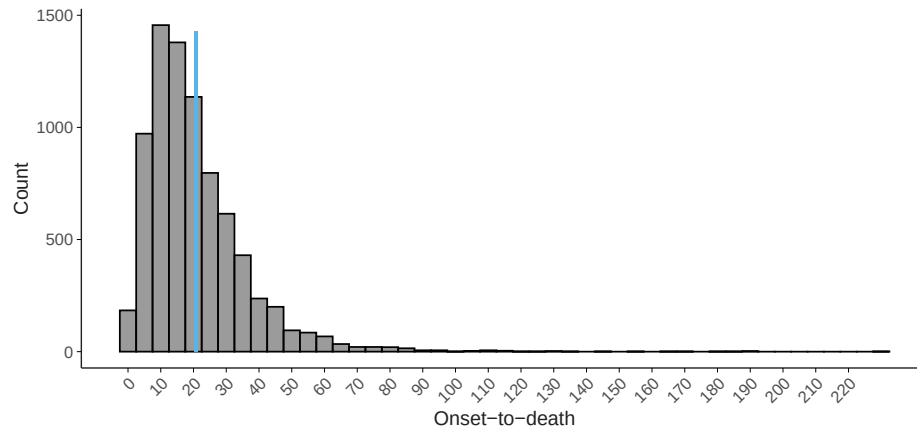


Figure S5. Distribution in days relative to the date of onset of first reported symptoms until date of death across Santa Catarina state in Brazil, according to data provided by Plataforma Boa Vista (Santa Catarina)

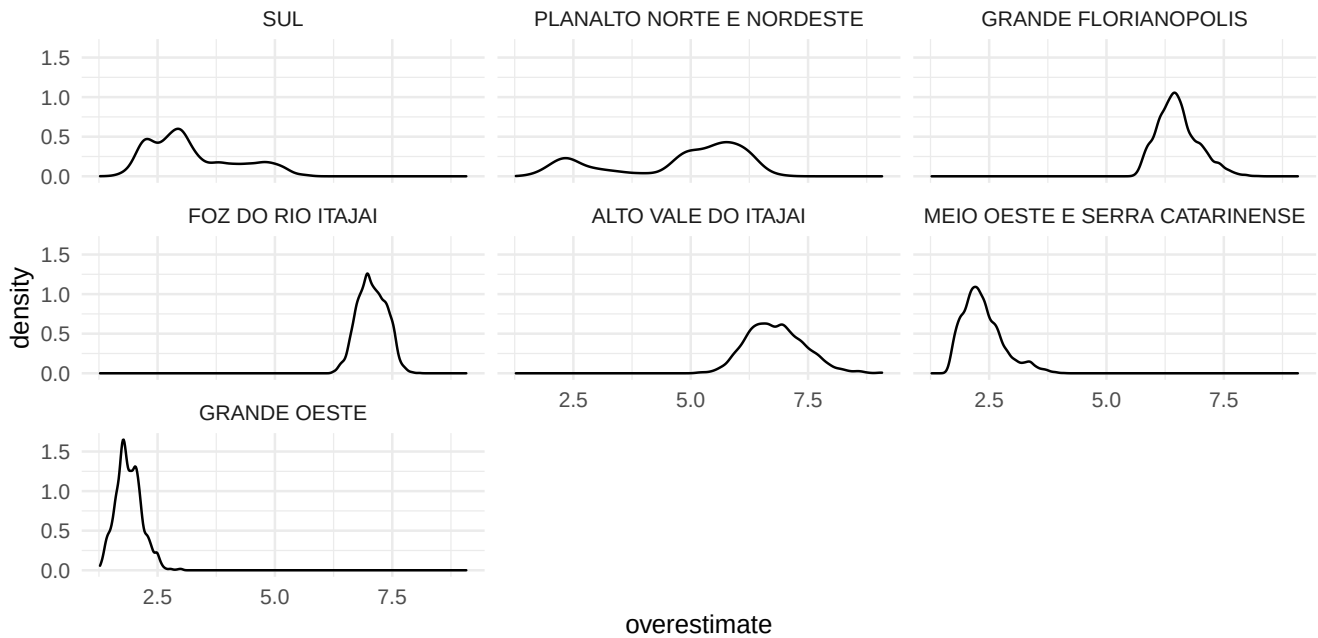


Figure S6. Distribution of the overestimate parameter in the last 600 iterations of all chains for the last `base-ron` model. The multimodality present here is due to the fact that we ran 4 independent chains, which generated different distributions that, when combined, produce a multimodal distribution.