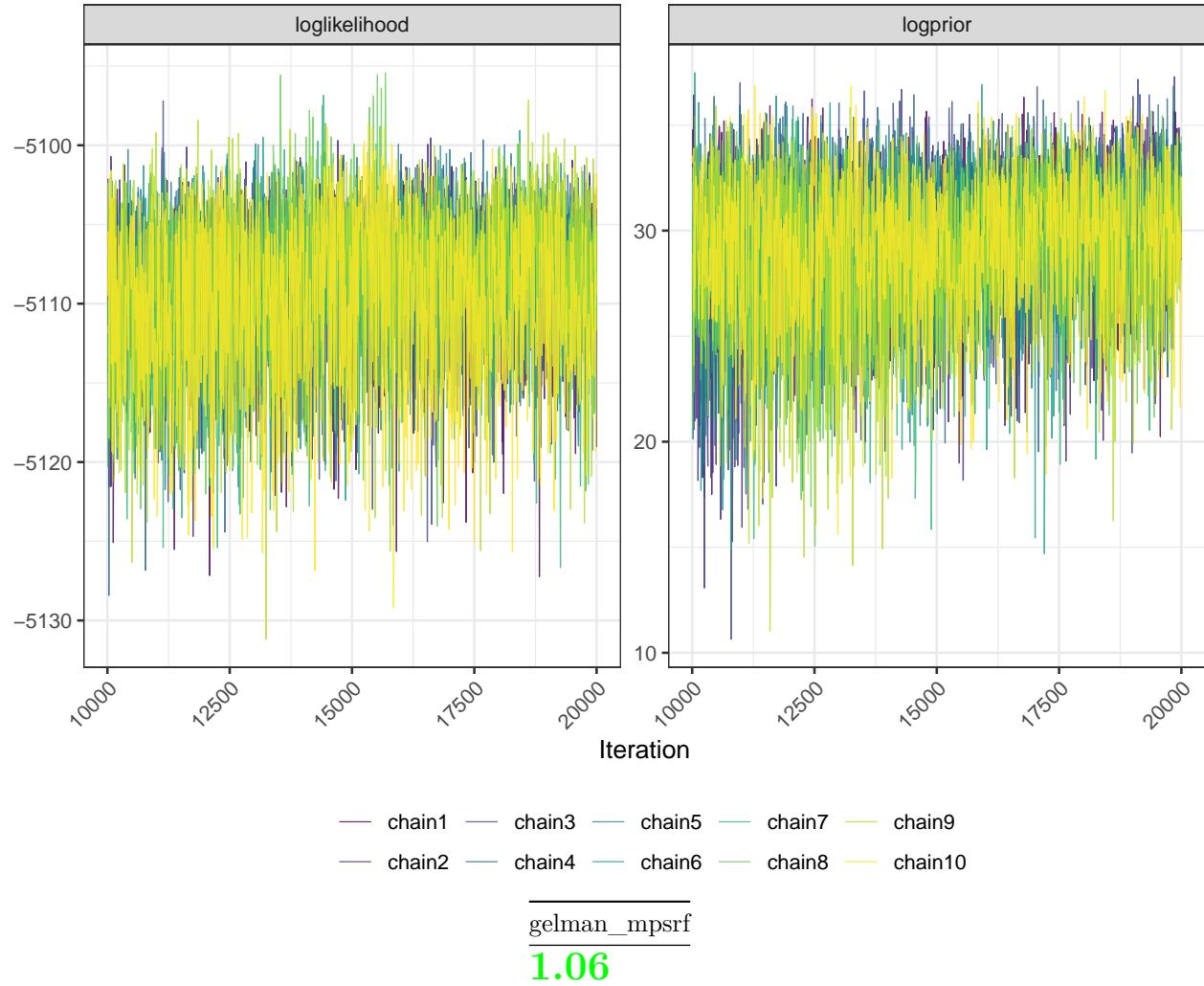


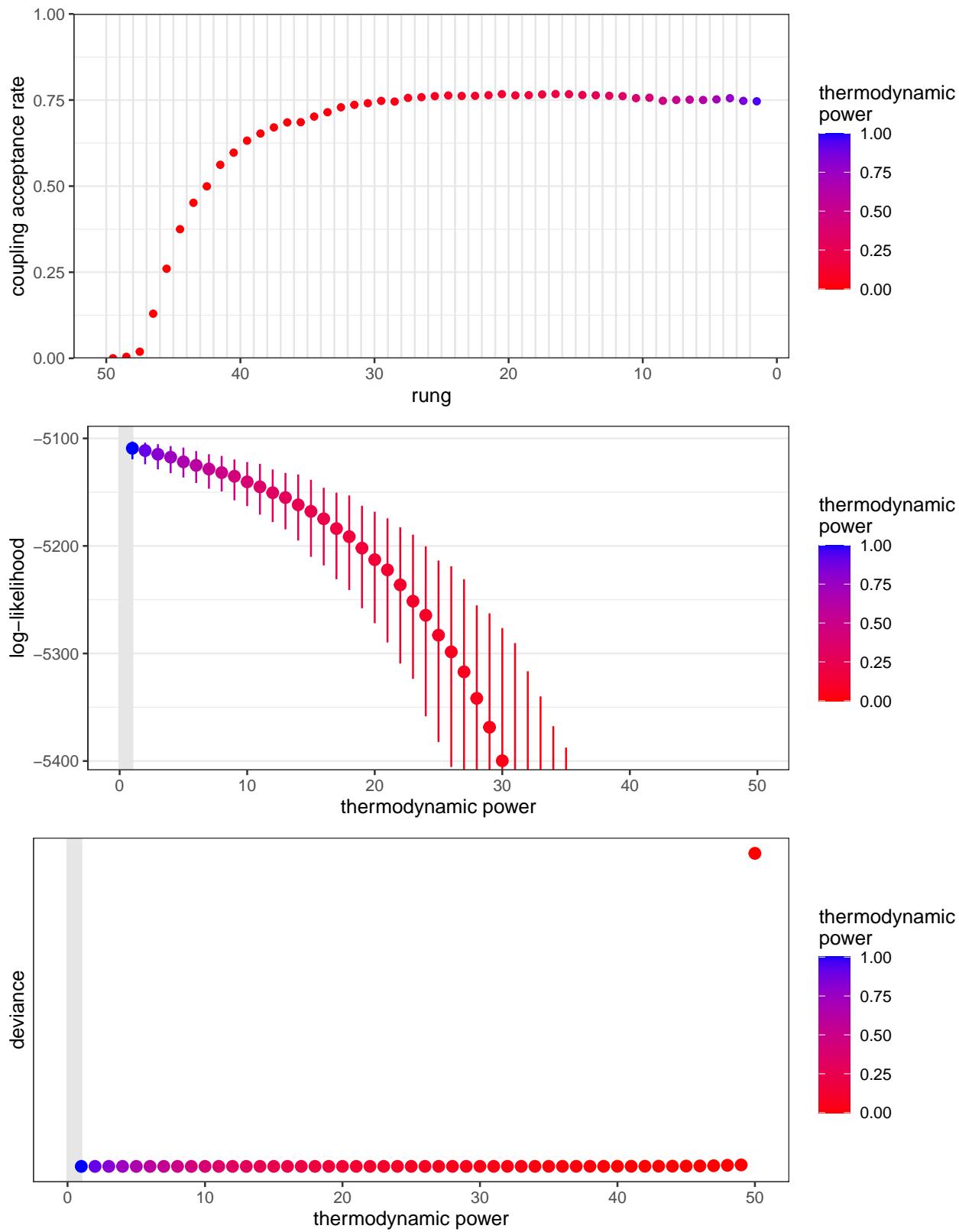
# BRA1 with Standard Input

## Fit Diagnostics

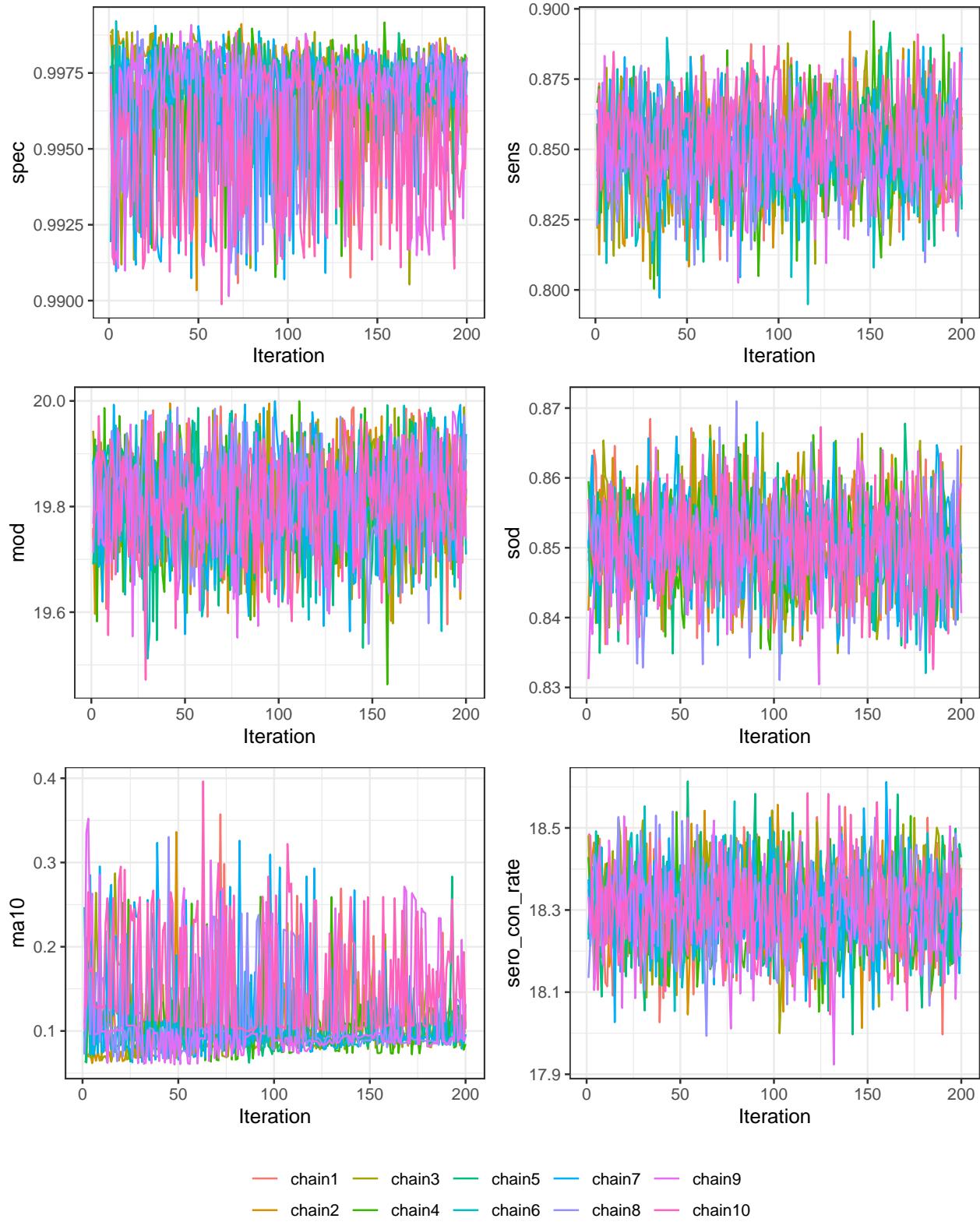
### Log Likelihood & Prior Plot



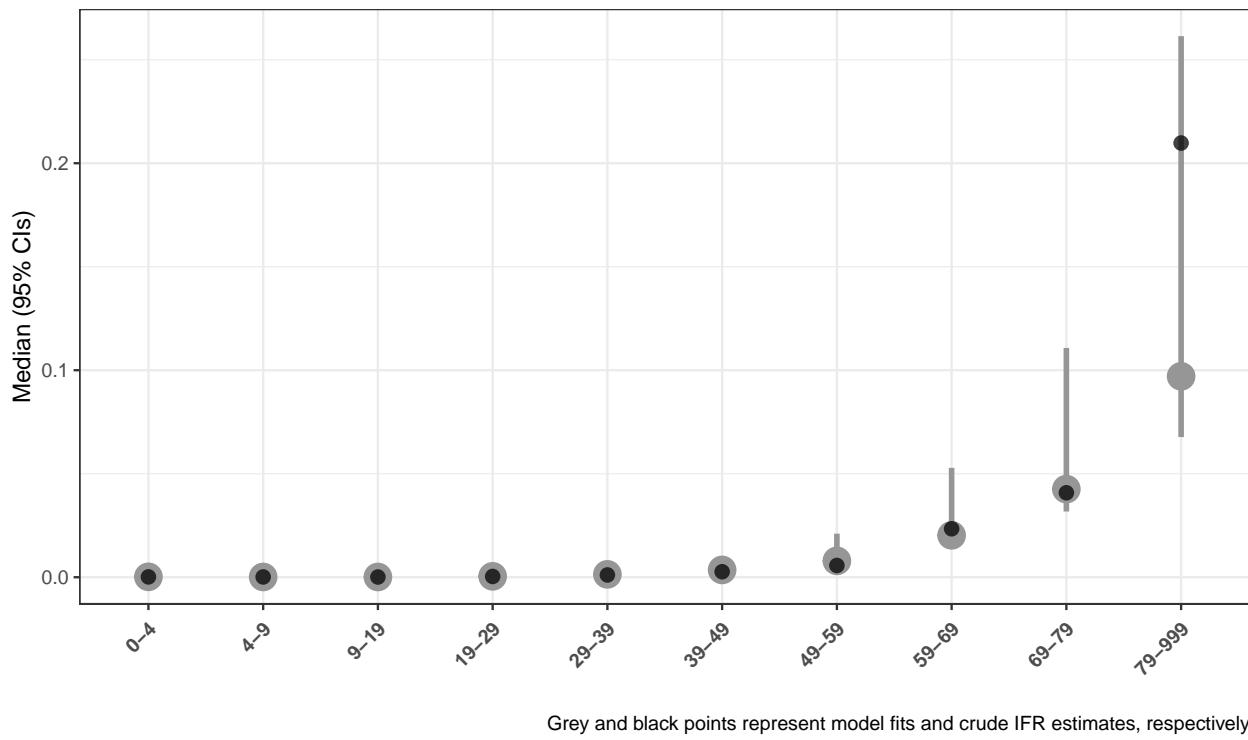
### Metropolis Coupling Acceptance Plot



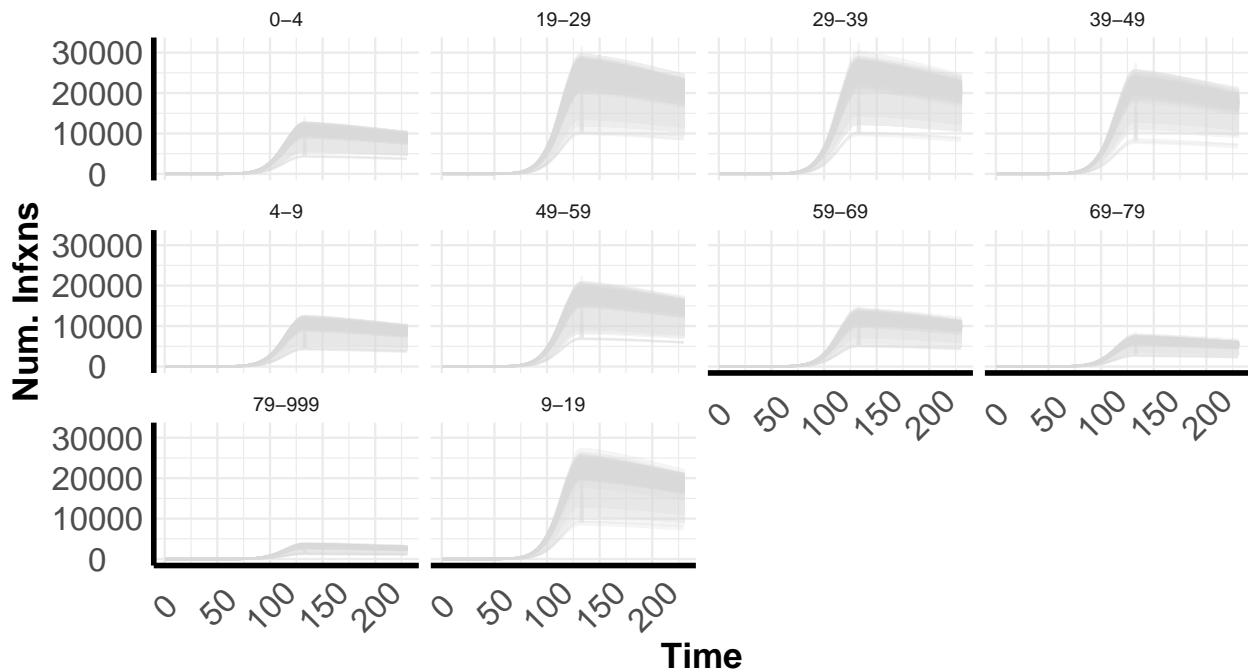
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



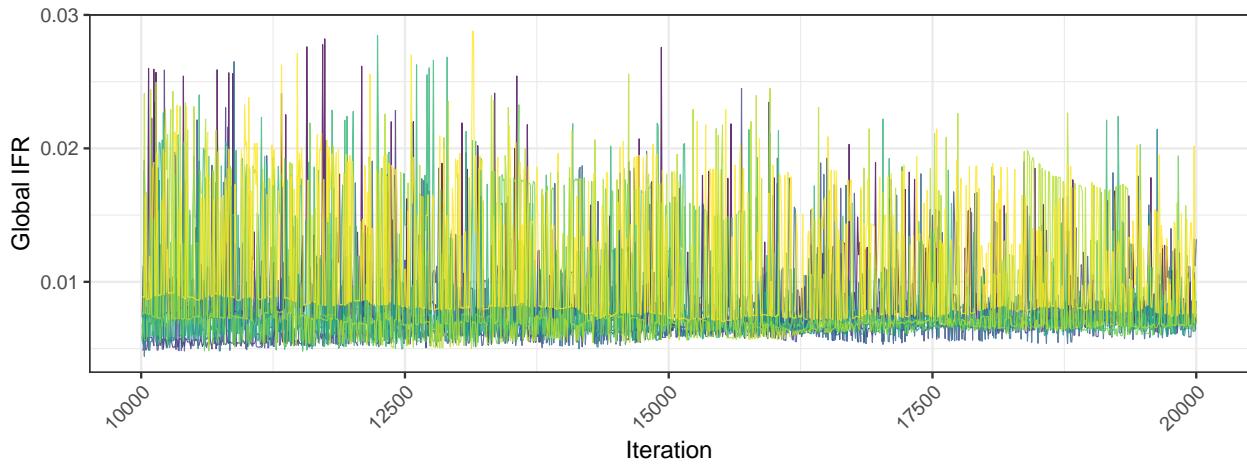
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-4	ma1	0.0001	0.0001	0.0002	0.0002	0.0005	0.0009	190.5598	0.2858	0.3830
4-9	ma2	0.0001	0.0001	0.0001	0.0002	0.0004	0.0007	186.8412	0.3285	0.3780
9-19	ma3	0.0001	0.0001	0.0001	0.0002	0.0004	0.0006	185.9834	0.1008	0.3969
19-29	ma4	0.0003	0.0003	0.0004	0.0005	0.0012	0.0020	182.9299	0.0670	0.3980
29-39	ma5	0.0009	0.0010	0.0014	0.0016	0.0037	0.0057	182.0907	0.0578	0.3983
39-49	ma6	0.0022	0.0027	0.0035	0.0041	0.0094	0.0151	181.3200	0.3250	0.3784
49-59	ma7	0.0050	0.0060	0.0079	0.0093	0.0211	0.0314	198.7806	0.2177	0.3896
59-69	ma8	0.0126	0.0154	0.0203	0.0236	0.0528	0.0838	180.3610	-0.0142	0.3989
69-79	ma9	0.0263	0.0318	0.0426	0.0494	0.1108	0.1758	176.2605	0.3532	0.3748
79-999	ma10	0.0545	0.0677	0.0971	0.1138	0.2614	0.3964	165.3776	0.0725	0.3979

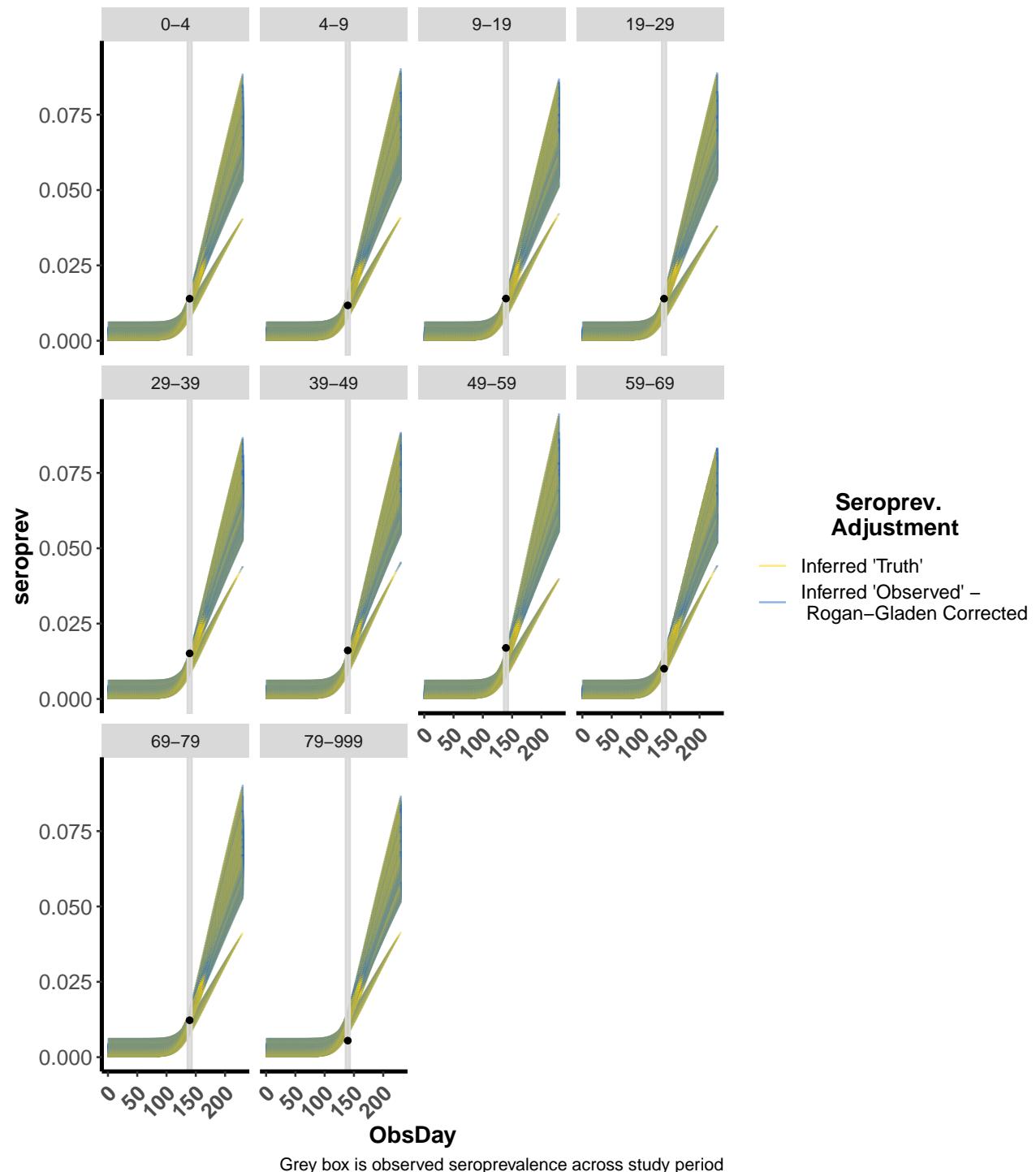
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0044	0.0054	0.0072	0.0084	0.0189	0.0288	5291.334	5.8015	0

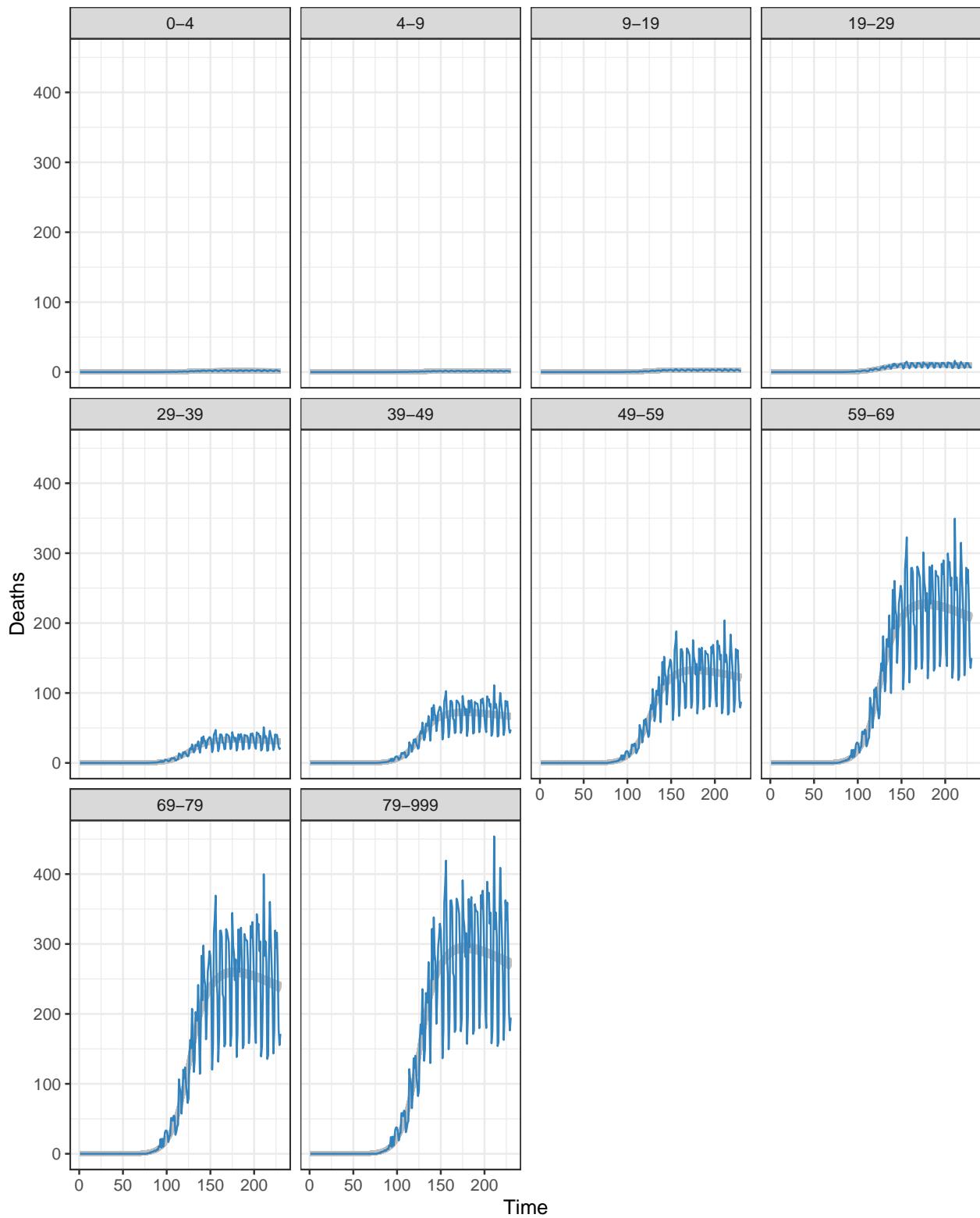
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0065	0.0067	0.0078	0.0090	0.0190	0.0282	1000.0000	1.9602	0.0584
chain2	0.0050	0.0053	0.0064	0.0065	0.0078	0.0259	212.1233	-2.1625	0.0385
chain3	0.0048	0.0051	0.0077	0.0081	0.0160	0.0245	1000.0000	-0.0612	0.3982
chain4	0.0044	0.0053	0.0077	0.0081	0.0176	0.0265	844.1723	3.5676	0.0007
chain5	0.0049	0.0055	0.0069	0.0071	0.0094	0.0214	708.5747	-3.1505	0.0028
chain6	0.0053	0.0057	0.0069	0.0072	0.0110	0.0206	717.7803	1.0967	0.2186
chain7	0.0048	0.0056	0.0069	0.0089	0.0209	0.0285	86.9337	6.6965	0.0000
chain8	0.0048	0.0054	0.0069	0.0083	0.0176	0.0233	38.6028	1.1696	0.2013
chain9	0.0050	0.0053	0.0070	0.0089	0.0215	0.0256	219.1283	3.6807	0.0005
chain10	0.0070	0.0072	0.0087	0.0114	0.0205	0.0288	717.8704	2.8015	0.0079



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



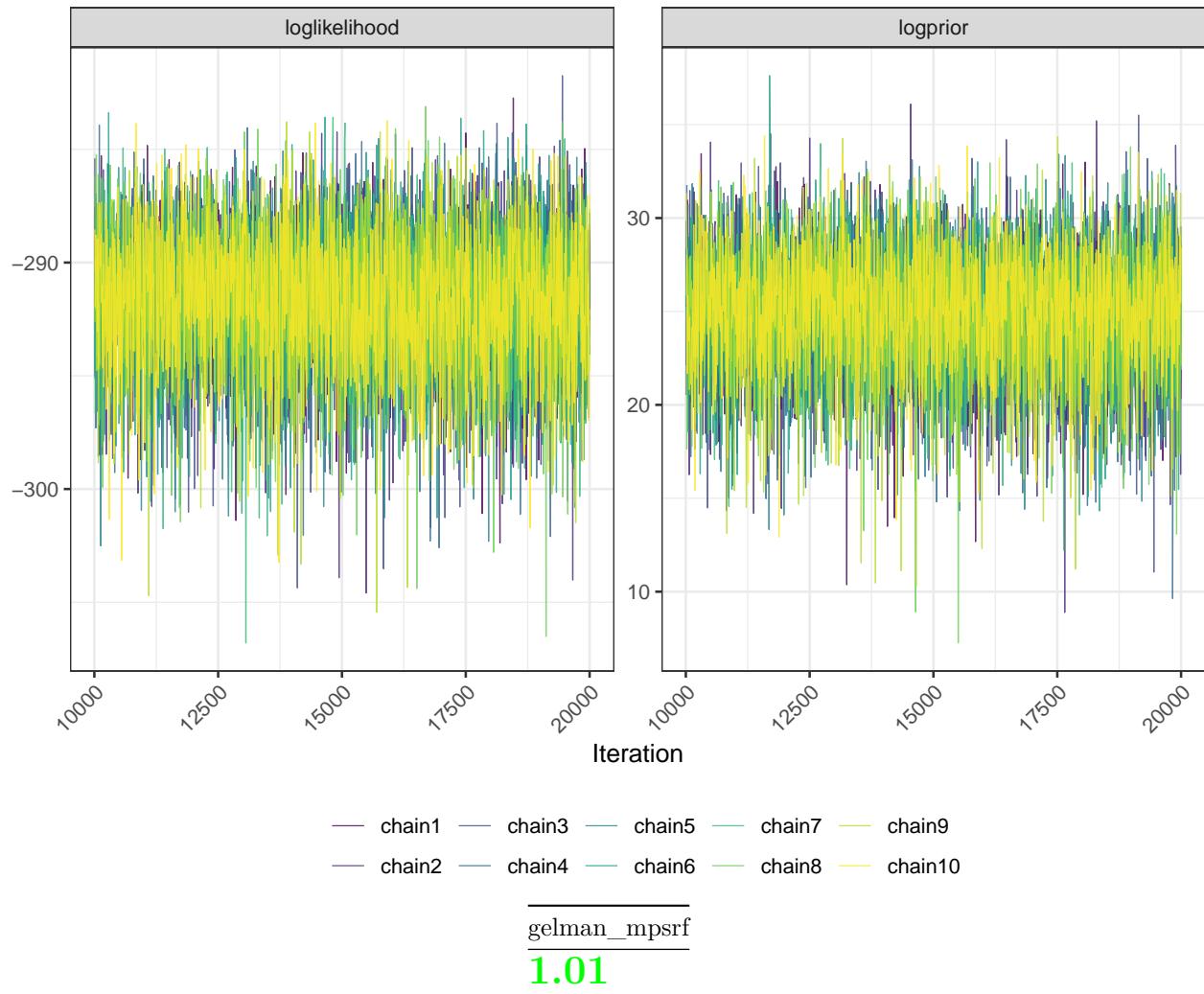
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.0518	1.1396	17.4219	17.9411	40.2430	60.1483	55.7824	0.2682	0.3848
x2	130.0411	130.8621	131.9201	131.9522	133.2903	135.3547	4946.0595	-1.2174	0.1901
x3	130.4966	131.4522	133.5037	133.5964	136.1029	138.9047	2520.8959	1.3124	0.1686
x4	216.0032	216.4420	223.7236	223.5142	229.7020	229.9963	195.3331	-6.0570	0.0000
y1	0.0000	0.0010	0.0820	0.1251	0.4781	1.7714	1101.9180	2.5965	0.0137
y2	0.0037	0.0099	1.4036	1.5238	3.9736	6.5607	55.7198	-0.0488	0.3985
y3	10.5663	10.9895	11.9716	11.8729	12.2409	12.4089	145.9059	-1.0666	0.2259
y4	10.5659	10.9893	11.9708	11.8722	12.2399	12.4074	145.9956	-1.0680	0.2255
y5	10.3590	10.8124	11.7890	11.6926	12.0639	12.2457	146.1674	-0.8693	0.2734
Ne1	0.8164	0.9014	0.9976	0.9981	1.0957	1.2145	8052.0709	0.9074	0.2643
Ne10	0.7998	0.8874	0.9988	0.9986	1.1037	1.2019	393.4728	-0.2169	0.3897
Ne2	0.8017	0.8978	0.9975	0.9973	1.0944	1.1750	8134.9652	-0.1486	0.3946
Ne3	0.8120	0.9041	1.0017	1.0017	1.0999	1.1883	4226.4232	1.2485	0.1830
Ne4	0.8116	0.9056	1.0015	1.0013	1.0981	1.2031	4050.6846	3.0265	0.0041
Ne5	0.8276	0.9116	1.0078	1.0079	1.1026	1.2080	2765.2598	2.1788	0.0372
Ne6	0.8306	0.9221	1.0160	1.0162	1.1127	1.1981	2107.3221	-0.7981	0.2901
Ne7	0.8191	0.9224	1.0174	1.0180	1.1142	1.2001	1750.6702	0.4699	0.3572
Ne8	0.8041	0.8714	0.9744	0.9739	1.0712	1.1434	887.3232	3.1827	0.0025
Ne9	0.8058	0.8927	0.9904	0.9902	1.0859	1.1615	597.2623	-0.6031	0.3326

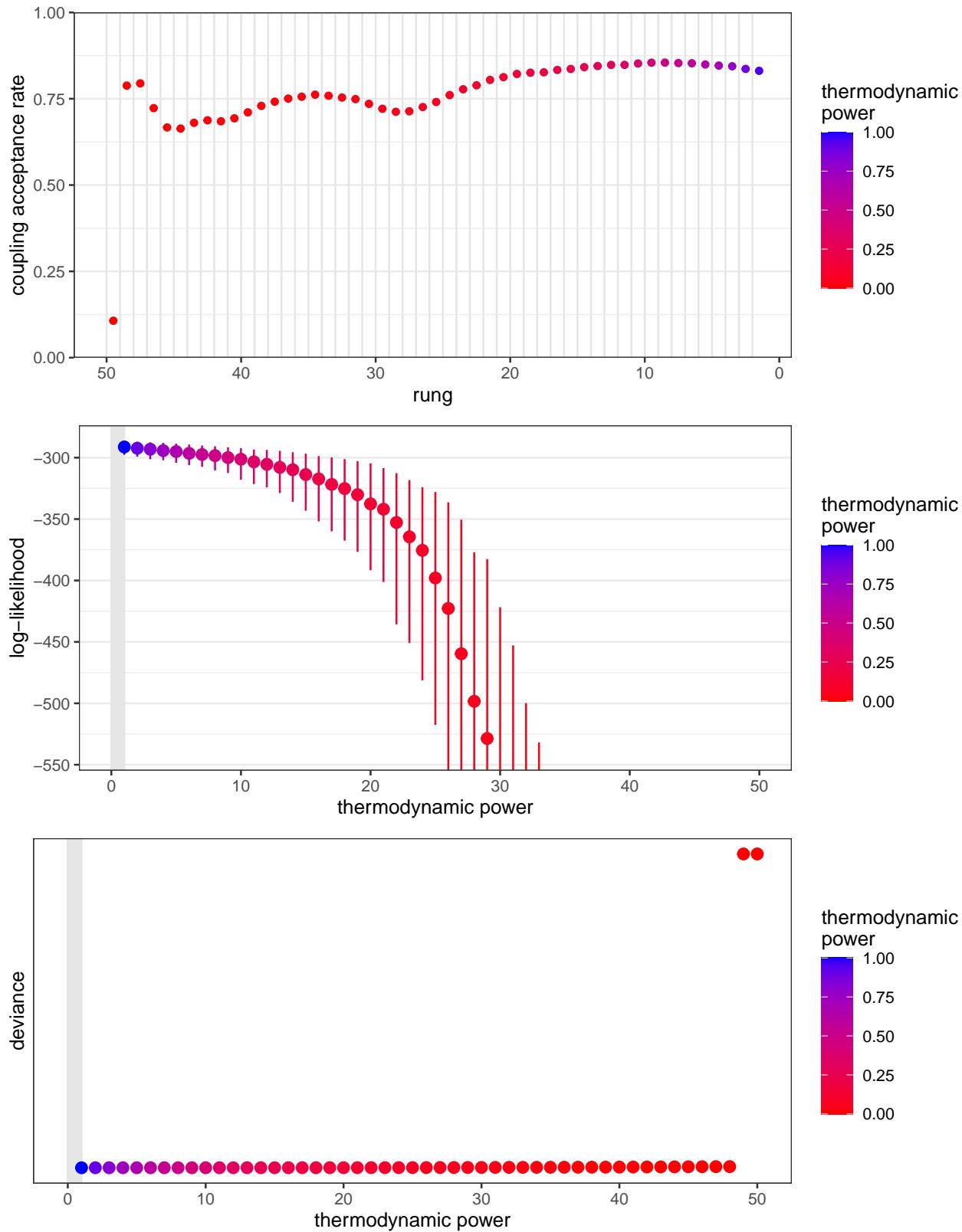
# CHE1 with Standard Input

## Fit Diagnostics

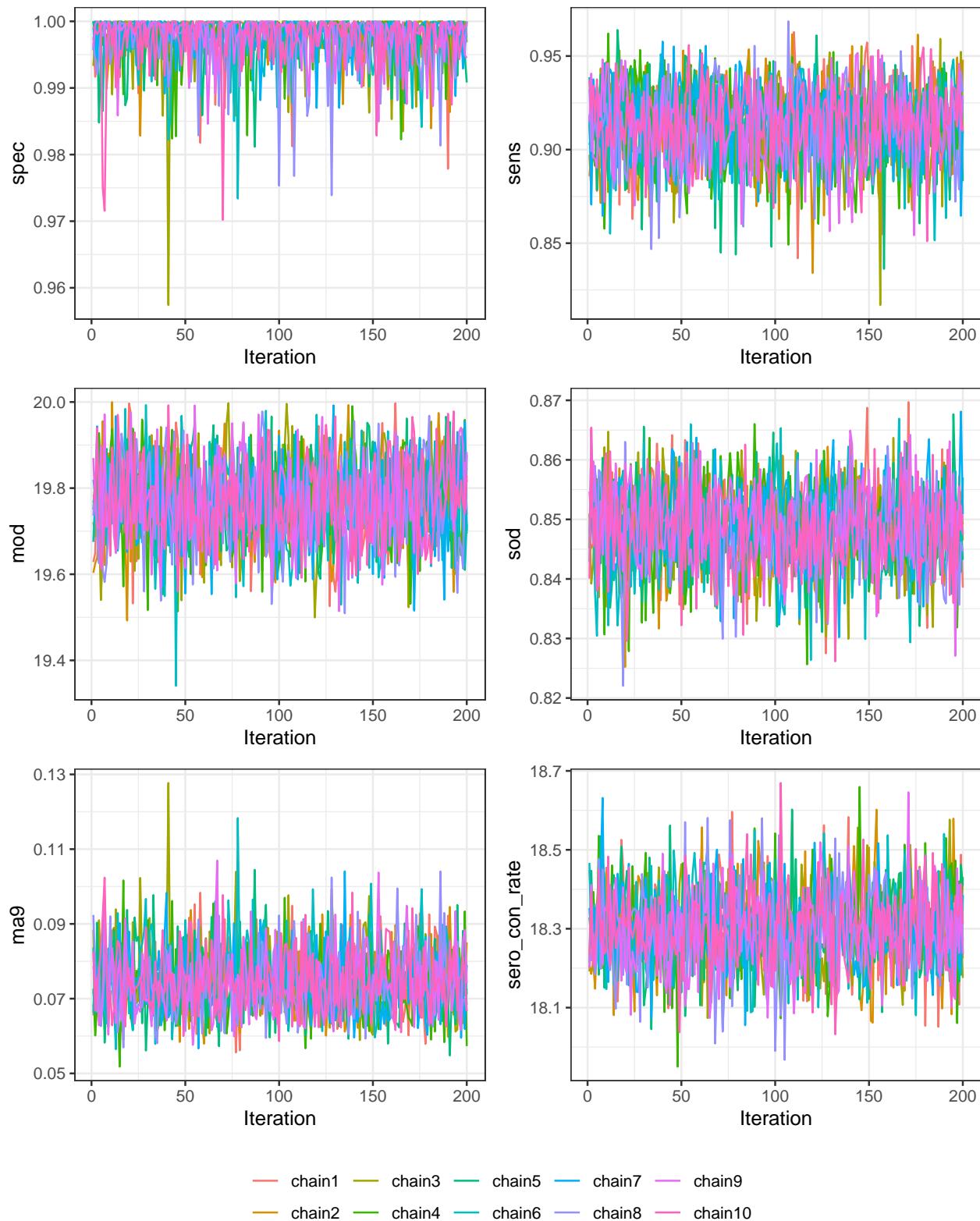
### Log Likelihood & Prior Plot



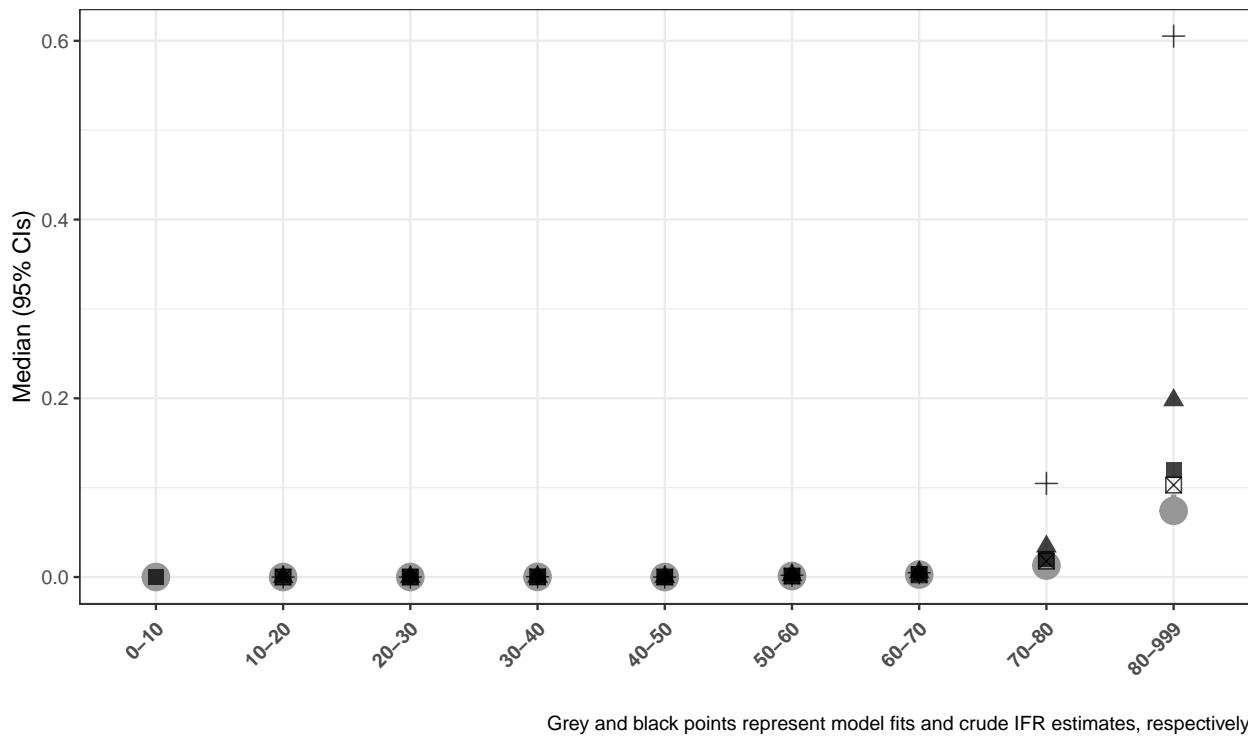
### Metropolis Coupling Acceptance Plot



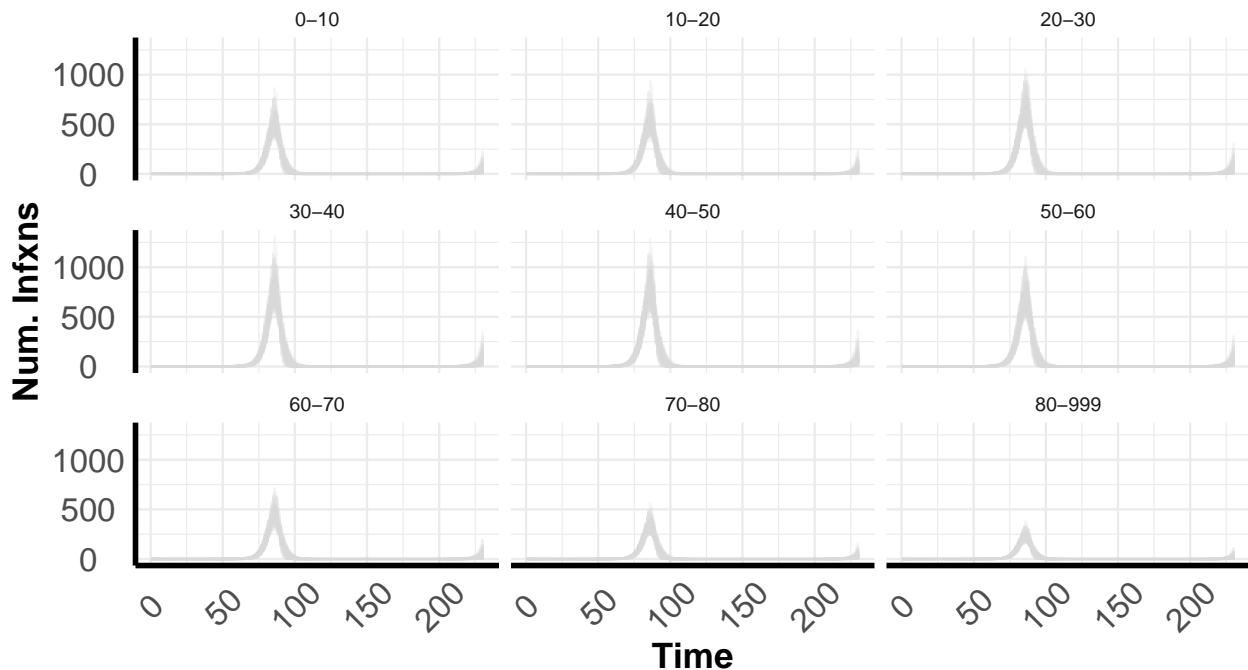
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



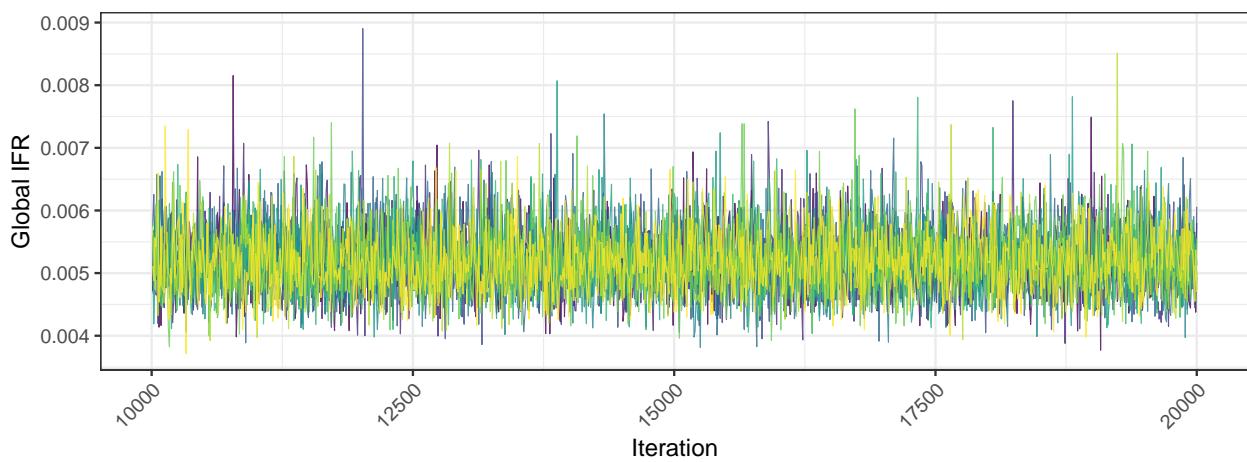
## Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-10	ma1	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	9164.171	-1.1743	0.2002
10-20	ma2	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	8777.969	-1.5641	0.1174
20-30	ma3	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	9481.003	1.4227	0.1450
30-40	ma4	0.0000	0.0000	0.0002	0.0003	0.0006	0.0011	10000.000	-0.8169	0.2858
40-50	ma5	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	8940.043	-1.5672	0.1168
50-60	ma6	0.0000	0.0005	0.0012	0.0012	0.0021	0.0034	10000.000	0.3491	0.3754
60-70	ma7	0.0004	0.0014	0.0028	0.0028	0.0045	0.0063	9485.928	1.5452	0.1209
70-80	ma8	0.0062	0.0091	0.0128	0.0129	0.0174	0.0249	9459.984	-0.3057	0.3807
80-999	ma9	0.0498	0.0604	0.0741	0.0747	0.0923	0.1277	8126.273	0.0215	0.3989

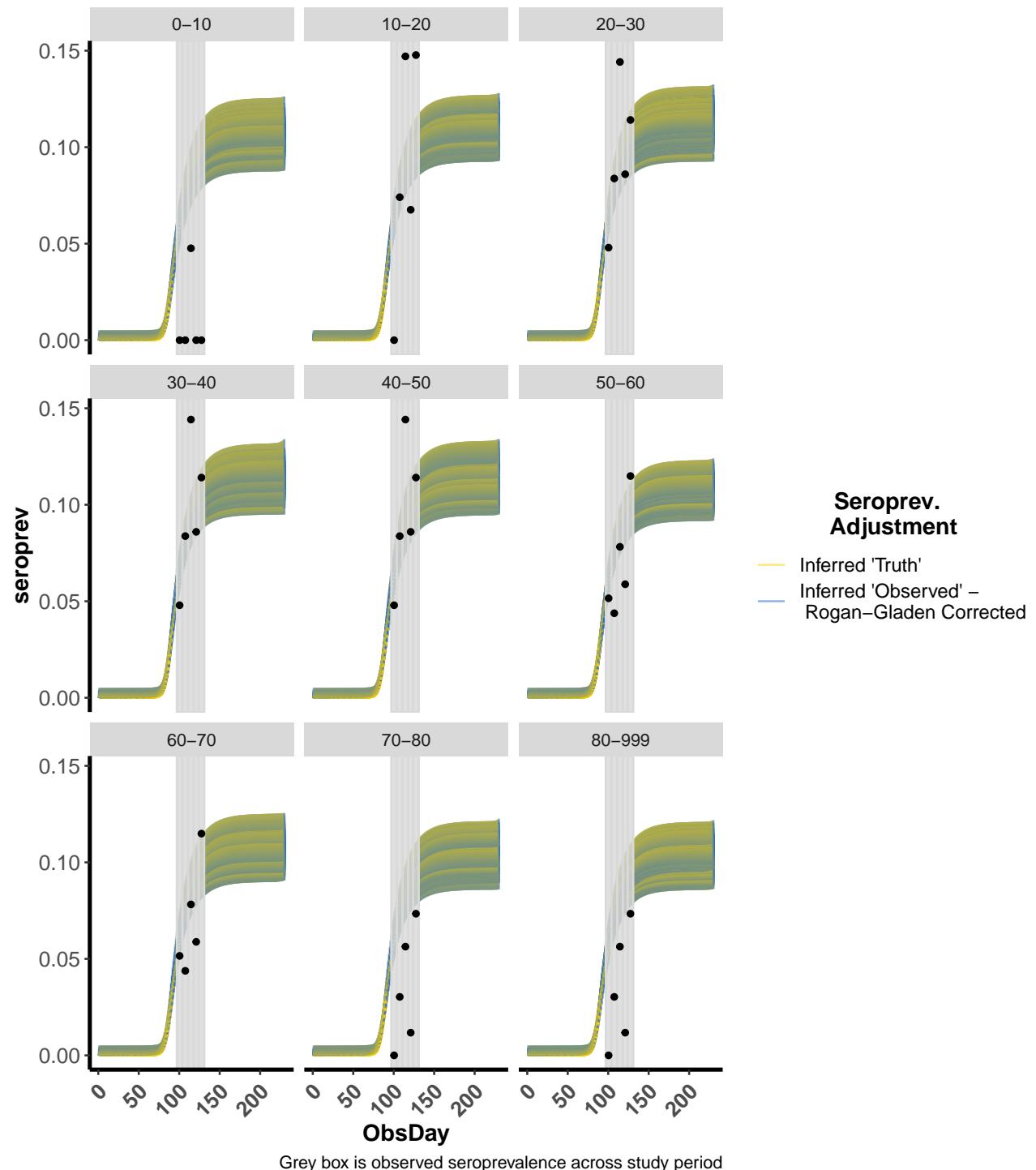
## Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0037	0.0043	0.0052	0.0052	0.0063	0.0089	9290.001	-0.2547	0.3862

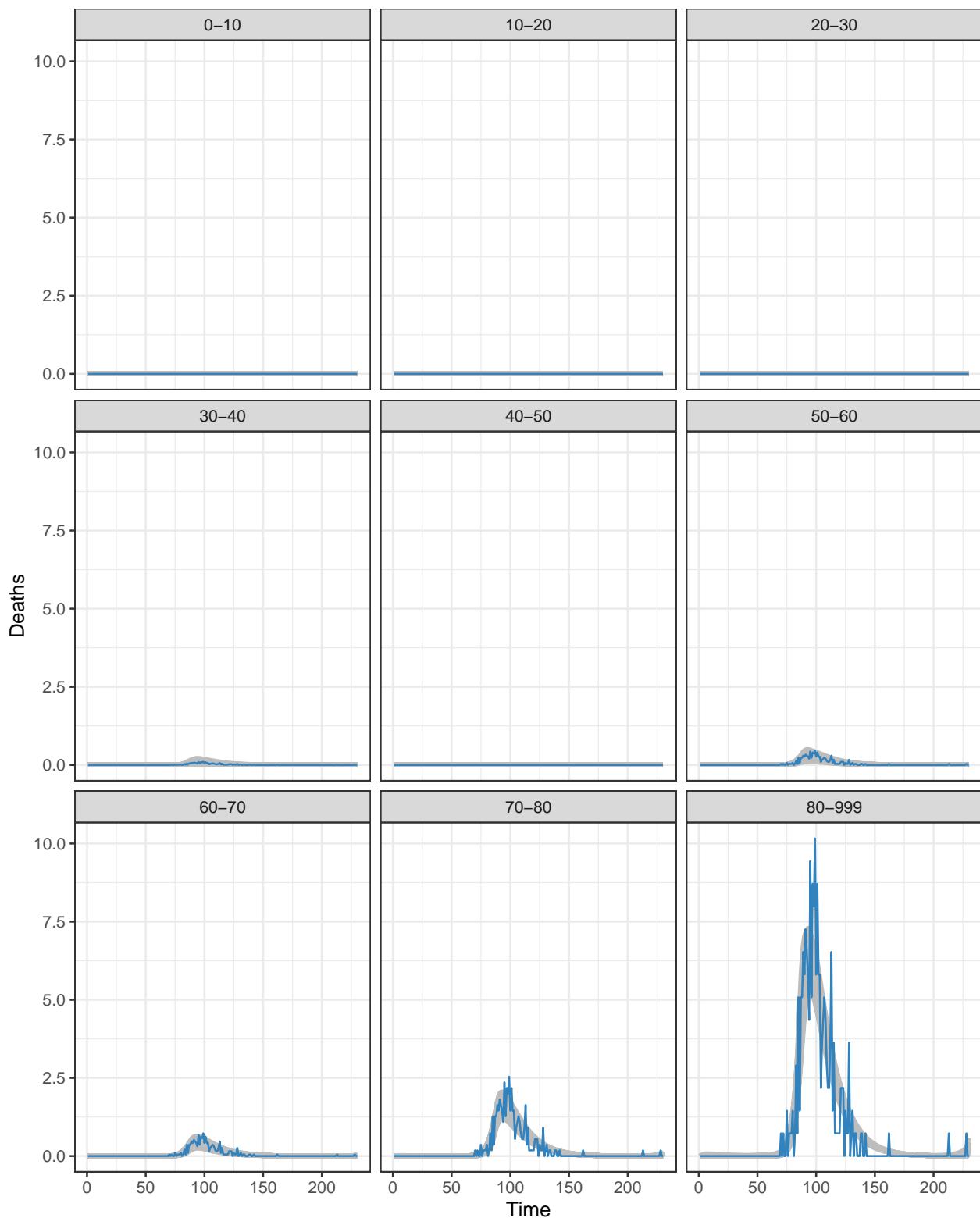
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0038	0.0043	0.0052	0.0052	0.0063	0.0082	926.9672	0.7722	0.2961
chain2	0.0039	0.0043	0.0051	0.0052	0.0062	0.0078	792.0483	-0.9917	0.2440
chain3	0.0039	0.0044	0.0052	0.0052	0.0062	0.0089	892.9913	0.3809	0.3710
chain4	0.0038	0.0043	0.0051	0.0052	0.0063	0.0072	893.5143	0.0149	0.3989
chain5	0.0038	0.0043	0.0052	0.0052	0.0064	0.0075	835.4993	1.5413	0.1216
chain6	0.0040	0.0044	0.0052	0.0052	0.0063	0.0081	657.0505	-1.6685	0.0992
chain7	0.0040	0.0044	0.0051	0.0052	0.0063	0.0078	758.4663	-0.4143	0.3661
chain8	0.0038	0.0043	0.0052	0.0052	0.0064	0.0076	1000.0000	-0.6825	0.3161
chain9	0.0039	0.0043	0.0051	0.0052	0.0062	0.0085	1011.7683	1.0054	0.2407
chain10	0.0037	0.0043	0.0052	0.0052	0.0062	0.0073	823.3457	-0.6671	0.3194



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



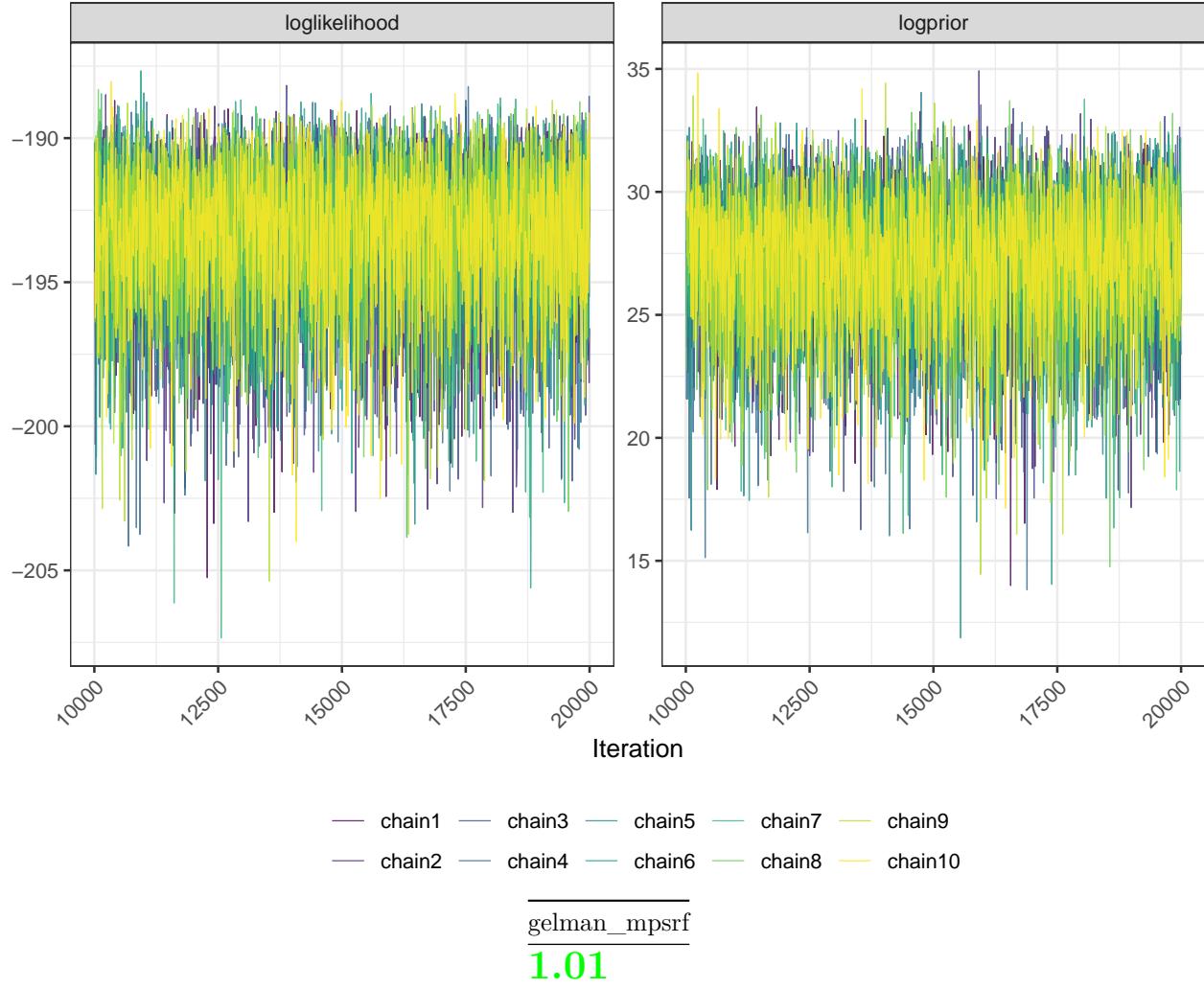
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1209	4.4709	65.1332	63.9504	81.4281	87.1644	2478.981	0.9223	0.2607
x2	69.0188	77.9688	88.5822	88.5009	98.2414	105.7807	3136.383	-1.2412	0.1847
x3	87.3173	93.2581	103.2554	103.4459	114.7389	228.6562	3135.359	-2.0197	0.0519
x4	214.0000	214.4154	222.1590	222.1337	229.6243	229.9990	3580.590	-3.6085	0.0006
y1	0.0002	0.0718	1.5207	1.7074	4.4114	6.5643	8263.364	-0.4828	0.3551
y2	0.0022	0.1457	3.4743	3.6121	7.7939	8.9424	1769.214	1.3424	0.1620
y3	3.8434	5.4306	8.0222	7.7364	8.6403	9.1307	1496.981	3.9614	0.0002
y4	0.0012	0.1327	2.6142	2.8511	6.6485	8.3090	4209.790	2.4452	0.0201
y5	0.0022	0.5001	3.5453	3.5084	6.4318	8.0237	6479.378	-2.4967	0.0177
Ne1	0.7642	0.8767	0.9763	0.9758	1.0719	1.1773	10000.000	1.1048	0.2167
Ne2	0.8350	0.9176	1.0097	1.0105	1.1053	1.2015	9814.617	0.0739	0.3979
Ne3	0.8621	0.9507	1.0403	1.0404	1.1287	1.2015	10000.000	0.7664	0.2974
Ne4	0.8447	0.9521	1.0398	1.0400	1.1288	1.2192	9637.863	1.7677	0.0836
Ne5	0.8670	0.9519	1.0398	1.0398	1.1308	1.2052	10000.000	-0.1672	0.3934
Ne6	0.8213	0.8921	0.9856	0.9848	1.0756	1.1644	10000.000	0.1430	0.3949
Ne7	0.8066	0.8929	0.9853	0.9851	1.0776	1.1626	10000.000	-0.6668	0.3194
Ne8	0.7312	0.8647	0.9593	0.9590	1.0546	1.1327	9299.675	0.3184	0.3792
Ne9	0.7729	0.8635	0.9585	0.9589	1.0557	1.1760	9565.984	-1.0102	0.2395

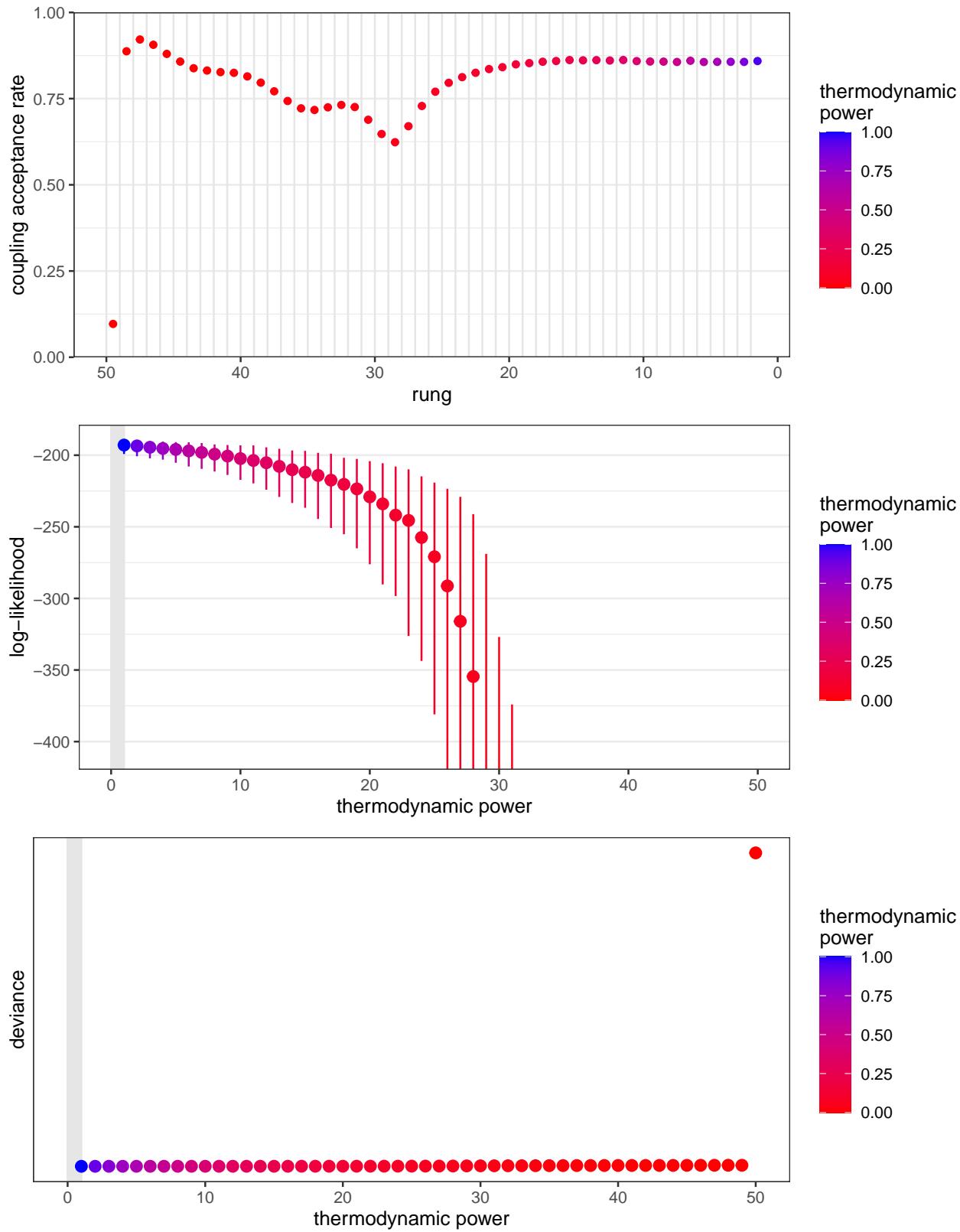
# CHE2 with Standard Input

## Fit Diagnostics

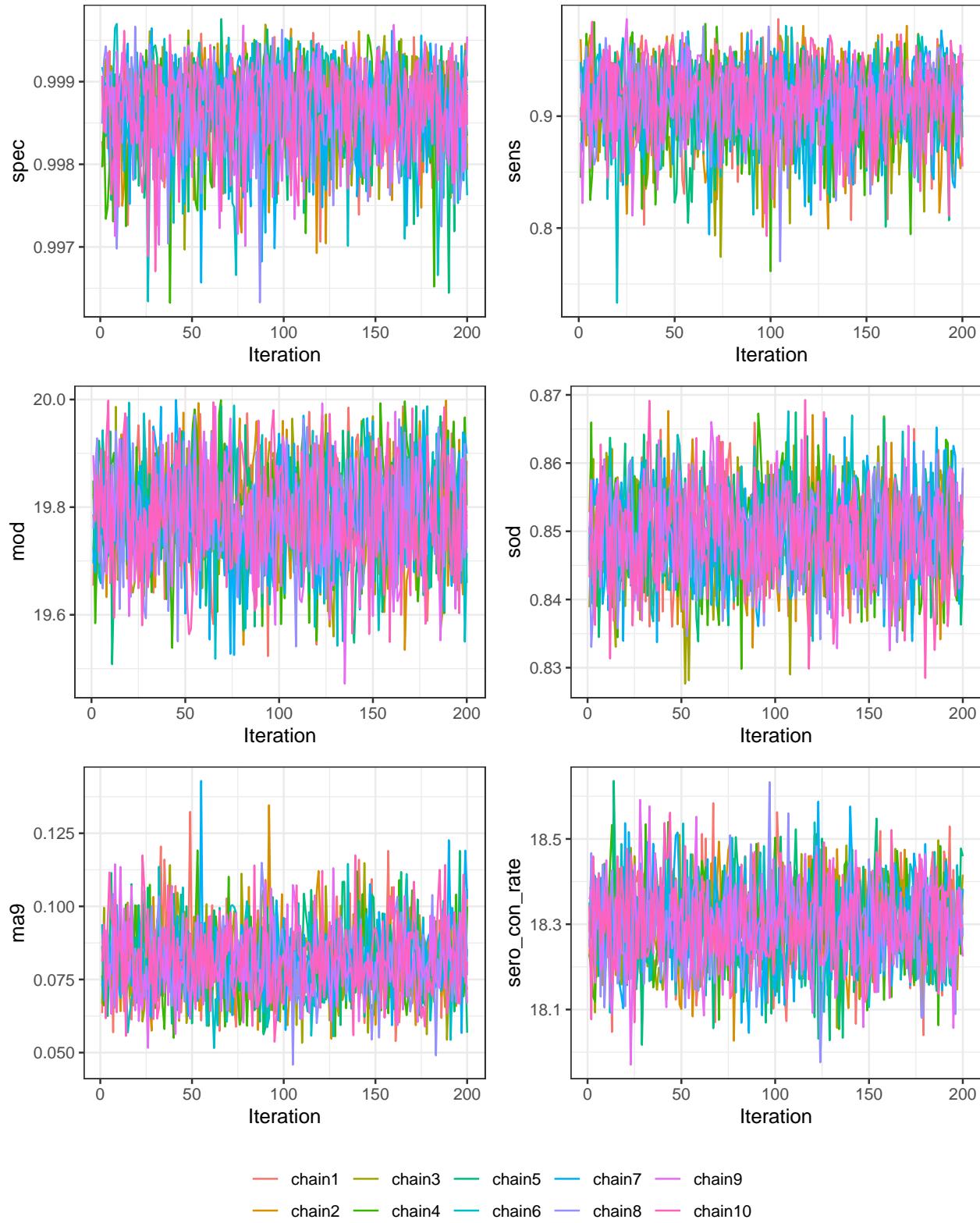
### Log Likelihood & Prior Plot



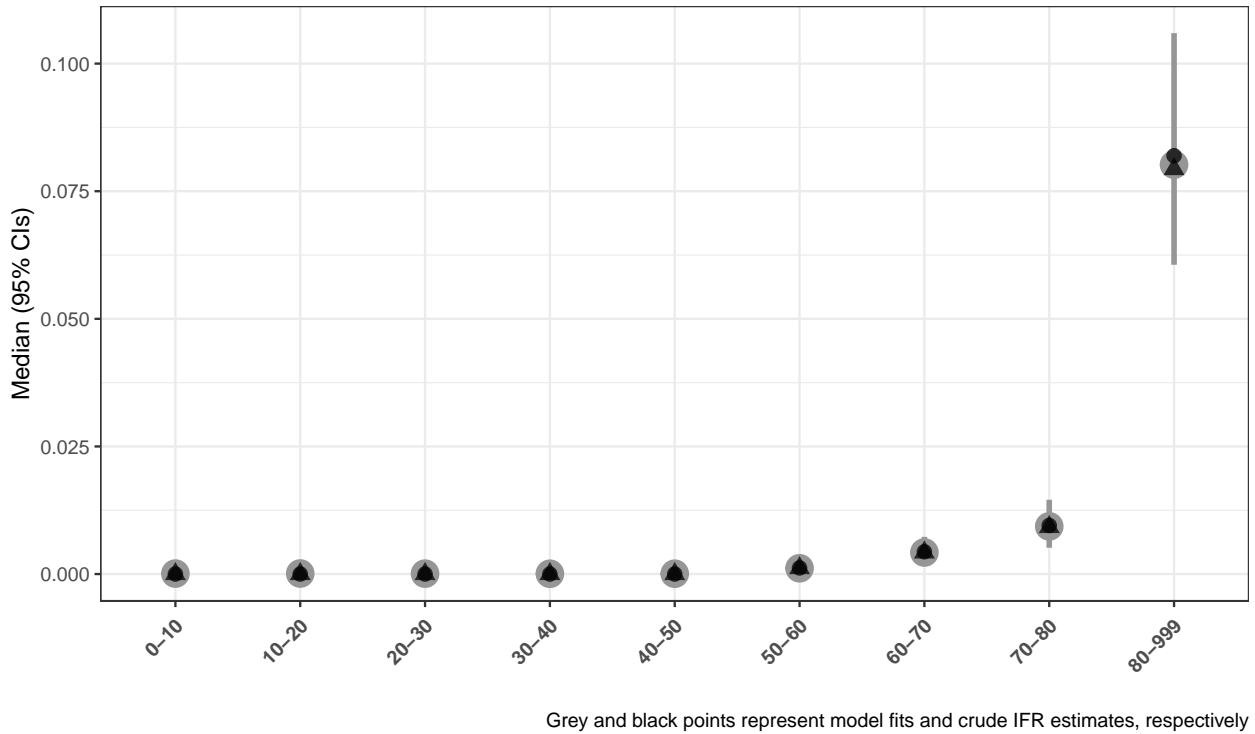
### Metropolis Coupling Acceptance Plot



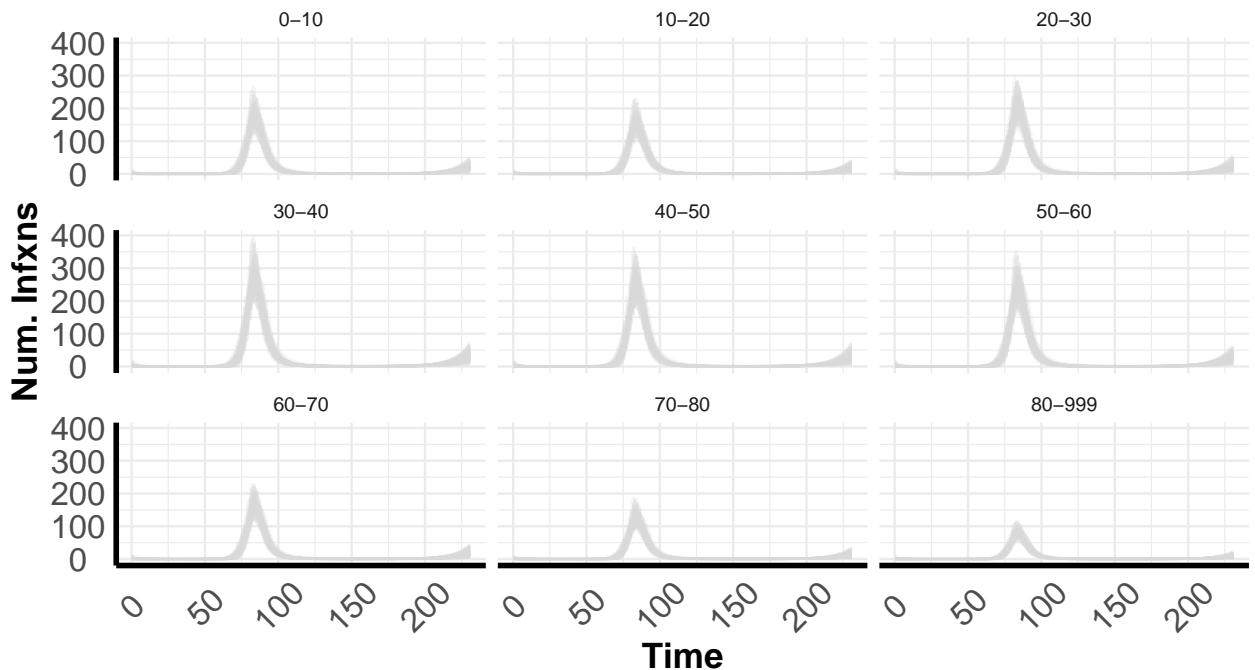
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



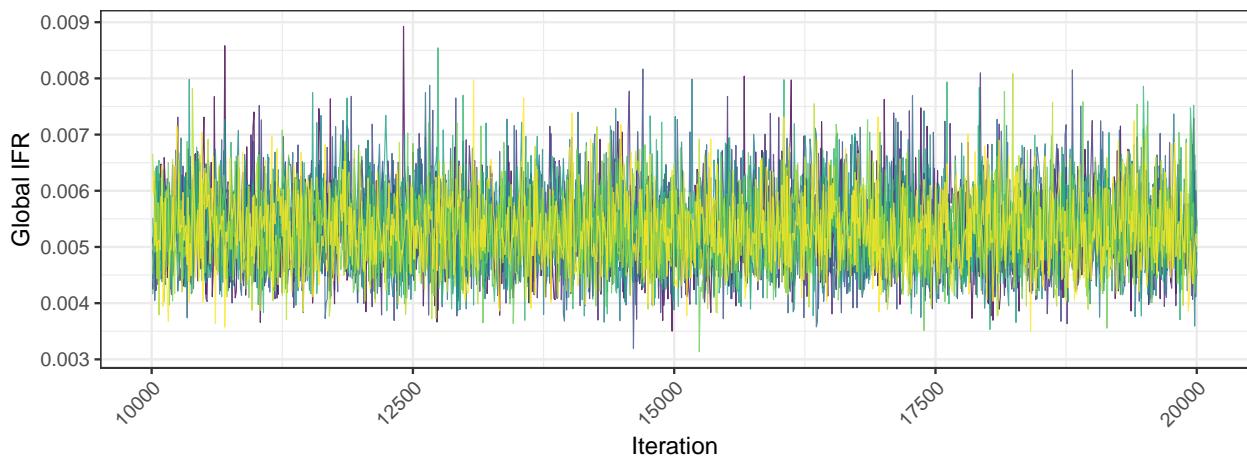
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-10	ma1	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	8802.648	-0.0333	0.3987
10-20	ma2	0.0000	0.0000	0.0001	0.0001	0.0002	0.0003	9146.049	0.2774	0.3839
20-30	ma3	0.0000	0.0000	0.0001	0.0001	0.0002	0.0002	9296.351	1.0512	0.2296
30-40	ma4	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	9251.189	0.2221	0.3892
40-50	ma5	0.0000	0.0000	0.0001	0.0001	0.0001	0.0002	8885.063	-1.9103	0.0643
50-60	ma6	0.0000	0.0002	0.0011	0.0012	0.0025	0.0044	10000.000	-1.6567	0.1011
60-70	ma7	0.0006	0.0019	0.0042	0.0043	0.0073	0.0109	9388.788	-0.3341	0.3773
70-80	ma8	0.0021	0.0052	0.0093	0.0095	0.0146	0.0201	9261.519	0.2916	0.3823
80-999	ma9	0.0459	0.0606	0.0802	0.0810	0.1060	0.1429	7330.882	-1.3971	0.1503

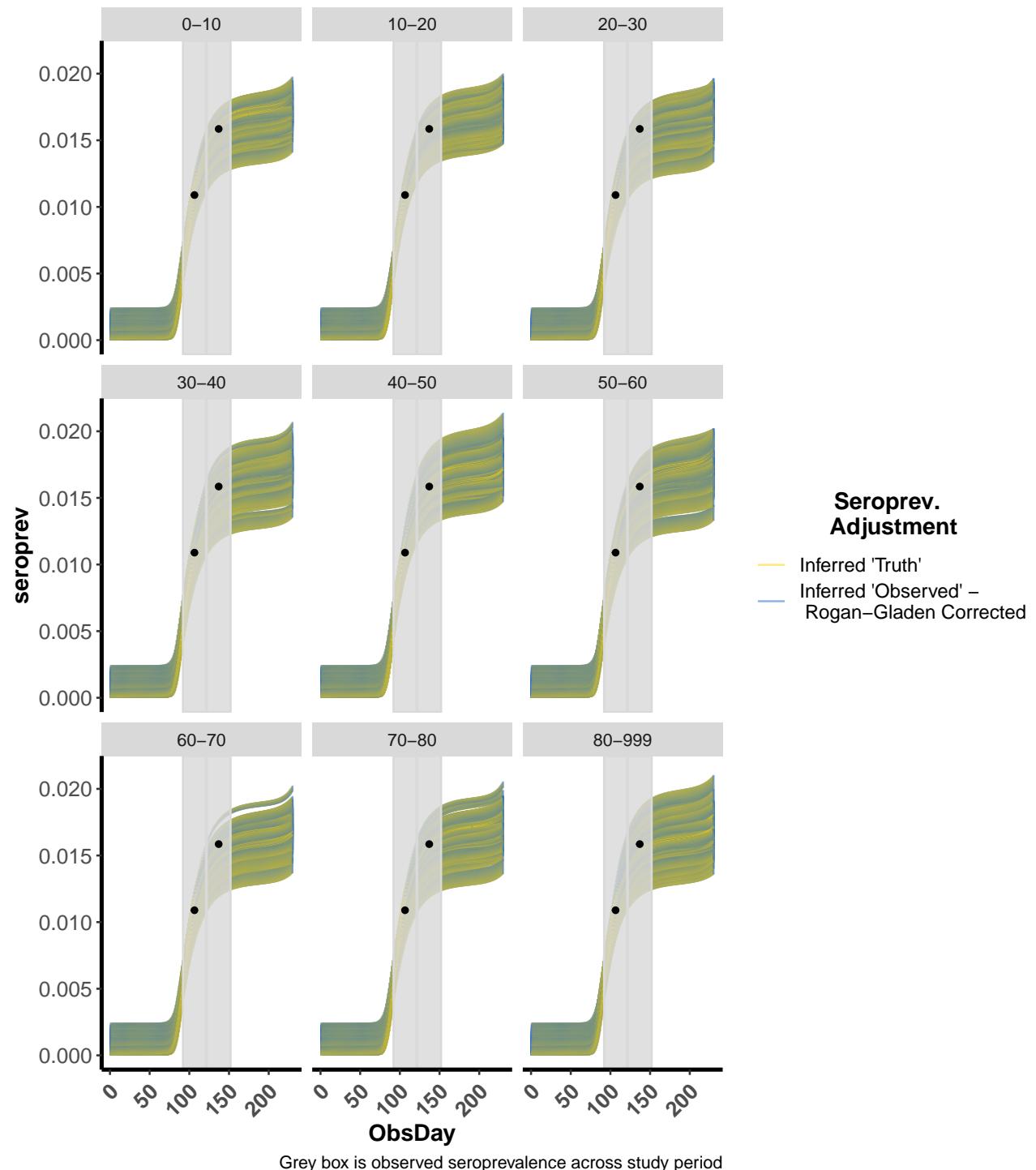
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0031	0.0041	0.0053	0.0053	0.0068	0.0089	9184.234	1.6881	0.096

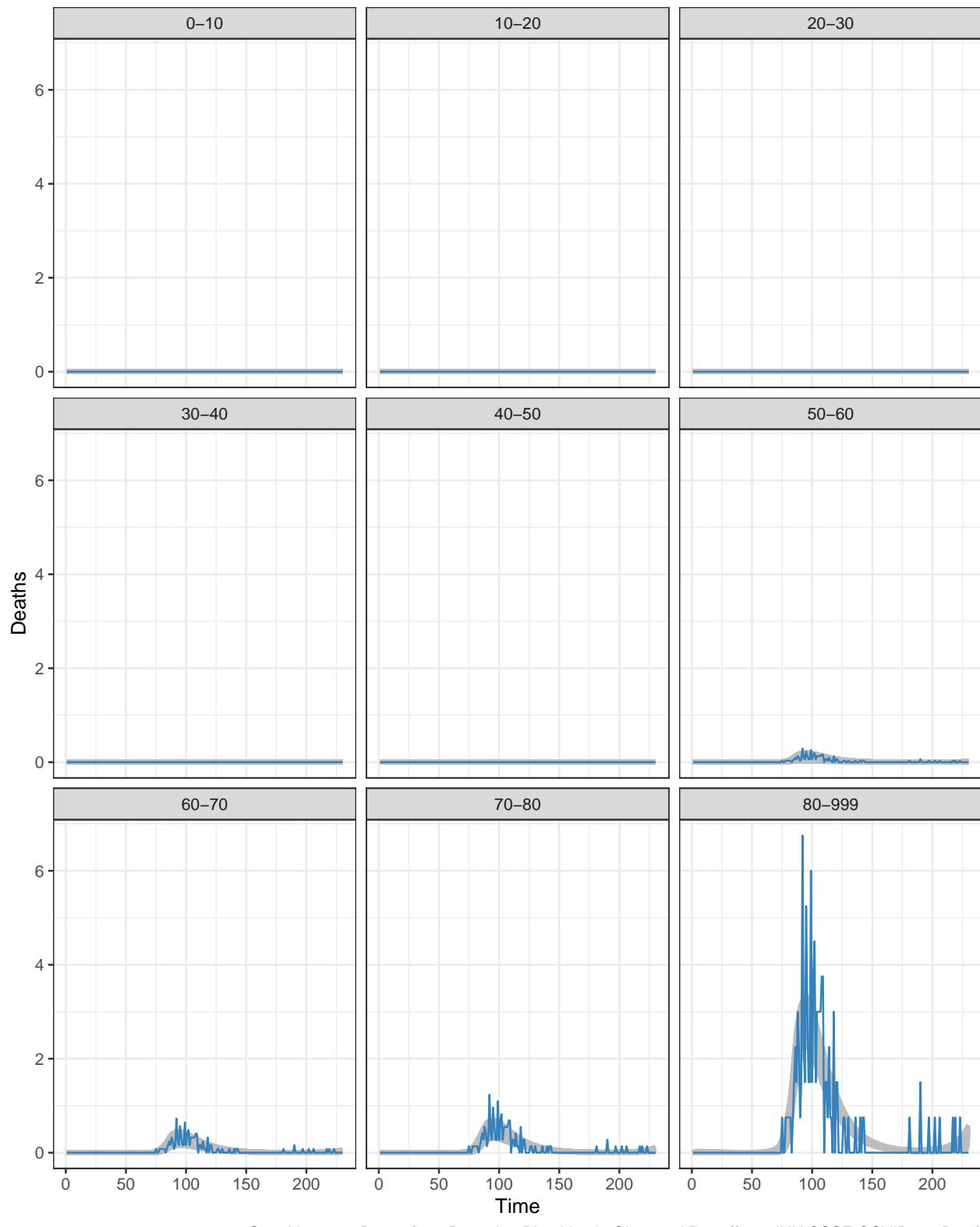
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0035	0.0041	0.0052	0.0053	0.0067	0.0089	821.0482	1.5940	0.1120
chain2	0.0036	0.0041	0.0053	0.0053	0.0068	0.0081	1000.0000	-1.3292	0.1649
chain3	0.0032	0.0041	0.0053	0.0053	0.0069	0.0082	1000.0000	2.2383	0.0326
chain4	0.0036	0.0041	0.0052	0.0053	0.0068	0.0079	796.4991	0.6067	0.3319
chain5	0.0036	0.0041	0.0052	0.0053	0.0068	0.0080	729.6591	0.1009	0.3969
chain6	0.0037	0.0041	0.0053	0.0053	0.0069	0.0080	646.1780	-0.9427	0.2558
chain7	0.0035	0.0042	0.0053	0.0053	0.0067	0.0085	883.6151	0.4477	0.3609
chain8	0.0031	0.0042	0.0053	0.0053	0.0067	0.0078	780.1775	-0.2228	0.3892
chain9	0.0037	0.0040	0.0052	0.0053	0.0066	0.0081	835.9216	1.3209	0.1667
chain10	0.0035	0.0041	0.0053	0.0053	0.0068	0.0080	911.1159	0.9754	0.2479



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



Grey Lines are Draws from Posterior, Blue Line is Observed Data (from JHU CSSE COVID-19 Data)

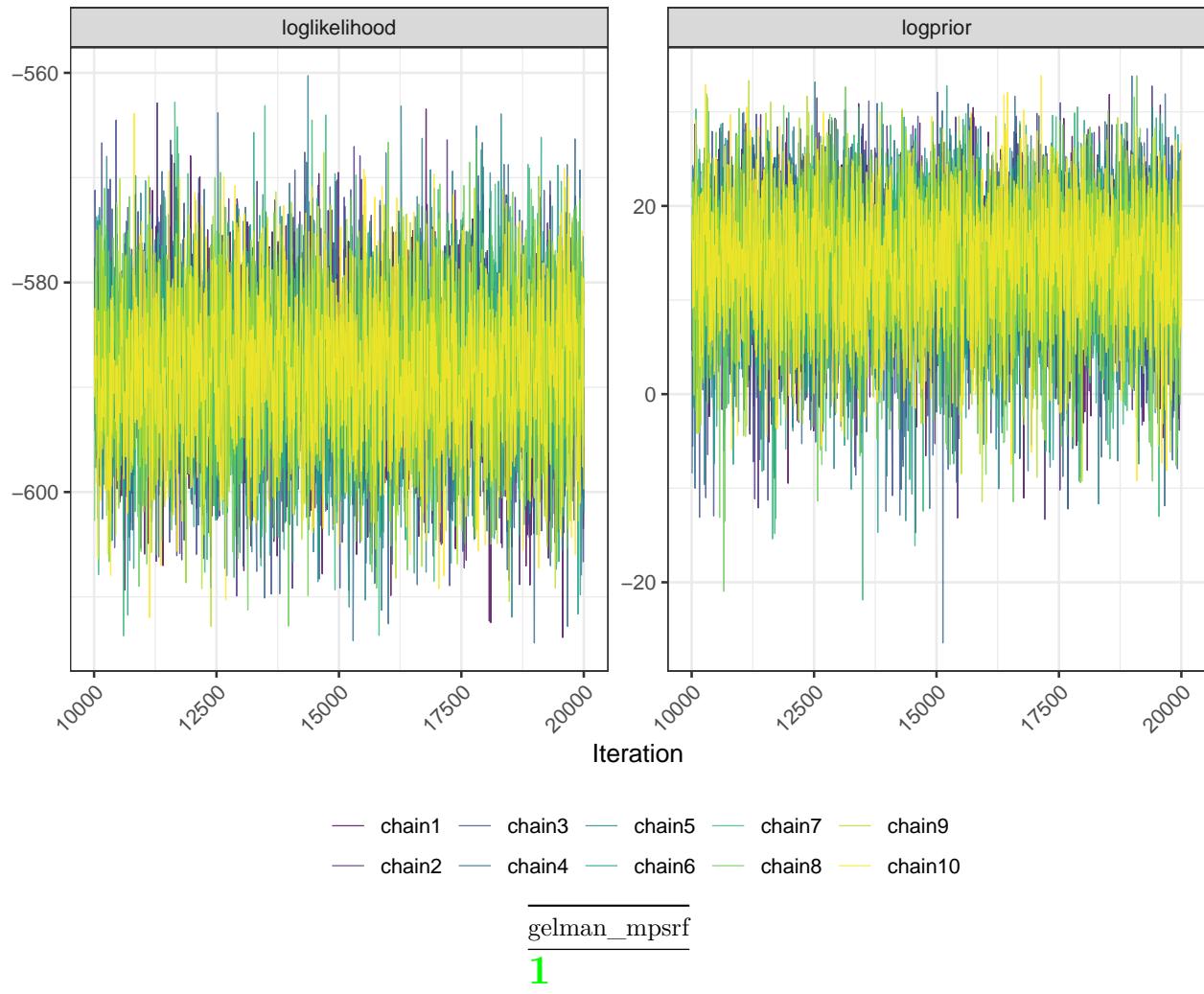
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.0427	2.3302	63.0363	58.3942	74.3568	82.4069	2228.089	-0.0263	0.3988
x2	61.8871	71.4340	80.8574	80.9968	90.9115	103.9163	3254.243	0.8728	0.2726
x3	79.9712	87.4056	97.9833	98.7577	114.6416	138.6372	3086.406	1.4022	0.1493
x4	214.0014	214.2964	220.9338	221.2830	229.4253	229.9975	5936.689	-0.3432	0.3761
y1	0.0003	0.0815	1.7271	1.9095	4.7244	6.4456	6880.731	0.3218	0.3788
y2	0.0000	0.0708	1.6737	1.9875	5.3484	6.7562	4547.305	-1.5179	0.1261
y3	3.3698	5.2396	7.0875	6.9049	7.6428	8.0679	1966.949	1.0344	0.2336
y4	0.0056	2.5295	5.5515	5.3738	7.0397	7.6816	3753.133	-1.3763	0.1547
y5	1.3247	3.0008	4.4574	4.4623	5.9310	6.9468	8874.092	1.2018	0.1938
Ne1	0.8205	0.9062	0.9999	1.0001	1.0964	1.2025	9986.922	-0.5496	0.3430
Ne2	0.8311	0.9049	1.0006	1.0005	1.0946	1.1903	9609.433	-0.1993	0.3911
Ne3	0.8094	0.9053	0.9999	1.0003	1.0940	1.1986	10000.000	1.2474	0.1832
Ne4	0.8006	0.9059	1.0007	1.0007	1.0944	1.1769	10000.000	-1.7766	0.0823
Ne5	0.8162	0.9080	0.9990	0.9998	1.0949	1.2109	10061.666	-0.5974	0.3337
Ne6	0.8316	0.9051	1.0005	1.0005	1.0938	1.1986	9262.225	0.2396	0.3877
Ne7	0.8213	0.9062	1.0004	1.0007	1.0978	1.2059	10000.000	-0.6866	0.3152
Ne8	0.8264	0.9061	1.0002	1.0000	1.0940	1.1899	9699.800	-1.1902	0.1965
Ne9	0.8097	0.9057	1.0001	1.0005	1.0959	1.1761	9592.544	0.1900	0.3918

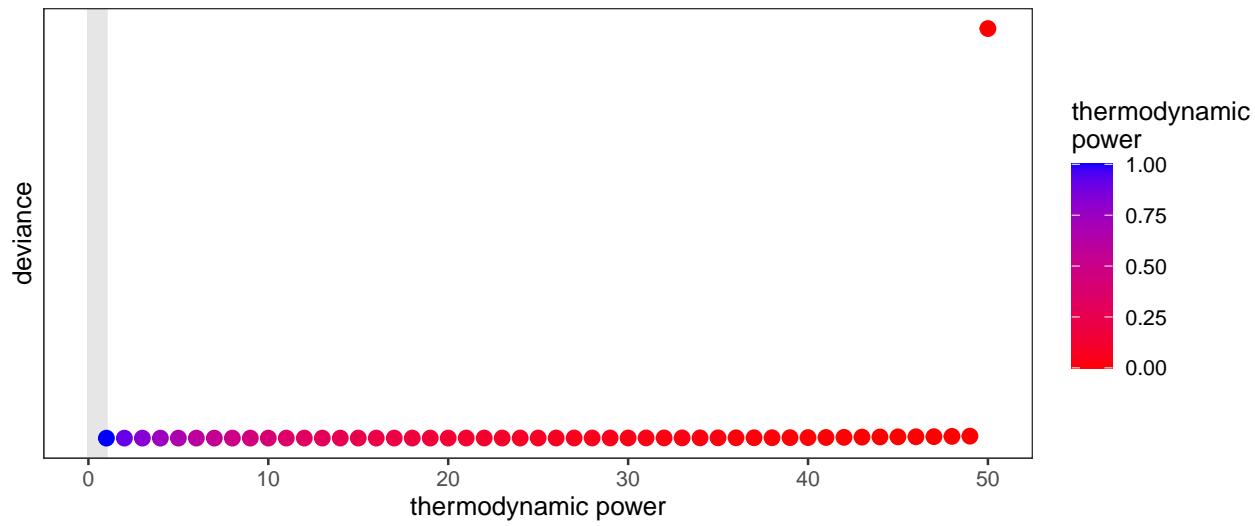
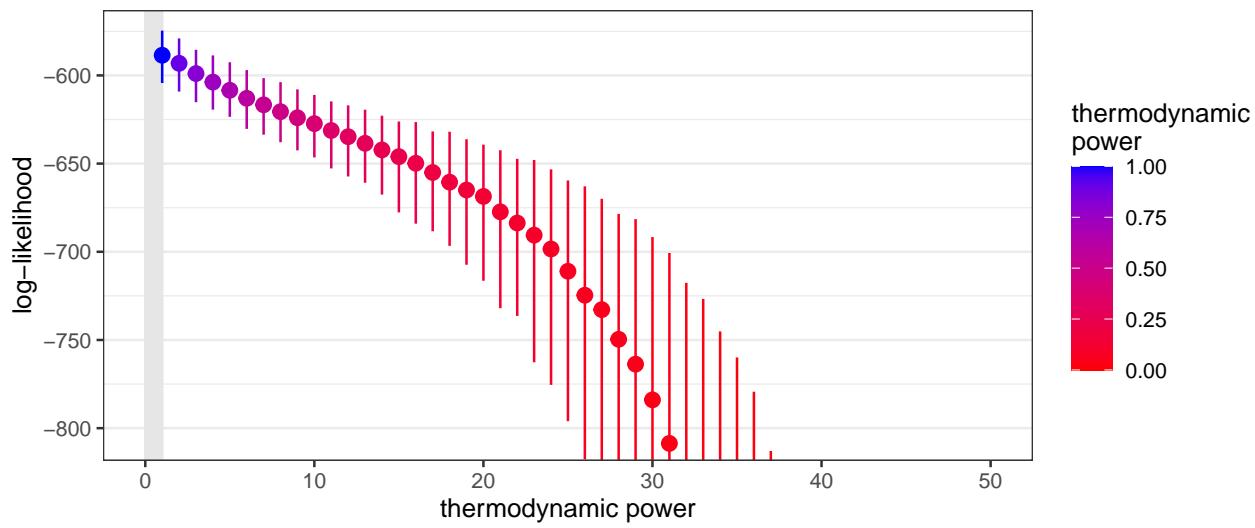
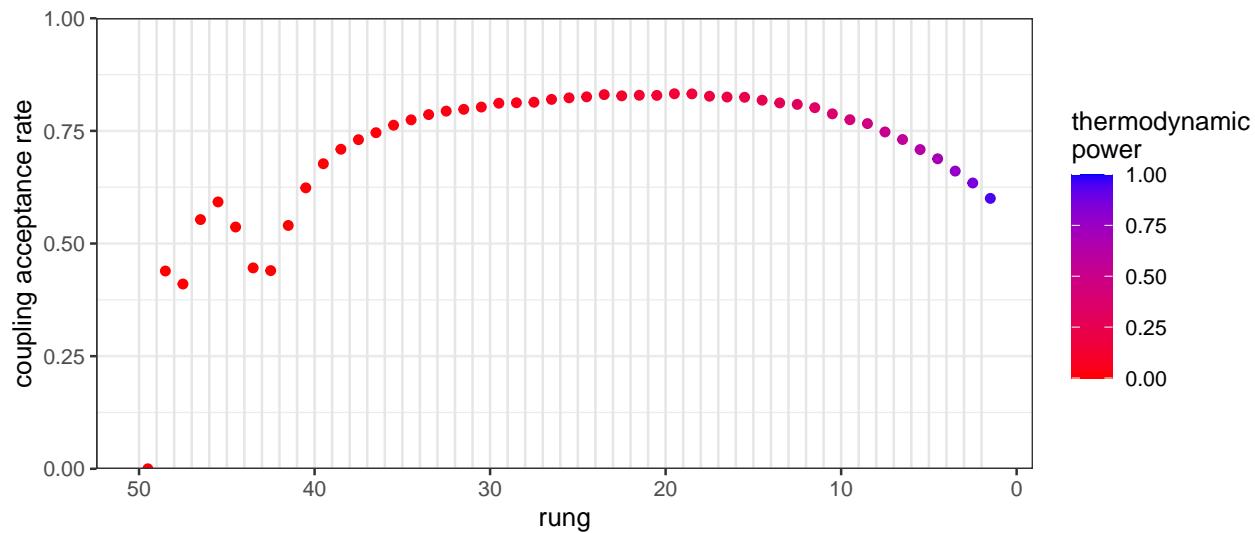
# CHN1 with Standard Input

## Fit Diagnostics

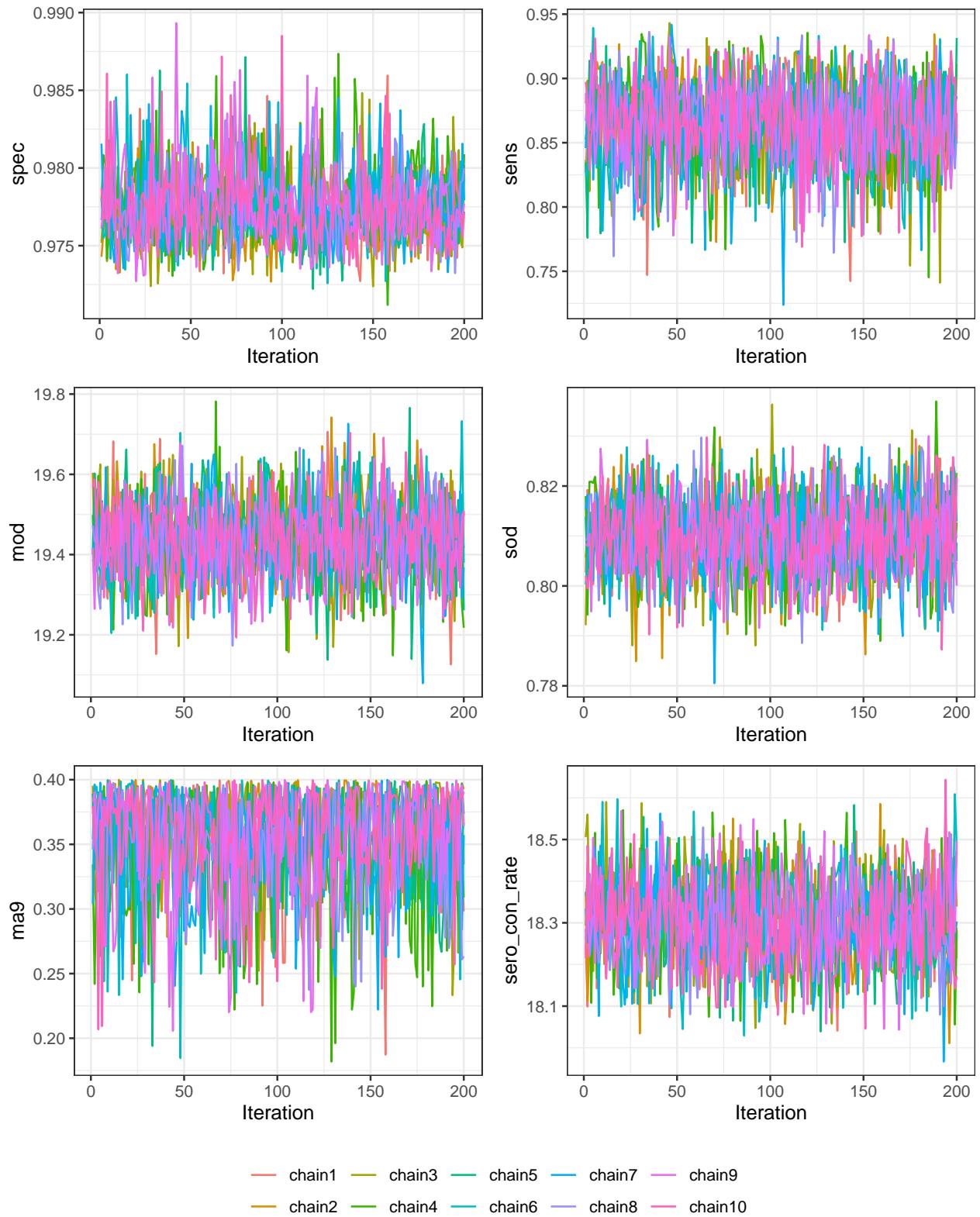
### Log Likelihood & Prior Plot



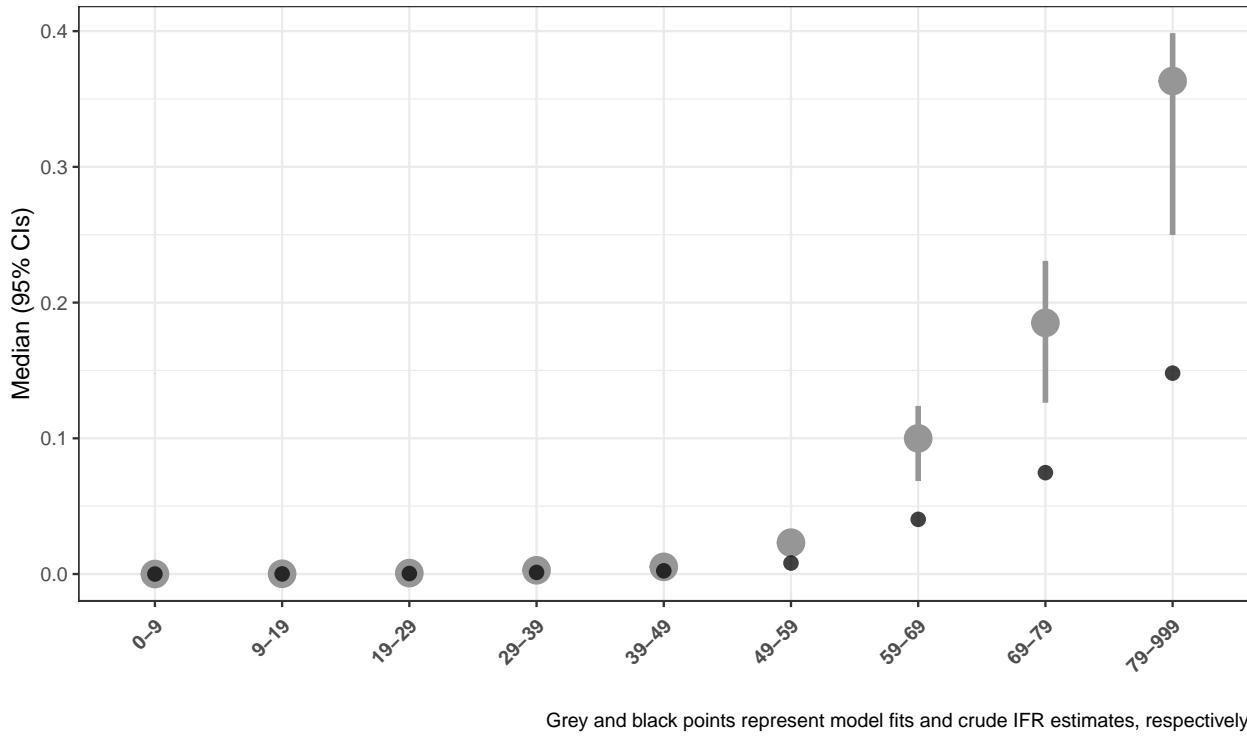
### Metropolis Coupling Acceptance Plot



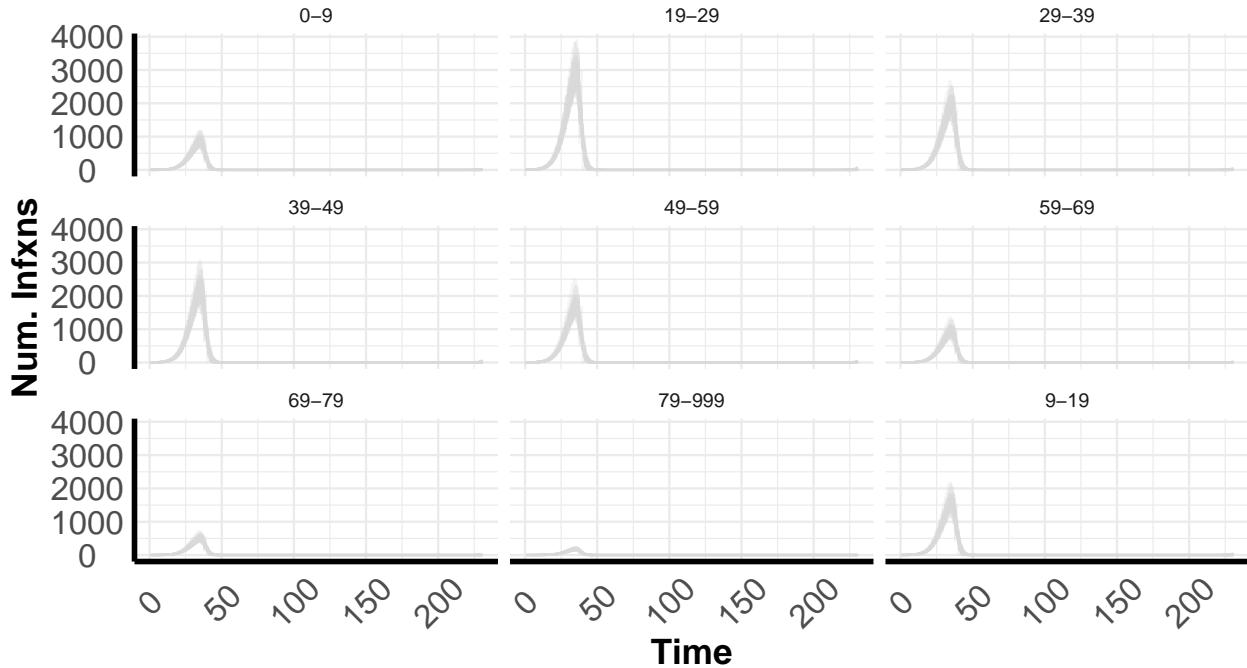
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



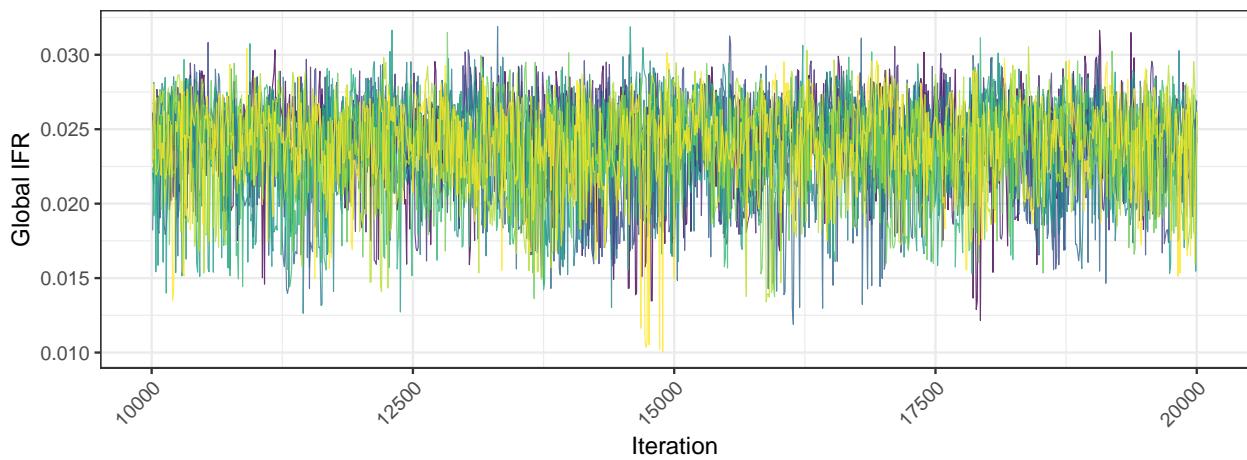
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-9	ma1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	8659.868	1.0816	0.2223
9-19	ma2	0.0000	0.0000	0.0002	0.0002	0.0004	0.0007	9175.414	0.6513	0.3227
19-29	ma3	0.0002	0.0004	0.0007	0.0007	0.0011	0.0014	4023.695	0.8070	0.2881
29-39	ma4	0.0010	0.0018	0.0028	0.0028	0.0038	0.0056	2182.524	2.3214	0.0270
39-49	ma5	0.0021	0.0035	0.0053	0.0053	0.0069	0.0085	2322.826	1.4497	0.1395
49-59	ma6	0.0092	0.0157	0.0231	0.0230	0.0292	0.0362	2072.033	1.3621	0.1578
59-69	ma7	0.0421	0.0685	0.1000	0.0988	0.1239	0.1494	1611.980	1.6215	0.1071
69-79	ma8	0.0690	0.1262	0.1851	0.1833	0.2308	0.2837	1595.025	1.7274	0.0897
79-999	ma9	0.1655	0.2498	0.3633	0.3522	0.3985	0.4000	1326.670	1.2808	0.1757

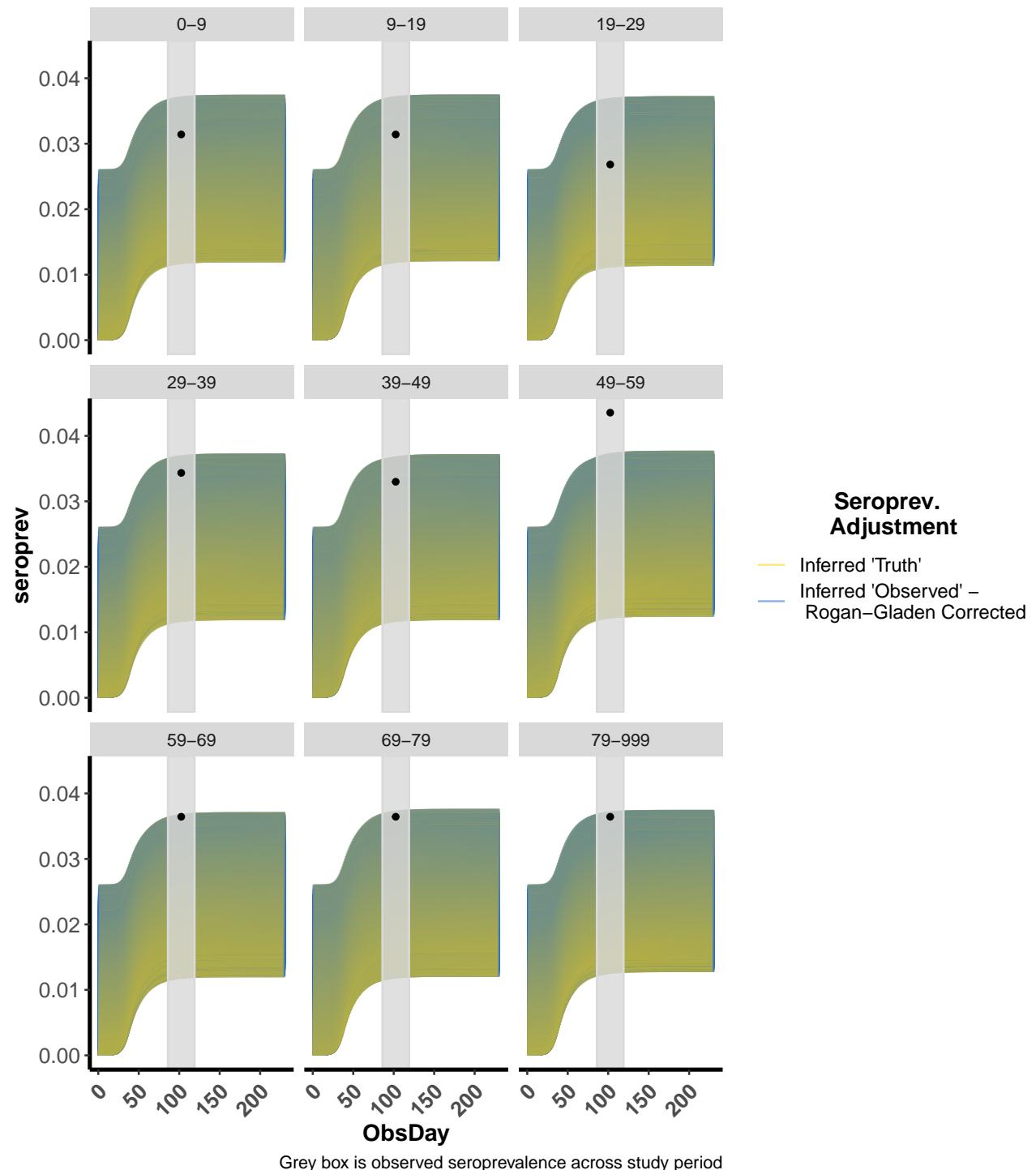
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0101	0.0168	0.0243	0.0238	0.0286	0.0319	2908.945	1.2289	0.1875

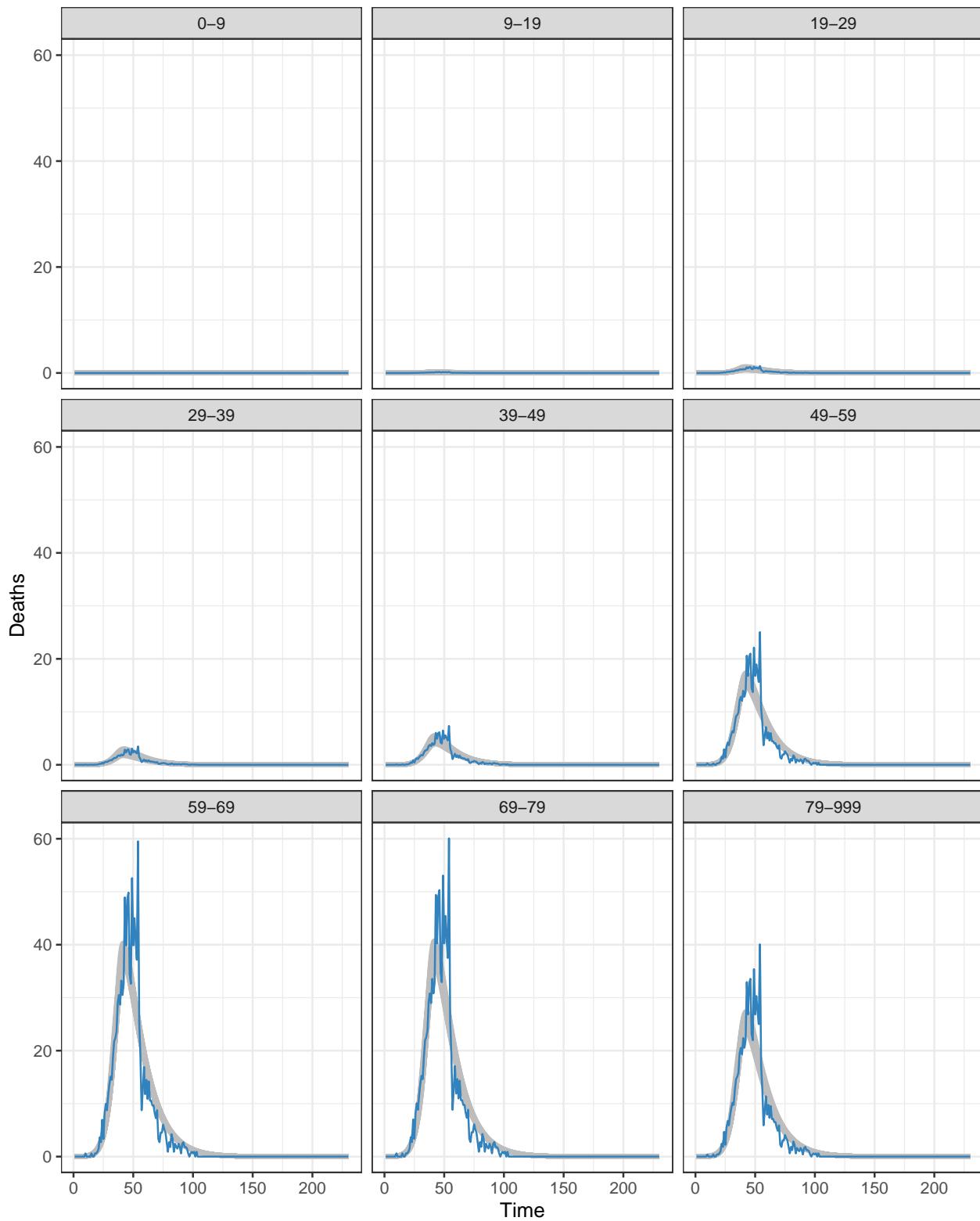
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0122	0.0171	0.0244	0.0241	0.0289	0.0316	402.4993	0.3423	0.3762
chain2	0.0159	0.0182	0.0245	0.0242	0.0288	0.0306	436.8984	0.9846	0.2457
chain3	0.0143	0.0173	0.0243	0.0240	0.0286	0.0313	466.9279	0.0053	0.3989
chain4	0.0119	0.0156	0.0236	0.0230	0.0284	0.0319	306.0887	1.3212	0.1667
chain5	0.0126	0.0173	0.0244	0.0239	0.0285	0.0303	106.6590	1.1211	0.2128
chain6	0.0127	0.0163	0.0244	0.0239	0.0287	0.0319	109.2201	-2.5327	0.0161
chain7	0.0142	0.0163	0.0241	0.0236	0.0283	0.0311	207.4124	0.5011	0.3519
chain8	0.0136	0.0171	0.0238	0.0235	0.0283	0.0315	130.0742	3.4289	0.0011
chain9	0.0134	0.0167	0.0242	0.0238	0.0287	0.0305	348.1027	-1.2630	0.1797
chain10	0.0101	0.0168	0.0243	0.0239	0.0286	0.0304	271.0103	-0.1712	0.3931



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



Grey Lines are Draws from Posterior, Blue Line is Observed Data (from JHU CSSE COVID-19 Data)

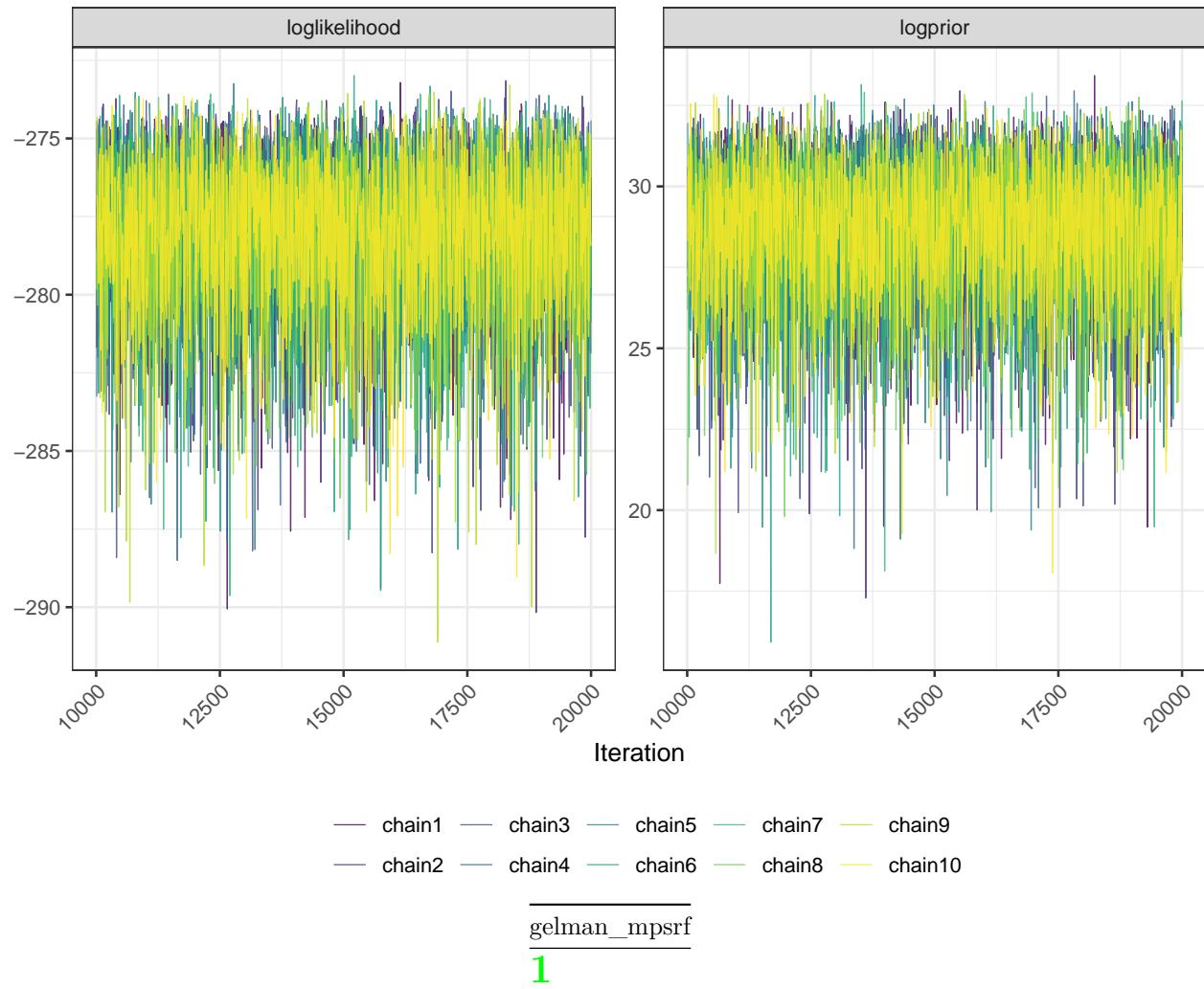
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1165	3.6339	29.1270	24.8186	35.8351	56.4146	1227.6263	-2.8443	0.0070
x2	30.0566	34.1408	36.8707	38.7300	47.6127	228.7261	2487.6128	2.9979	0.0045
x3	40.4243	44.2511	51.2170	57.4319	228.9463	229.9632	772.8902	4.9339	0.0000
x4	214.0069	216.3103	225.9669	225.1727	229.8739	229.9986	3334.7344	1.5497	0.1201
y1	0.0007	0.6646	2.1776	2.1423	3.4225	4.9745	4324.0505	-3.9431	0.0002
y2	0.0644	2.6185	9.0076	7.7989	9.6571	9.9935	1449.2537	-2.9583	0.0050
y3	0.1128	5.2116	9.1800	8.5611	9.7063	10.0218	949.8118	-3.9560	0.0002
y4	0.0000	0.0510	1.8915	2.1967	5.9401	7.8225	1607.8363	-6.3860	0.0000
y5	0.0003	0.0588	1.3863	1.6465	4.5664	8.0511	6141.3031	1.8341	0.0742
Ne1	0.8092	0.8994	0.9977	0.9977	1.0936	1.1910	9106.8920	-0.9349	0.2577
Ne2	0.8247	0.9004	0.9987	0.9986	1.0946	1.1770	9067.4035	-0.6440	0.3242
Ne3	0.7919	0.8817	0.9763	0.9764	1.0749	1.1868	9132.7278	-0.1064	0.3967
Ne4	0.8170	0.9002	0.9966	0.9956	1.0895	1.1894	9244.4877	-2.8247	0.0074
Ne5	0.7696	0.8922	0.9906	0.9898	1.0848	1.1657	9017.0345	-0.2867	0.3829
Ne6	0.8391	0.9354	1.0311	1.0306	1.1264	1.2190	7920.3876	-0.8833	0.2701
Ne7	0.8327	0.8998	0.9978	0.9983	1.0965	1.2004	6309.1882	-1.2891	0.1738
Ne8	0.8237	0.9020	0.9980	0.9982	1.0950	1.1897	6026.0902	-1.1554	0.2047
Ne9	0.8295	0.9196	1.0158	1.0157	1.1130	1.2146	5825.9917	0.7330	0.3050

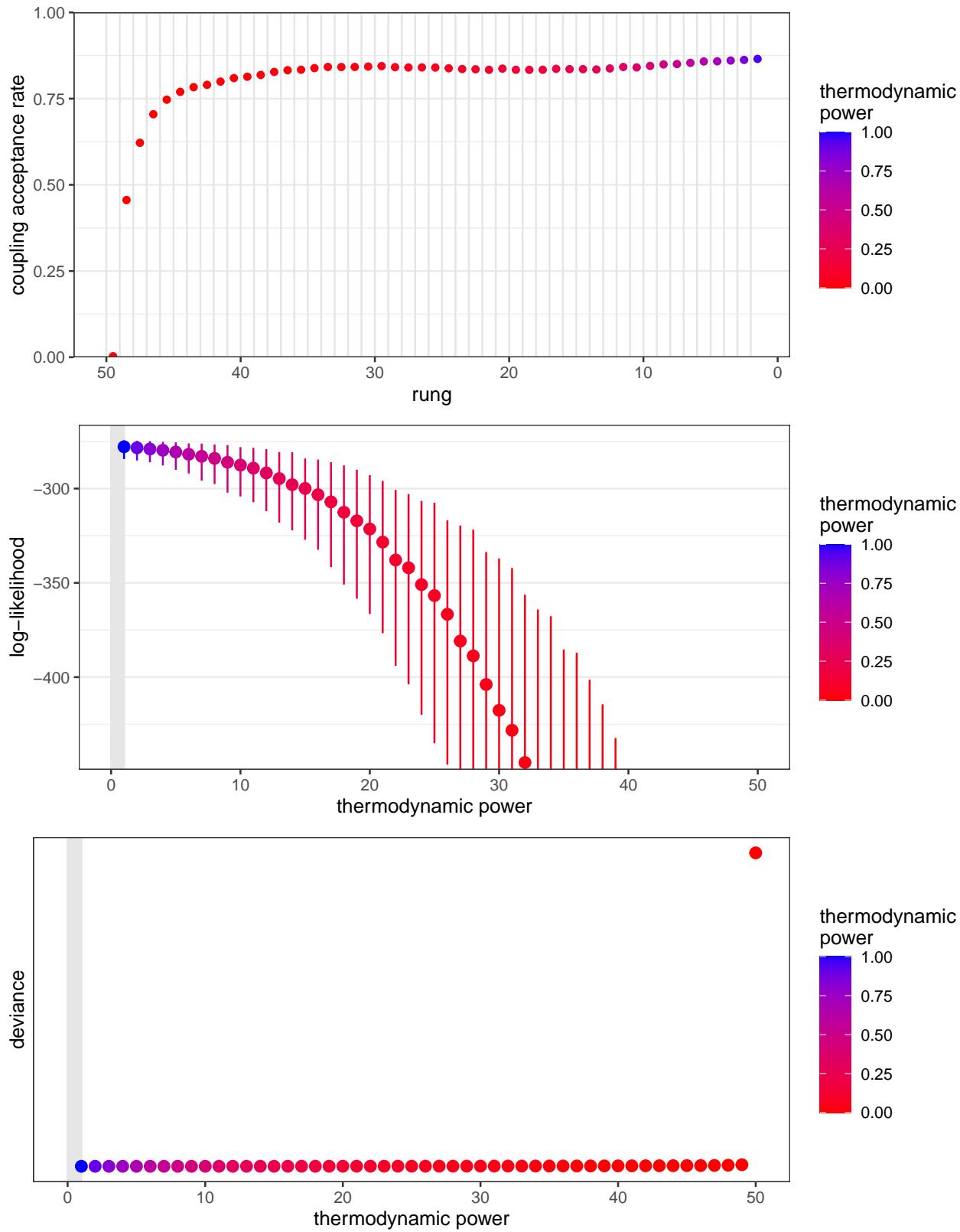
# DNK1 with Standard Input

## Fit Diagnostics

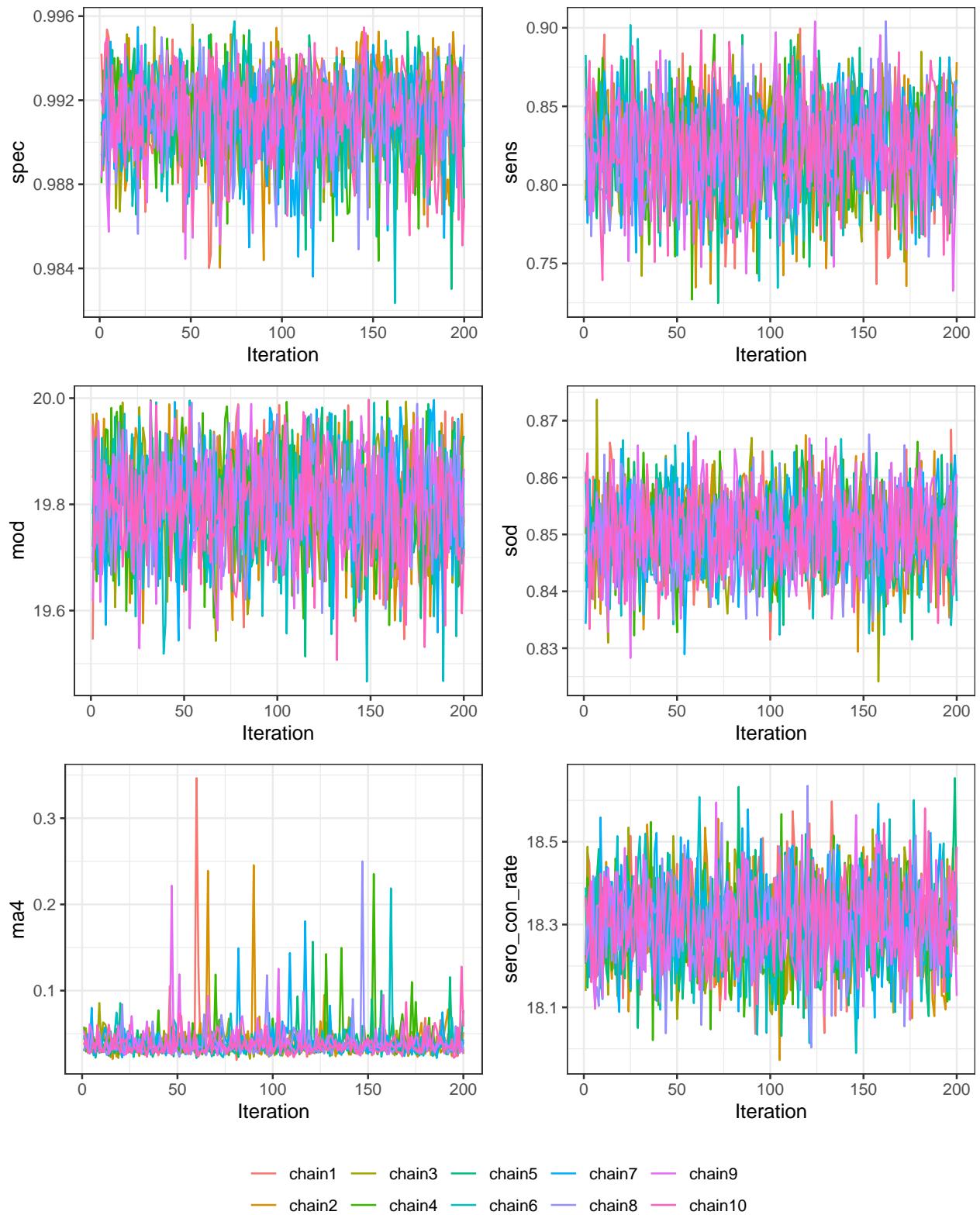
### Log Likelihood & Prior Plot



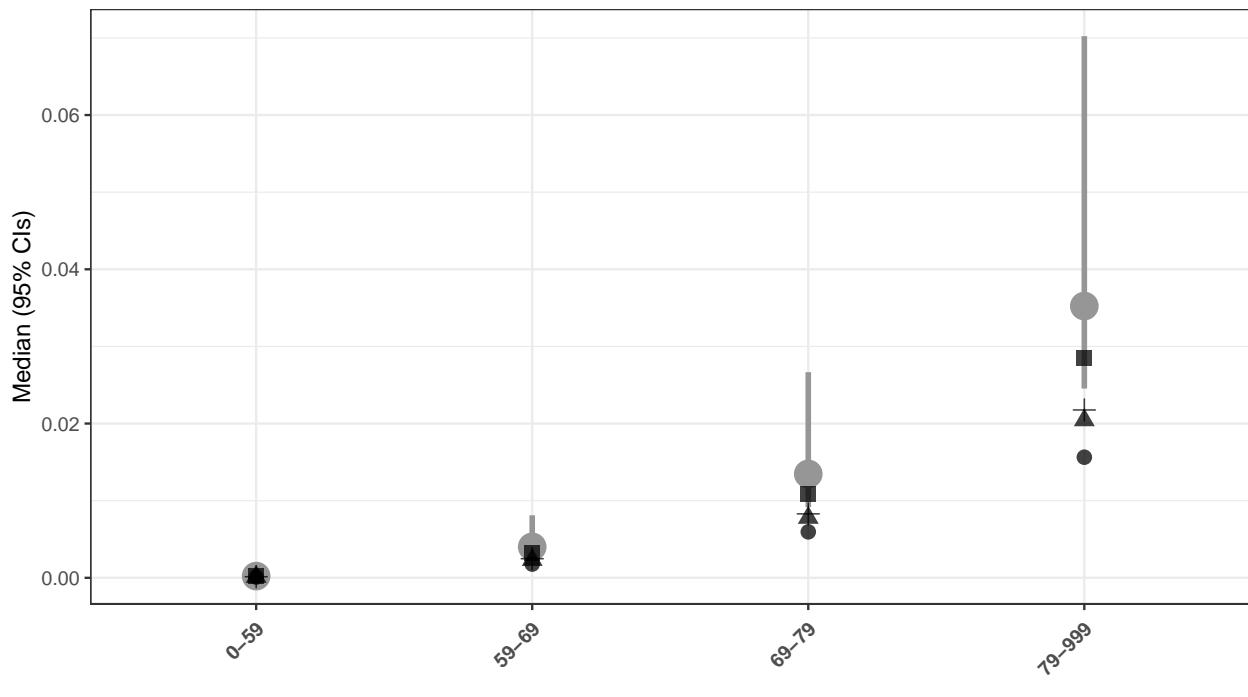
### Metropolis Coupling Acceptance Plot



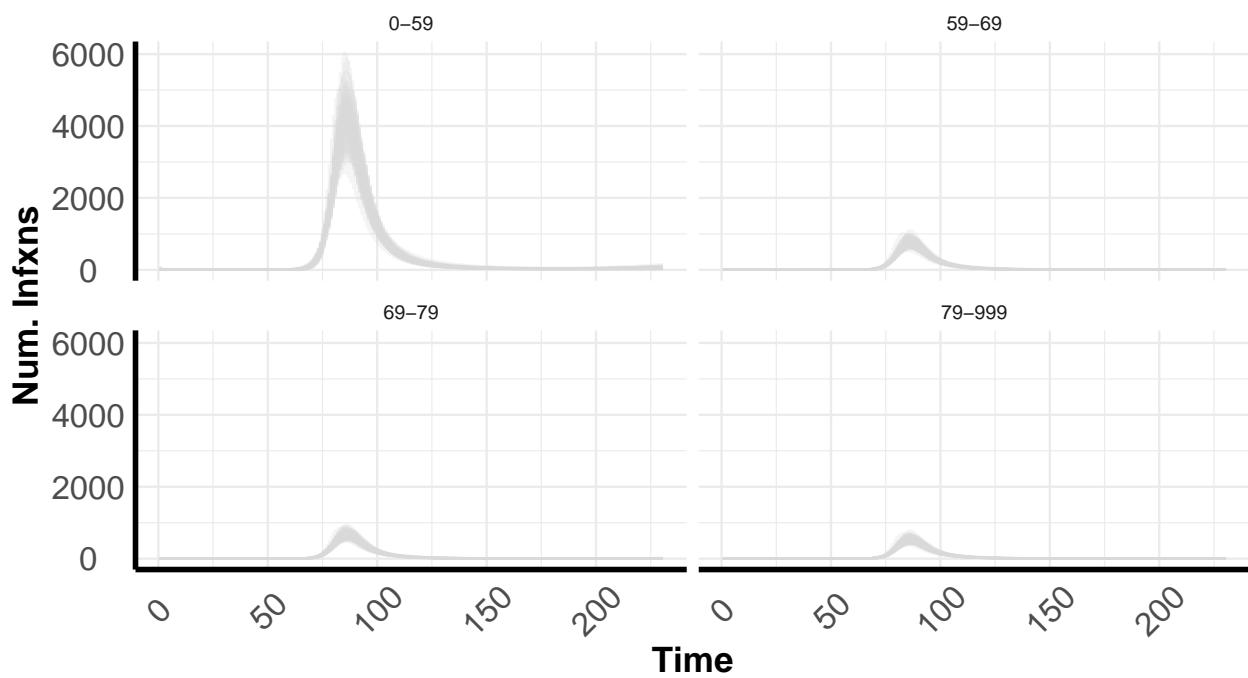
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



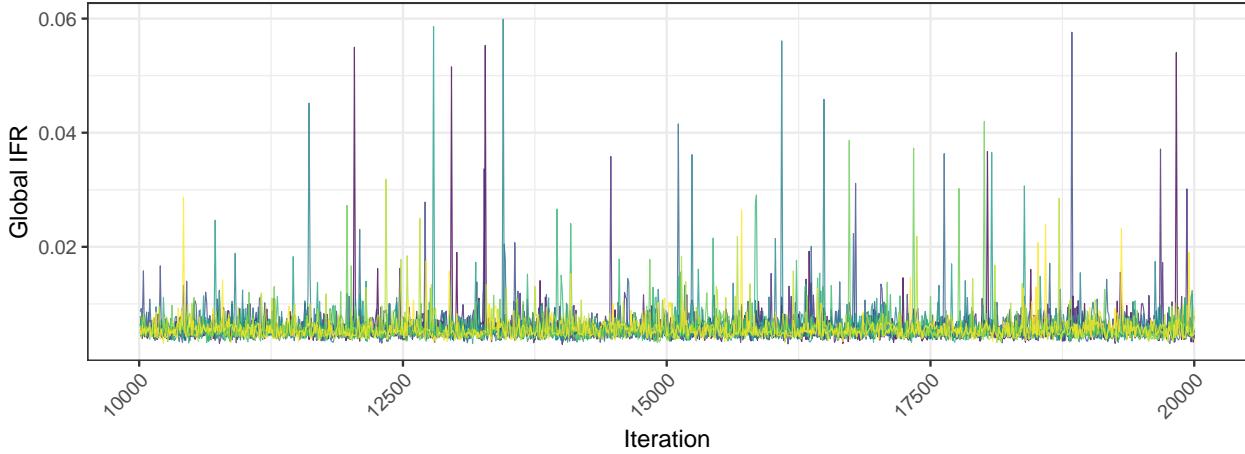
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-59	ma1	0.0001	0.0001	0.0002	0.0002	0.0005	0.0030	9213.245	0.3267	0.3782
59-69	ma2	0.0017	0.0026	0.0040	0.0044	0.0081	0.0548	8618.953	0.7337	0.3048
69-79	ma3	0.0071	0.0092	0.0135	0.0147	0.0267	0.1664	8507.985	0.6755	0.3176
79-999	ma4	0.0194	0.0245	0.0352	0.0386	0.0702	0.3998	7743.068	0.1729	0.3930

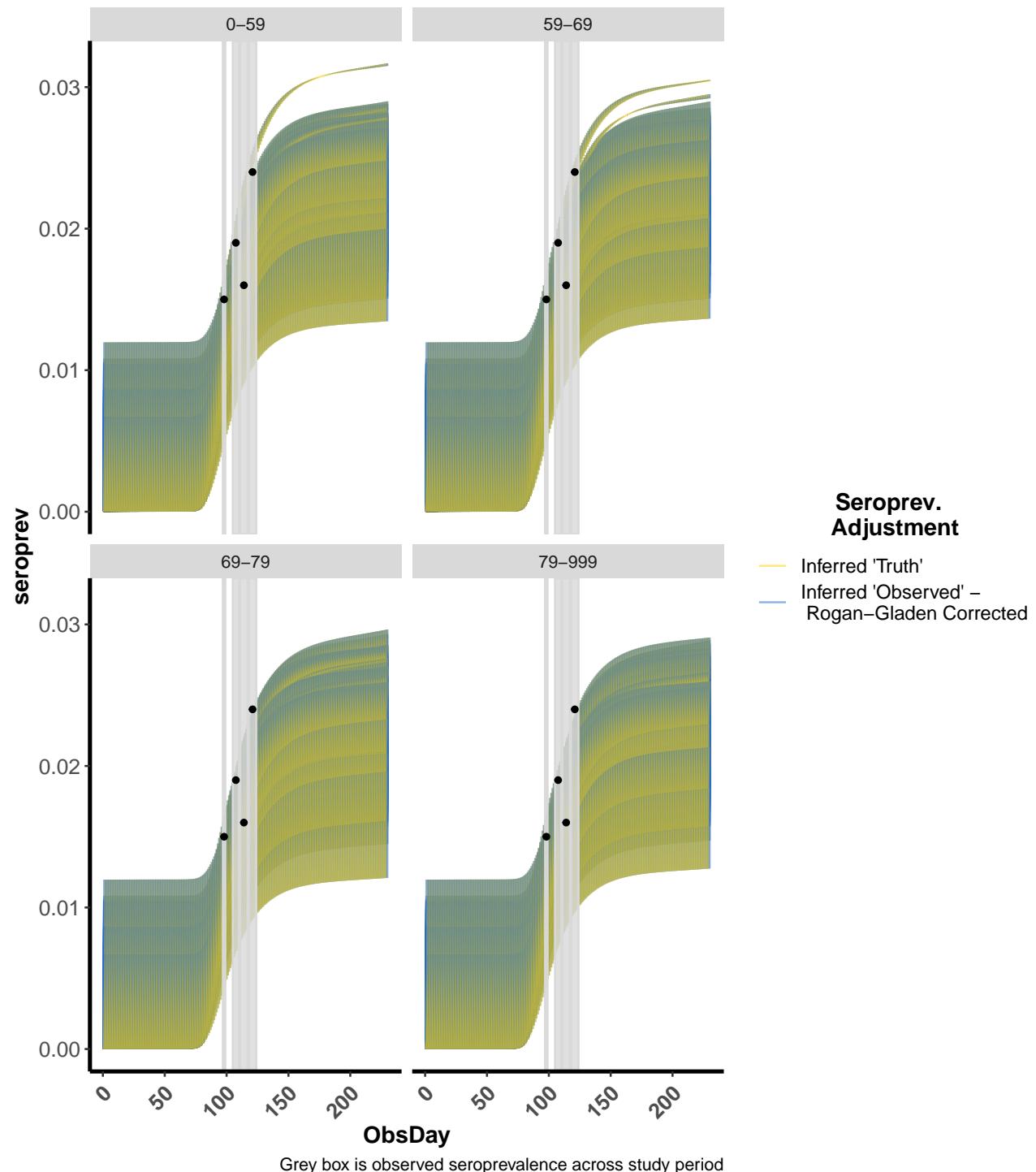
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0029	0.0037	0.0052	0.0057	0.0103	0.0599	8912.685	-0.5364	0.3455

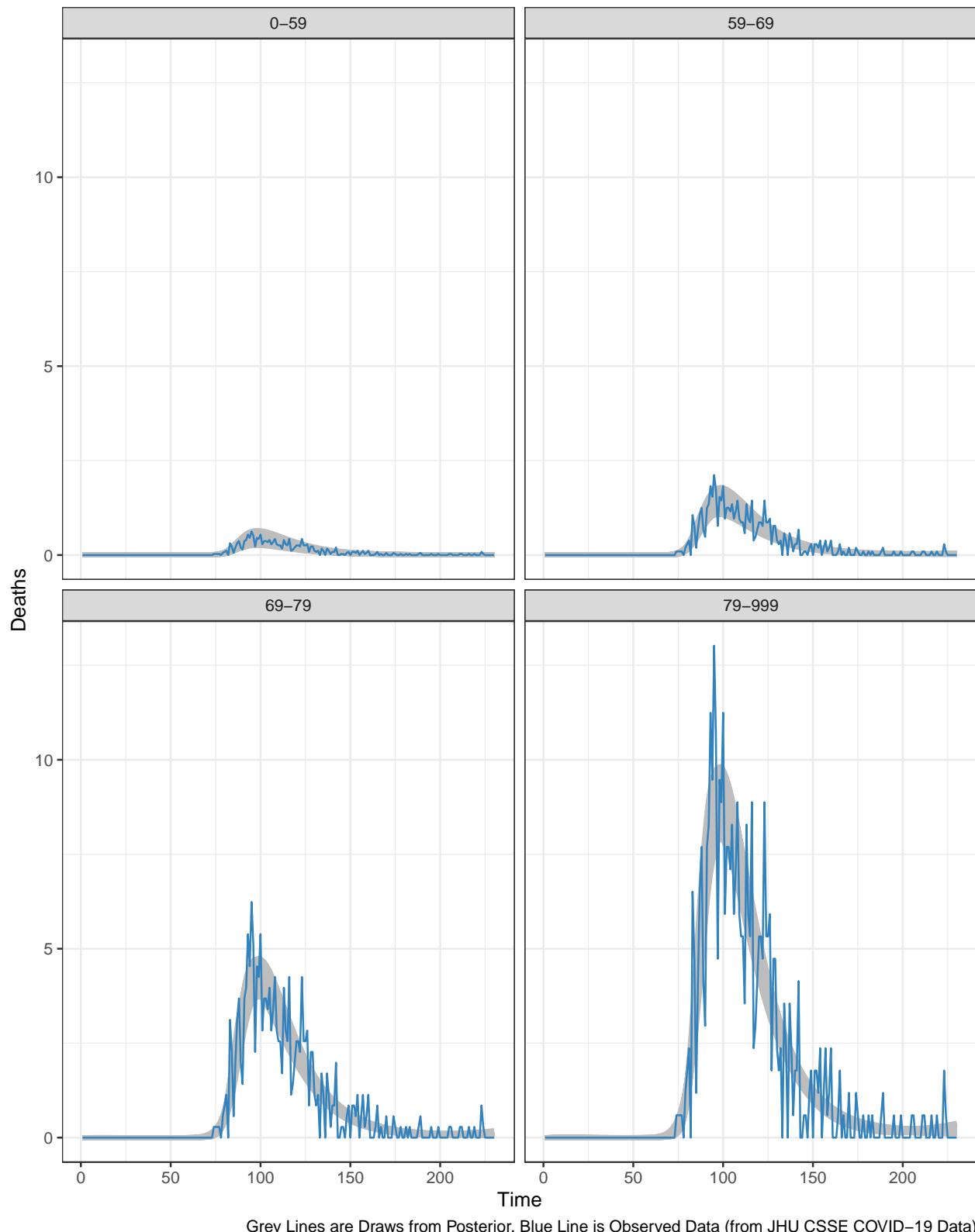
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0029	0.0037	0.0052	0.0058	0.0095	0.0553	1000.0000	-0.9750	0.2480
chain2	0.0031	0.0037	0.0052	0.0057	0.0103	0.0371	1000.0000	-0.4731	0.3567
chain3	0.0030	0.0036	0.0053	0.0058	0.0102	0.0576	1000.0000	2.6136	0.0131
chain4	0.0031	0.0038	0.0054	0.0058	0.0105	0.0415	808.4513	-2.8160	0.0076
chain5	0.0033	0.0036	0.0052	0.0057	0.0103	0.0599	896.4605	-1.2182	0.1900
chain6	0.0031	0.0037	0.0052	0.0057	0.0102	0.0586	906.4588	1.6495	0.1024
chain7	0.0031	0.0037	0.0053	0.0058	0.0112	0.0291	276.5013	-1.6052	0.1100
chain8	0.0032	0.0038	0.0052	0.0056	0.0096	0.0420	1000.0000	-0.5208	0.3484
chain9	0.0032	0.0038	0.0053	0.0058	0.0111	0.0319	1000.0000	-0.2964	0.3818
chain10	0.0030	0.0037	0.0052	0.0056	0.0101	0.0287	604.9387	0.8236	0.2842



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



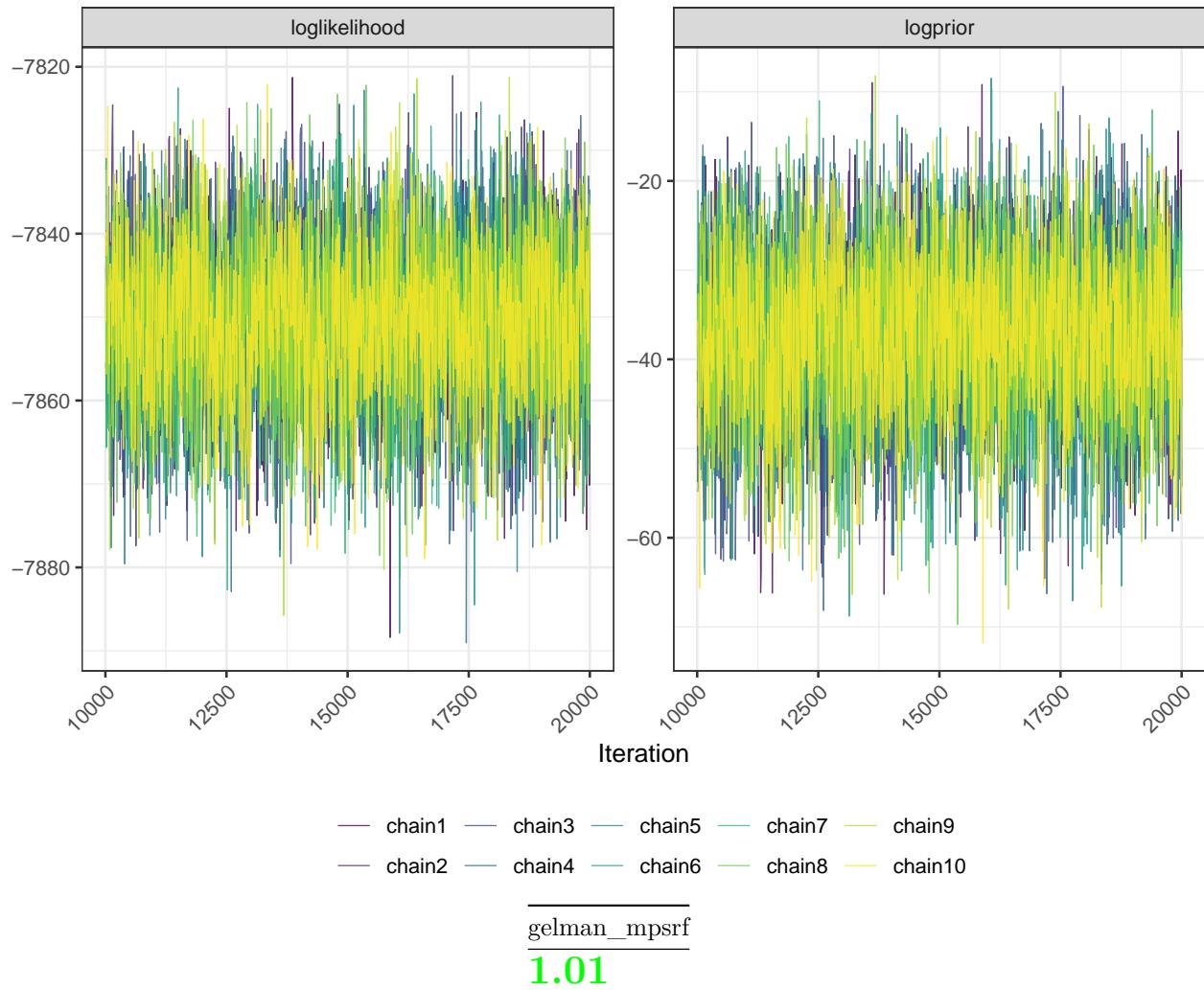
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1698	2.3608	59.9112	55.0088	71.7795	79.9405	1581.655	1.9982	0.0542
x2	66.0097	73.7405	81.1201	81.3288	89.3676	97.5255	3263.421	0.2198	0.3894
x3	83.9057	89.3331	98.1272	98.8567	112.4216	143.5017	1704.958	0.1961	0.3913
x4	214.0024	214.3988	222.0303	222.0299	229.5704	229.9983	4930.816	-0.5011	0.3519
y1	0.0003	0.0790	1.7237	1.9054	4.8323	7.1634	4087.228	-0.2840	0.3832
y2	0.0007	0.0741	1.7237	2.0467	5.6559	7.7578	2970.985	-0.2762	0.3840
y3	4.7781	6.6927	8.2924	8.1692	8.9654	9.3619	2559.962	0.2057	0.3906
y4	1.8729	5.9295	7.6483	7.5426	8.5499	9.2265	2086.634	-0.0198	0.3989
y5	0.8769	2.8767	4.3138	4.2707	5.4389	6.5618	5544.601	-0.0548	0.3983
Ne1	0.8270	0.9067	1.0008	1.0011	1.0993	1.1973	10000.000	1.3610	0.1580
Ne2	0.7992	0.9027	1.0001	0.9997	1.0953	1.1816	10000.000	0.4630	0.3584
Ne3	0.8155	0.9041	0.9997	0.9993	1.0945	1.1971	10000.000	-2.8253	0.0074
Ne4	0.8208	0.9044	1.0002	1.0005	1.0980	1.2207	9692.254	0.9358	0.2575

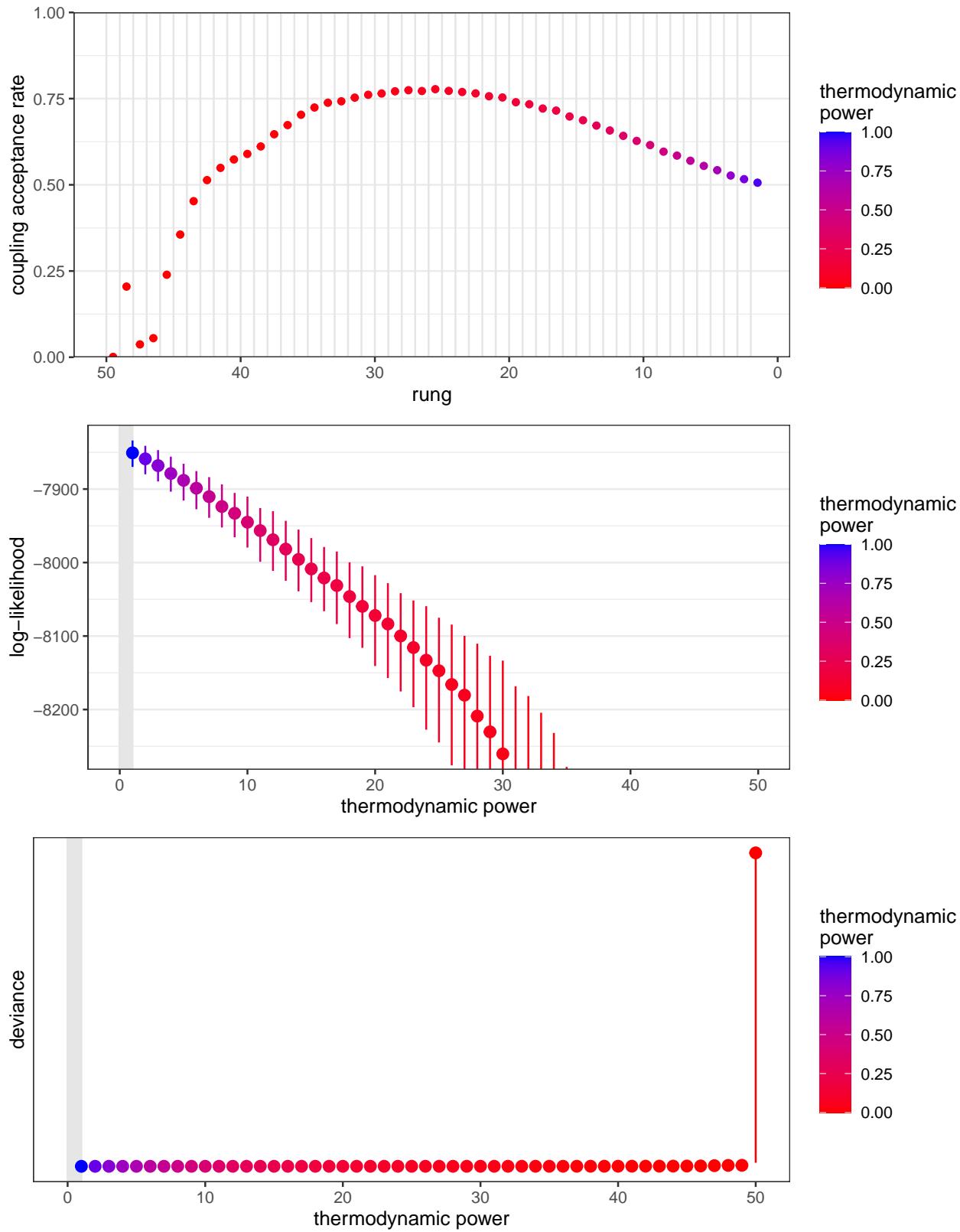
# ESP1-2 with Standard Input

## Fit Diagnostics

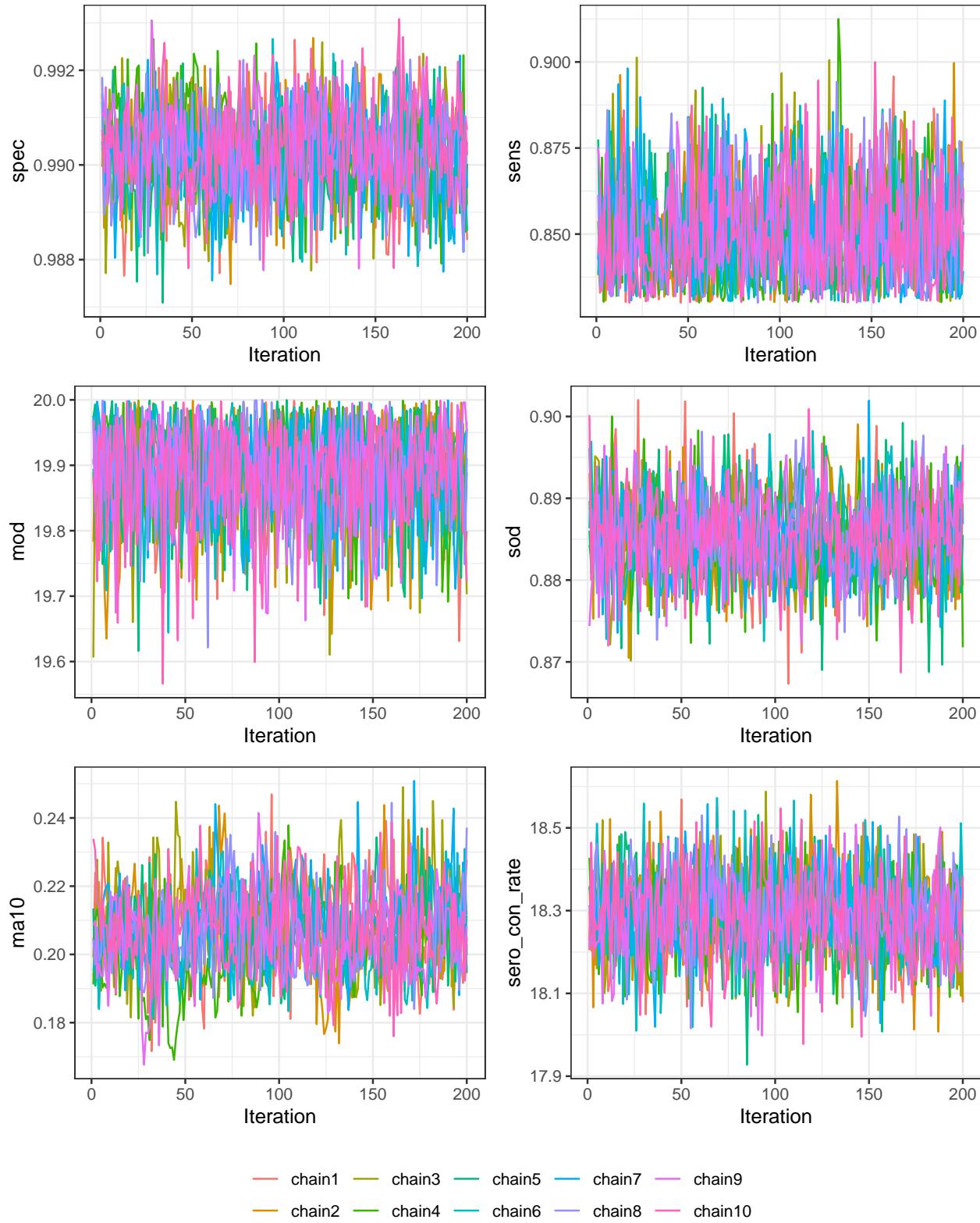
### Log Likelihood & Prior Plot



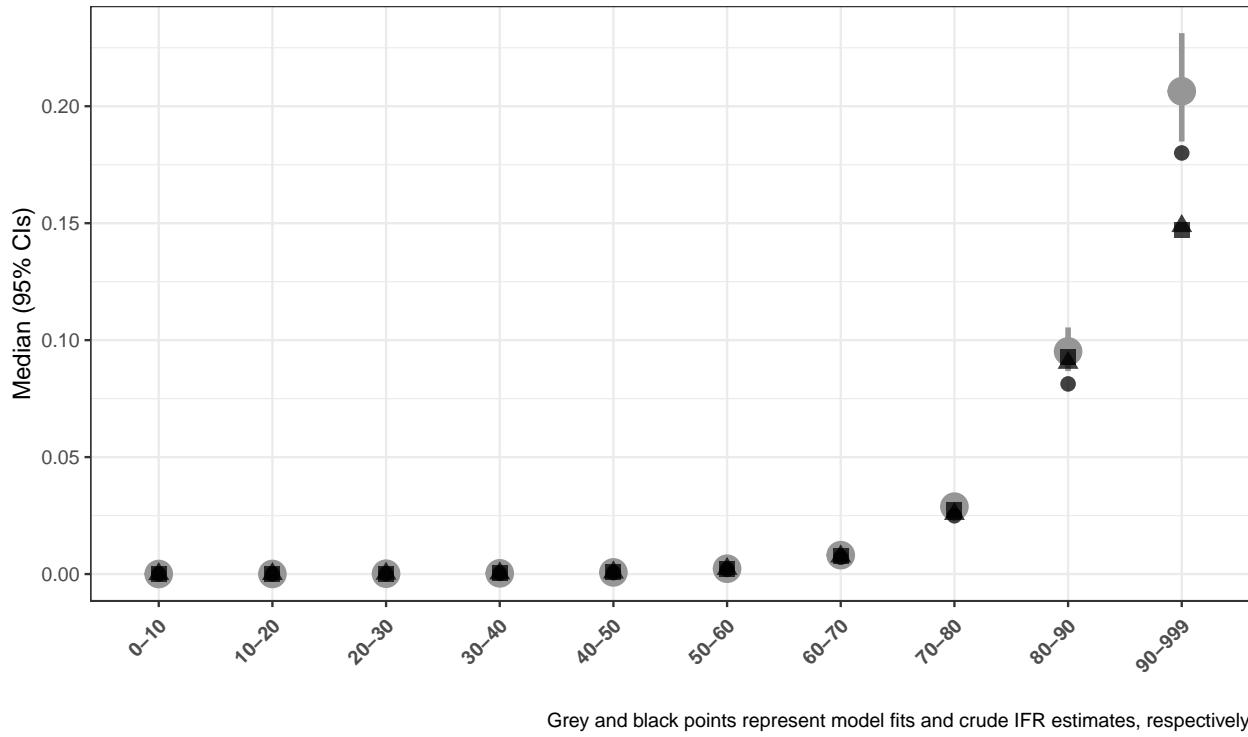
### Metropolis Coupling Acceptance Plot



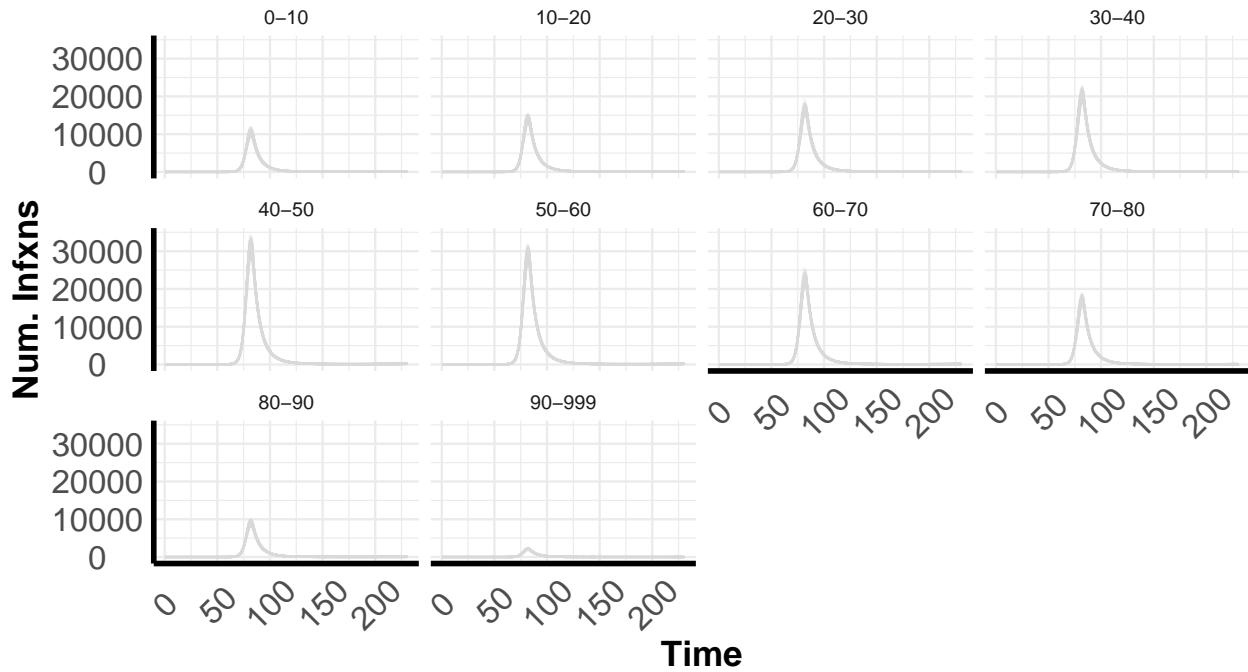
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



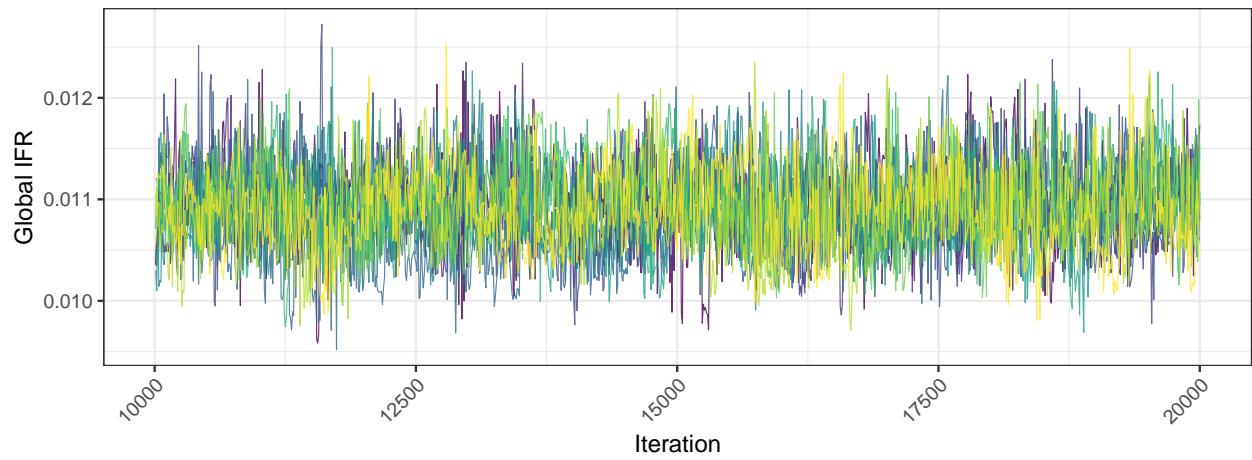
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-10	ma1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	9213.2647	-0.4861	0.3545
10-20	ma2	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	9594.7794	0.7315	0.3053
20-30	ma3	0.0001	0.0001	0.0001	0.0001	0.0002	0.0002	9574.0369	0.6116	0.3309
30-40	ma4	0.0002	0.0002	0.0003	0.0003	0.0004	0.0005	6565.9176	1.1036	0.2170
40-50	ma5	0.0006	0.0006	0.0007	0.0007	0.0008	0.0009	4129.2039	0.9988	0.2423
50-60	ma6	0.0019	0.0021	0.0023	0.0023	0.0025	0.0028	2494.8963	0.7385	0.3037
60-70	ma7	0.0070	0.0075	0.0081	0.0081	0.0088	0.0096	2061.5251	0.8221	0.2846
70-80	ma8	0.0252	0.0266	0.0288	0.0289	0.0314	0.0341	1911.2753	1.9644	0.0579
80-90	ma9	0.0810	0.0868	0.0952	0.0955	0.1054	0.1167	1229.8460	1.0009	0.2418
90-999	ma10	0.1677	0.1849	0.2064	0.2068	0.2313	0.2758	775.6284	1.4044	0.1488

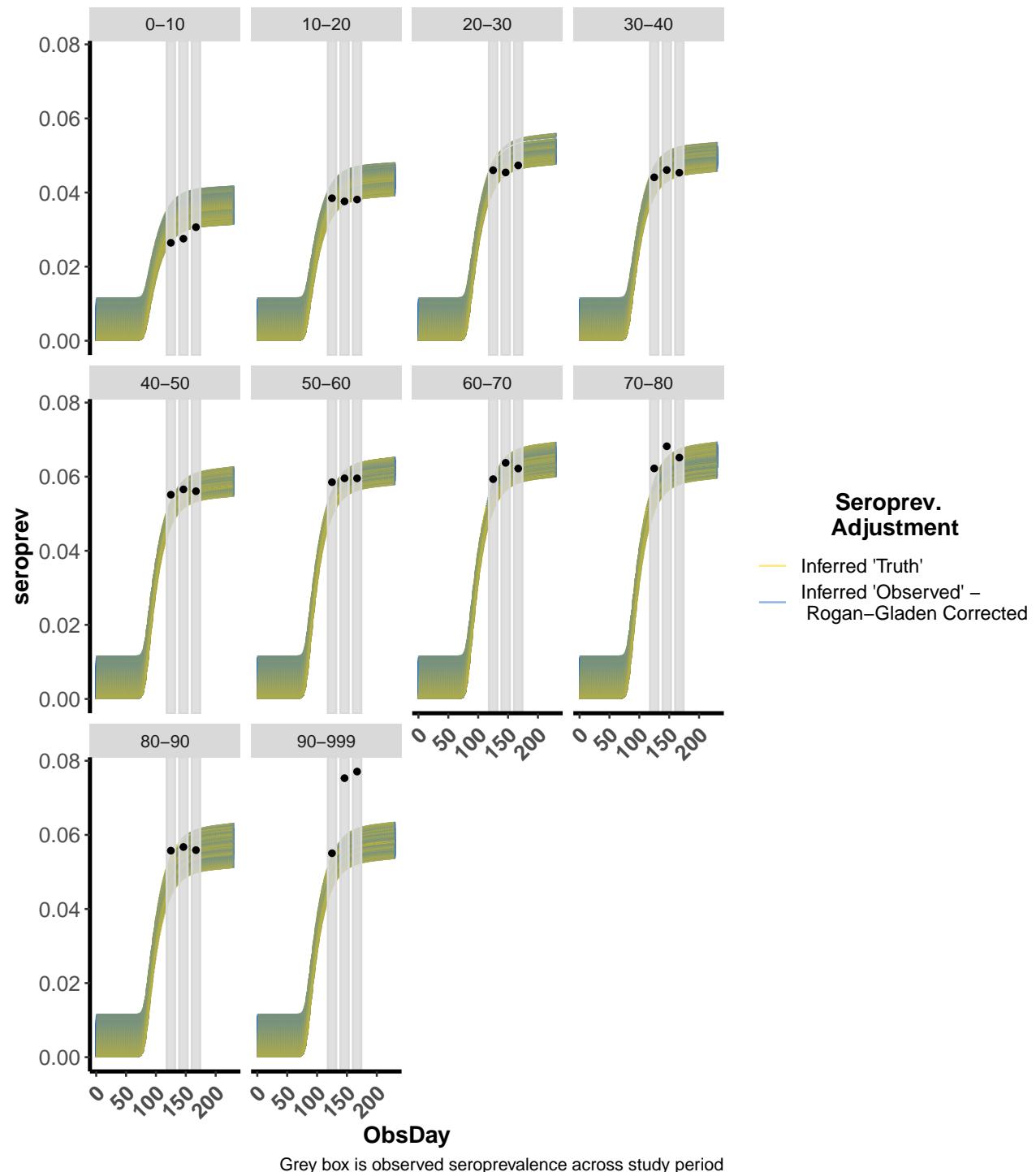
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0095	0.0102	0.0109	0.0109	0.0118	0.0127	3226.299	0.9611	0.2514

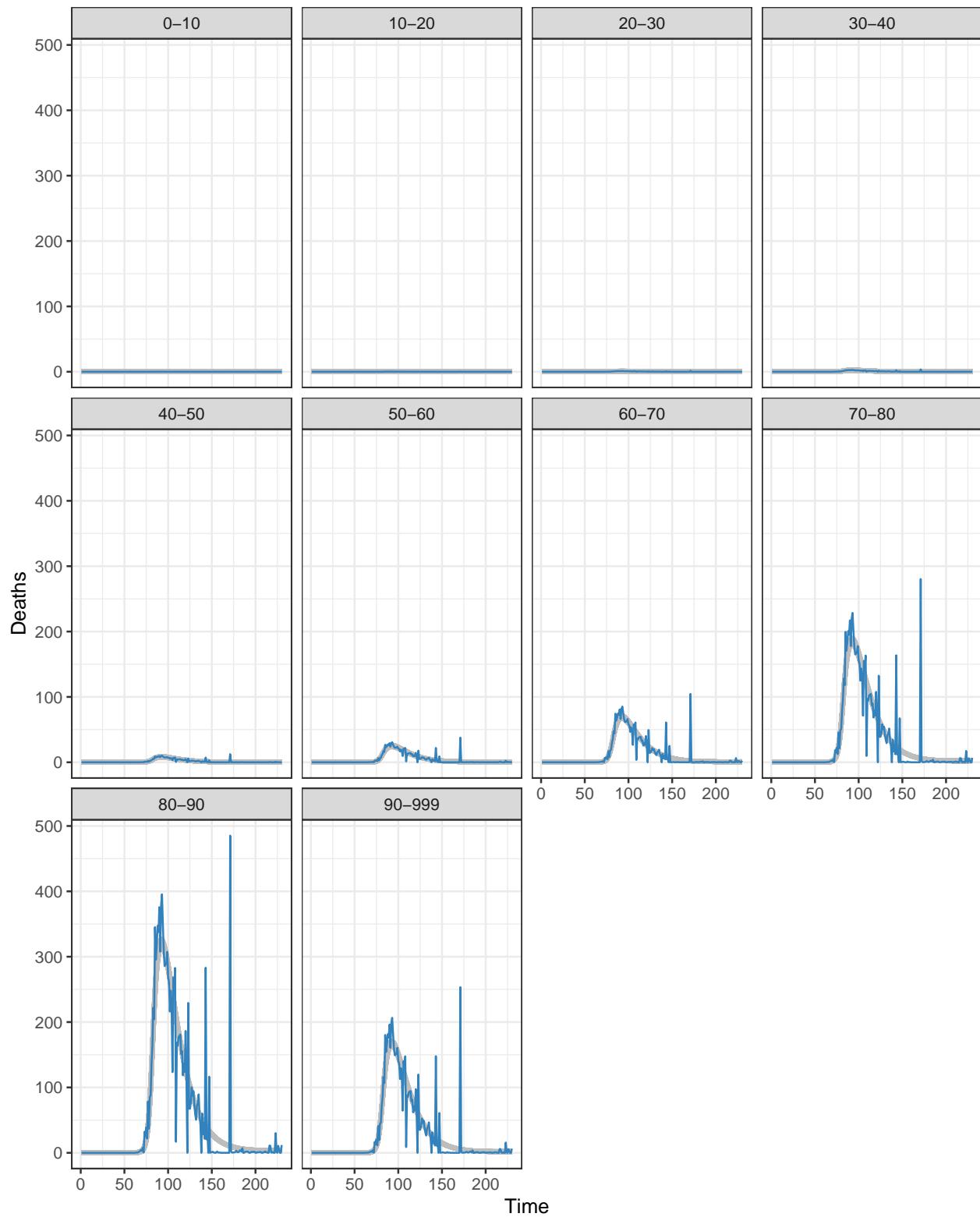
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0096	0.0102	0.0110	0.0110	0.0118	0.0123	241.2726	0.5142	0.3495
chain2	0.0099	0.0102	0.0109	0.0109	0.0117	0.0124	88.9459	2.3194	0.0271
chain3	0.0098	0.0102	0.0109	0.0109	0.0118	0.0127	285.4083	0.1111	0.3965
chain4	0.0095	0.0100	0.0108	0.0108	0.0116	0.0122	81.3958	-0.6557	0.3218
chain5	0.0101	0.0103	0.0109	0.0110	0.0118	0.0122	205.4790	-2.3788	0.0236
chain6	0.0097	0.0102	0.0109	0.0109	0.0118	0.0123	180.6829	0.0882	0.3974
chain7	0.0097	0.0103	0.0109	0.0110	0.0118	0.0125	213.3210	0.7629	0.2982
chain8	0.0100	0.0103	0.0109	0.0110	0.0118	0.0121	185.8362	1.8079	0.0778
chain9	0.0097	0.0101	0.0109	0.0109	0.0118	0.0124	145.1542	-1.1269	0.2114
chain10	0.0098	0.0102	0.0109	0.0109	0.0117	0.0125	77.9473	-0.4658	0.3579



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



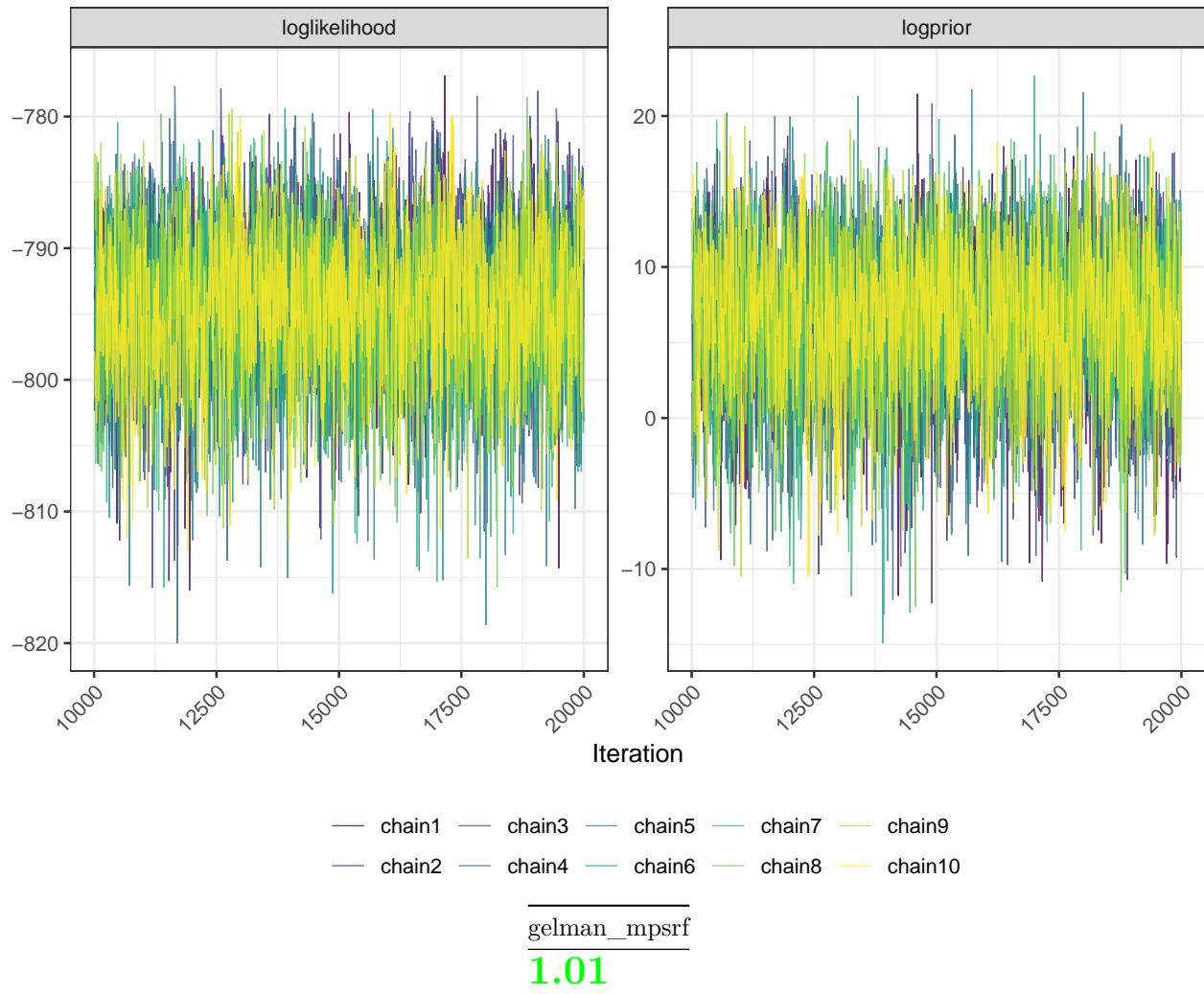
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.0333	55.1740	65.5033	64.7392	71.4940	75.5186	367.2951	5.0512	0.0000
x2	79.9346	81.3675	83.0012	82.9480	84.2449	85.1877	491.2376	-2.3075	0.0278
x3	82.4294	84.2490	85.3808	85.3959	86.7061	88.2160	327.4594	-1.5291	0.1239
x4	214.0002	214.1135	217.5934	218.9052	229.1537	229.9894	215.4552	2.2876	0.0291
y1	0.0004	0.0373	0.8575	1.0450	2.9434	4.6127	5320.6532	-2.5149	0.0169
y2	0.0233	2.3175	7.2689	6.8522	9.5101	10.8737	323.1977	5.1702	0.0000
y3	11.7922	11.8931	12.0084	12.0069	12.1122	12.2017	499.1269	1.6715	0.0987
y4	11.3609	11.5568	11.7270	11.7229	11.8584	12.0555	329.1483	0.8532	0.2772
y5	6.2864	6.4820	6.7061	6.7246	7.0565	7.3191	613.5405	1.7861	0.0809
Ne1	0.5078	0.5659	0.6316	0.6320	0.6996	0.7575	7916.7768	0.6063	0.3320
Ne10	0.8875	0.9516	1.0433	1.0429	1.1317	1.2347	1064.2694	-1.3414	0.1623
Ne2	0.6507	0.7012	0.7631	0.7633	0.8258	0.8832	6932.7765	0.0247	0.3988
Ne3	0.7936	0.8419	0.9076	0.9076	0.9740	1.0483	8406.9642	0.4868	0.3544
Ne4	0.7633	0.8196	0.8801	0.8806	0.9434	0.9993	7738.2797	0.1876	0.3920
Ne5	0.9482	0.9984	1.0565	1.0570	1.1158	1.1694	5633.1411	-0.9741	0.2482
Ne6	0.9857	1.0535	1.1121	1.1120	1.1706	1.2240	6058.7139	-0.5025	0.3516
Ne7	1.0254	1.0842	1.1441	1.1448	1.2079	1.2578	5258.4877	-0.0288	0.3988
Ne8	1.0384	1.0981	1.1666	1.1665	1.2347	1.2911	3225.8795	-1.3533	0.1597
Ne9	0.8770	0.9571	1.0321	1.0321	1.1102	1.1842	2061.6010	-0.4149	0.3660

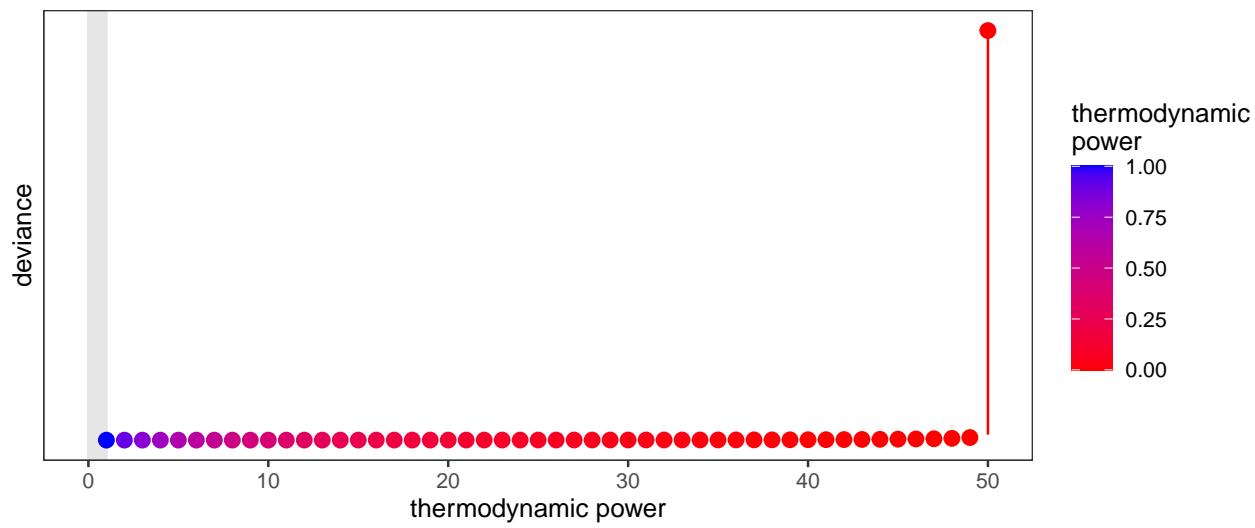
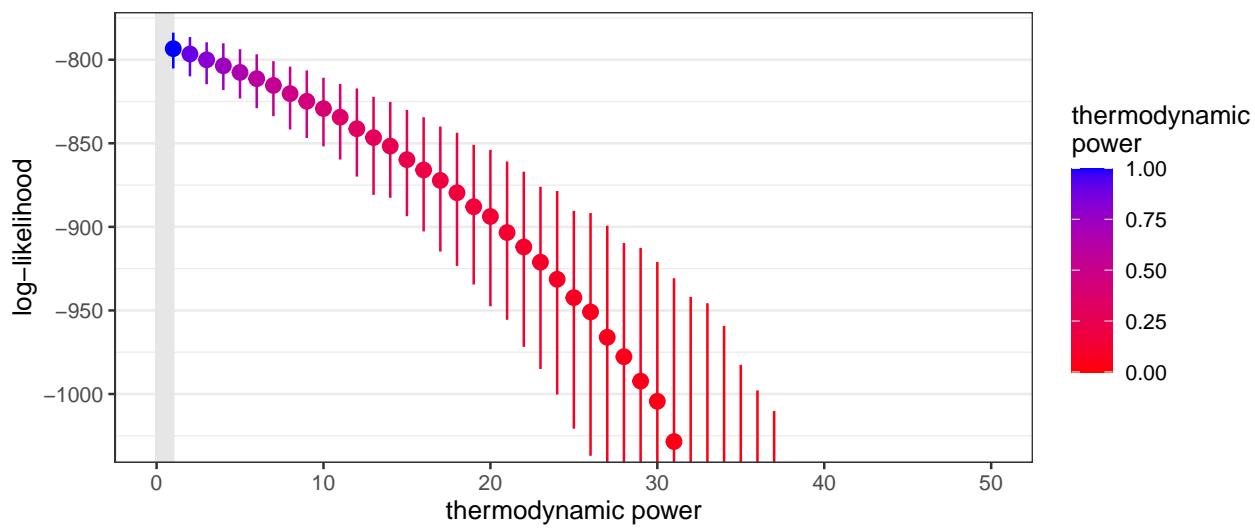
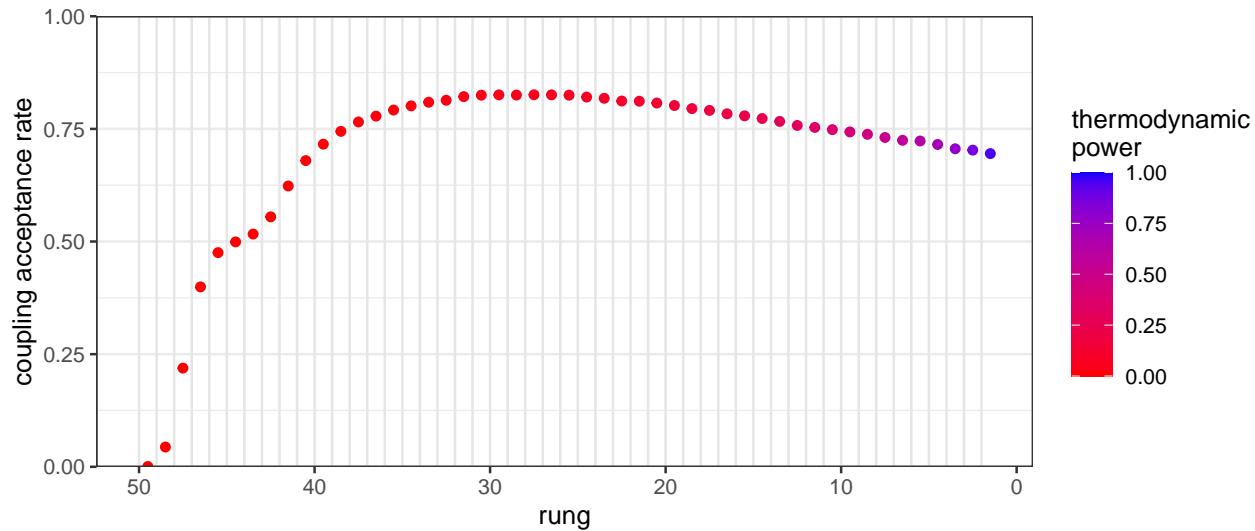
# GBR3 with Standard Input

## Fit Diagnostics

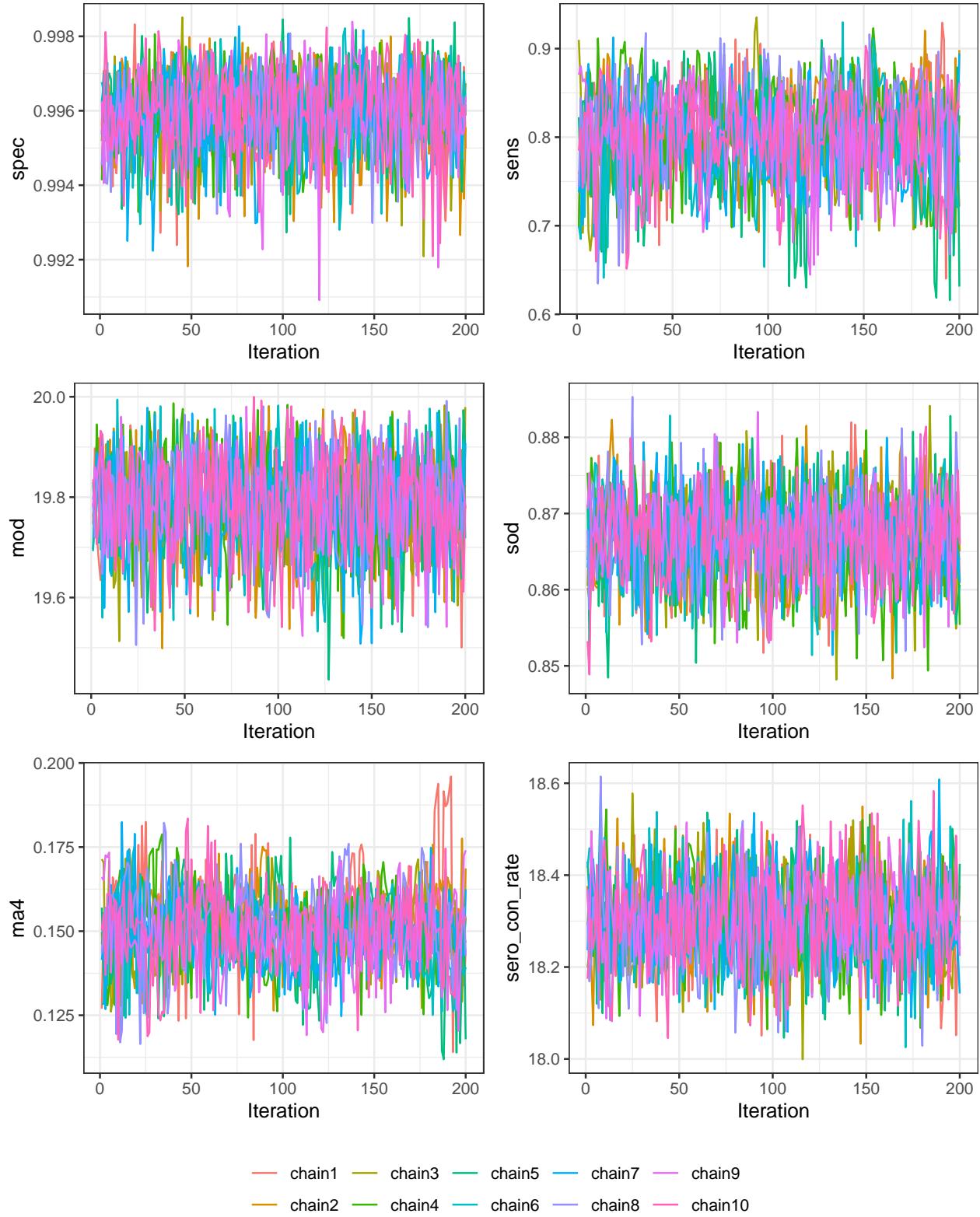
### Log Likelihood & Prior Plot



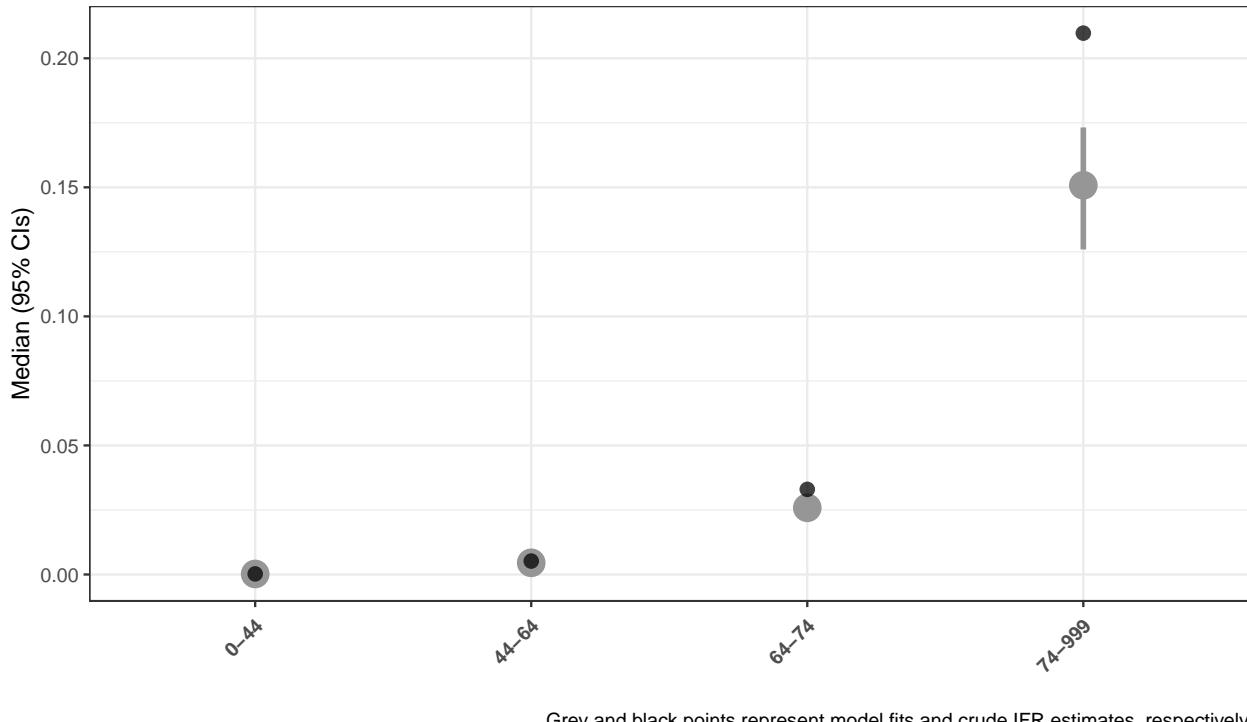
### Metropolis Coupling Acceptance Plot



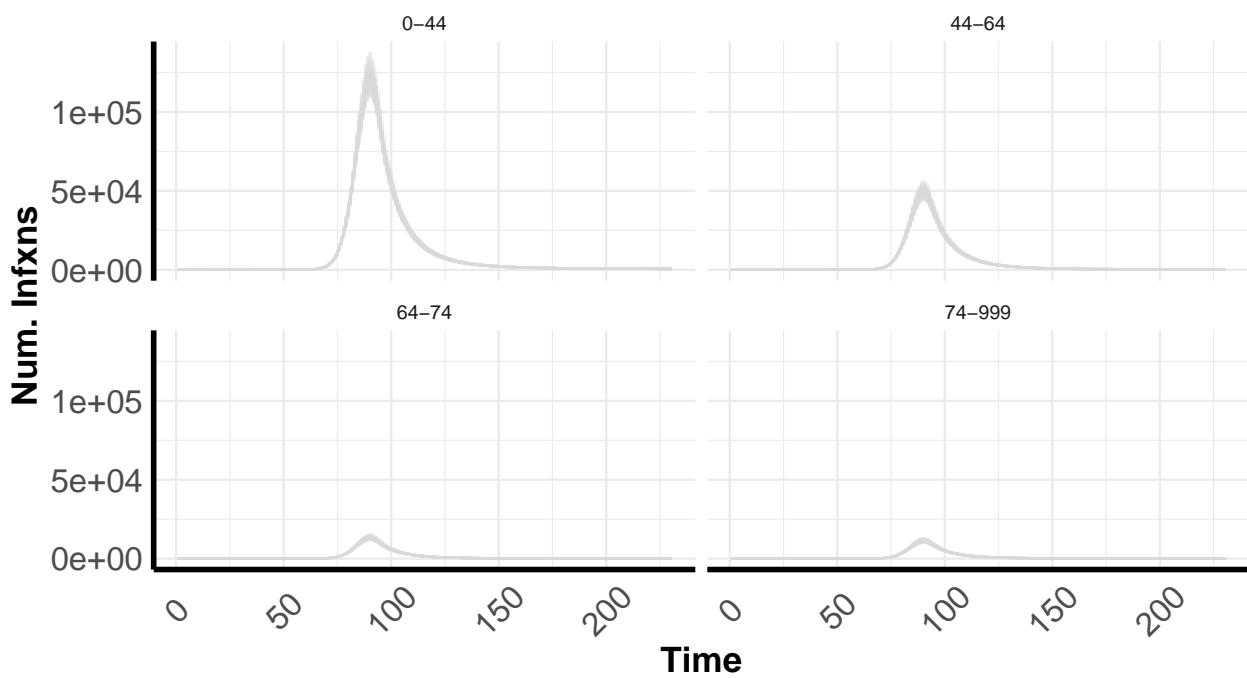
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



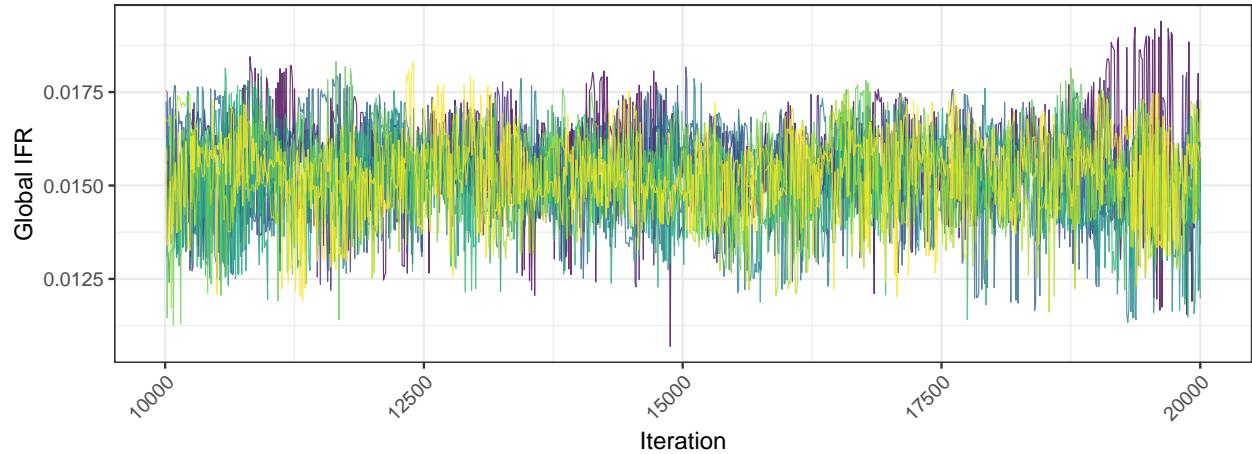
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-44	ma1	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	1607.3900	3.3694	0.0014
44-64	ma2	0.0033	0.0038	0.0045	0.0045	0.0051	0.0056	1084.3368	3.4200	0.0012
64-74	ma3	0.0185	0.0216	0.0258	0.0258	0.0297	0.0329	1166.2836	3.0156	0.0042
74-999	ma4	0.1024	0.1259	0.1508	0.1505	0.1732	0.1960	675.0185	6.3374	0.0000

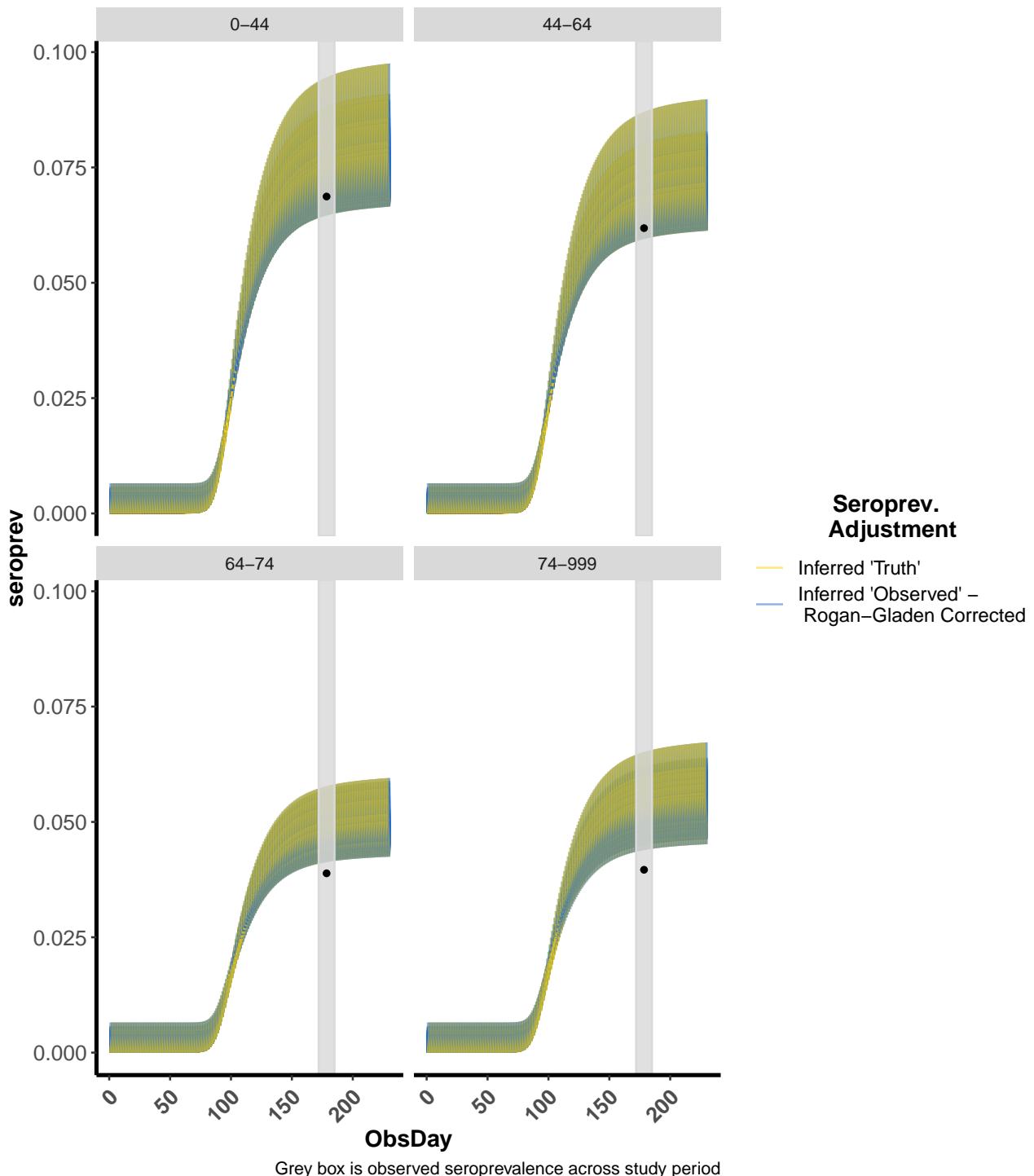
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0107	0.0129	0.0154	0.0153	0.0174	0.0194	2318.901	0.9294	0.259

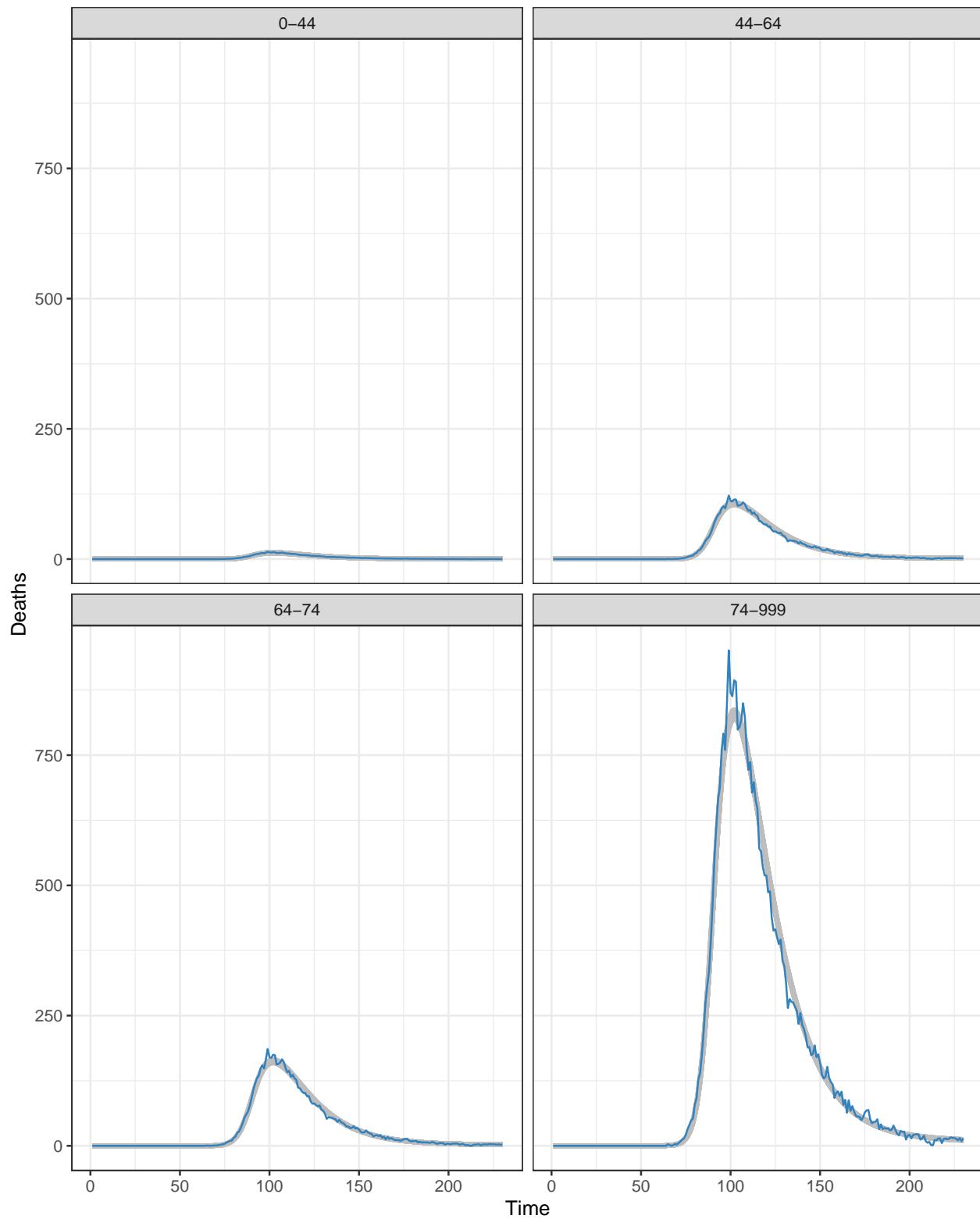
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0107	0.0130	0.0157	0.0157	0.0185	0.0194	334.0539	1.0124	0.2390
chain2	0.0122	0.0137	0.0155	0.0155	0.0174	0.0180	333.8239	-3.1592	0.0027
chain3	0.0124	0.0131	0.0152	0.0152	0.0171	0.0182	125.2605	-2.9063	0.0058
chain4	0.0116	0.0130	0.0155	0.0154	0.0174	0.0180	176.8807	3.2020	0.0024
chain5	0.0113	0.0125	0.0153	0.0152	0.0172	0.0179	77.8950	-0.3398	0.3766
chain6	0.0116	0.0127	0.0149	0.0150	0.0170	0.0176	93.2928	-0.4280	0.3640
chain7	0.0114	0.0129	0.0150	0.0151	0.0172	0.0181	232.9711	1.5296	0.1238
chain8	0.0113	0.0130	0.0155	0.0155	0.0174	0.0183	231.5991	0.3521	0.3750
chain9	0.0116	0.0128	0.0152	0.0151	0.0171	0.0176	180.1309	1.8058	0.0781
chain10	0.0119	0.0130	0.0154	0.0153	0.0174	0.0183	211.3019	0.4246	0.3646



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



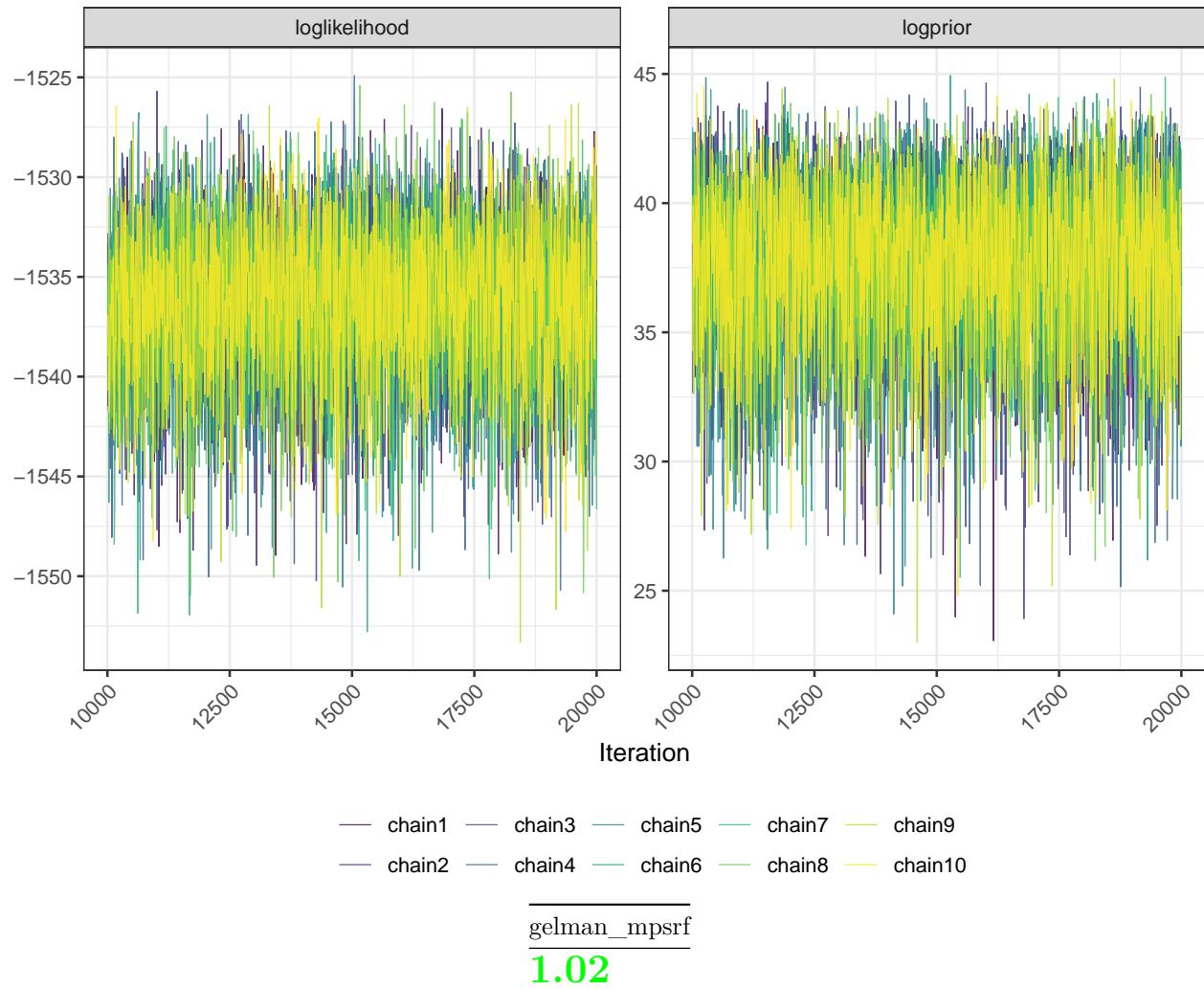
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1600	43.5739	50.9168	50.8489	61.3778	68.2589	571.0745	-0.3438	0.3761
x2	88.1486	90.3168	92.2833	92.2053	93.7338	94.7112	884.9790	-3.5713	0.0007
x3	93.2599	94.2542	95.7092	95.7268	97.3942	100.8656	653.8342	1.5019	0.1292
x4	214.0010	214.0783	216.6272	217.6181	226.8888	229.9940	614.6857	-4.1849	0.0001
y1	0.0003	0.0504	1.1076	1.2683	3.2844	5.7683	5146.0561	-0.1308	0.3955
y2	0.0002	0.1353	2.2544	2.4545	5.7195	7.8712	455.9728	1.3616	0.1579
y3	11.8548	11.9671	12.0994	12.1046	12.2763	12.4395	832.8635	-0.8812	0.2706
y4	11.2982	11.6073	11.7935	11.8011	12.0183	12.2239	518.7611	-3.0754	0.0035
y5	6.6386	6.8006	6.9902	6.9936	7.1989	7.4297	1858.9697	-3.3350	0.0015
Ne1	1.0714	1.1226	1.1878	1.1883	1.2578	1.3335	2148.7419	0.6258	0.3280
Ne2	0.9525	1.0230	1.0853	1.0857	1.1502	1.2193	2506.4145	0.7040	0.3114
Ne3	0.6449	0.6942	0.7583	0.7584	0.8236	0.8855	2606.4939	0.2338	0.3882
Ne4	0.6626	0.7660	0.8417	0.8423	0.9205	1.0039	914.5086	-3.4780	0.0009

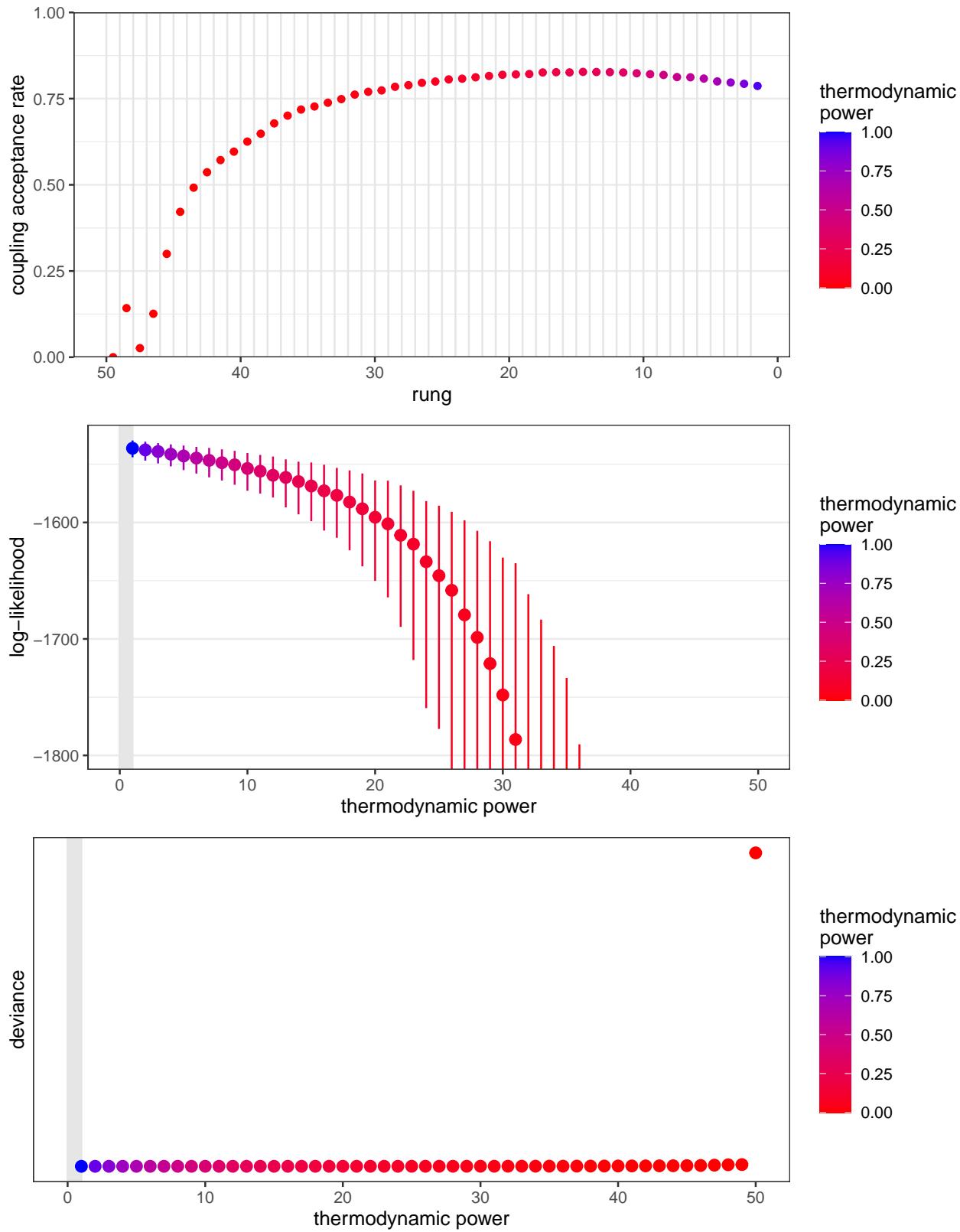
# ITA1 with Standard Input

## Fit Diagnostics

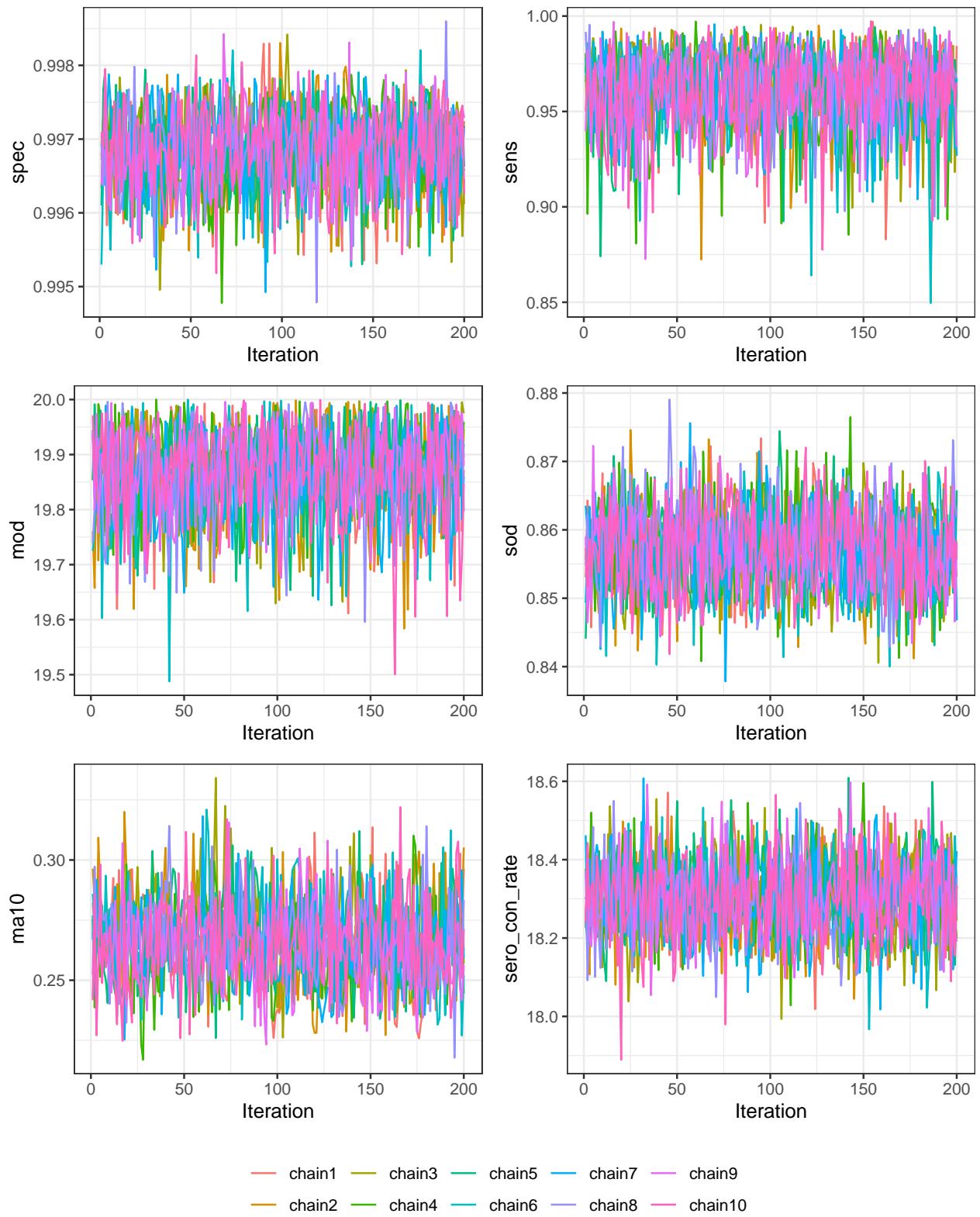
### Log Likelihood & Prior Plot



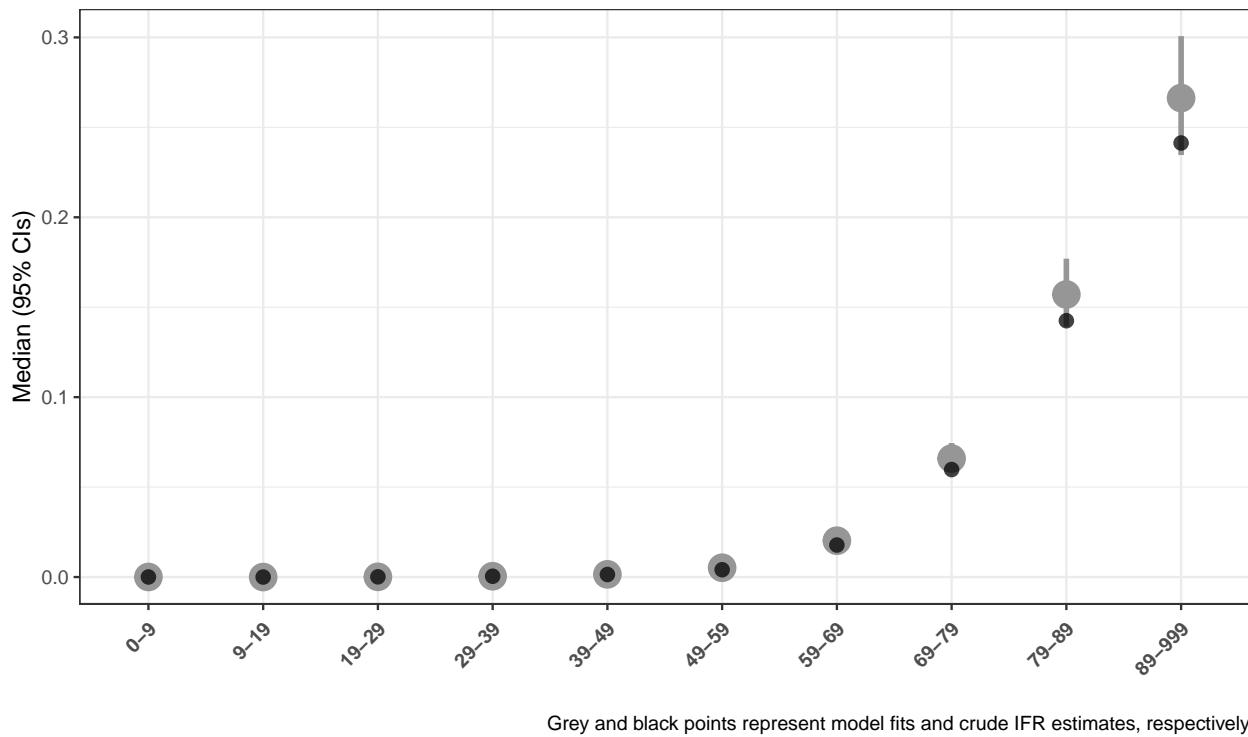
### Metropolis Coupling Acceptance Plot



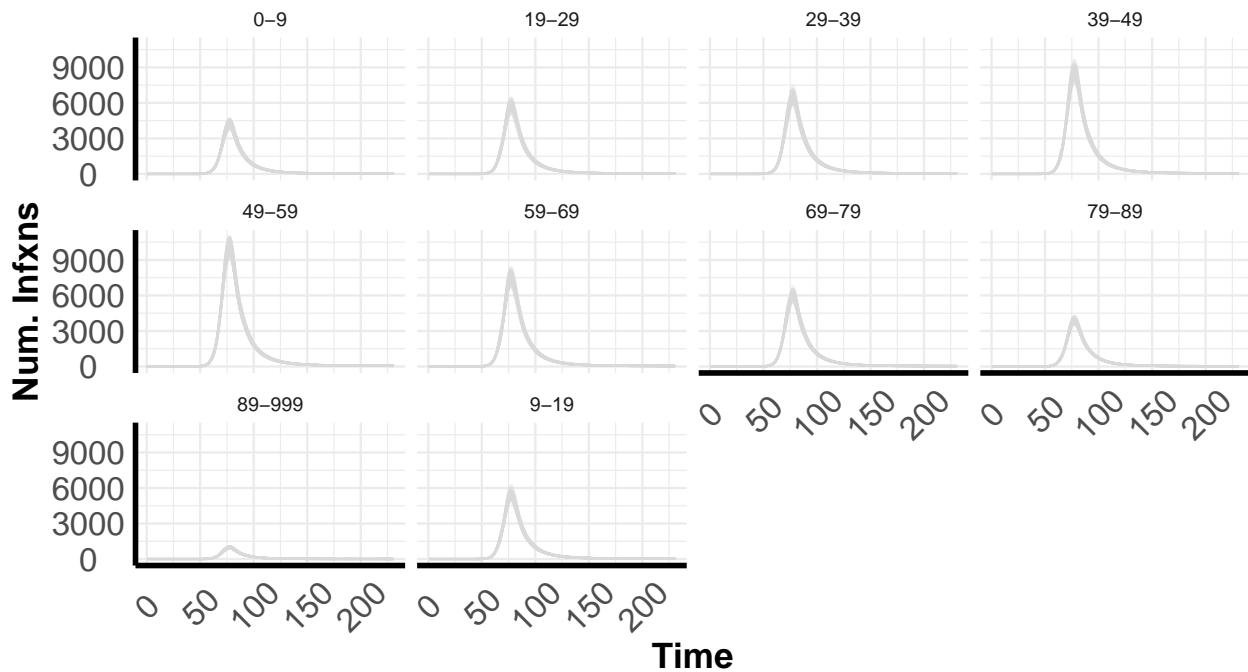
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



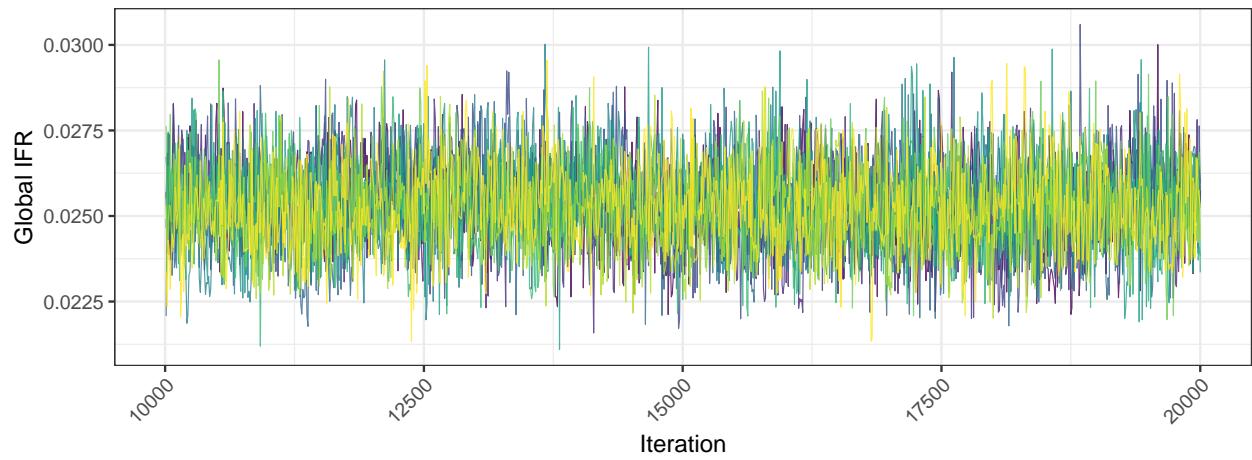
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-9	ma1	0.0000	0.0000	0.0000	0.0000	0.0001	0.0002	9591.6016	0.5574	0.3415
9-19	ma2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9465.2583	0.8326	0.2821
19-29	ma3	0.0000	0.0001	0.0001	0.0001	0.0002	0.0002	9640.6657	-1.1904	0.1964
29-39	ma4	0.0002	0.0003	0.0004	0.0004	0.0006	0.0008	8610.7899	0.2608	0.3856
39-49	ma5	0.0011	0.0013	0.0015	0.0015	0.0018	0.0021	3738.7218	0.0205	0.3989
49-59	ma6	0.0041	0.0046	0.0052	0.0052	0.0059	0.0066	3306.5370	-0.7326	0.3050
59-69	ma7	0.0160	0.0179	0.0202	0.0203	0.0230	0.0267	3086.0780	-0.0539	0.3984
69-79	ma8	0.0526	0.0584	0.0659	0.0660	0.0745	0.0860	2622.2654	0.7190	0.3081
79-89	ma9	0.1270	0.1393	0.1571	0.1573	0.1770	0.2042	2230.0075	-0.4206	0.3652
89-999	ma10	0.2038	0.2346	0.2663	0.2665	0.3007	0.3410	897.5236	0.1393	0.3951

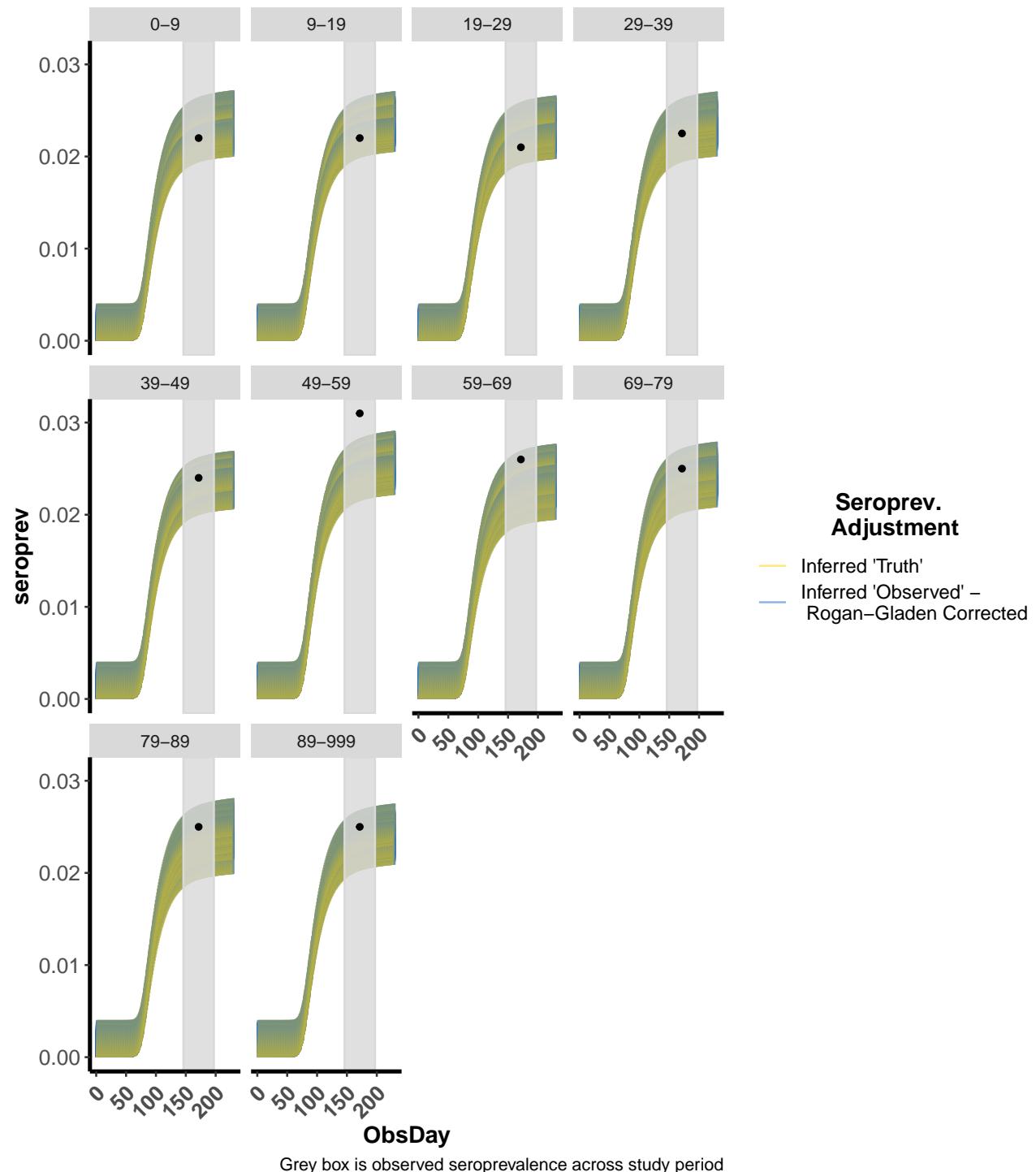
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0211	0.0229	0.0253	0.0253	0.0278	0.0306	3773.327	1.1269	0.2114

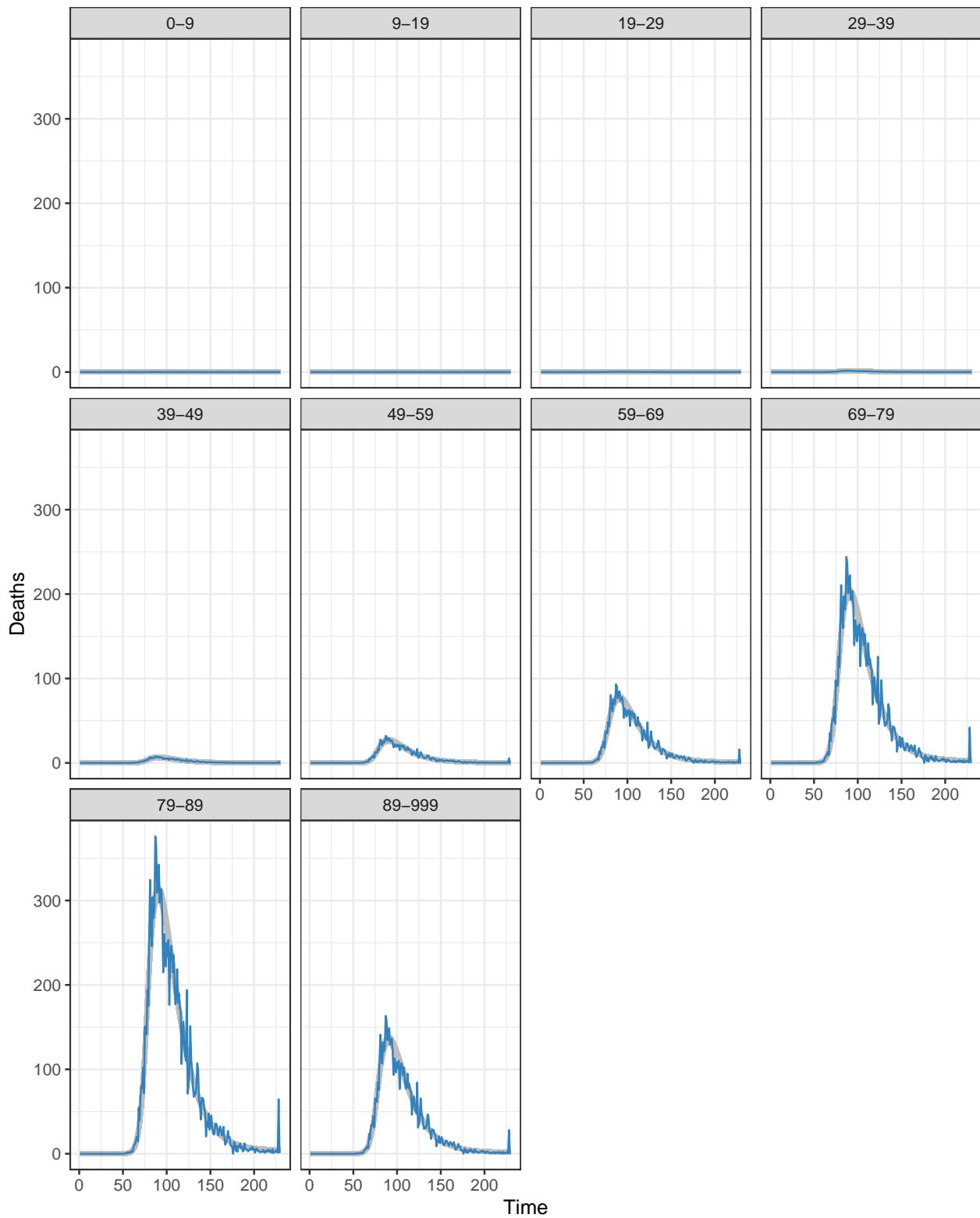
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0221	0.0230	0.0252	0.0253	0.0278	0.0300	131.5049	0.8887	0.2688
chain2	0.0216	0.0228	0.0254	0.0254	0.0276	0.0292	188.1334	3.5184	0.0008
chain3	0.0217	0.0231	0.0255	0.0255	0.0282	0.0306	97.9253	3.1094	0.0032
chain4	0.0218	0.0227	0.0252	0.0252	0.0275	0.0288	209.1761	2.1971	0.0357
chain5	0.0219	0.0230	0.0253	0.0253	0.0281	0.0300	124.1914	-3.5373	0.0008
chain6	0.0211	0.0232	0.0255	0.0255	0.0280	0.0299	358.4562	1.0504	0.2298
chain7	0.0212	0.0228	0.0251	0.0251	0.0275	0.0287	359.6135	1.0985	0.2182
chain8	0.0220	0.0233	0.0253	0.0253	0.0279	0.0296	766.9347	1.1513	0.2056
chain9	0.0220	0.0228	0.0251	0.0251	0.0276	0.0292	230.8496	-1.2260	0.1882
chain10	0.0213	0.0230	0.0252	0.0253	0.0280	0.0296	494.4358	-2.8955	0.0060



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



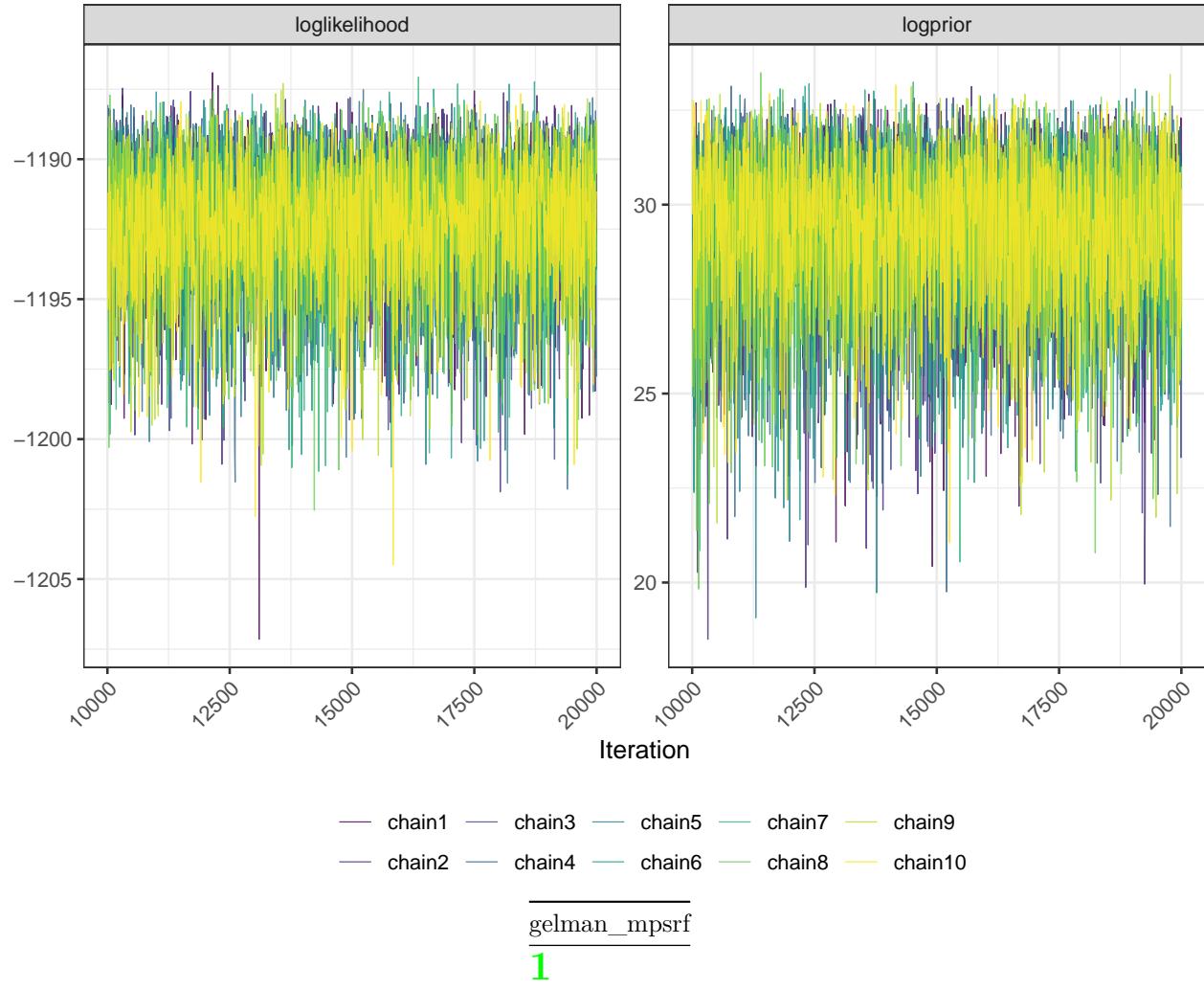
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.6275	2.6723	34.7331	30.5476	44.6116	54.0120	757.8573	-1.3730	0.1554
x2	67.7486	71.1408	77.2170	76.8033	79.9166	81.1031	558.4545	-1.5962	0.1116
x3	80.7343	82.1511	84.8494	85.0407	89.0552	91.8274	482.7614	0.4594	0.3590
x4	214.0091	221.3729	228.2832	227.5482	229.9410	229.9999	2647.5696	2.6041	0.0134
y1	0.0001	0.0409	1.0509	1.2177	3.3528	4.9943	1495.4496	3.3621	0.0014
y2	0.0000	0.0274	0.7420	1.0289	3.3679	5.9844	1349.7267	2.7455	0.0092
y3	10.0372	10.5775	10.9596	10.9353	11.0682	11.1369	865.5382	-0.8663	0.2741
y4	9.9867	10.1875	10.5195	10.5081	10.7626	10.8659	449.4650	-0.6774	0.3172
y5	5.4013	5.5930	5.8210	5.8192	6.0393	6.2762	4247.0402	-1.3380	0.1630
Ne1	0.8199	0.8927	0.9832	0.9840	1.0791	1.1451	9603.8954	-1.8271	0.0752
Ne10	0.8482	0.9176	1.0033	1.0035	1.0907	1.1743	2419.9002	0.0419	0.3986
Ne2	0.8008	0.8915	0.9844	0.9843	1.0765	1.1821	9124.9937	-0.7456	0.3021
Ne3	0.7948	0.8731	0.9627	0.9624	1.0514	1.1374	9490.7991	-0.5446	0.3440
Ne4	0.8161	0.8875	0.9752	0.9755	1.0644	1.1711	9474.5023	0.9108	0.2635
Ne5	0.8455	0.9069	0.9919	0.9918	1.0785	1.1673	8272.8690	0.8414	0.2800
Ne6	0.9200	0.9927	1.0761	1.0761	1.1604	1.2377	6887.9324	0.3220	0.3788
Ne7	0.8501	0.9239	1.0122	1.0122	1.0985	1.2052	5342.0571	1.1038	0.2169
Ne8	0.8355	0.9164	1.0028	1.0032	1.0909	1.2069	4071.0709	-0.6150	0.3302
Ne9	0.8398	0.9179	1.0037	1.0038	1.0896	1.1614	2946.8089	1.2267	0.1880

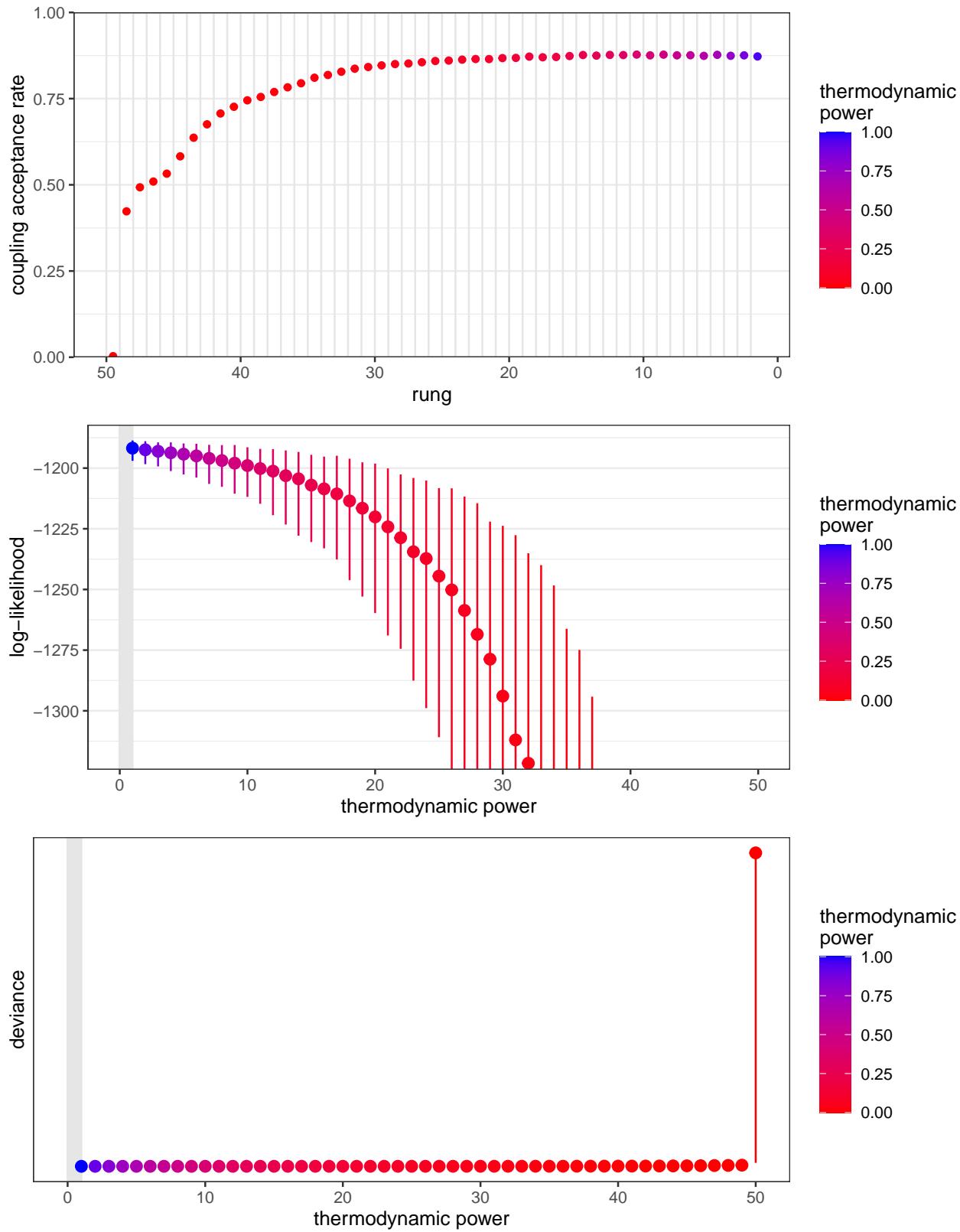
# LA\_CA1 with Standard Input

## Fit Diagnostics

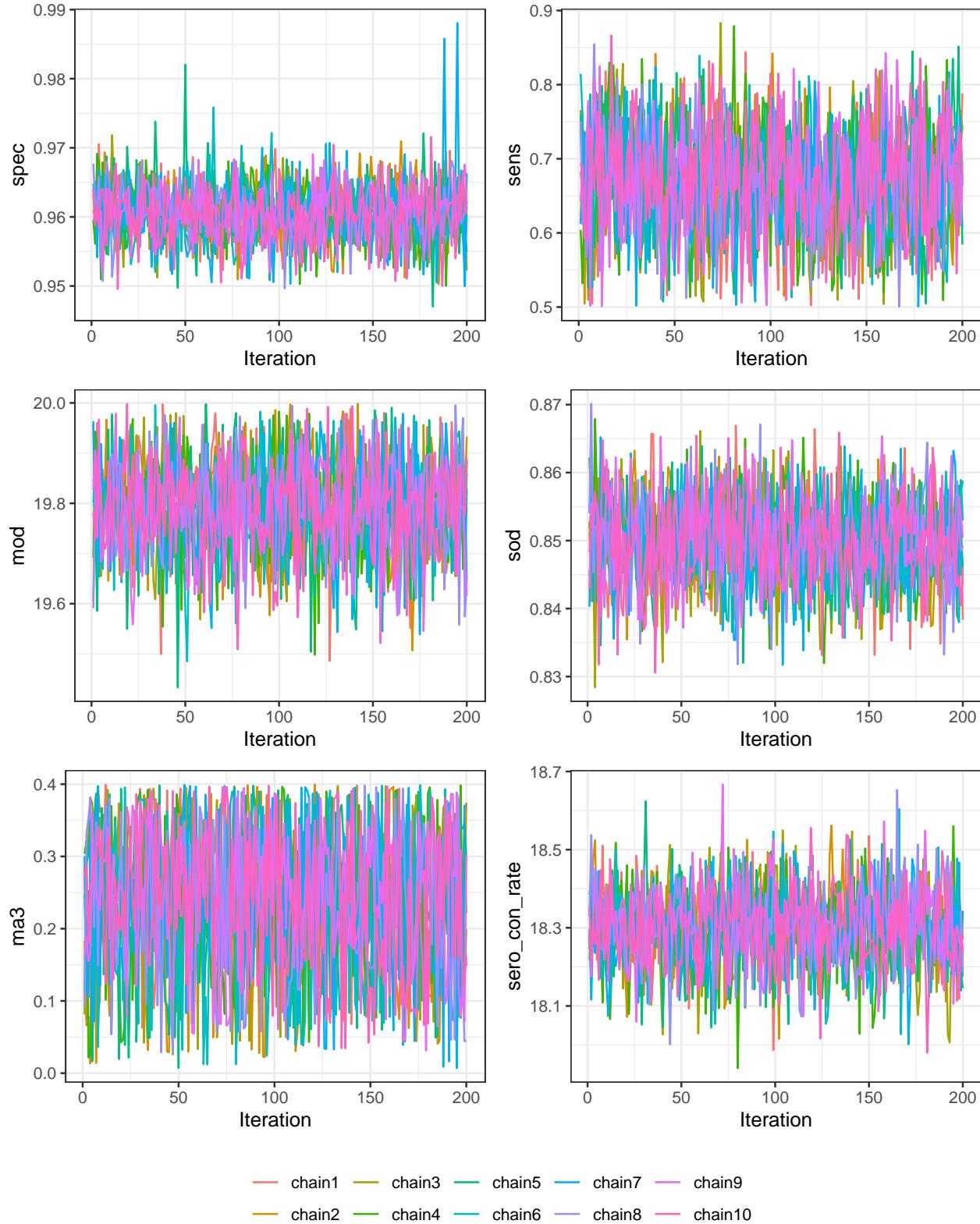
### Log Likelihood & Prior Plot



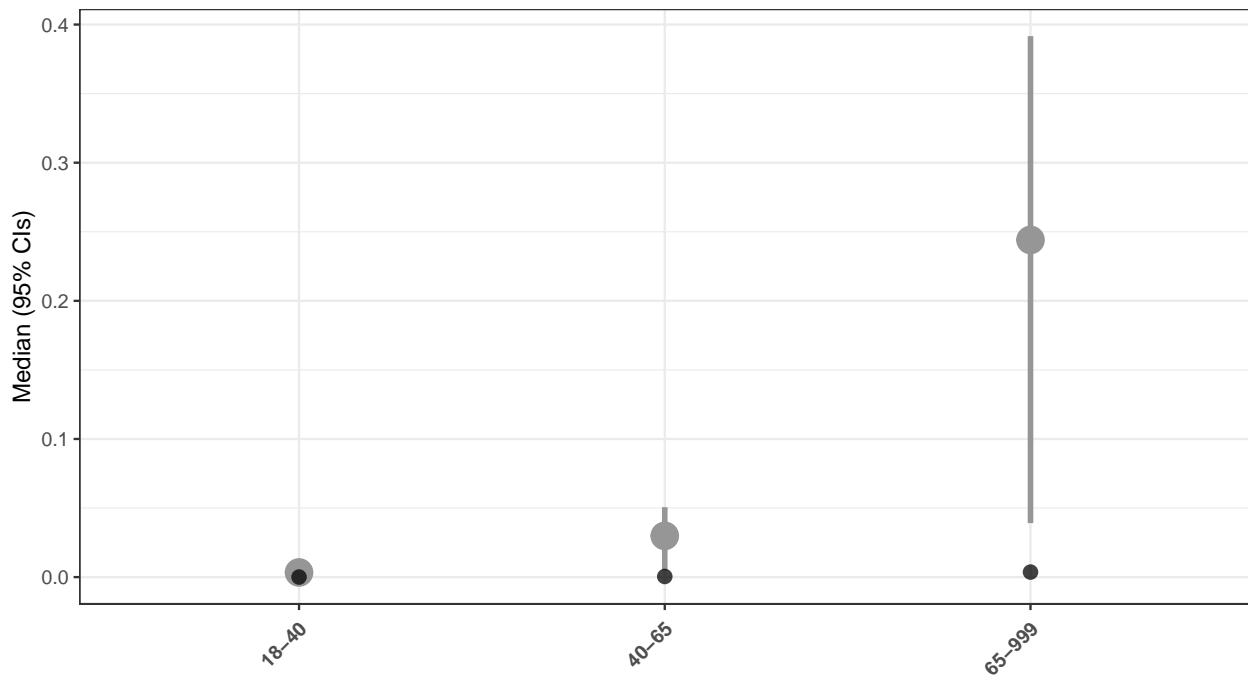
### Metropolis Coupling Acceptance Plot



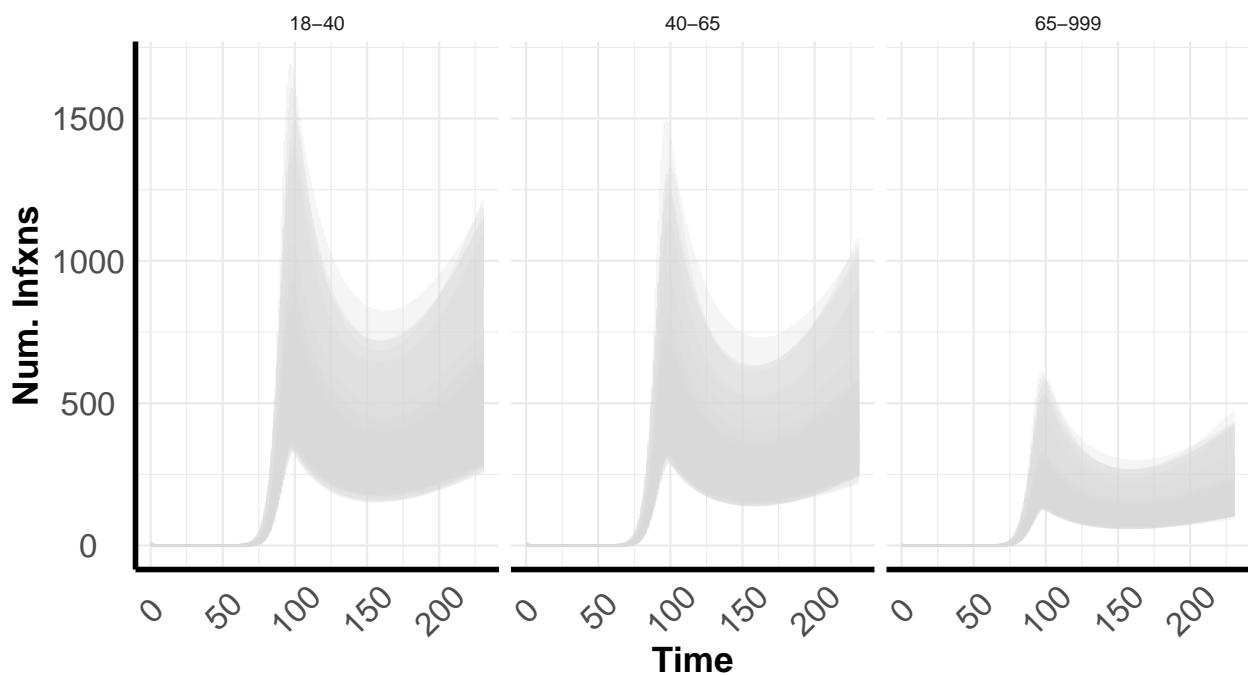
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



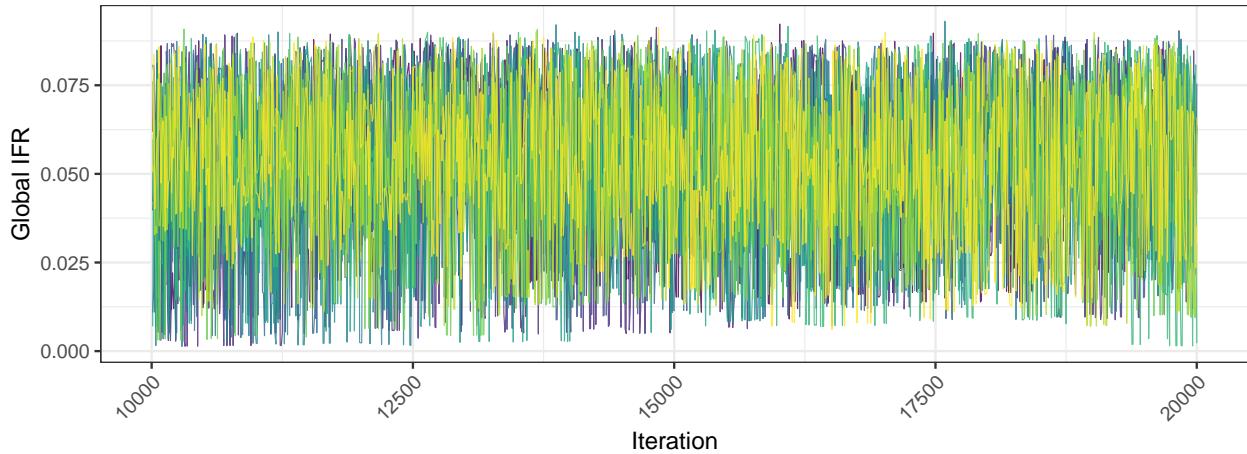
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
18-40	ma1	0.0001	0.0005	0.0034	0.0033	0.0059	0.0070	1833.542	0.4733	0.3567
40-65	ma2	0.0007	0.0048	0.0299	0.0291	0.0506	0.0627	2679.034	0.1938	0.3915
65-999	ma3	0.0059	0.0391	0.2441	0.2357	0.3916	0.3999	1715.542	0.2577	0.3859

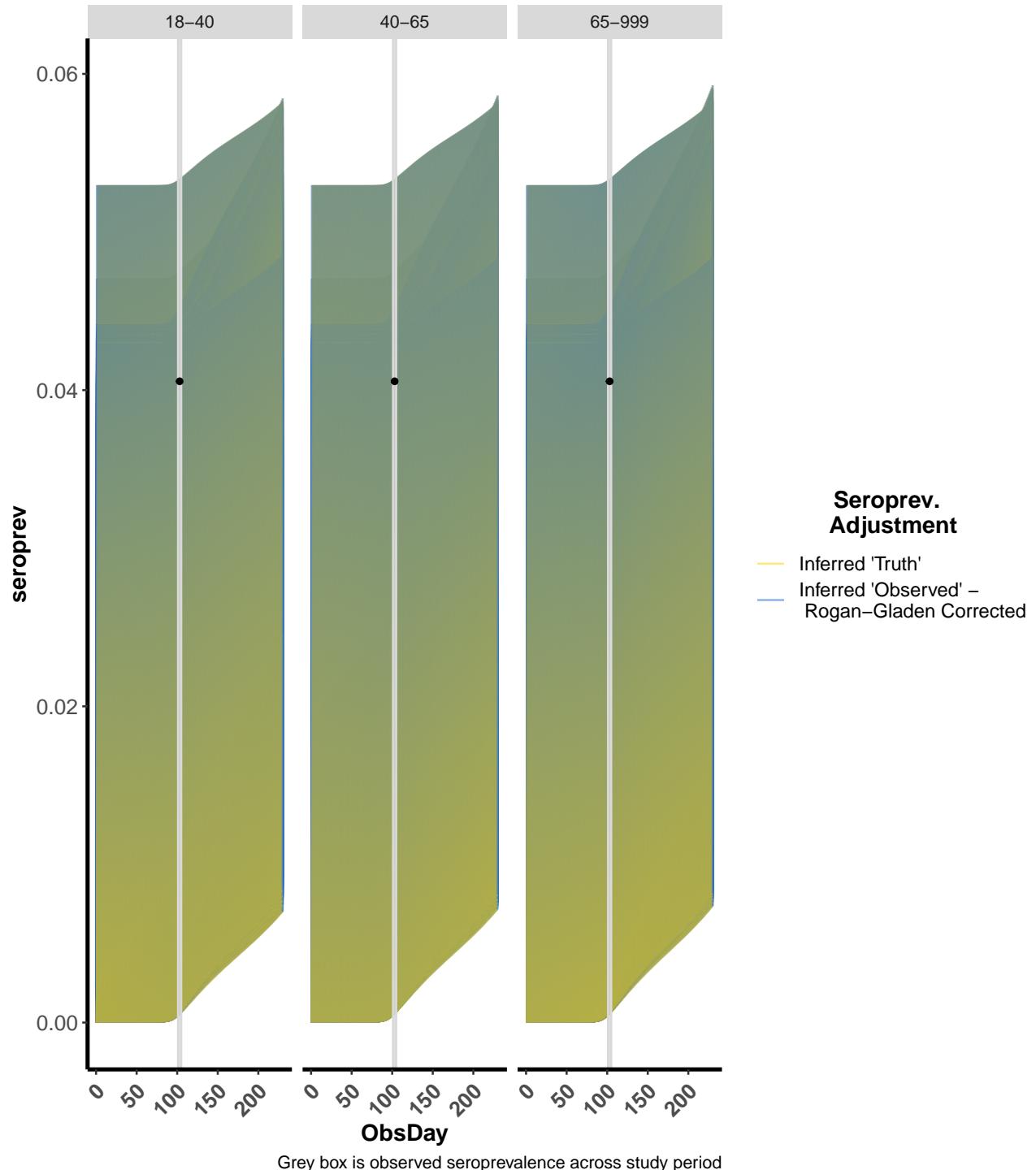
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0013	0.0086	0.0538	0.0519	0.0863	0.093	5727.883	-2.4796	0.0184

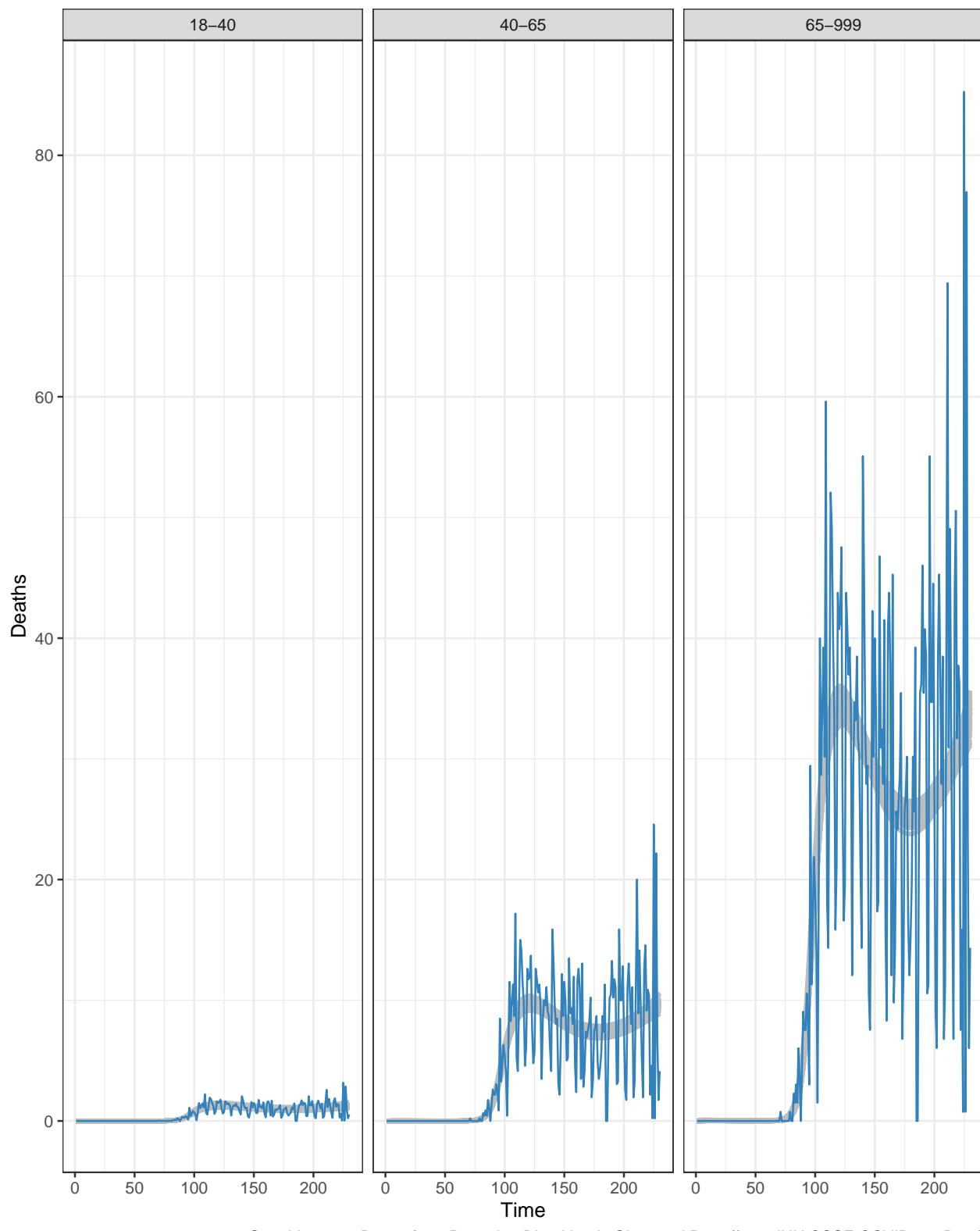
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0091	0.0142	0.0552	0.0525	0.0860	0.0923	440.9840	-4.6981	0.0000
chain2	0.0014	0.0052	0.0494	0.0479	0.0869	0.0913	297.1744	-1.8421	0.0731
chain3	0.0061	0.0099	0.0583	0.0551	0.0866	0.0897	309.2780	3.6492	0.0005
chain4	0.0038	0.0092	0.0532	0.0514	0.0860	0.0904	507.5704	-3.6245	0.0006
chain5	0.0013	0.0035	0.0544	0.0513	0.0855	0.0930	640.2832	-2.0409	0.0497
chain6	0.0025	0.0076	0.0478	0.0488	0.0861	0.0905	493.2558	-0.1077	0.3966
chain7	0.0014	0.0077	0.0537	0.0532	0.0875	0.0916	248.3606	-0.2984	0.3816
chain8	0.0031	0.0064	0.0526	0.0513	0.0859	0.0909	406.6883	-0.4326	0.3633
chain9	0.0070	0.0121	0.0570	0.0543	0.0860	0.0902	505.3898	0.7509	0.3009
chain10	0.0061	0.0158	0.0524	0.0533	0.0863	0.0913	523.2514	2.6534	0.0118



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



Grey Lines are Draws from Posterior, Blue Line is Observed Data (from JHU CSSE COVID-19 Data)

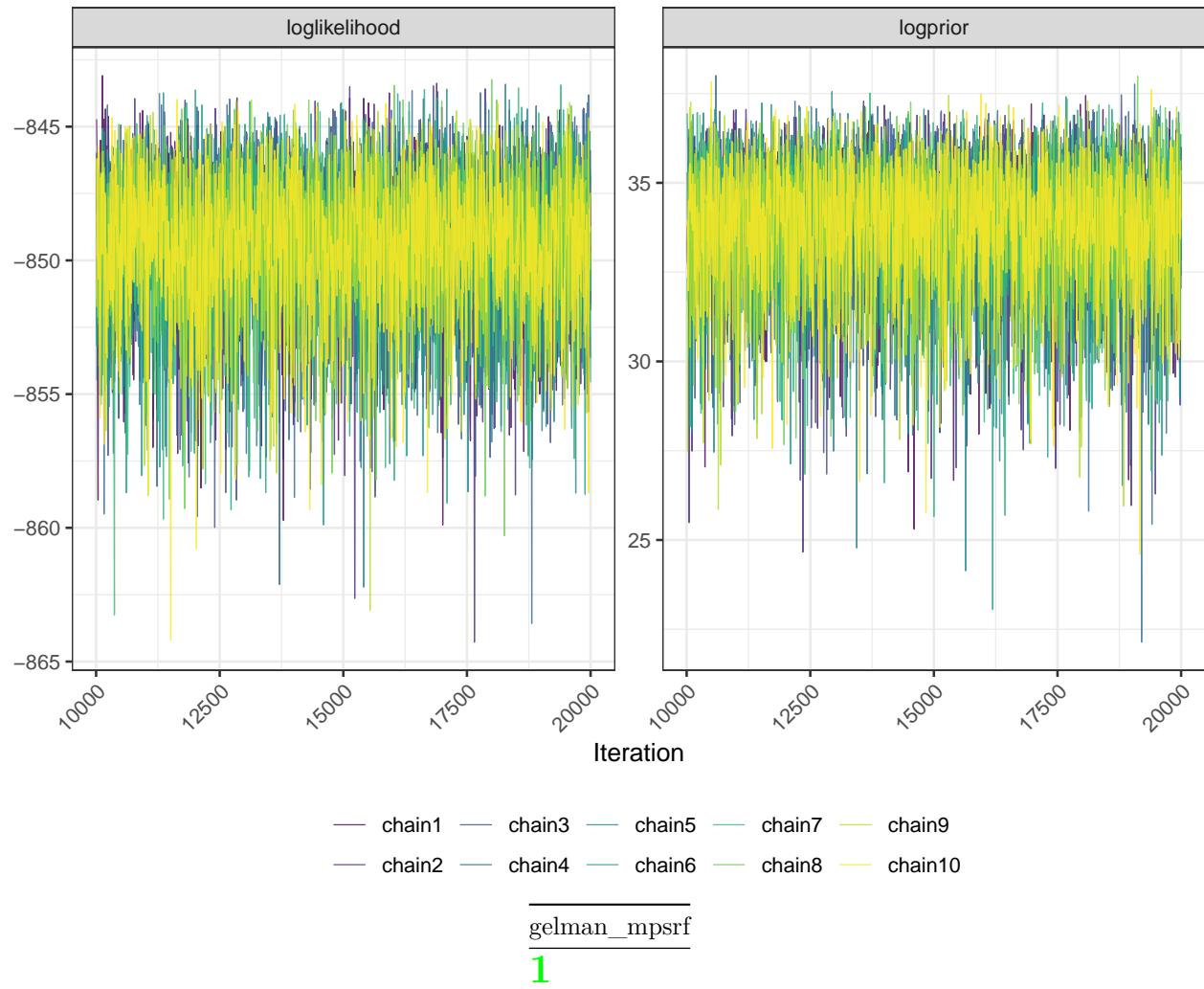
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1056	1.9273	61.5665	50.6064	73.1521	83.1323	2097.942	-0.9532	0.2533
x2	91.5643	93.7269	96.0512	96.2681	99.9672	103.8429	5797.395	1.6100	0.1092
x3	93.7487	97.6478	102.4408	102.5217	107.7757	113.8833	4913.384	1.3101	0.1691
x4	214.0011	214.2132	219.0339	219.9297	229.2223	229.9998	4624.301	-0.1669	0.3934
y1	0.0000	0.0309	0.7828	1.0193	3.1844	7.0110	3455.183	0.2432	0.3873
y2	0.0001	0.0315	0.7780	1.0111	3.3607	7.0711	6140.739	-1.6675	0.0993
y3	6.3780	6.6024	7.1195	7.2975	8.9441	10.8048	1384.766	-1.0867	0.2211
y4	6.3535	6.5663	7.0794	7.2558	8.9012	10.7363	1394.789	-1.1456	0.2070
y5	6.0952	6.2787	6.8145	6.9850	8.6417	10.5733	1426.327	-1.1753	0.2000
Ne1	0.8169	0.9030	0.9997	0.9996	1.0991	1.2154	10270.416	0.5253	0.3475
Ne2	0.8220	0.9040	1.0003	1.0002	1.1006	1.1951	8164.512	0.0140	0.3989
Ne3	0.8023	0.9072	1.0012	1.0018	1.1005	1.1776	7883.776	0.1065	0.3967

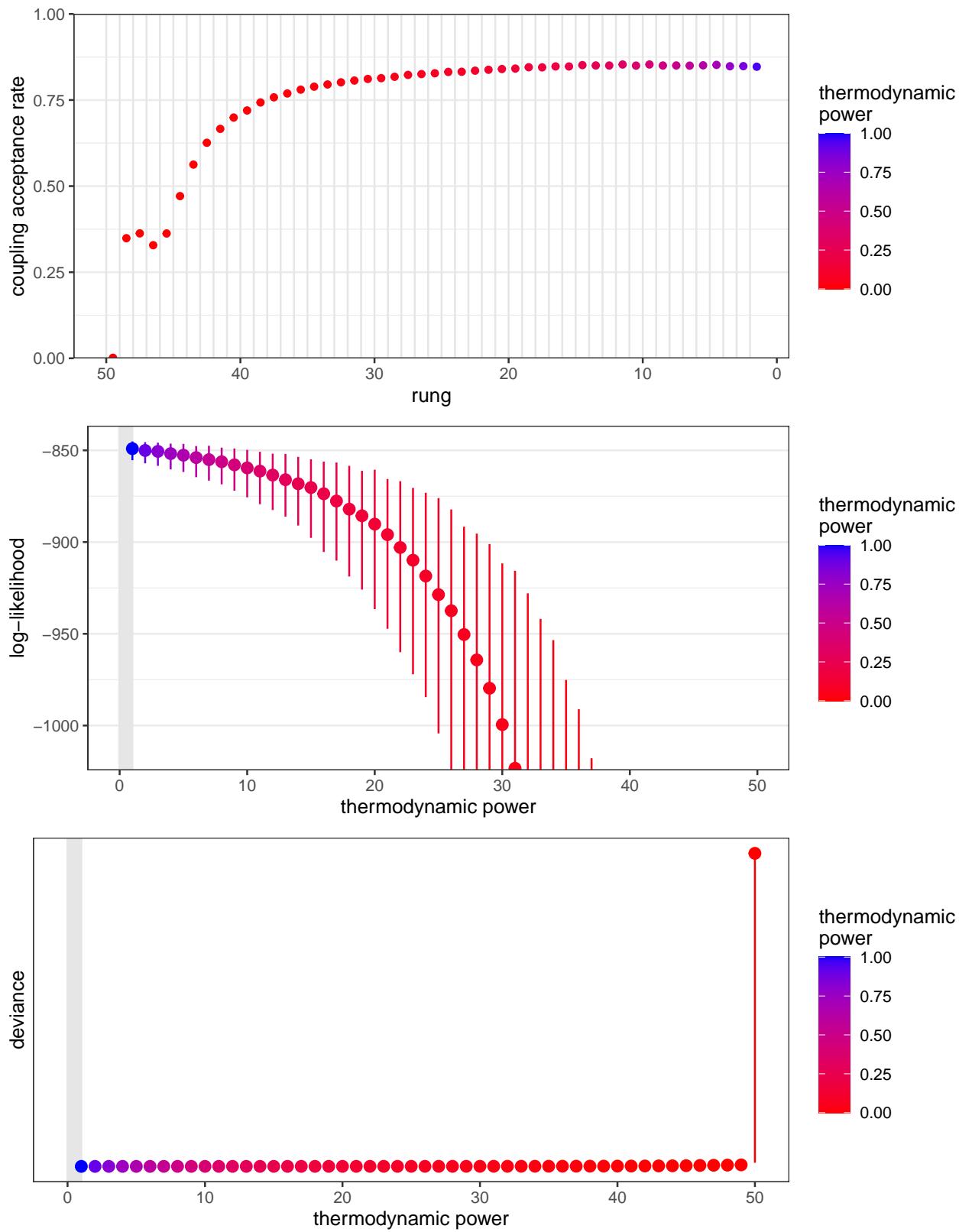
# NLD1 with Standard Input

## Fit Diagnostics

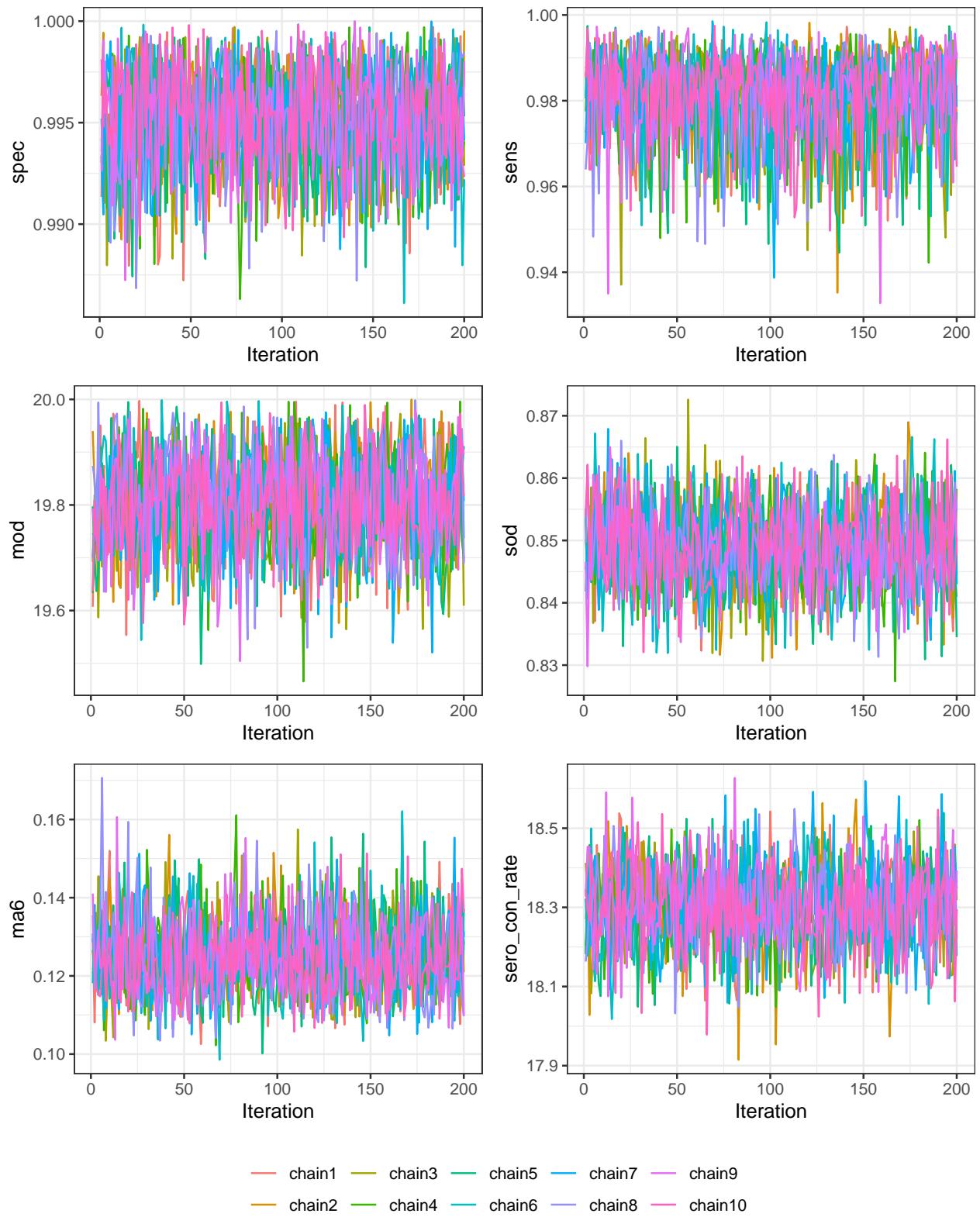
### Log Likelihood & Prior Plot



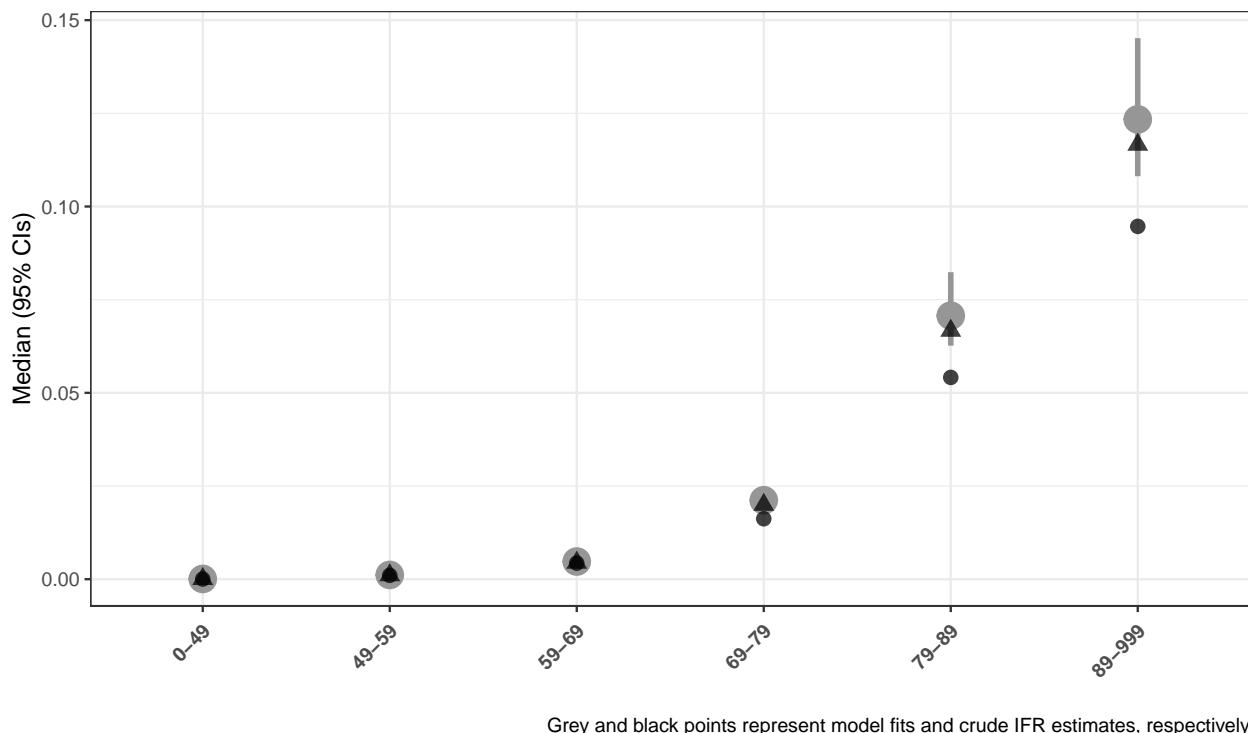
### Metropolis Coupling Acceptance Plot



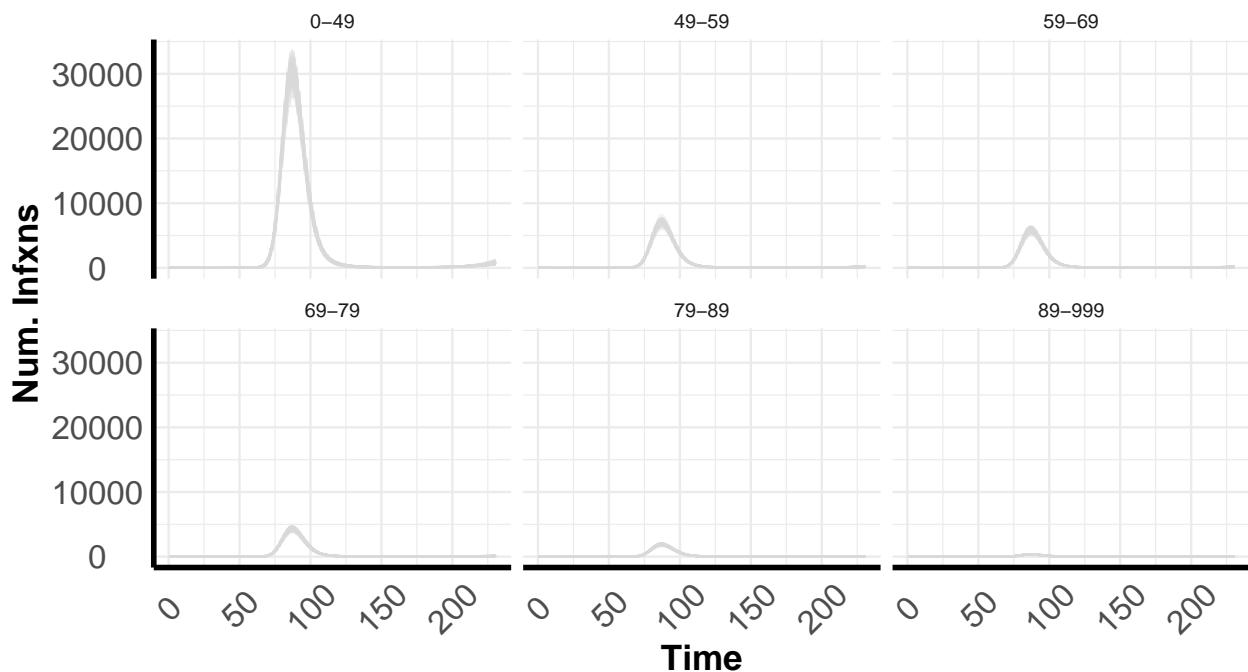
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



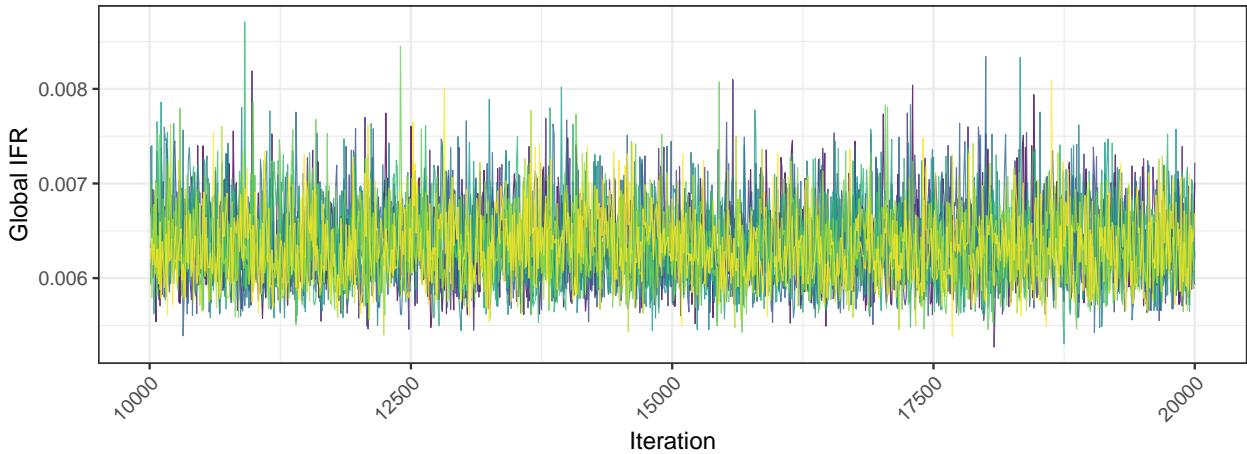
## Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-49	ma1	0.0000	0.0000	0.0001	0.0001	0.0001	0.0001	8911.617	1.1409	0.2081
49-59	ma2	0.0008	0.0009	0.0011	0.0012	0.0014	0.0017	8671.020	1.1788	0.1991
59-69	ma3	0.0036	0.0041	0.0047	0.0048	0.0056	0.0072	7679.705	0.7754	0.2954
69-79	ma4	0.0162	0.0187	0.0212	0.0213	0.0247	0.0303	6146.302	0.4112	0.3666
79-89	ma5	0.0581	0.0627	0.0707	0.0711	0.0824	0.0972	6503.998	0.9613	0.2513
89-999	ma6	0.0975	0.1081	0.1234	0.1242	0.1452	0.1752	5092.670	0.9544	0.2530

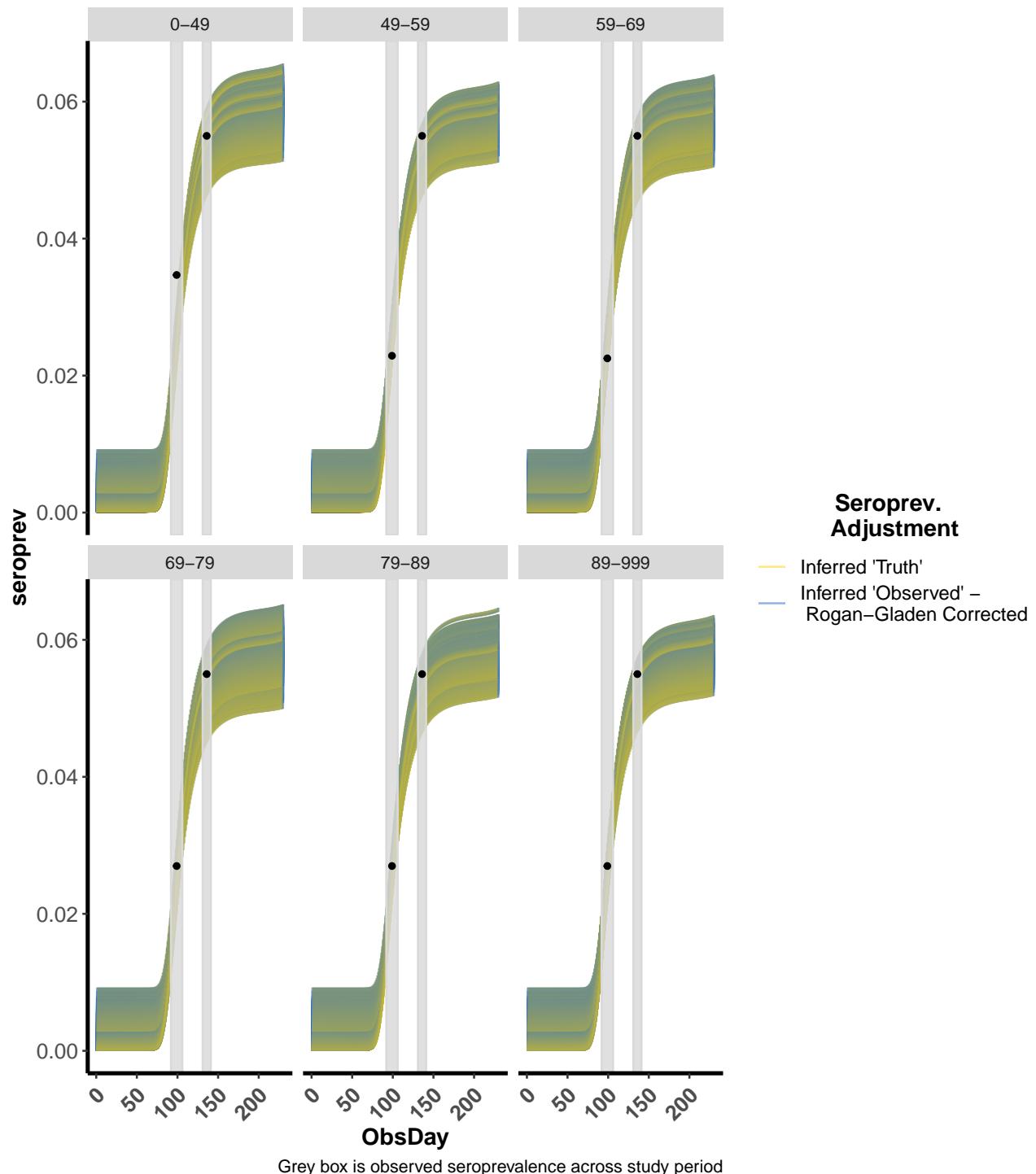
## Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0053	0.0057	0.0063	0.0063	0.0072	0.0087	6599.274	4.0525	1e-04

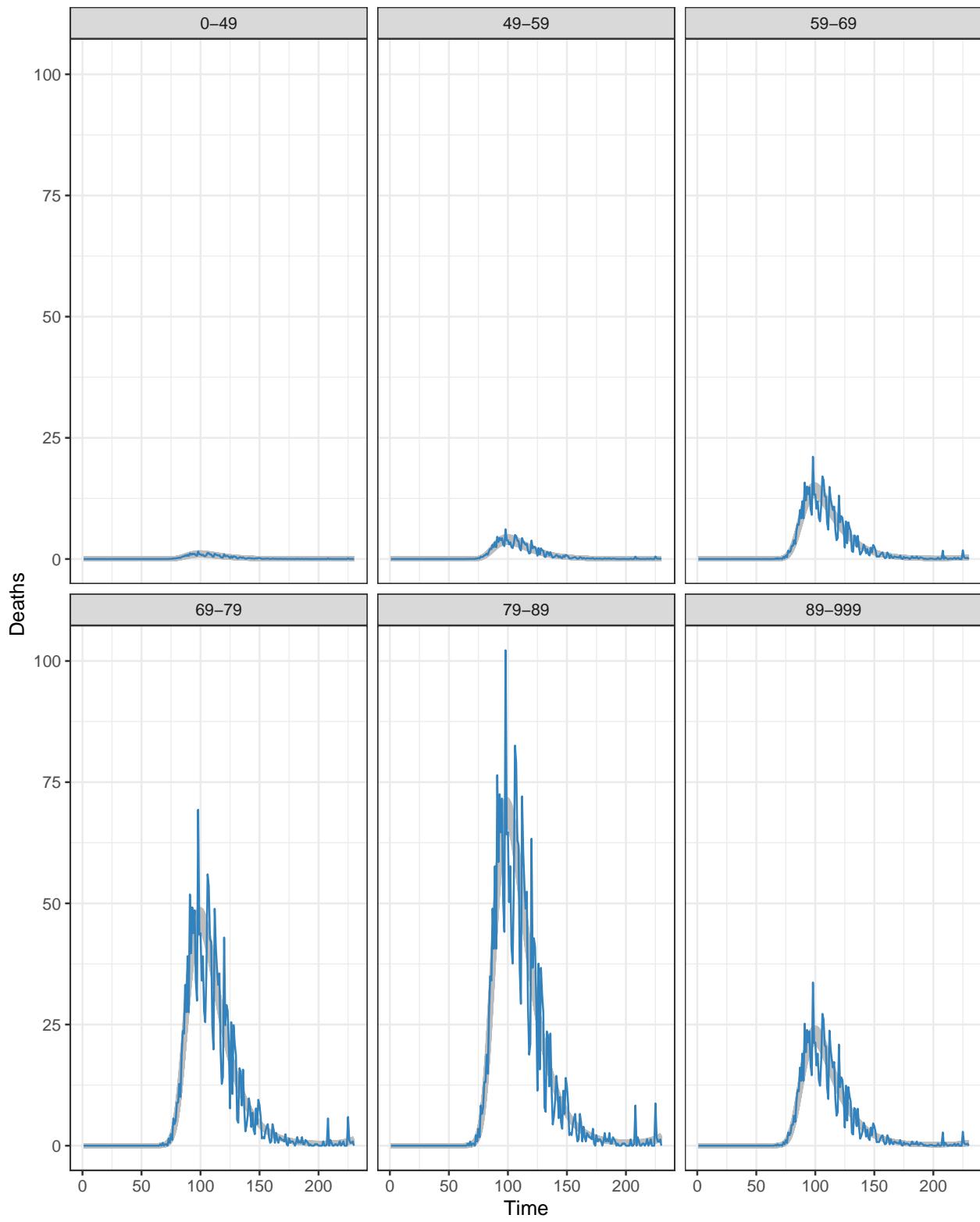
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0055	0.0057	0.0063	0.0063	0.0073	0.0080	595.6393	1.3405	0.1624
chain2	0.0053	0.0057	0.0063	0.0063	0.0072	0.0082	859.7145	0.9564	0.2525
chain3	0.0055	0.0057	0.0063	0.0063	0.0072	0.0077	921.9718	-0.4276	0.3641
chain4	0.0054	0.0057	0.0063	0.0063	0.0073	0.0083	489.3399	0.0575	0.3983
chain5	0.0054	0.0057	0.0063	0.0064	0.0073	0.0079	738.1635	2.1064	0.0434
chain6	0.0054	0.0057	0.0063	0.0063	0.0073	0.0083	425.8387	2.5361	0.0160
chain7	0.0053	0.0057	0.0063	0.0064	0.0072	0.0087	609.0680	1.5445	0.1210
chain8	0.0054	0.0057	0.0063	0.0063	0.0072	0.0085	727.5645	3.3170	0.0016
chain9	0.0054	0.0057	0.0063	0.0063	0.0072	0.0078	625.8712	-0.6054	0.3321
chain10	0.0054	0.0057	0.0063	0.0063	0.0072	0.0081	739.2094	0.5910	0.3350



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



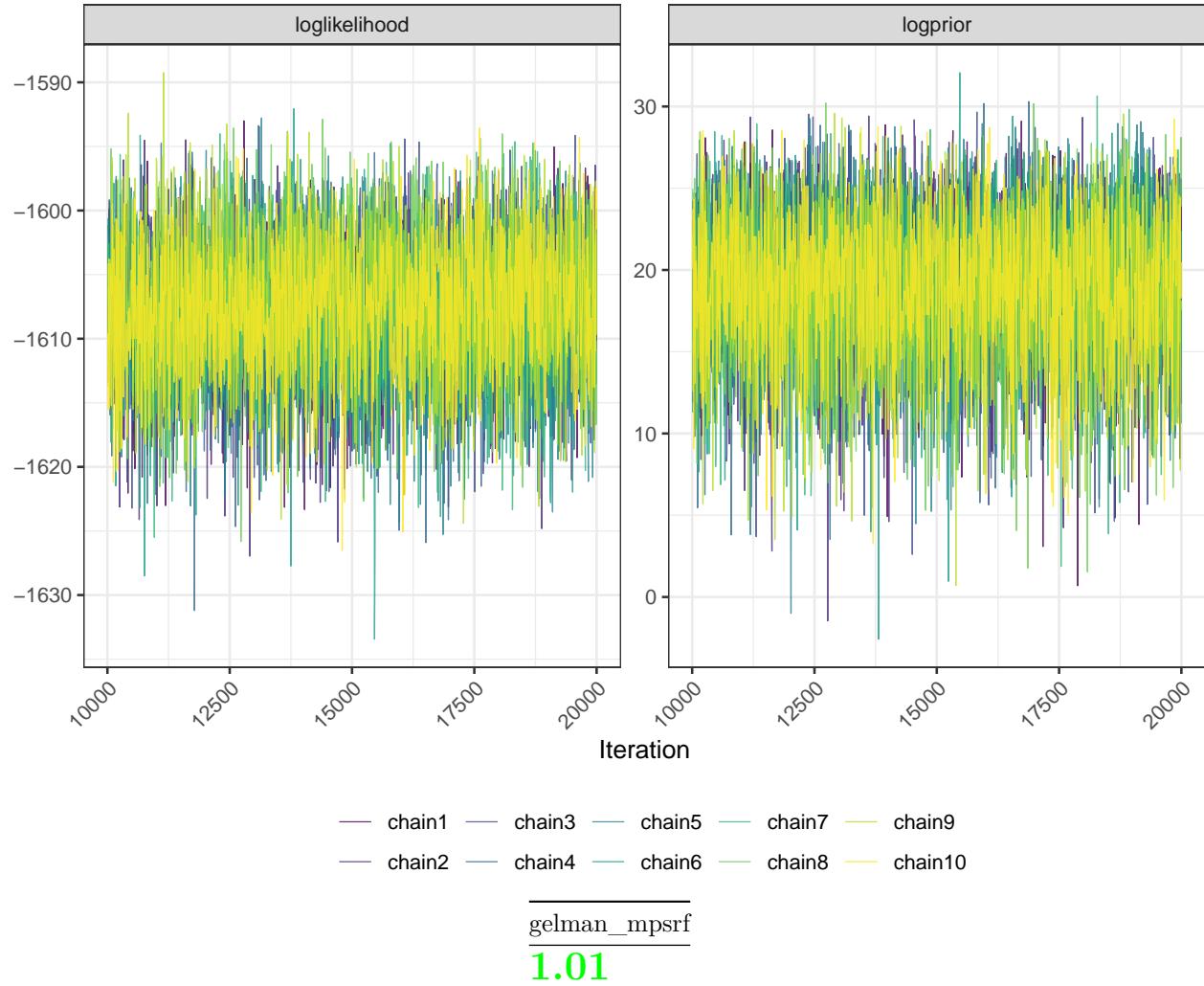
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1838	2.8032	55.8404	52.8313	67.4553	71.6860	1013.4257	1.5709	0.1162
x2	66.6257	70.4177	75.5546	75.7274	82.0649	90.0600	1341.3318	-1.2334	0.1865
x3	92.0088	103.3675	109.3507	109.4442	115.8808	120.7603	2348.7433	-0.6339	0.3263
x4	214.0016	214.4127	222.9290	222.5242	229.6347	229.9999	920.2815	-0.0764	0.3978
y1	0.0003	0.0806	1.6491	1.8347	4.5465	6.6389	5231.9912	-0.3503	0.3752
y2	0.0011	0.0893	1.9764	2.3466	6.5755	7.9964	782.1259	1.1886	0.1968
y3	6.3755	7.8470	9.3840	9.3292	10.5597	10.9882	1224.9196	-1.1780	0.1993
y4	6.1565	7.2091	8.2635	8.2297	9.0969	10.4764	2483.0300	0.8020	0.2892
y5	5.6424	6.0777	6.6924	6.7125	7.4244	7.9658	1497.8543	-0.6392	0.3252
Ne1	0.8568	0.9445	1.0192	1.0193	1.0952	1.1701	8155.5488	0.4122	0.3664
Ne2	0.8679	0.9205	0.9955	0.9953	1.0702	1.1405	9663.6609	-1.4670	0.1360
Ne3	0.8425	0.9144	0.9898	0.9901	1.0658	1.1950	9164.5808	0.2682	0.3848
Ne4	0.8310	0.9241	1.0000	1.0005	1.0767	1.1482	8144.6230	1.0267	0.2355
Ne5	0.8717	0.9253	1.0006	1.0006	1.0776	1.1601	7869.2337	-0.8877	0.2690
Ne6	0.8524	0.9273	1.0009	1.0012	1.0786	1.1499	7821.7007	0.5309	0.3465

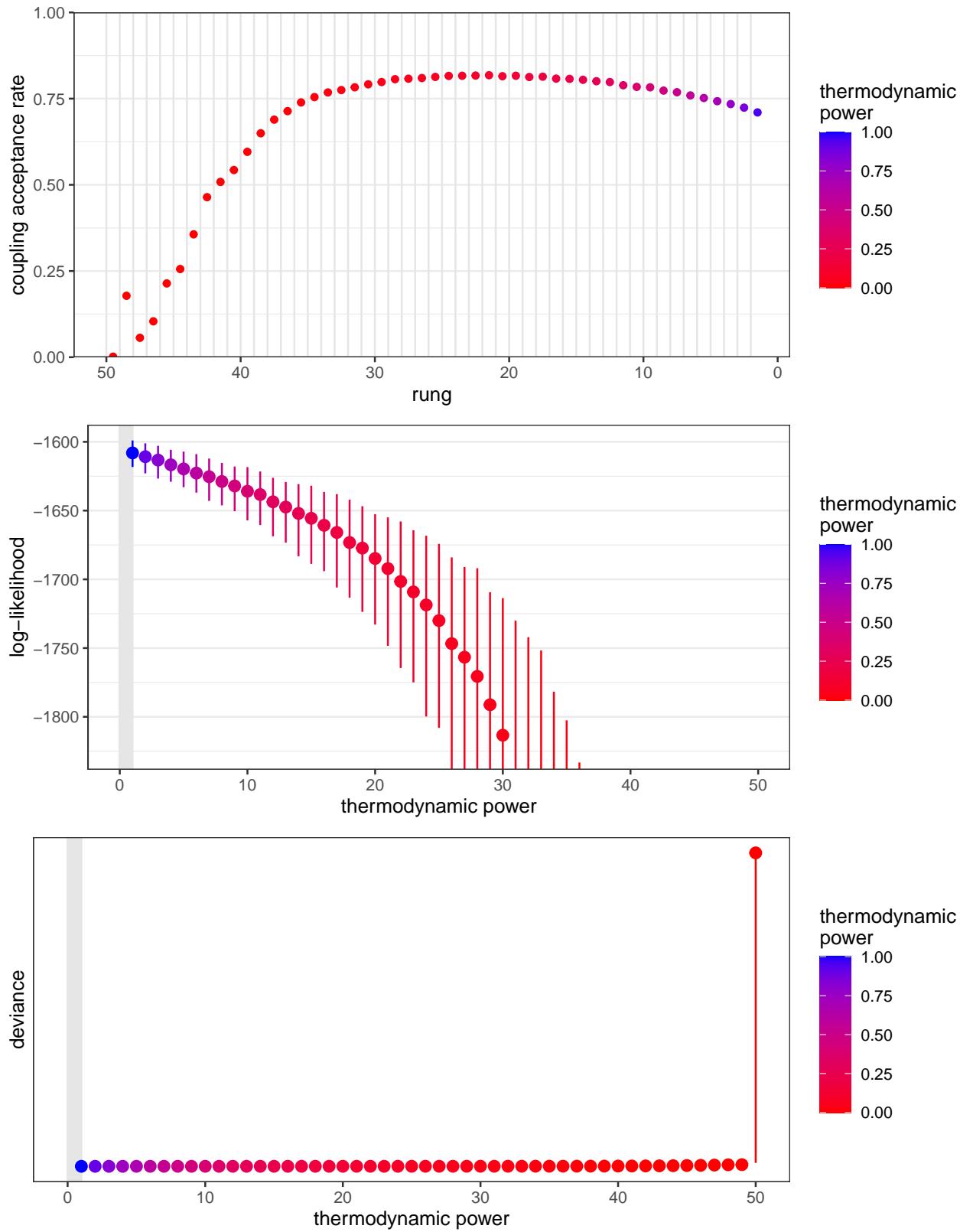
# NYS1 with Standard Input

## Fit Diagnostics

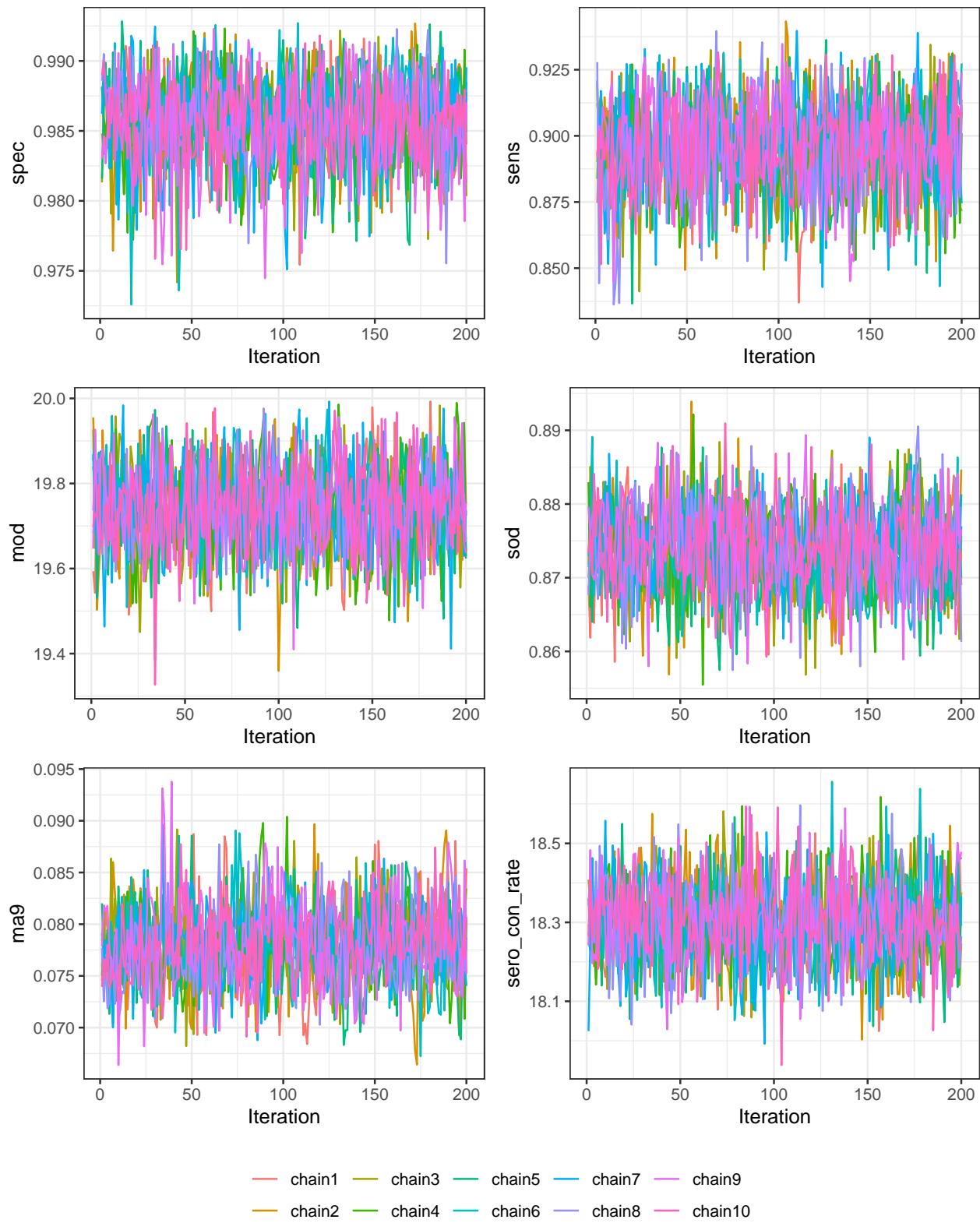
### Log Likelihood & Prior Plot



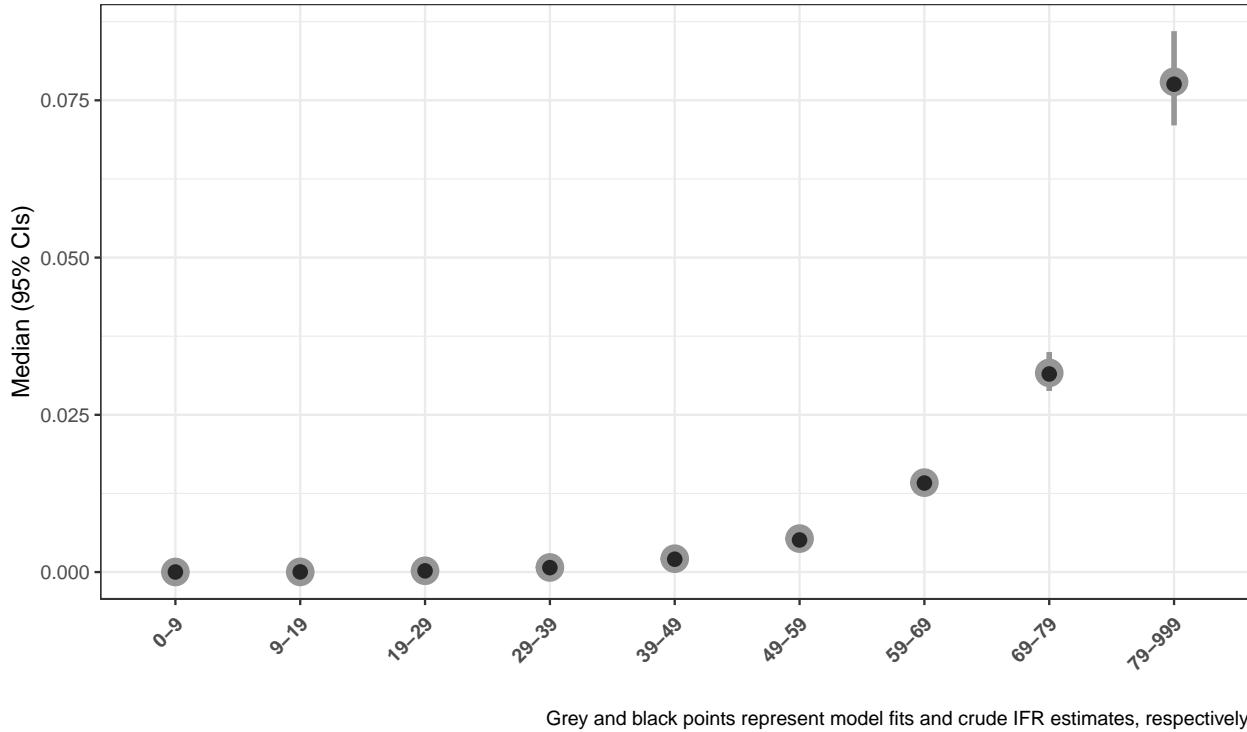
### Metropolis Coupling Acceptance Plot



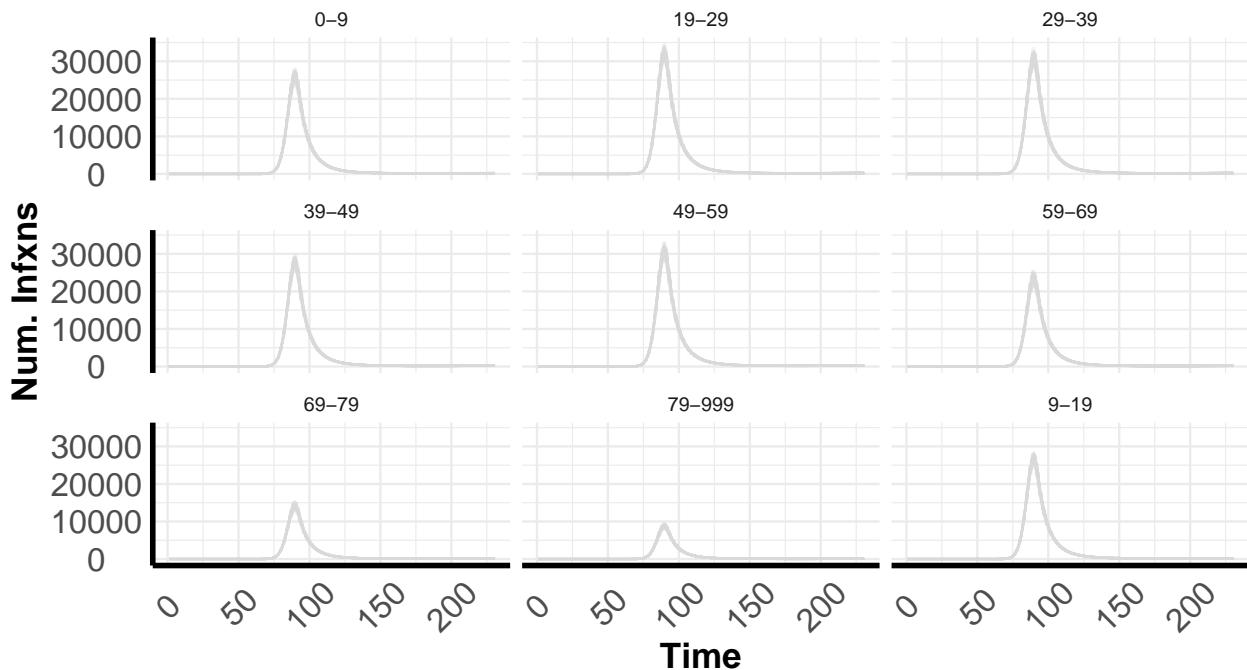
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



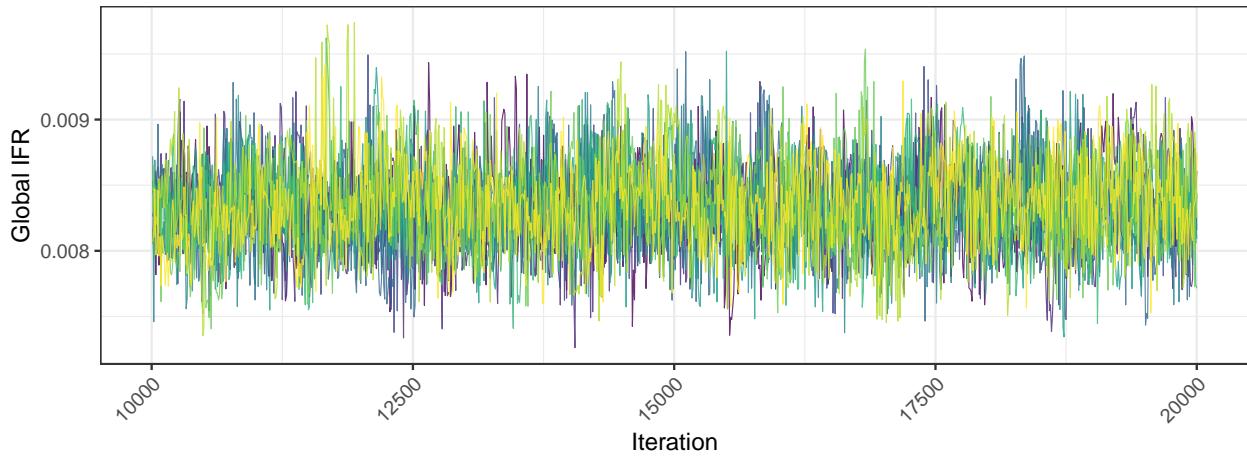
## Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-9	ma1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9364.326	-2.6345	0.0124
9-19	ma2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	9577.886	-0.7407	0.3032
19-29	ma3	0.0001	0.0002	0.0002	0.0002	0.0002	0.0003	8566.758	0.0013	0.3989
29-39	ma4	0.0006	0.0006	0.0007	0.0007	0.0008	0.0009	4530.976	-0.5909	0.3350
39-49	ma5	0.0017	0.0019	0.0021	0.0021	0.0024	0.0027	3650.286	-1.1049	0.2167
49-59	ma6	0.0045	0.0049	0.0053	0.0053	0.0058	0.0064	3015.551	-1.4382	0.1418
59-69	ma7	0.0122	0.0129	0.0142	0.0142	0.0157	0.0176	2991.846	0.3782	0.3714
69-79	ma8	0.0265	0.0288	0.0317	0.0317	0.0350	0.0385	3066.184	-2.0706	0.0468
79-999	ma9	0.0649	0.0710	0.0779	0.0781	0.0860	0.0955	1369.866	-1.2806	0.1757

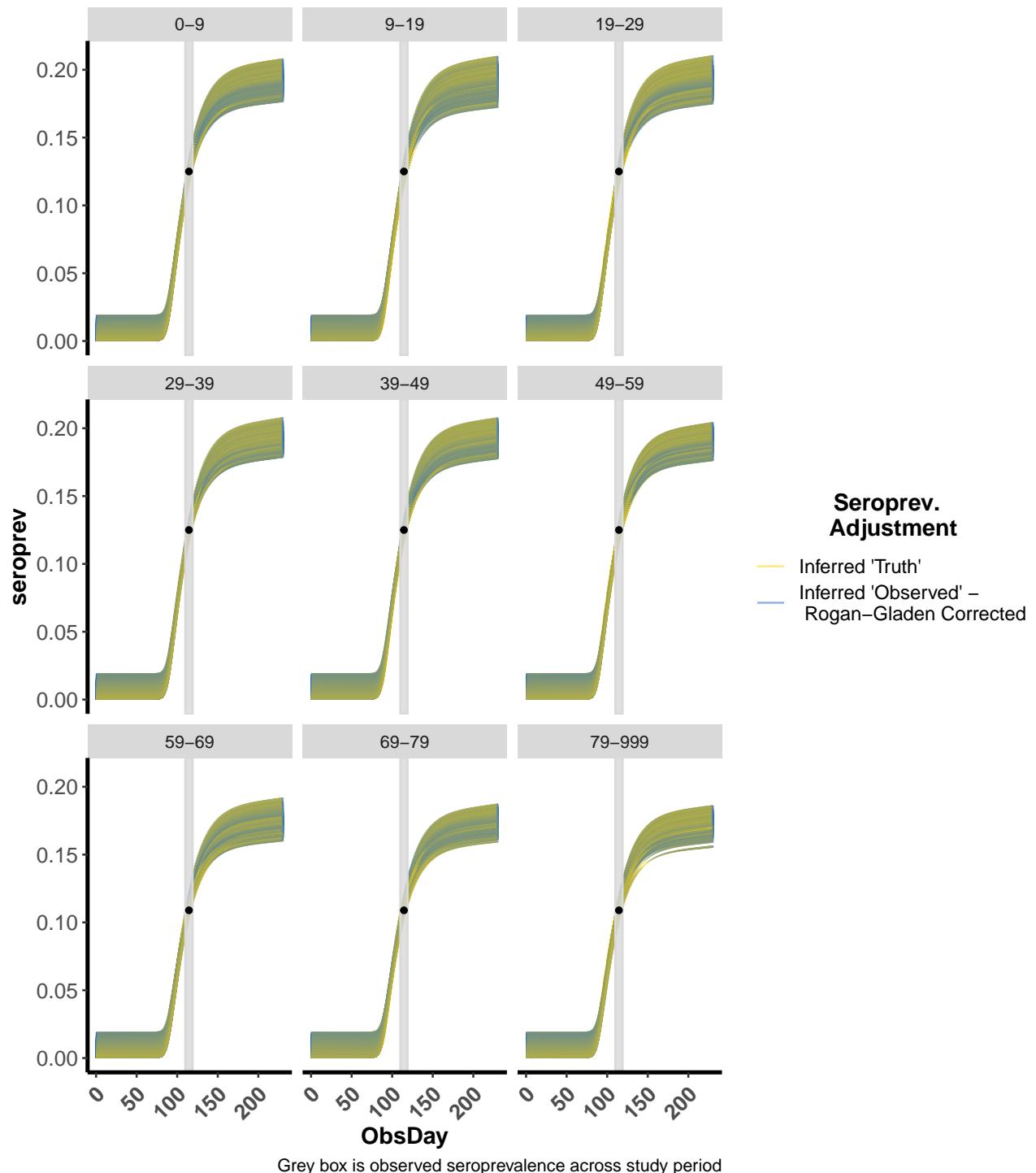
## Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0073	0.0077	0.0083	0.0083	0.009	0.0097	2058.722	-1.9761	0.0566

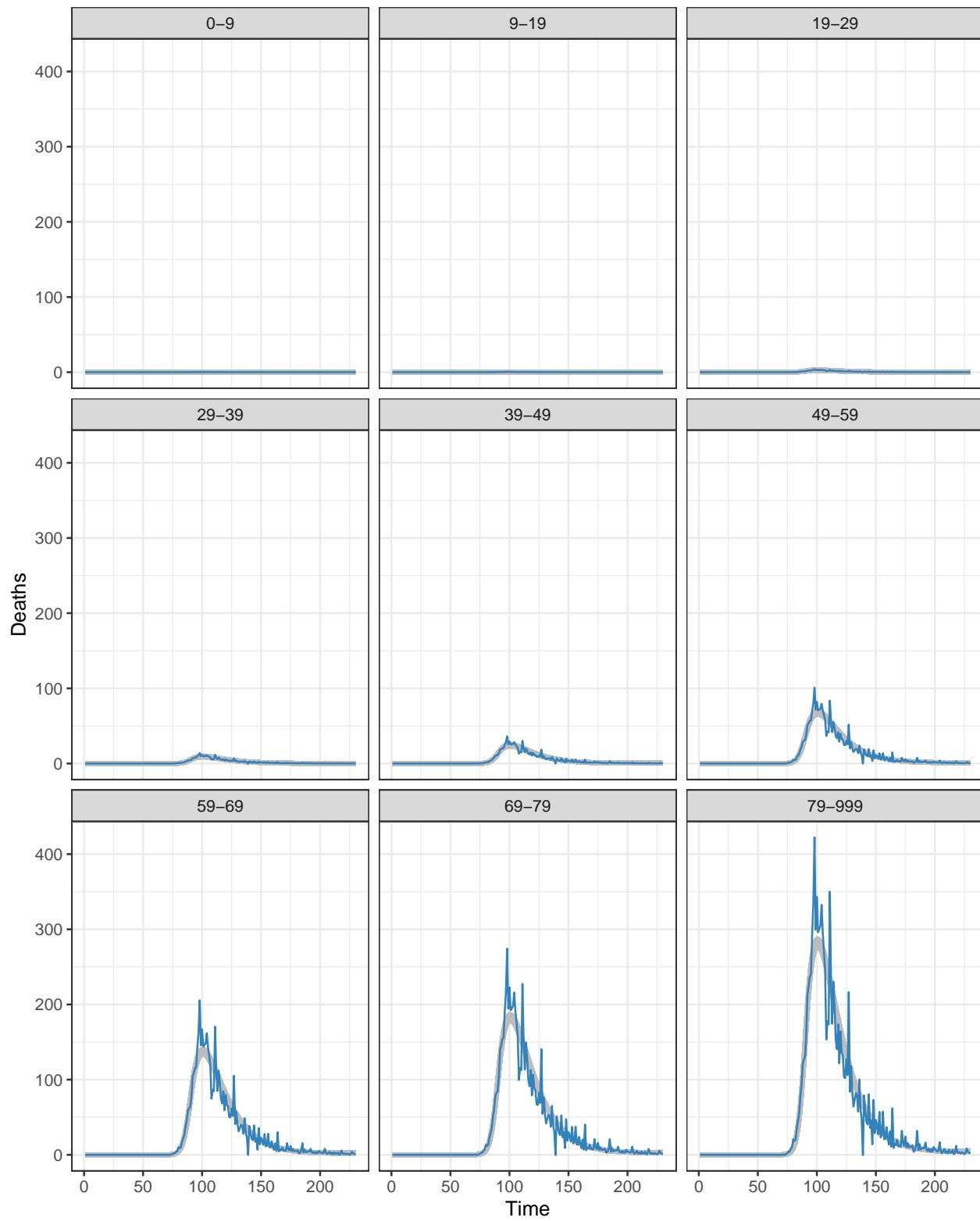
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0074	0.0077	0.0083	0.0083	0.0090	0.0094	267.8468	1.0728	0.2244
chain2	0.0073	0.0077	0.0083	0.0083	0.0089	0.0093	250.9303	0.3762	0.3717
chain3	0.0074	0.0078	0.0083	0.0083	0.0090	0.0095	335.1062	1.1035	0.2170
chain4	0.0074	0.0077	0.0083	0.0083	0.0091	0.0095	169.9275	-1.0659	0.2261
chain5	0.0074	0.0077	0.0083	0.0083	0.0090	0.0093	366.3732	-1.2656	0.1791
chain6	0.0073	0.0077	0.0083	0.0083	0.0090	0.0095	212.5248	1.0475	0.2305
chain7	0.0074	0.0077	0.0083	0.0084	0.0090	0.0096	231.7083	-0.3953	0.3690
chain8	0.0074	0.0077	0.0083	0.0083	0.0090	0.0095	141.4675	-2.7826	0.0083
chain9	0.0074	0.0077	0.0084	0.0084	0.0091	0.0097	192.8244	0.1925	0.3916
chain10	0.0075	0.0078	0.0084	0.0084	0.0090	0.0094	278.0861	-5.3694	0.0000



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



Grey Lines are Draws from Posterior, Blue Line is Observed Data (from JHU CSSE COVID-19 Data)

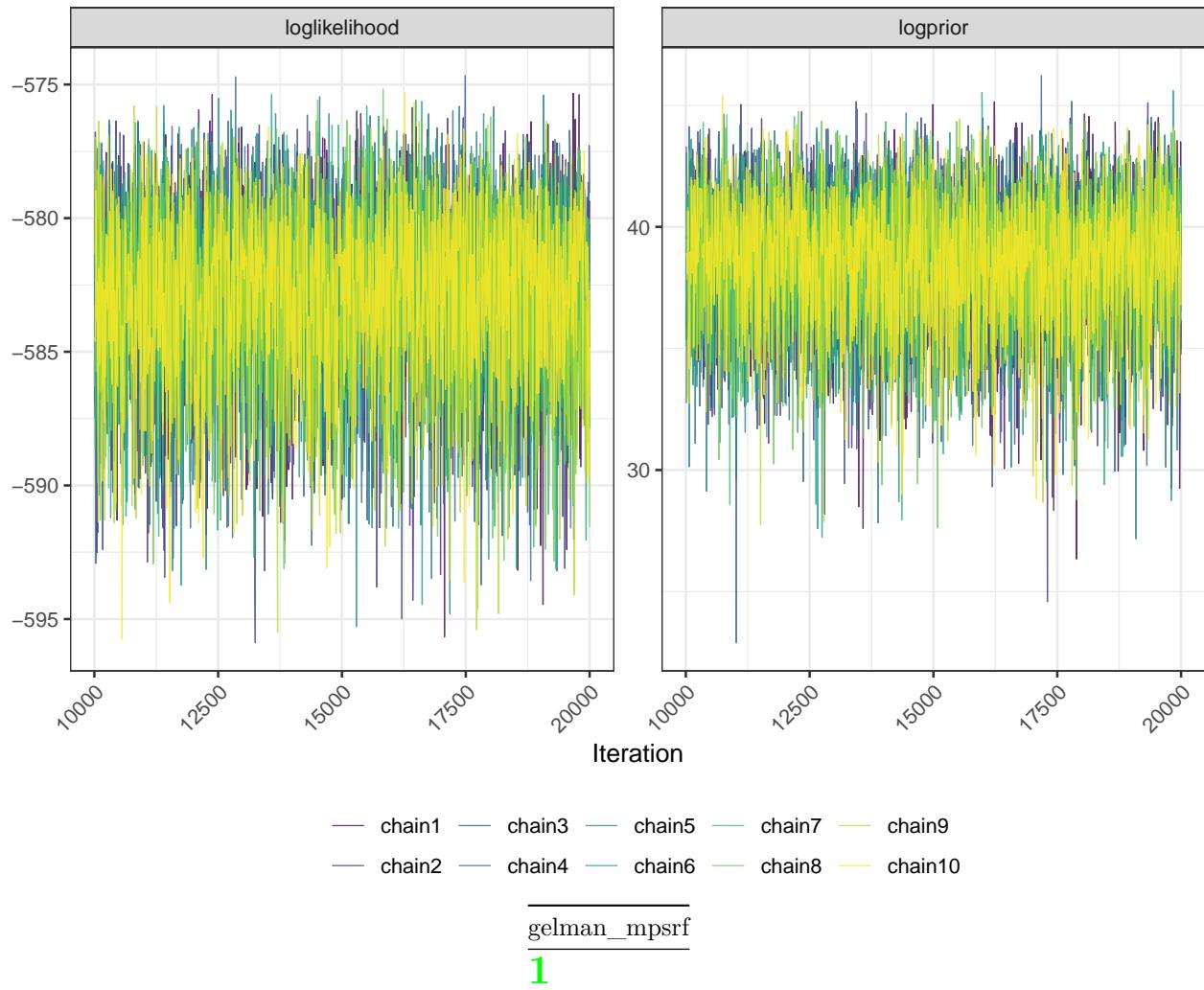
## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.1342	3.3658	60.8574	59.3118	69.3385	75.4383	914.7912	-1.5409	0.1217
x2	86.8867	89.4032	91.1851	91.1298	92.6331	93.3923	323.0528	-3.6306	0.0005
x3	91.8793	93.0717	94.2633	94.3191	95.8180	98.0432	1373.8721	1.9493	0.0597
x4	214.0000	214.0283	214.8474	215.2858	218.9411	225.1724	1044.4070	0.7027	0.3117
y1	0.0003	0.0689	1.4451	1.5980	3.9452	6.2071	6184.1139	1.0319	0.2343
y2	0.0000	0.1332	2.7499	2.9029	6.5874	8.8115	401.9819	-1.0226	0.2365
y3	12.0047	12.1201	12.2405	12.2368	12.3331	12.4232	455.9777	2.3685	0.0241
y4	11.4291	11.7045	11.8964	11.8905	12.0424	12.1320	1095.9776	-2.3958	0.0226
y5	6.9690	7.1671	7.3405	7.3409	7.5108	7.7100	6799.8476	-0.7824	0.2938
Ne1	0.9142	0.9726	1.0319	1.0325	1.0933	1.1564	8242.5799	0.0492	0.3985
Ne2	0.9119	0.9733	1.0327	1.0325	1.0928	1.1610	8788.7073	-1.0314	0.2344
Ne3	0.9153	0.9718	1.0322	1.0322	1.0926	1.1413	8019.6292	-1.4356	0.1424
Ne4	0.9059	0.9724	1.0330	1.0330	1.0945	1.1500	7571.4485	-0.5095	0.3504
Ne5	0.8880	0.9726	1.0325	1.0327	1.0941	1.1512	7233.9677	-0.4204	0.3652
Ne6	0.9269	0.9743	1.0320	1.0324	1.0952	1.1498	6224.9988	0.7704	0.2965
Ne7	0.8221	0.8697	0.9343	0.9344	0.9994	1.0536	4948.3553	-2.4166	0.0215
Ne8	0.8110	0.8686	0.9336	0.9335	0.9996	1.0645	4222.4634	1.1335	0.2098
Ne9	0.8160	0.8691	0.9329	0.9334	0.9967	1.0516	3740.1722	0.6522	0.3225

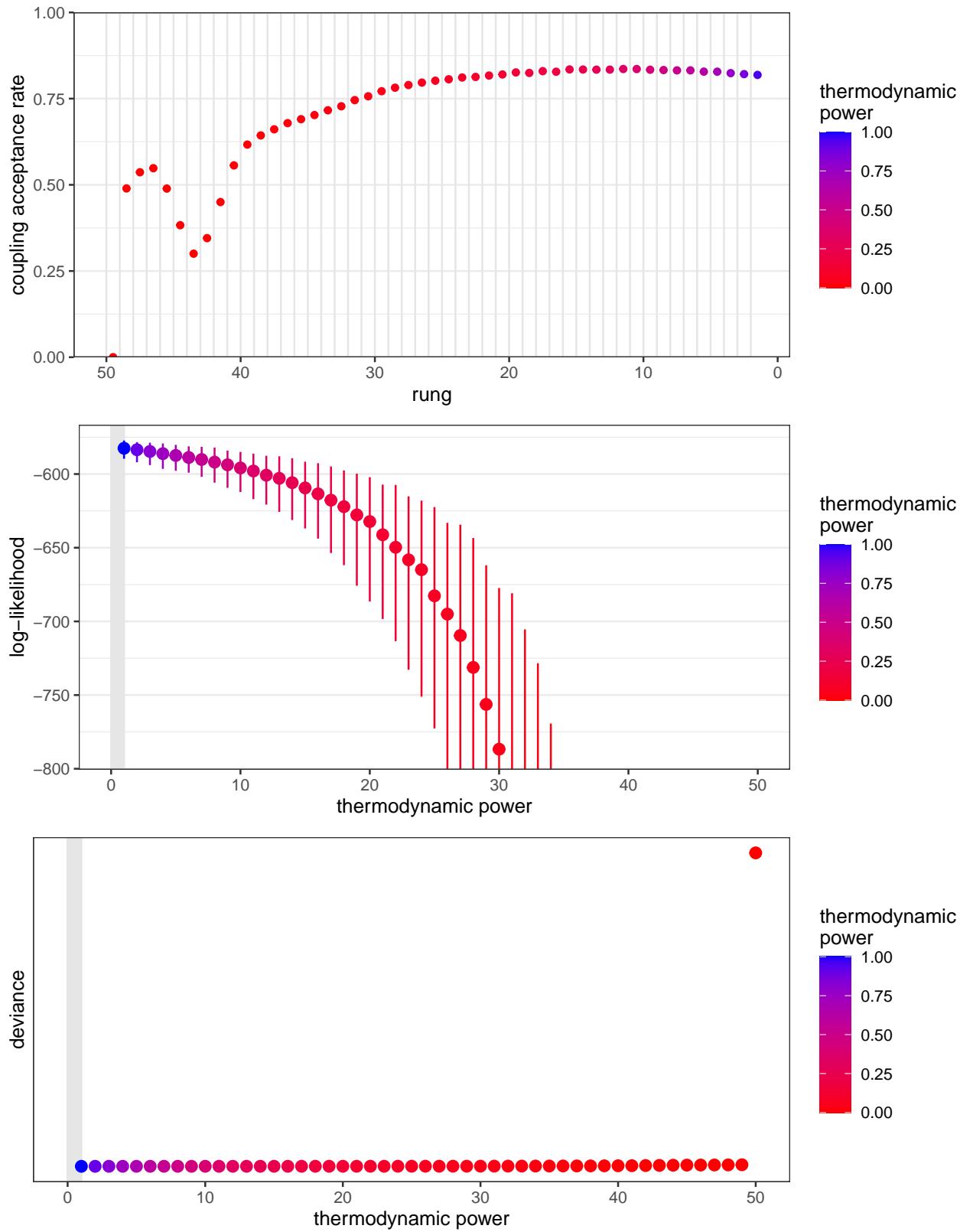
# SWE1 with Standard Input

## Fit Diagnostics

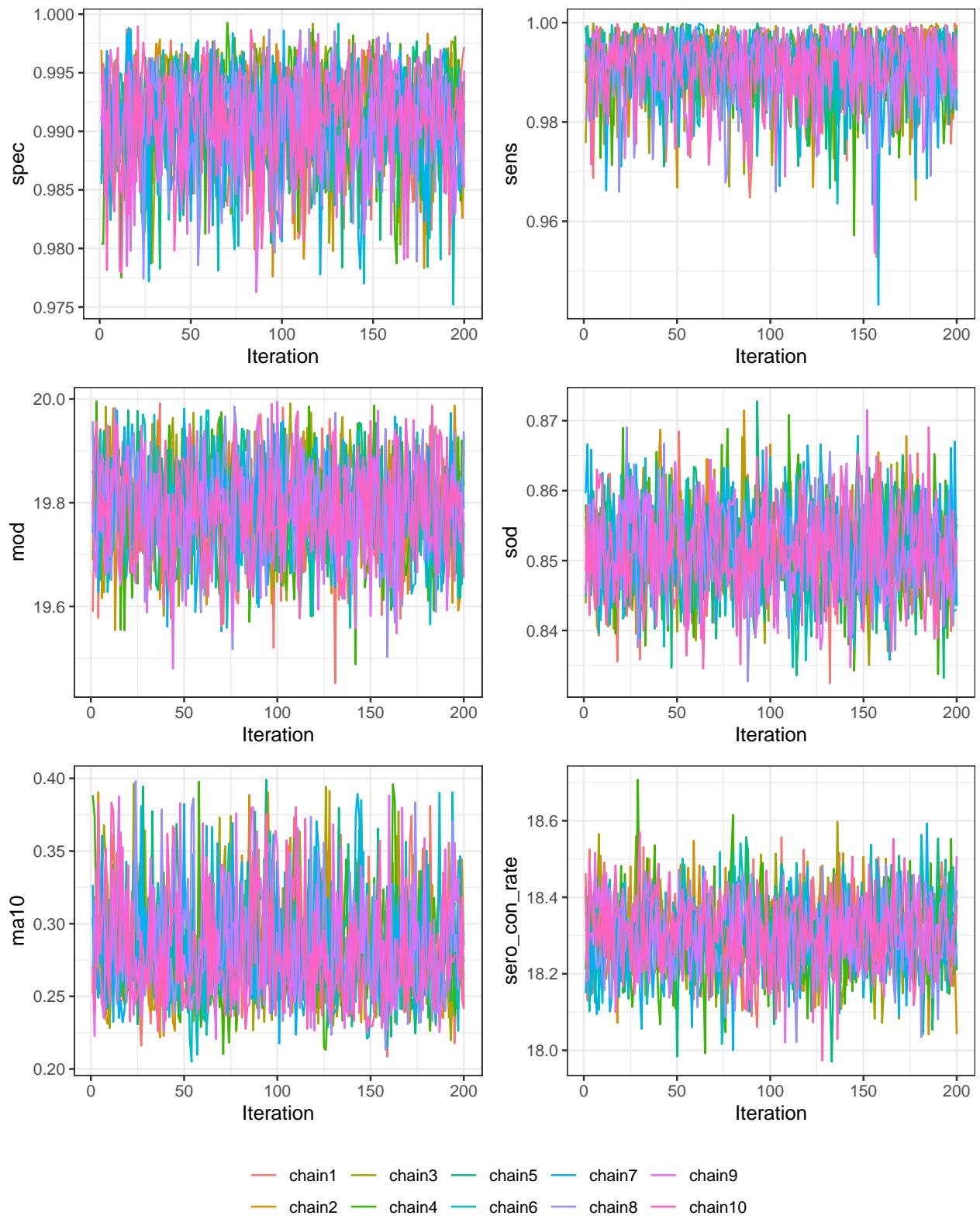
### Log Likelihood & Prior Plot



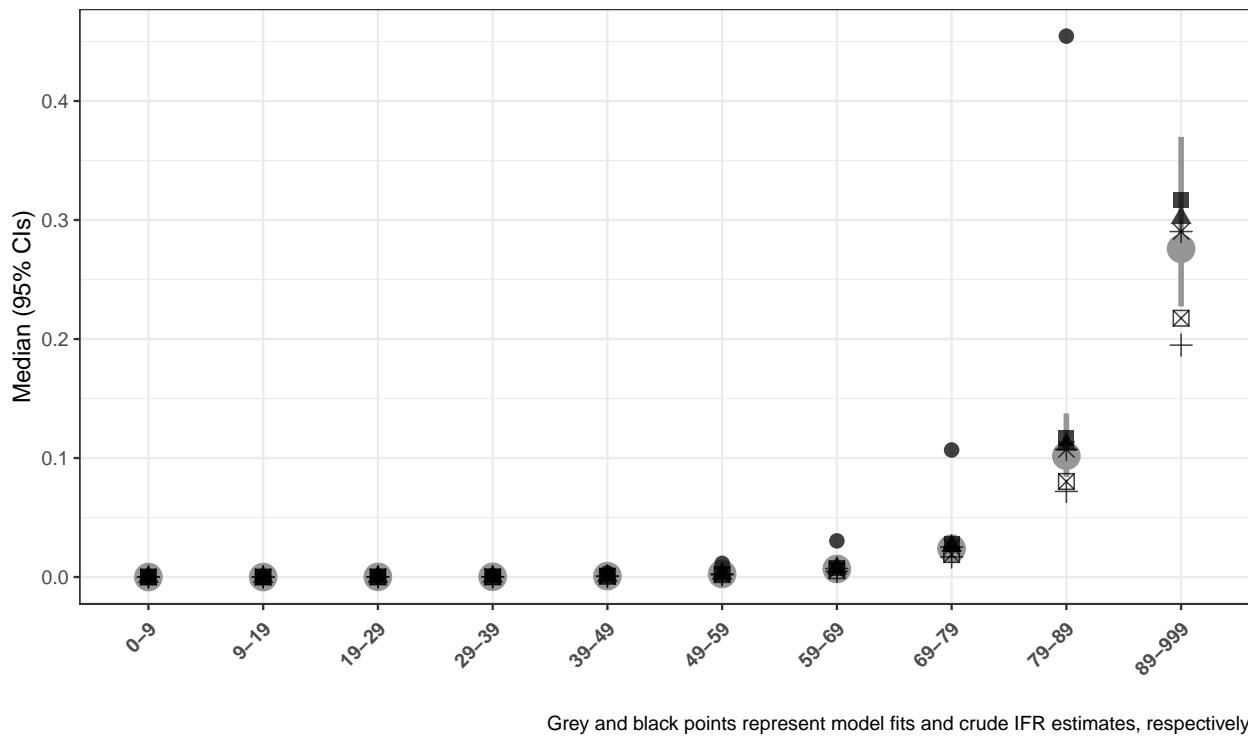
### Metropolis Coupling Acceptance Plot



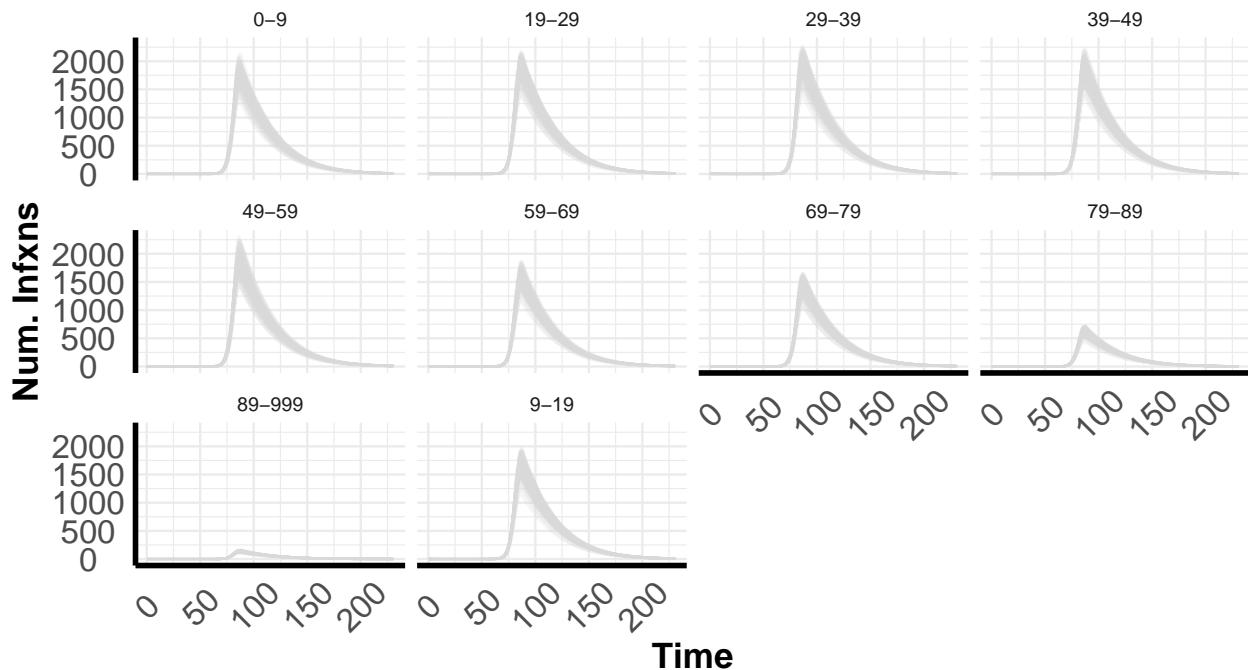
## Serological Diagnostics



## IFRs & Incidence Curve



## Posterior Draws of the Infection Curve



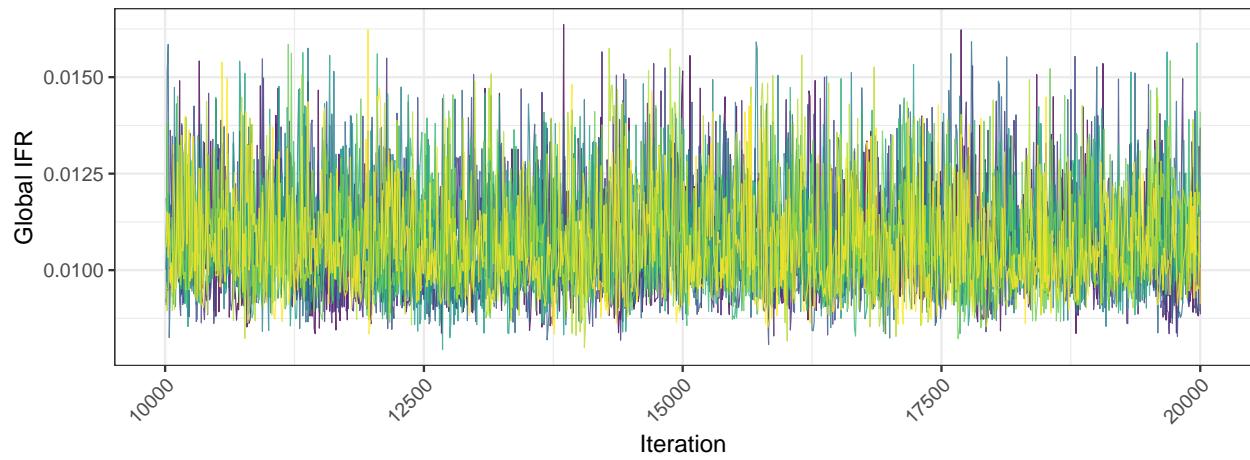
### Strata IFR

strata	param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0-9	ma1	0.0000	0.0000	0.0000	0.0000	0.0001	0.0001	9688.257	0.2020	0.3909
9-19	ma2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8880.366	-1.2848	0.1748
19-29	ma3	0.0000	0.0001	0.0002	0.0002	0.0003	0.0004	8560.884	-0.6443	0.3242
29-39	ma4	0.0000	0.0001	0.0002	0.0002	0.0004	0.0006	6542.476	-1.6875	0.0961
39-49	ma5	0.0004	0.0005	0.0008	0.0008	0.0011	0.0017	5960.171	-1.3579	0.1587
49-59	ma6	0.0016	0.0020	0.0026	0.0026	0.0036	0.0048	3939.867	-1.3249	0.1659
59-69	ma7	0.0046	0.0055	0.0068	0.0070	0.0093	0.0125	4106.867	-1.8477	0.0724
69-79	ma8	0.0164	0.0197	0.0239	0.0245	0.0323	0.0406	3253.013	-1.7139	0.0918
79-89	ma9	0.0736	0.0841	0.1019	0.1043	0.1375	0.1745	3674.632	-2.0057	0.0534
89-999	ma10	0.1992	0.2274	0.2758	0.2821	0.3699	0.3998	2710.478	-2.4061	0.0221

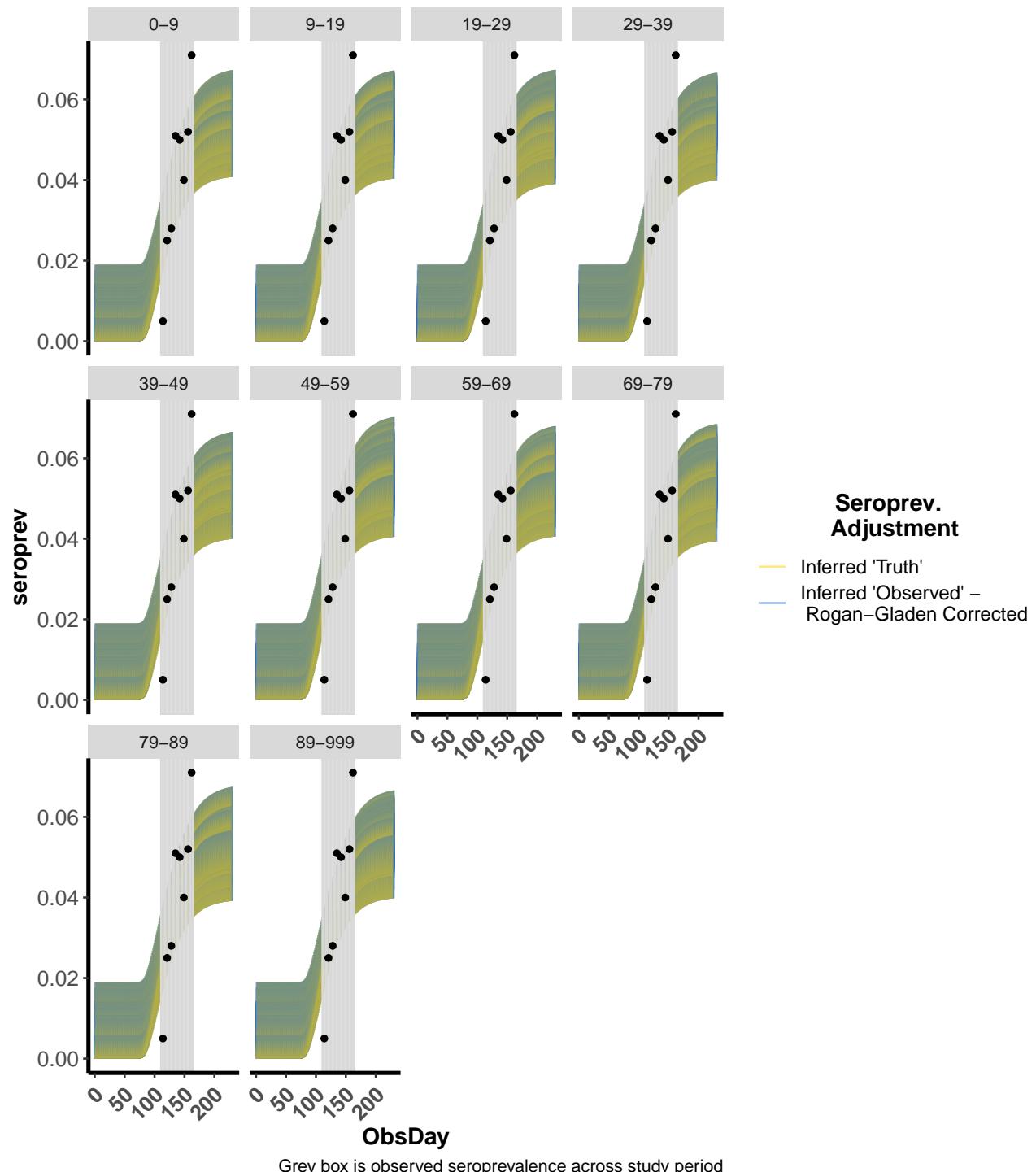
### Overall IFR

min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
0.0079	0.0088	0.0105	0.0107	0.0139	0.0164	5607.15	2.3264	0.0266

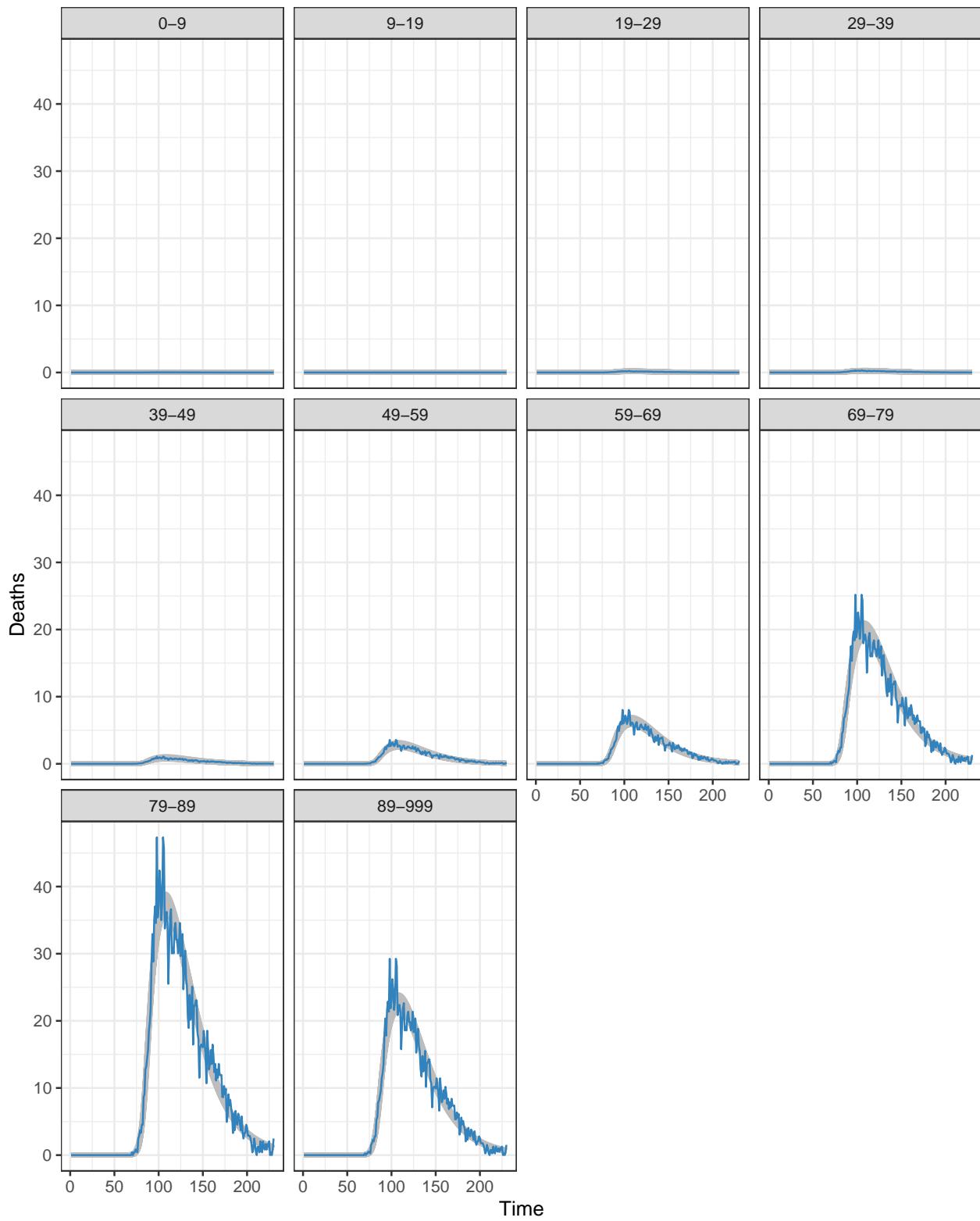
chain	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
chain1	0.0084	0.0087	0.0103	0.0106	0.0139	0.0164	439.5067	-1.0320	0.2342
chain2	0.0082	0.0089	0.0105	0.0107	0.0139	0.0157	608.9281	0.0470	0.3985
chain3	0.0081	0.0088	0.0104	0.0107	0.0140	0.0155	621.0194	2.1847	0.0367
chain4	0.0082	0.0088	0.0104	0.0107	0.0141	0.0159	668.8485	1.5853	0.1135
chain5	0.0082	0.0089	0.0105	0.0107	0.0137	0.0159	325.8071	-0.1386	0.3951
chain6	0.0079	0.0088	0.0104	0.0107	0.0138	0.0157	269.6536	0.4030	0.3678
chain7	0.0083	0.0089	0.0105	0.0108	0.0138	0.0159	260.4823	-0.1681	0.3933
chain8	0.0082	0.0089	0.0105	0.0107	0.0138	0.0159	577.3581	1.8173	0.0765
chain9	0.0080	0.0087	0.0106	0.0109	0.0144	0.0157	262.4081	-0.1825	0.3924
chain10	0.0083	0.0088	0.0103	0.0106	0.0139	0.0162	258.1464	4.2739	0.0000



### Seroprevalence Observed vs. Inferred True Prev



## Death Posterior Predictive Check



## Additional Parameters

param	min	LCI	median	mean	UCI	max	ESS	GewekeZ	GewekeP
x1	1.2710	2.2671	58.1994	54.4532	69.7384	81.3490	888.8217	-0.6197	0.3293
x2	82.5560	84.0719	85.6180	85.7340	88.0257	89.9990	3992.2710	1.5925	0.1122
x3	83.1846	85.9406	88.9153	88.9436	92.2228	94.9441	4276.1930	0.9627	0.2510
x4	214.0006	214.4611	222.5477	222.3506	229.6138	229.9985	1979.7251	1.6829	0.0968
y1	0.0002	0.0640	1.3770	1.5521	4.0616	6.0763	3587.8791	0.3921	0.3694
y2	0.0006	0.0610	1.5883	1.9575	5.6766	9.0439	2018.8442	-1.7828	0.0814
y3	8.9913	9.2785	9.5729	9.5553	9.7477	9.8702	2825.4273	1.8662	0.0699
y4	8.9886	9.2546	9.5481	9.5312	9.7195	9.8407	2776.5021	1.7203	0.0908
y5	3.5604	4.0296	4.6348	4.6230	5.1623	5.4706	2988.8070	0.1803	0.3925
Ne1	0.8267	0.9100	1.0004	1.0006	1.0918	1.1724	10000.0000	0.8728	0.2726
Ne10	0.8354	0.9086	1.0005	1.0007	1.0925	1.2125	6673.2982	1.5621	0.1178
Ne2	0.8141	0.9086	1.0003	1.0003	1.0925	1.1752	9086.4368	0.3759	0.3717
Ne3	0.8214	0.9104	0.9998	1.0002	1.0919	1.1732	9582.2144	-1.0589	0.2277
Ne4	0.7909	0.9092	1.0003	1.0008	1.0923	1.1765	9347.4141	2.3849	0.0232
Ne5	0.8196	0.9084	1.0004	1.0002	1.0915	1.1838	9569.8270	-1.7562	0.0853
Ne6	0.8228	0.9106	1.0016	1.0010	1.0916	1.1966	9361.8328	-2.2329	0.0330
Ne7	0.8223	0.9068	1.0006	1.0002	1.0911	1.1894	9204.0410	-0.2042	0.3907
Ne8	0.8243	0.9071	1.0013	1.0006	1.0913	1.1643	7839.1989	-0.0494	0.3985
Ne9	0.8302	0.9065	0.9991	0.9995	1.0928	1.2145	6077.7745	-0.5493	0.3431