

Supplementary Table S1.a Excess mortality estimates in 2020 in the different models by region.

	ISTAT-ISS REPORT 2020	Model 1 - 2020	Model 2 -2020	Model 3 - 2020
Abruzzo	943	1228 (623; 1789)	941 (906, 974)	1802 (1285, 2292)
Basilicata	346	275 (-69; 592)	346 (339, 356)	553 (301, 778)
Calabria	814	783 (-30; 1538)	815 (789, 848)	1339 (632, 1972)
Campania	3907	4563 (2668; 6343)	3925 (3780, 4064)	4980 (3174, 6662)
Emilia-Romagna	8762	8699 (7120; 10177)	8761 (8515, 9012)	10752 (9127, 12276)
Friuli-Venezia Giulia	1843	1978 (1448; 2475)	1848 (1769, 1935)	2435 (1919, 2897)
Lazio	3233	3631 (1565; 5564)	3241 (3141, 3335)	5059 (3211, 6812)
Liguria	3719	4046 (3248; 4787)	3724 (3569, 3872)	4799 (4082, 5461)
Lombardia	36500	34887 (31290; 38280)	36354 (34427, 38398)	39484 (36112, 42538)
Marche	2260	2482 (1675; 3223)	2258 (2159, 2358)	3018 (2411, 3558)
Molise	230	300 (62; 517)	232 (222, 239)	418 (262, 561)
Piemonte	12306	12232 (10179; 14169)	12378 (11661, 13145)	14035 (12253, 15668)
P.A. Bolzano	1011	978 (710; 1221)	1011 (960, 1066)	1010 (828, 1176)
P.A. Trento	1526	1474 (1192; 1734)	1526 (1440, 1608)	1690 (1491, 1872)
Puglia	4815	4713 (3107; 6214)	4811 (4605, 5028)	4854 (3507, 6092)
Sardegna	2158	1785 (1049; 2470)	2156 (2109, 2214)	1864 (1242, 2438)
Sicilia	3114	2897 (1078; 4614)	3113 (2983, 3265)	4163 (2403, 5822)
Toscana	3824	3970 (2427; 5403)	3824 (3700, 3954)	4744 (3309, 6099)
Umbria	586	692 (200; 1145)	590 (567, 616)	962 (583, 1303)
Valle d'Aosta	368	411 (275; 533)	368 (341, 399)	372 (293, 442)
Veneto	8263	8026 (6451; 9518)	8263 (8081, 8449)	8823 (7206, 10338)

Supplementary Table S1.b Excess mortality estimates in 2021 in the different models by region.

	ISTAT-ISS REPORT 2021	Model 1 - 2021	Model 2 -2021	Model 3 - 2021
Abruzzo	1304	1636 (1047; 2208)	1299 (1256, 1345)	2020 (1731, 2314)
Basilicata	515	465 (132; 788)	513 (506, 527)	739 (594, 883)
Calabria	2594	2640 (1852; 3411)	2593 (2510, 2680)	2513 (2135, 2895)
Campania	6230	7059 (5218; 8877)	6231 (6006, 6464)	7658 (6818, 8486)
Emilia-Romagna	4706	4893 (3355; 6406)	4708 (4581, 4838)	6119 (5292, 6925)
Friuli-Venezia Giulia	2156	2371 (1853; 2878)	2160 (2059, 2262)	2464 (2173, 2754)
Lazio	4851	5486 (3487; 7450)	4858 (4691, 5024)	6358 (5444, 7247)
Liguria	591	1022 (249; 1782)	591 (566, 614)	1991 (1591, 2375)
Lombardia	8688	7482 (3947; 10954)	8679 (8255, 9137)	10238 (8190, 12110)
Marche	2047	2340 (1558; 3098)	2043 (1962, 2135)	2502 (2165, 2841)
Molise	568	651 (420; 873)	571 (551, 598)	593 (496, 689)
Piemonte	2935	3048 (1058; 5012)	2936 (2752, 3140)	5667 (4672, 6586)
P.A. Bolzano	606	600 (339; 850)	603 (577, 630)	569 (460, 679)
P.A. Trento	402	392 (117; 657)	402 (377, 427)	618 (500, 741)
Puglia	7355	7399 (5834; 8939)	7354 (7026, 7696)	6307 (5646, 6993)
Sardegna	1949	1633 (914; 2334)	1948 (1901, 1995)	1679 (1360, 1991)
Sicilia	6874	6916 (5145; 8666)	6875 (6588, 7180)	6506 (5683, 7284)
Toscana	3443	3736 (2234; 5203)	3441 (3332, 3552)	4978 (4272, 5677)
Umbria	1036	1199 (720; 1663)	1038 (1001, 1075)	1427 (1215, 1638)
Valle d'Aosta	52	106 (-28; 229)	55 (49, 53)	162 (122, 201)
Veneto	4515	4631 (3098; 6151)	4522 (4414, 4626)	5799 (4996, 6556)

Supplementary Table S1.c Relative excess mortality estimates in 2020 in the different models by region.

	ISTAT-ISS REPORT 2020	Model 1 - 2020	Model 2 -2020	Model 3 - 2020
Abruzzo	6.14	8.21	6.13	12.43
Basilicata	5.33	4.22	5.33	8.8
Calabria	3.97	3.83	3.97	6.7
Campania	7.04	8.37	7.07	9.15
Emilia-Romagna	17.21	17.2	17.21	21.98
Friuli-Venezia Giulia	12.47	13.63	12.51	17.17
Lazio	5.49	6.25	5.5	8.86
Liguria	16.82	18.72	16.85	22.82
Lombardia	36.59	34.67	36.44	40.8
Marche	12.65	14.17	12.64	17.64
Molise	5.91	7.89	5.96	11.27
Piemonte	22.89	22.89	23.03	26.98
P.A. Bolzano	22.73	22.03	22.73	22.71
P.A. Trento	29.91	28.92	29.92	34.24
Puglia	12.09	11.89	12.08	12.2
Sardegna	12.82	10.44	12.8	10.88
Sicilia	5.81	5.42	5.8	7.92
Toscana	8.63	9.05	8.63	10.93
Umbria	5.56	6.69	5.6	9.46
Valle d'Aosta	24.83	28.88	24.88	25.19
Veneto	16.67	16.28	16.67	18

Supplementary Table S1.d Relative excess mortality estimates in 2021 the different models by region.

	ISTAT-ISS REPORT 2021	Model 1 - 2021	Model 2 -2021	Model 3 - 2021
Abruzzo	8.49	10.93	8.46	13.8
Basilicata	7.93	7.13	7.9	11.79
Calabria	12.64	12.93	12.64	12.2
Campania	11.22	12.95	11.22	14.16
Emilia-Romagna	9.24	9.68	9.25	12.36
Friuli-Venezia Giulia	14.59	16.34	14.62	17.03
Lazio	8.23	9.44	8.24	11.07
Liguria	2.67	4.73	2.67	9.61
Lombardia	8.71	7.44	8.7	10.43
Marche	11.46	13.36	11.44	14.37
Molise	14.59	17.13	14.66	15.32
Piemonte	5.46	5.7	5.46	11.11
P.A. Bolzano	13.63	13.52	13.56	12.69
P.A. Trento	7.87	7.69	7.88	12.65
Puglia	18.46	18.66	18.46	15.43
Sardegna	11.58	9.55	11.57	9.82
Sicilia	12.82	12.94	12.82	12.05
Toscana	7.77	8.51	7.77	11.64
Umbria	9.82	11.58	9.84	14.05
Valle d'Aosta	3.5	7.45	3.72	11.82
Veneto	9.11	9.39	9.12	12.01