

Supplemental Appendix 1

Figure 1.1: Overall group- Total number of excess deaths by age group and rurality of residence, March 2020 to February 2023

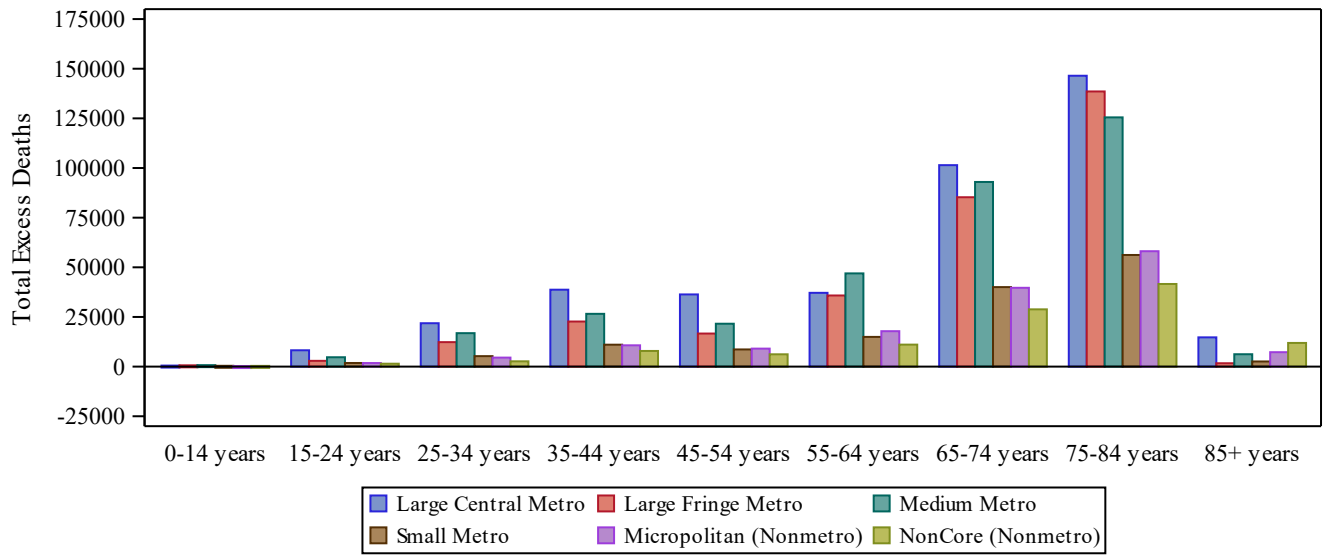


Table 1.1: Overall group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

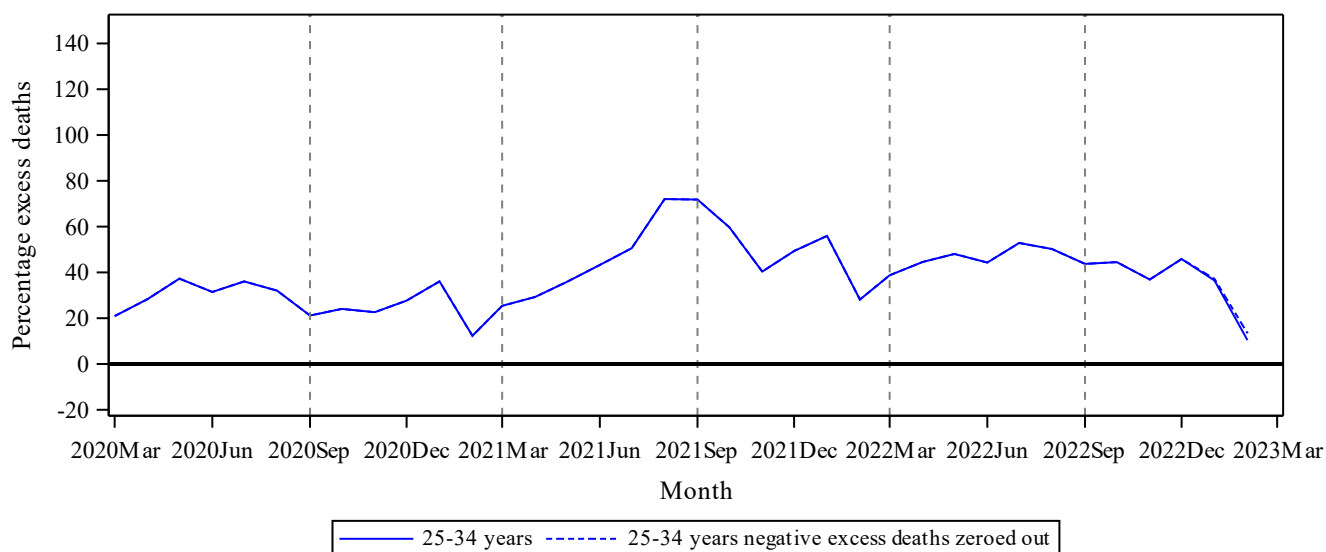
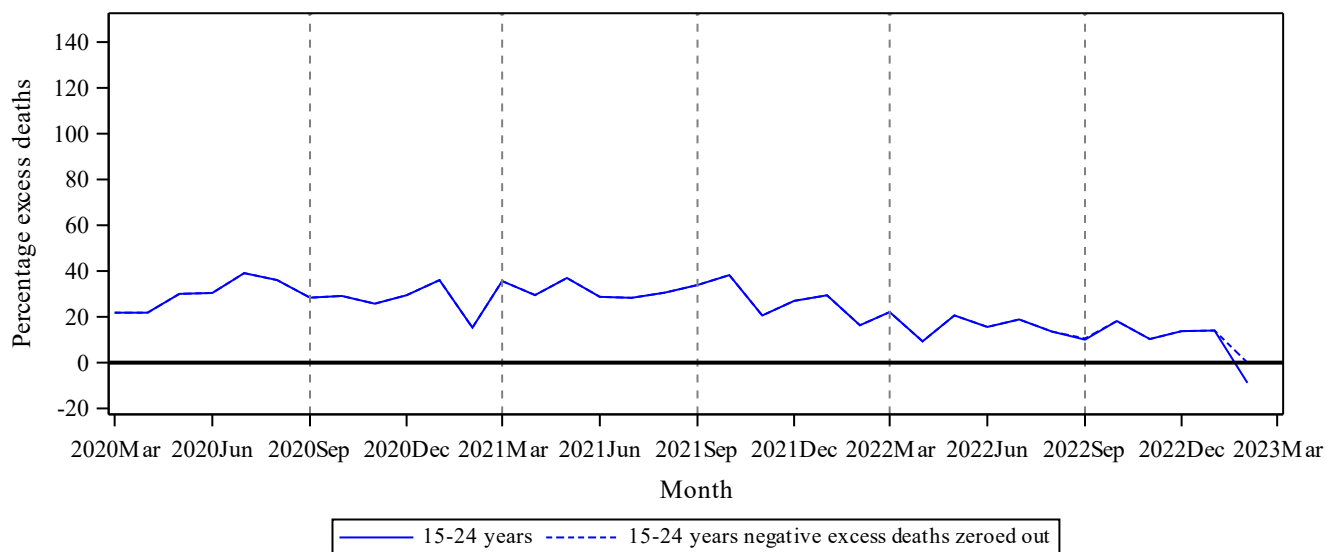
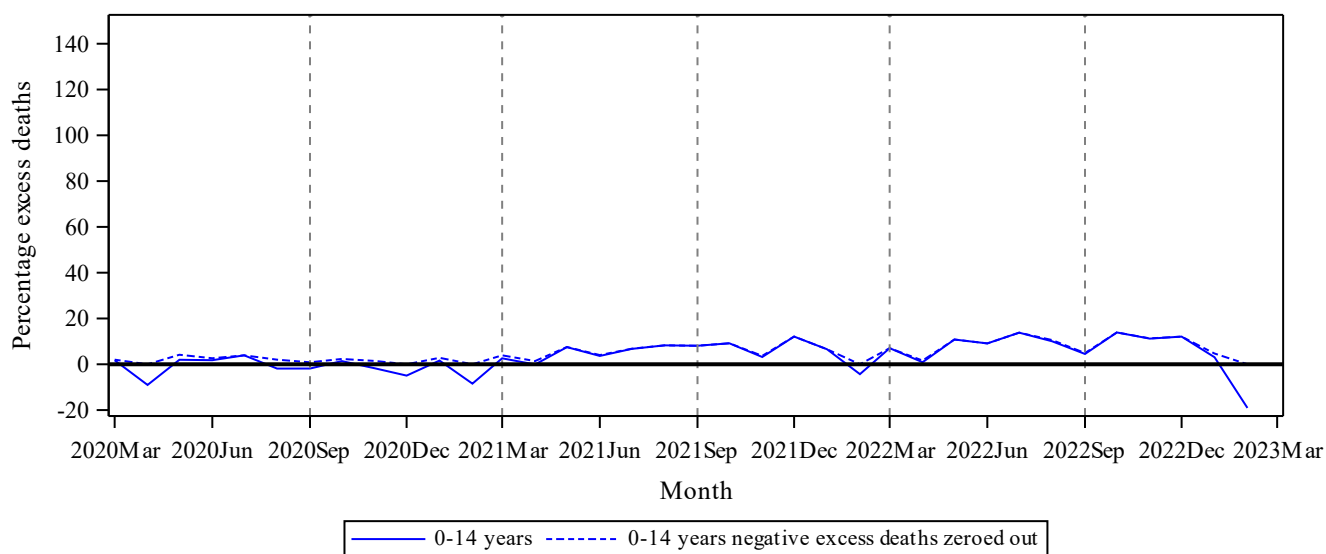
Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	2632738	2227290.36	18.20	18.06	18.35	298389141	882.32	746.44	135.88
Large Fringe Metro	2340327	2023765.23	15.64	15.49	15.79	249068904	939.63	812.53	127.10
Medium Metro	2228452	1886352.78	18.14	17.98	18.29	206126790	1081.11	915.14	165.97
Small Metro	1051099	910136.26	15.49	15.27	15.71	88828485	1183.29	1024.60	158.69
Micropolitan (Nonmetro)	1065192	915914.69	16.30	16.08	16.52	80710329	1319.77	1134.82	184.95
NonCore (Nonmetro)	820852	708862.14	15.80	15.55	16.05	54601875	1503.34	1298.24	205.10
Total	10138660	8672321.45	16.91	16.84	16.98	977725524	1036.96	886.99	149.97

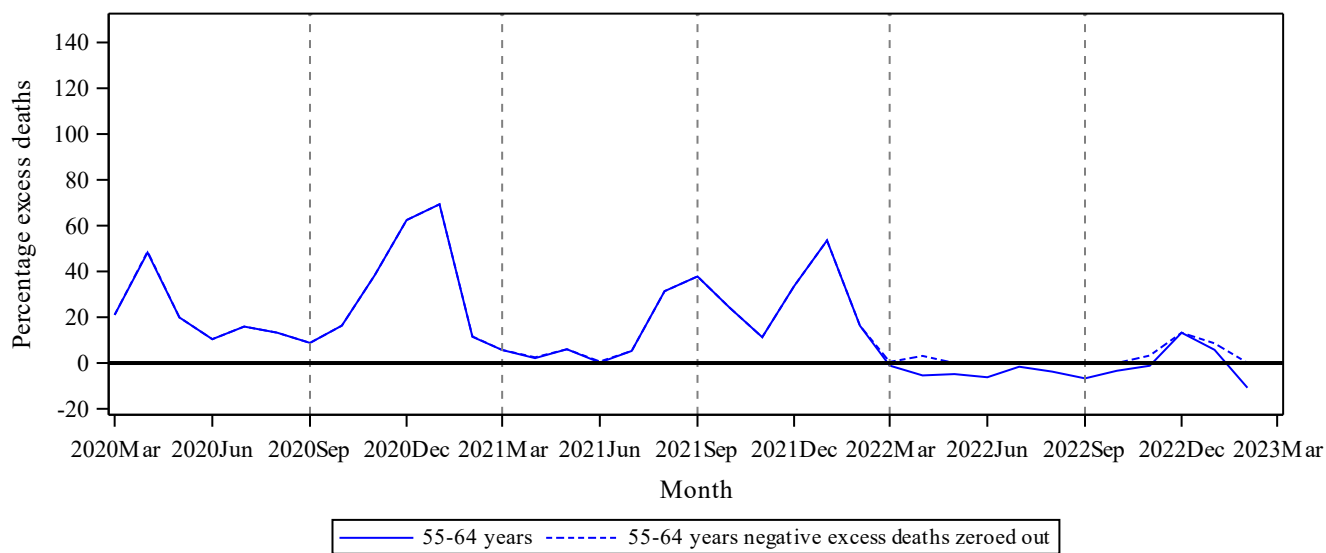
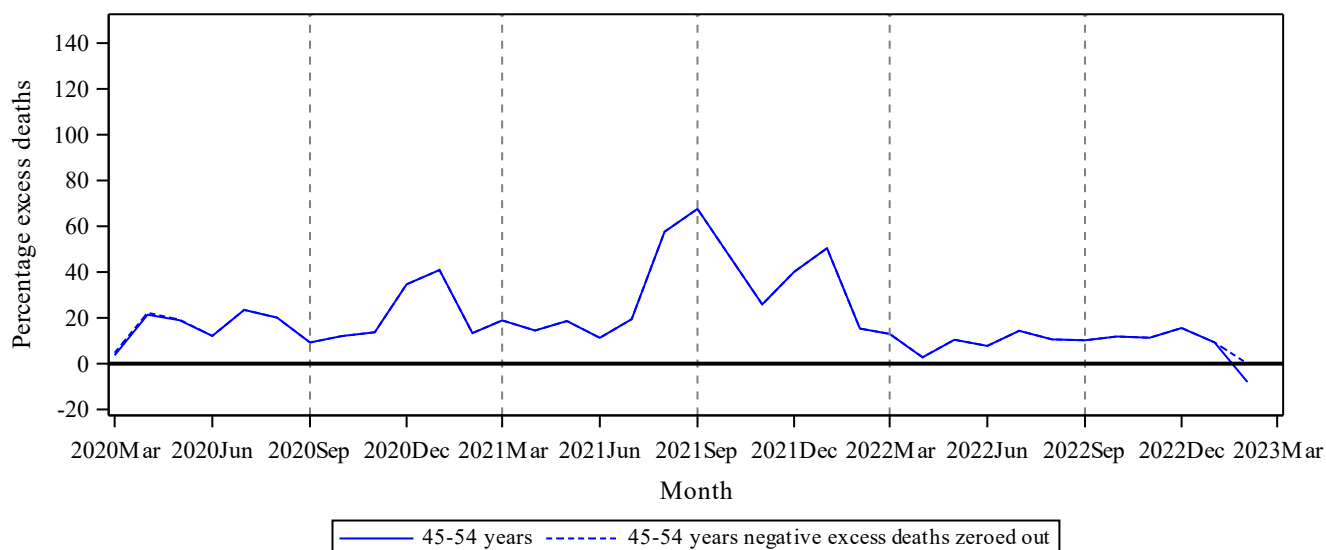
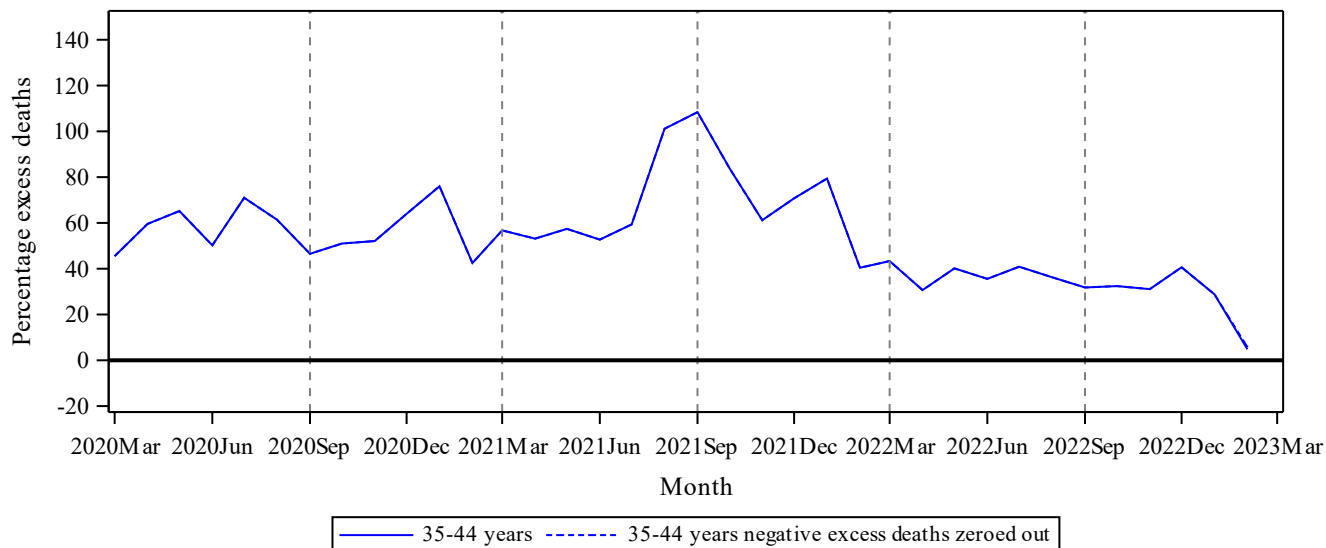
Table 1.2: Overall group- Summary of total observed, expected, and excess deaths by 6-month time period for each rural-urban group, March 2020 to February 2023

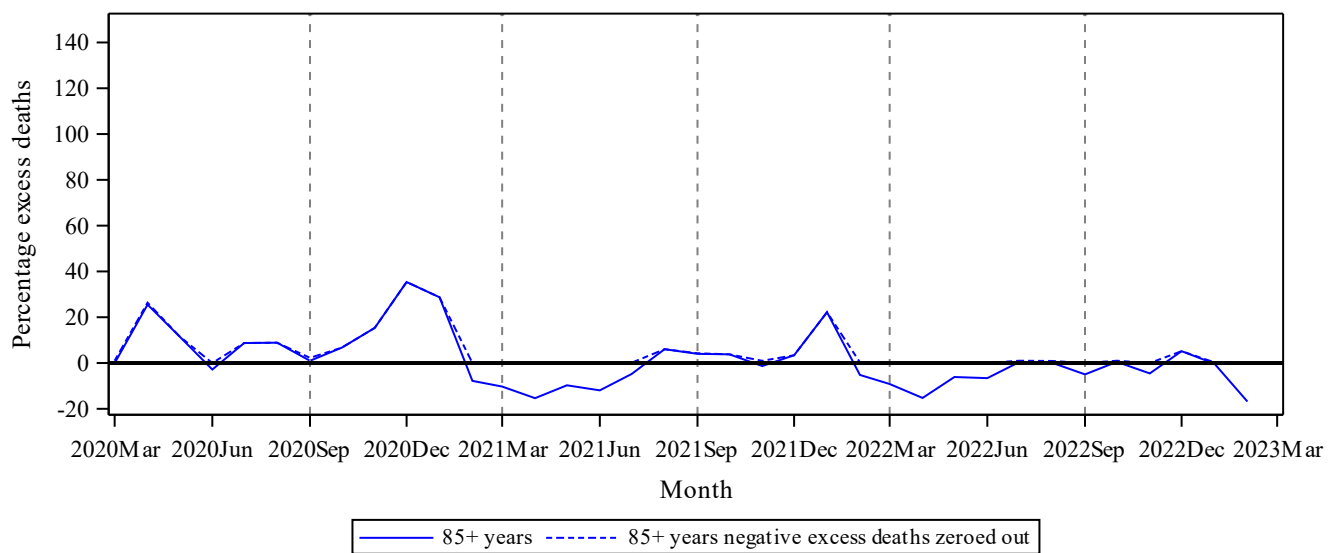
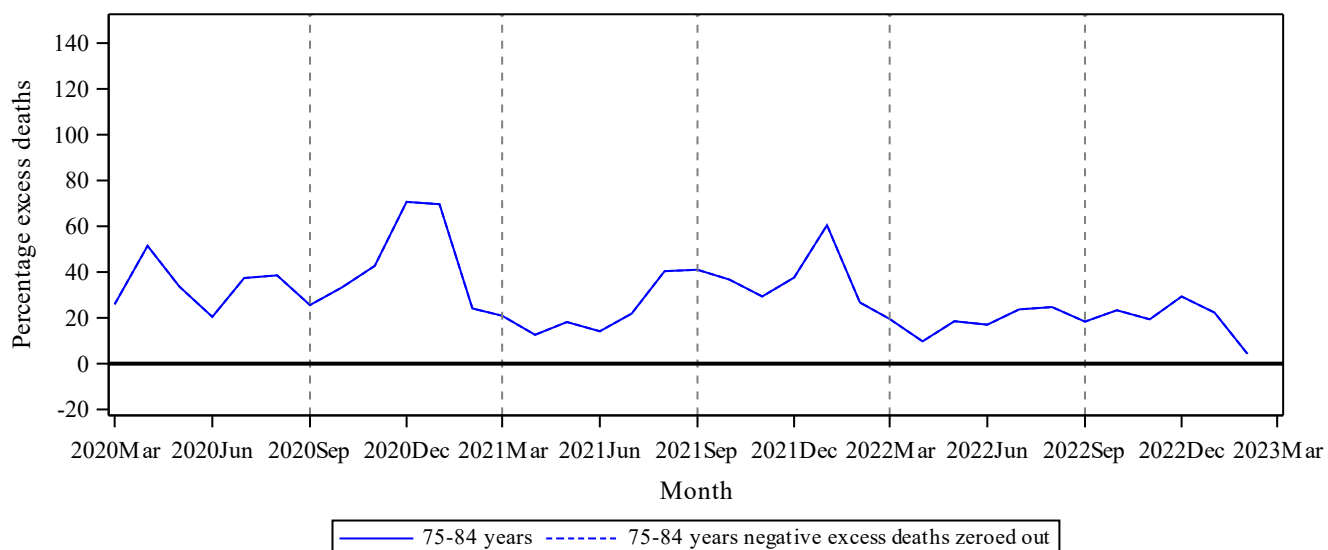
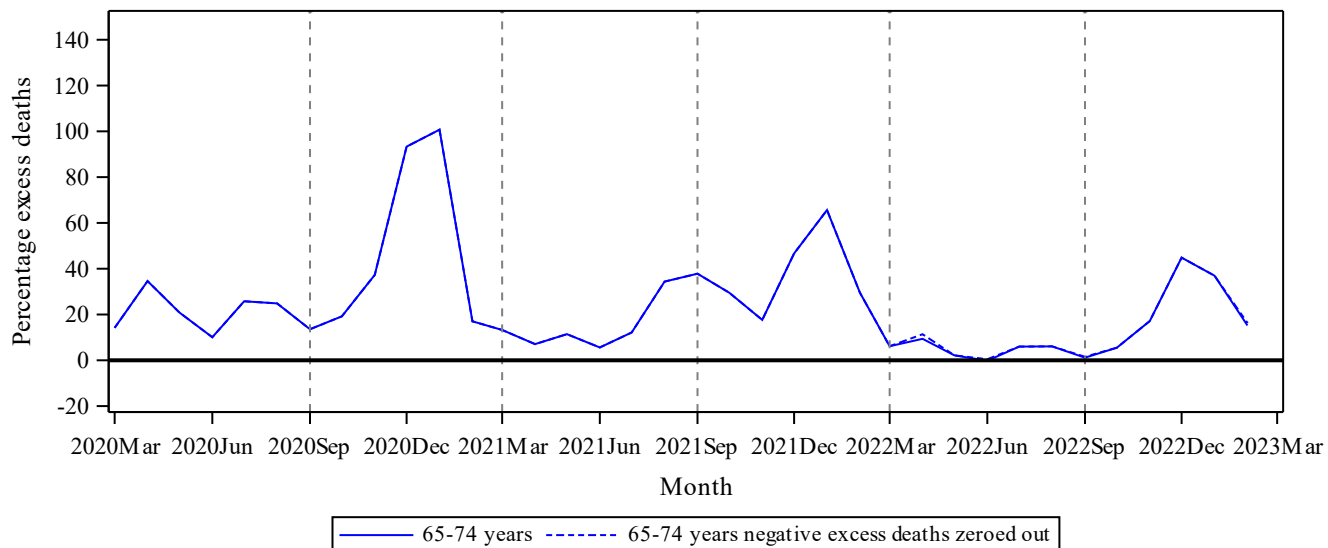
Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	466914	354694.51	31.6383	49641970.5	940.56	714.51	226.058
Large Central Metro	Period 2	485140	365174.05	32.8517	49641970.5	977.28	735.62	241.662
Large Central Metro	Period 3	410339	368018.39	11.4996	49731523.5	825.11	740.01	85.098
Large Central Metro	Period 4	469539	385824.88	21.6974	49731523.5	944.15	775.82	168.332
Large Central Metro	Period 5	391988	373477.02	4.9564	49731523.5	788.21	750.99	37.222
Large Central Metro	Period 6	408818	380101.51	7.5550	49731523.5	822.05	764.31	57.743
Large Fringe Metro	Period 1	396605	325262.95	21.9337	40725789.5	973.84	798.67	175.177
Large Fringe Metro	Period 2	417520	335779.75	24.3434	40725789.5	1025.20	824.49	200.709
Large Fringe Metro	Period 3	365822	338410.14	8.1002	41511484.0	881.25	815.22	66.034
Large Fringe Metro	Period 4	429907	339318.74	26.6971	41511484.0	1035.63	817.41	218.225
Large Fringe Metro	Period 5	355282	341185.08	4.1318	41511484.0	855.86	821.91	33.959
Large Fringe Metro	Period 6	375191	343808.58	9.1279	41511484.0	903.82	828.23	75.599
Medium Metro	Period 1	358413	303301.05	18.1707	33909767.5	1056.96	894.44	162.525
Medium Metro	Period 2	404293	307626.08	31.4235	33909767.5	1192.26	907.19	285.071
Medium Metro	Period 3	352695	318760.30	10.6458	34354465.0	1026.64	927.86	98.778
Medium Metro	Period 4	414149	318303.84	30.1112	34354465.0	1205.52	926.53	278.989
Medium Metro	Period 5	341896	319330.51	7.0665	34354465.0	995.20	929.52	65.684
Medium Metro	Period 6	357006	319030.99	11.9032	34354465.0	1039.18	928.64	110.539
Small Metro	Period 1	164425	143494.48	14.5863	14662633.5	1121.39	978.64	142.747
Small Metro	Period 2	193586	147438.17	31.2998	14662633.5	1320.27	1005.54	314.731
Small Metro	Period 3	165696	150938.93	9.7768	14804747.5	1119.21	1019.53	99.678
Small Metro	Period 4	199791	158742.02	25.8589	14804747.5	1349.51	1072.24	277.269
Small Metro	Period 5	160167	153438.68	4.3850	14804747.5	1081.86	1036.42	45.447
Small Metro	Period 6	167434	156083.98	7.2717	14804747.5	1130.95	1054.28	76.665
Micropolitan (Nonmetro)	Period 1	164417	146742.85	12.0443	13344824.0	1232.07	1099.62	132.442
Micropolitan (Nonmetro)	Period 2	198807	151209.60	31.4778	13344824.0	1489.77	1133.10	356.673
Micropolitan (Nonmetro)	Period 3	166947	151520.11	10.1814	13451721.5	1241.08	1126.40	114.683
Micropolitan (Nonmetro)	Period 4	205455	157613.09	30.3540	13451721.5	1527.35	1171.69	355.656
Micropolitan (Nonmetro)	Period 5	160736	153614.23	4.6361	13451721.5	1194.91	1141.97	52.943
Micropolitan (Nonmetro)	Period 6	168830	155214.81	8.7718	13451721.5	1255.08	1153.87	101.215
NonCore (Nonmetro)	Period 1	125542	114211.41	9.9207	9123238.0	1376.07	1251.87	124.195
NonCore (Nonmetro)	Period 2	154347	116705.67	32.2532	9123238.0	1691.80	1279.21	412.587
NonCore (Nonmetro)	Period 3	128557	115981.61	10.8426	9100312.5	1412.67	1274.48	138.186
NonCore (Nonmetro)	Period 4	158681	121599.20	30.4951	9100312.5	1743.69	1336.21	407.478
NonCore (Nonmetro)	Period 5	124099	117216.34	5.8718	9100312.5	1363.68	1288.05	75.631
NonCore (Nonmetro)	Period 6	129626	123147.90	5.2604	9100312.5	1424.41	1353.23	71.185

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 1.2: Overall group- Percent Excess Deaths by month by age group, March 2020 to February 2023







Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Supplemental Appendix 2

Figure 2.1: Male group- Total number of excess deaths by age group and rurality of residence, March 2020 to February 2023

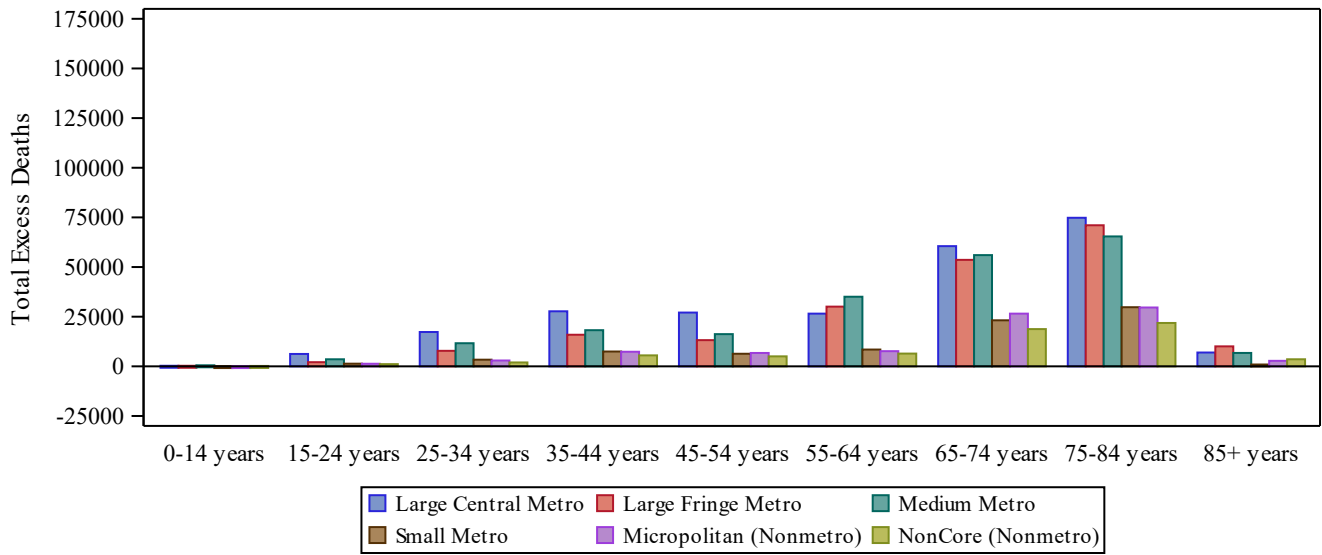


Figure 2.2: Male group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

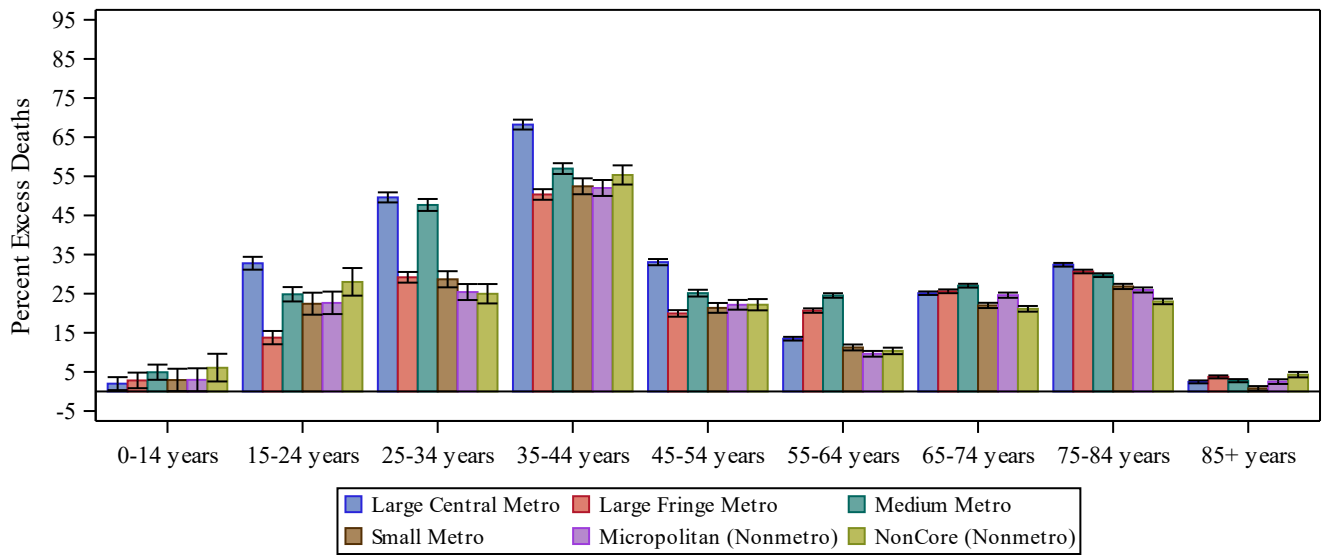
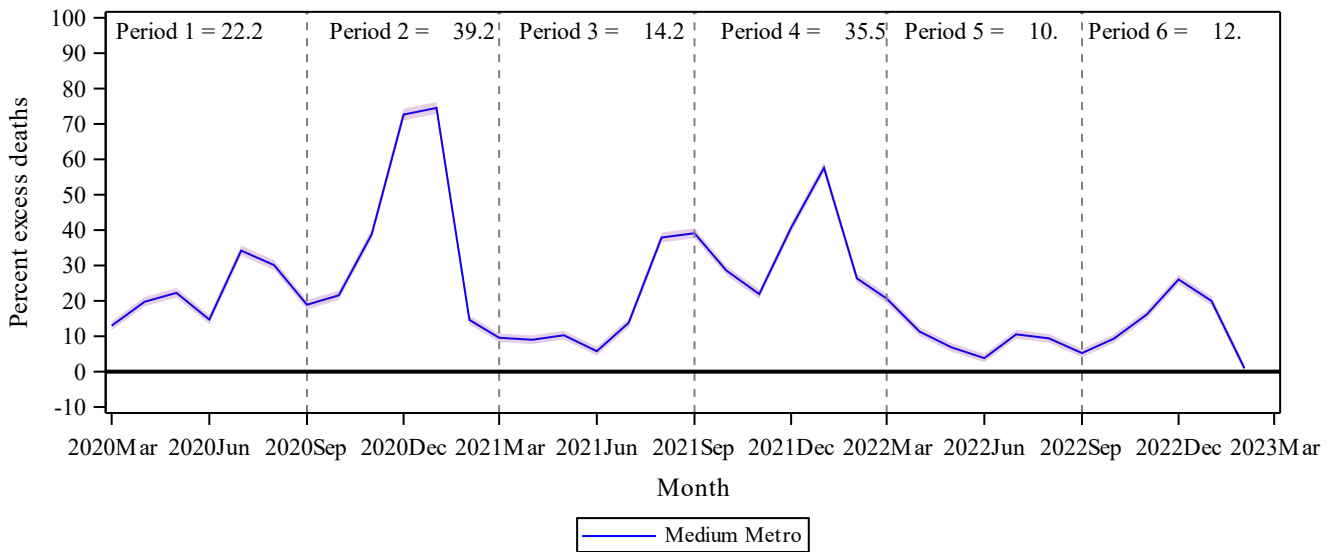
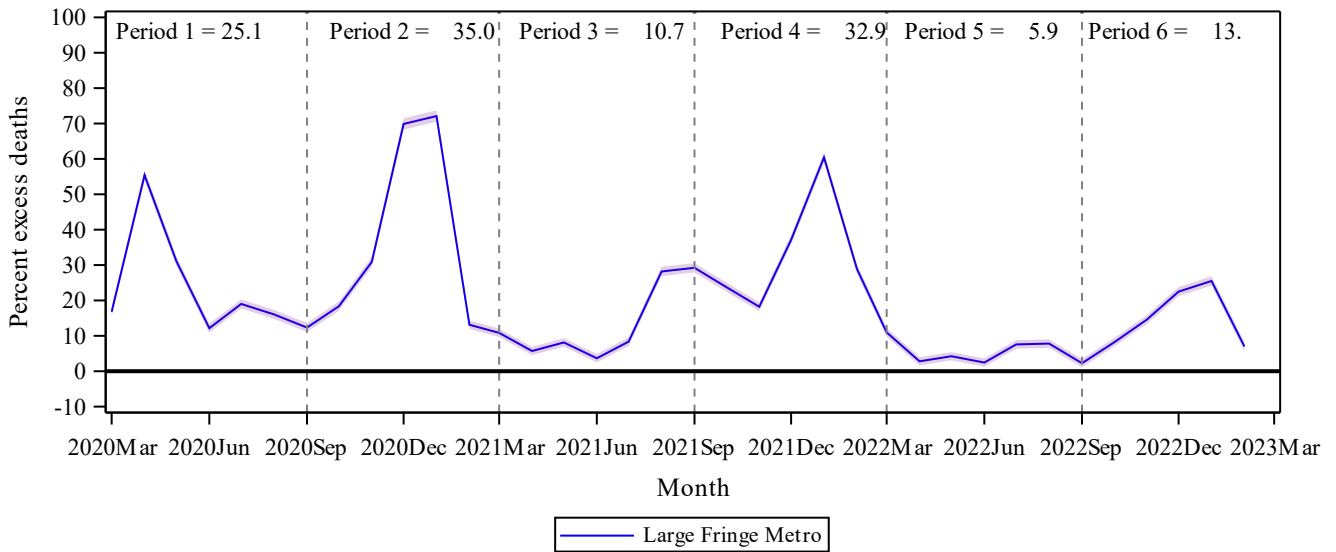
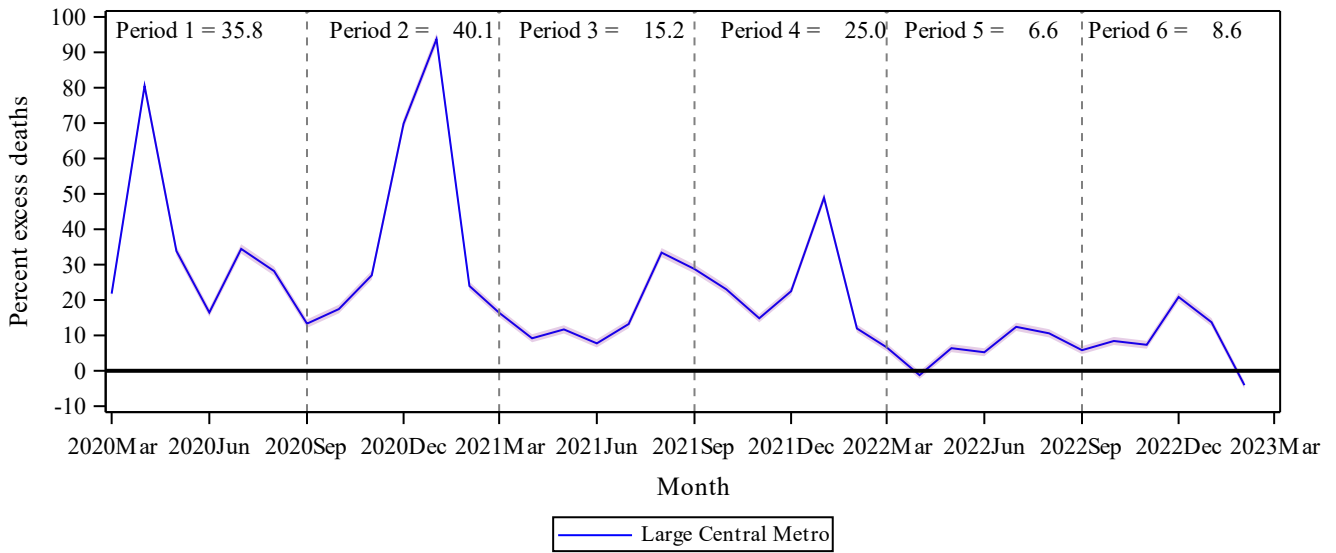
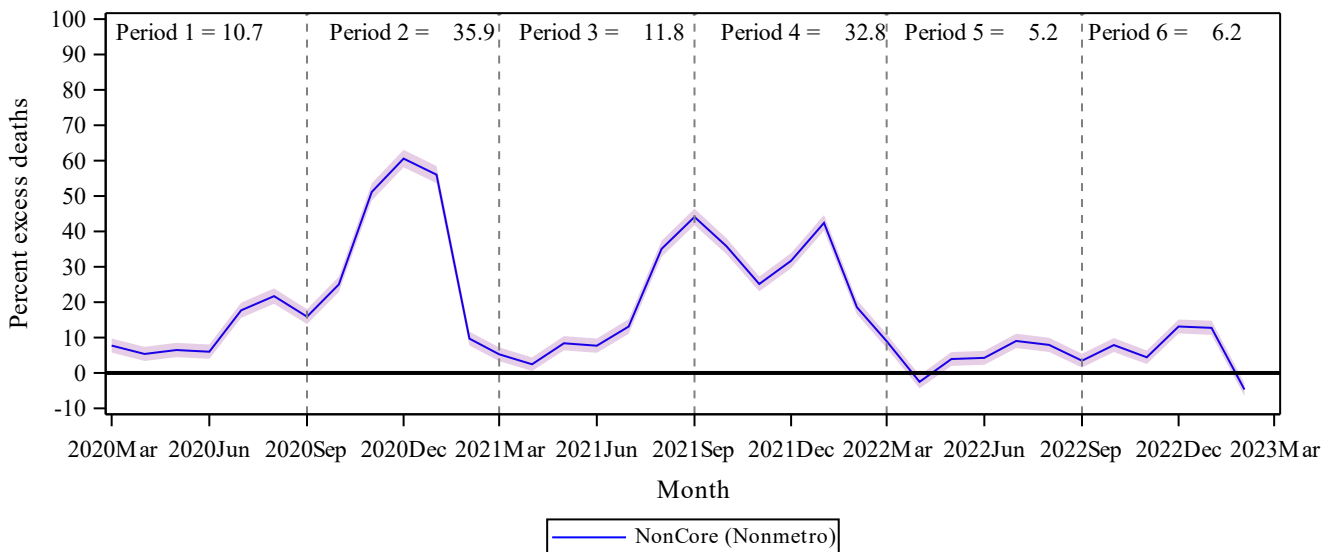
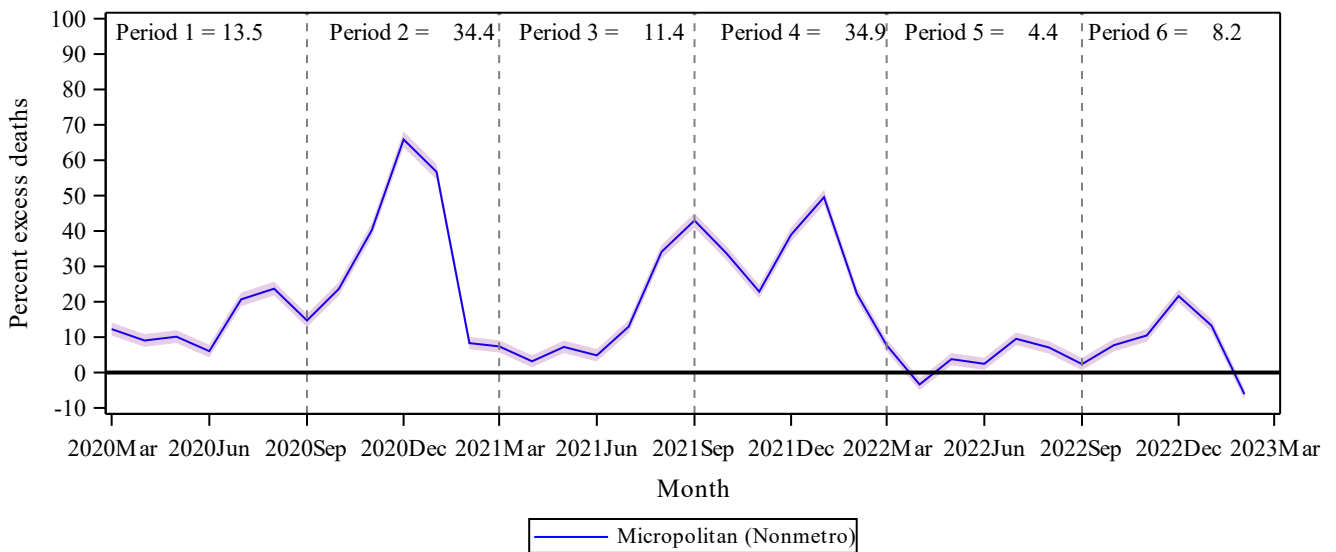
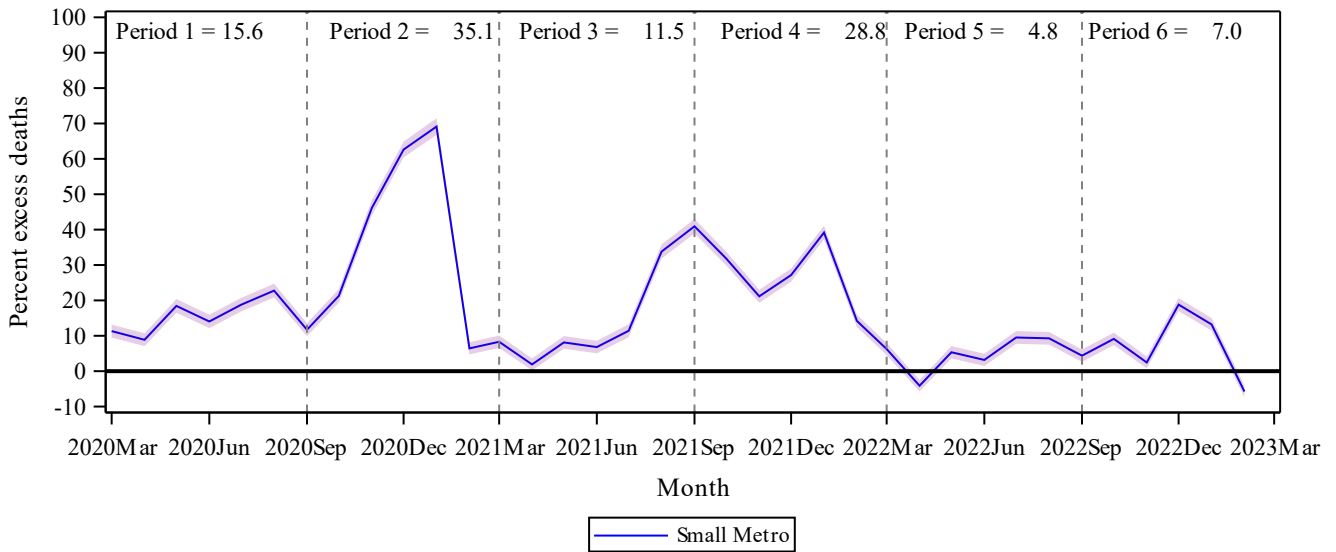


Table 2.1: Male group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	1390979	1143547.11	21.64	21.44	21.84	147572205	942.58	774.91	167.67
Large Fringe Metro	1210315	1006247.06	20.28	20.07	20.49	123615549	979.10	814.01	165.08
Medium Metro	1174260	960902.52	22.20	21.98	22.43	102397464	1146.77	938.40	208.36
Small Metro	555217	474261.20	17.07	16.76	17.38	44421678	1249.88	1067.63	182.24
Micropolitan (Nonmetro)	562930	477889.22	17.80	17.49	18.10	40762551	1381.00	1172.37	208.62
NonCore (Nonmetro)	440621	376221.25	17.12	16.77	17.46	27841626	1582.60	1351.29	231.31
Total	5334322	4439068.35	20.17	20.07	20.27	486611073	1096.22	912.24	183.98

Figure 2.3: Male group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Table 2.2: Male group- Summary of total observed, expected, and excess deaths by 6-month time period for each rural-urban group, March 2020 to February 2023

Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	247067	181900.24	35.8256	25204683.0	980.24	721.69	258.550
Large Central Metro	Period 2	257926	184016.84	40.1643	25204683.0	1023.33	730.09	293.236
Large Central Metro	Period 3	217885	189126.39	15.2060	25136156.0	866.82	752.41	114.411
Large Central Metro	Period 4	248595	198800.16	25.0477	25136156.0	988.99	790.89	198.100
Large Central Metro	Period 5	206623	193821.54	6.6048	25136156.0	822.02	771.09	50.928
Large Central Metro	Period 6	212883	195881.94	8.6792	25136156.0	846.92	779.28	67.636
Large Fringe Metro	Period 1	203858	162832.12	25.1952	20625782.5	988.36	789.46	198.906
Large Fringe Metro	Period 2	216686	160409.73	35.0828	20625782.5	1050.56	777.71	272.844
Large Fringe Metro	Period 3	191074	172555.08	10.7322	20908892.5	913.84	825.27	88.570
Large Fringe Metro	Period 4	224371	168754.37	32.9572	20908892.5	1073.09	807.09	265.995
Large Fringe Metro	Period 5	182906	172606.86	5.9668	20908892.5	874.78	825.52	49.257
Large Fringe Metro	Period 6	191420	169088.89	13.2067	20908892.5	915.50	808.69	106.802
Medium Metro	Period 1	187810	153679.17	22.2091	17151060.5	1095.03	896.03	199.001
Medium Metro	Period 2	213118	153079.97	39.2200	17151060.5	1242.59	892.54	350.054
Medium Metro	Period 3	187997	164503.47	14.2815	17288221.0	1087.43	951.53	135.893
Medium Metro	Period 4	220049	162285.61	35.5937	17288221.0	1272.83	938.71	334.120
Medium Metro	Period 5	179731	162946.31	10.3007	17288221.0	1039.62	942.53	97.087
Medium Metro	Period 6	185555	164407.99	12.8625	17288221.0	1073.30	950.98	122.320
Small Metro	Period 1	86104	74444.10	15.6626	7366444.5	1168.87	1010.58	158.284
Small Metro	Period 2	102217	75627.08	35.1593	7366444.5	1387.60	1026.64	360.960
Small Metro	Period 3	88152	79010.02	11.5707	7401134.5	1191.06	1067.54	123.521
Small Metro	Period 4	106859	82906.23	28.8914	7401134.5	1443.82	1120.18	323.637
Small Metro	Period 5	84374	80490.65	4.8246	7401134.5	1140.01	1087.54	52.470
Small Metro	Period 6	87511	81783.12	7.0037	7401134.5	1182.40	1105.01	77.392
Micropolitan (Nonmetro)	Period 1	86965	76557.68	13.5941	6642425.0	1309.24	1152.56	156.679
Micropolitan (Nonmetro)	Period 2	105178	78246.56	34.4187	6642425.0	1583.43	1177.98	405.446
Micropolitan (Nonmetro)	Period 3	88803	79664.64	11.4710	6657963.0	1333.79	1196.53	137.255
Micropolitan (Nonmetro)	Period 4	109050	80805.83	34.9531	6657963.0	1637.89	1213.67	424.216
Micropolitan (Nonmetro)	Period 5	84822	81193.37	4.4691	6657963.0	1273.99	1219.49	54.501
Micropolitan (Nonmetro)	Period 6	88112	81421.13	8.2176	6657963.0	1323.41	1222.91	100.494
NonCore (Nonmetro)	Period 1	66828	60336.61	10.7586	4499534.5	1485.22	1340.95	144.268
NonCore (Nonmetro)	Period 2	83121	61145.62	35.9394	4499534.5	1847.32	1358.93	488.392
NonCore (Nonmetro)	Period 3	69423	62081.14	11.8262	4460041.5	1556.56	1391.94	164.614
NonCore (Nonmetro)	Period 4	86074	64809.48	32.8108	4460041.5	1929.89	1453.11	476.779
NonCore (Nonmetro)	Period 5	66277	62986.70	5.2238	4460041.5	1486.02	1412.24	73.773
NonCore (Nonmetro)	Period 6	68898	64861.70	6.2229	4460041.5	1544.78	1454.28	90.499

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 2.4: Male group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023

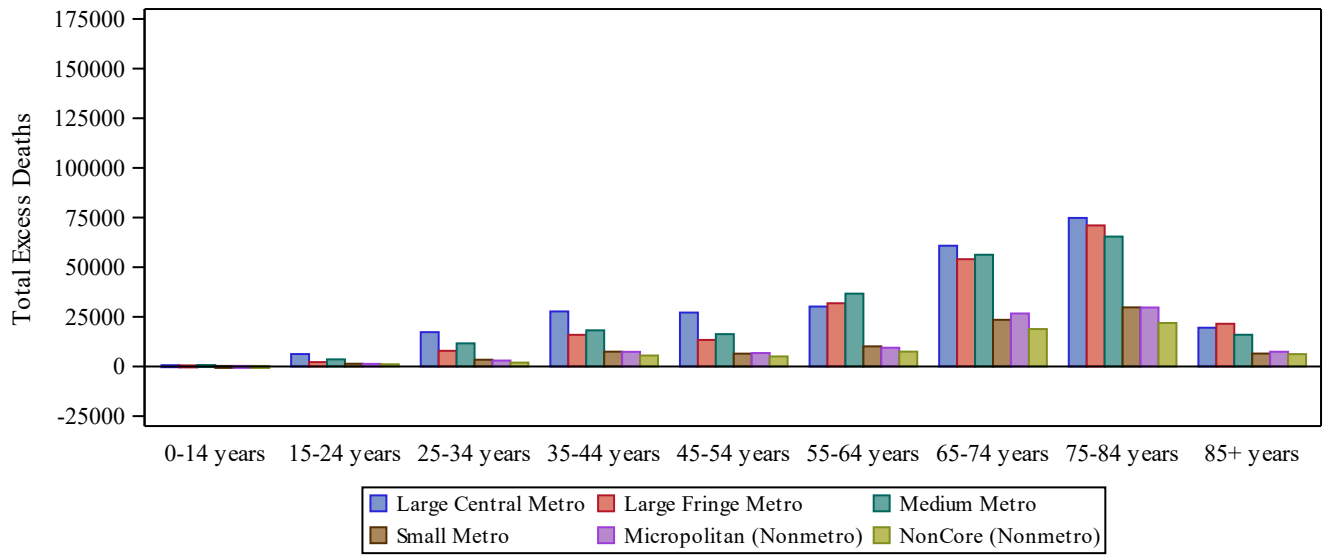
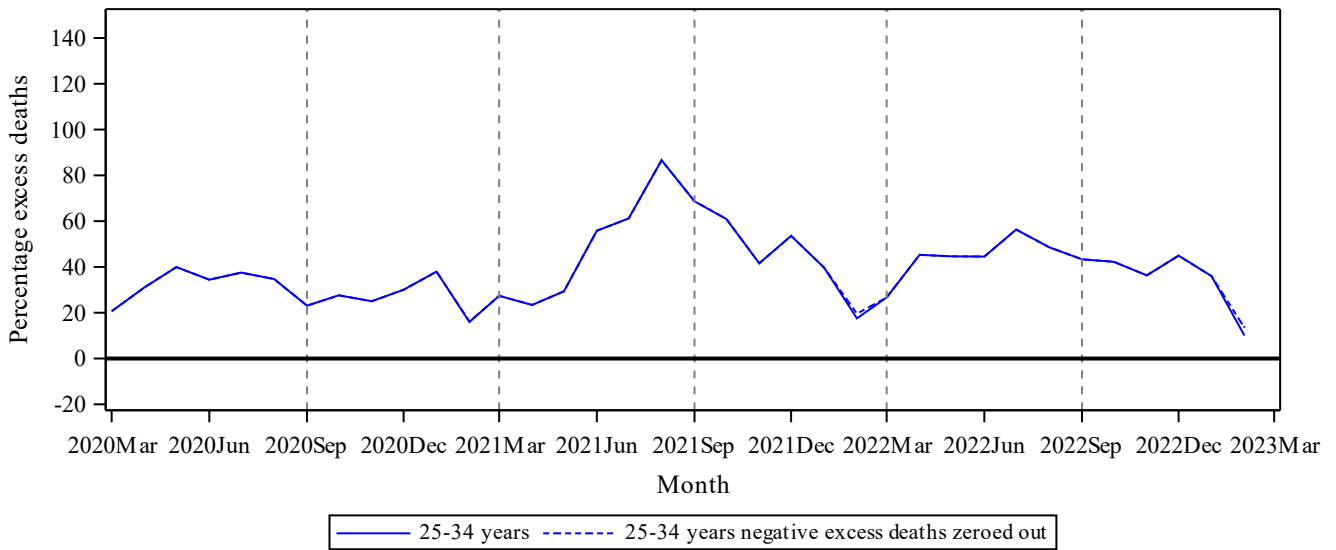
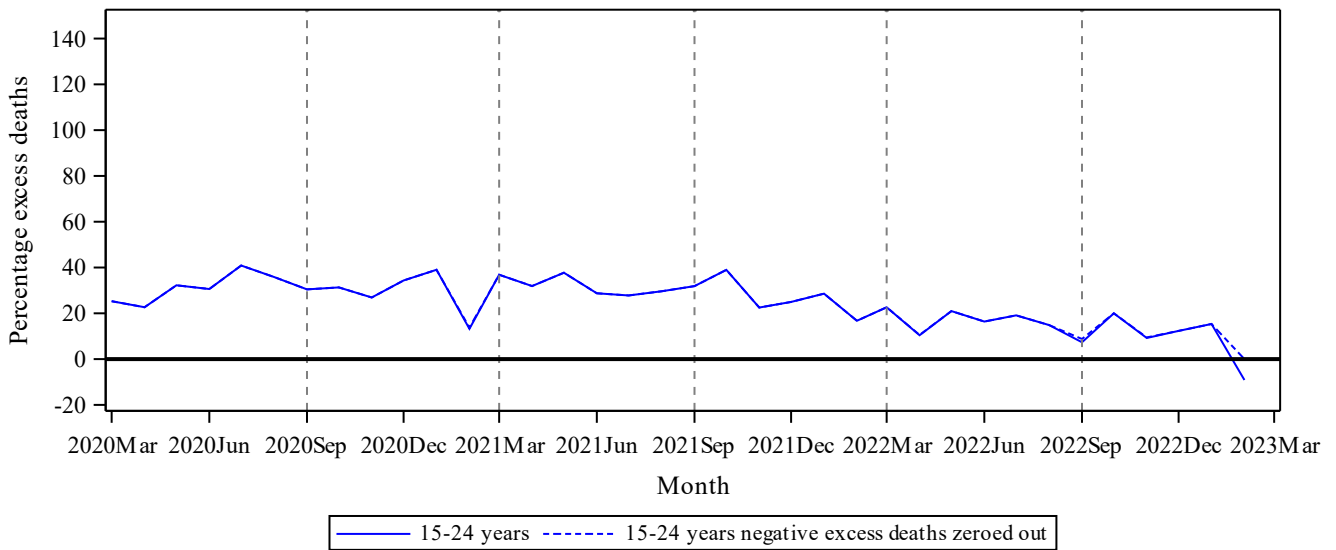
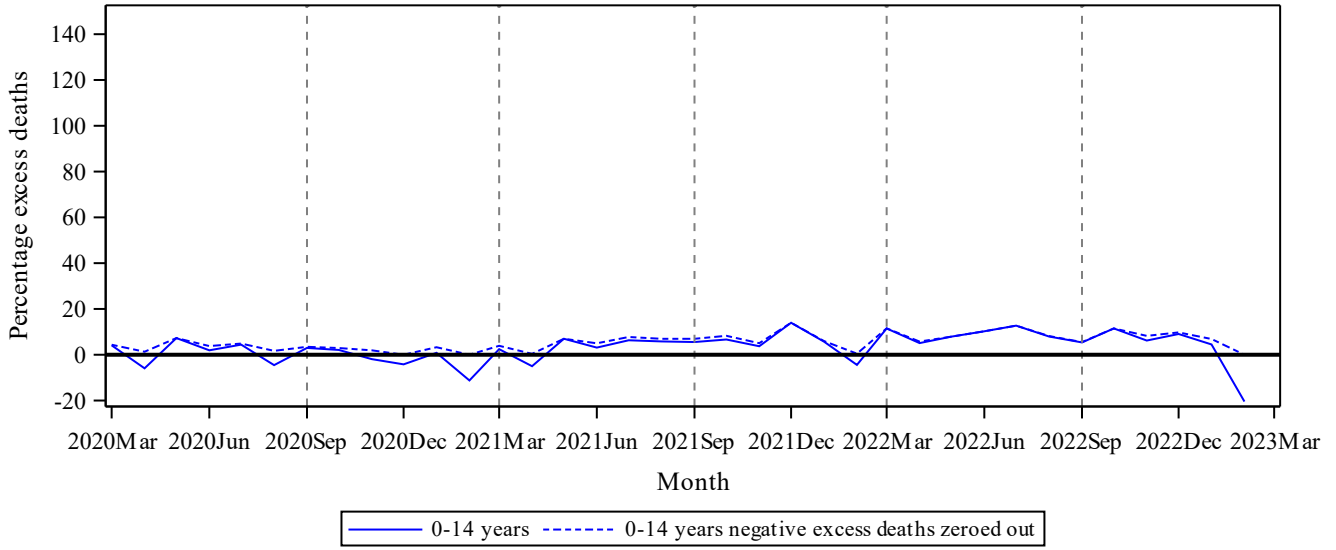
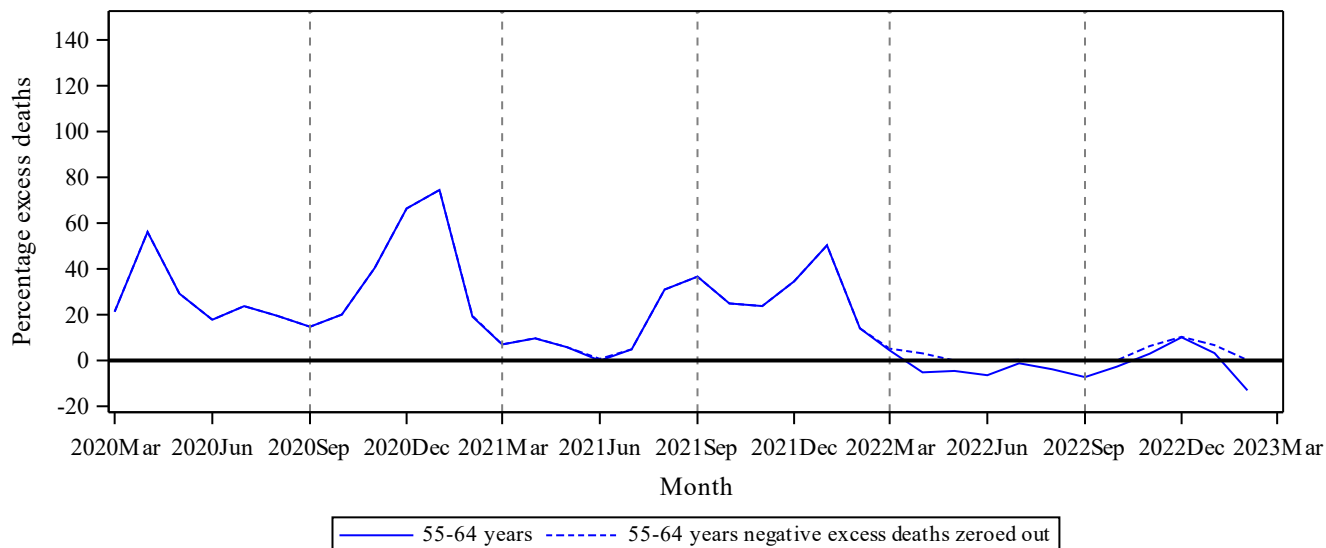
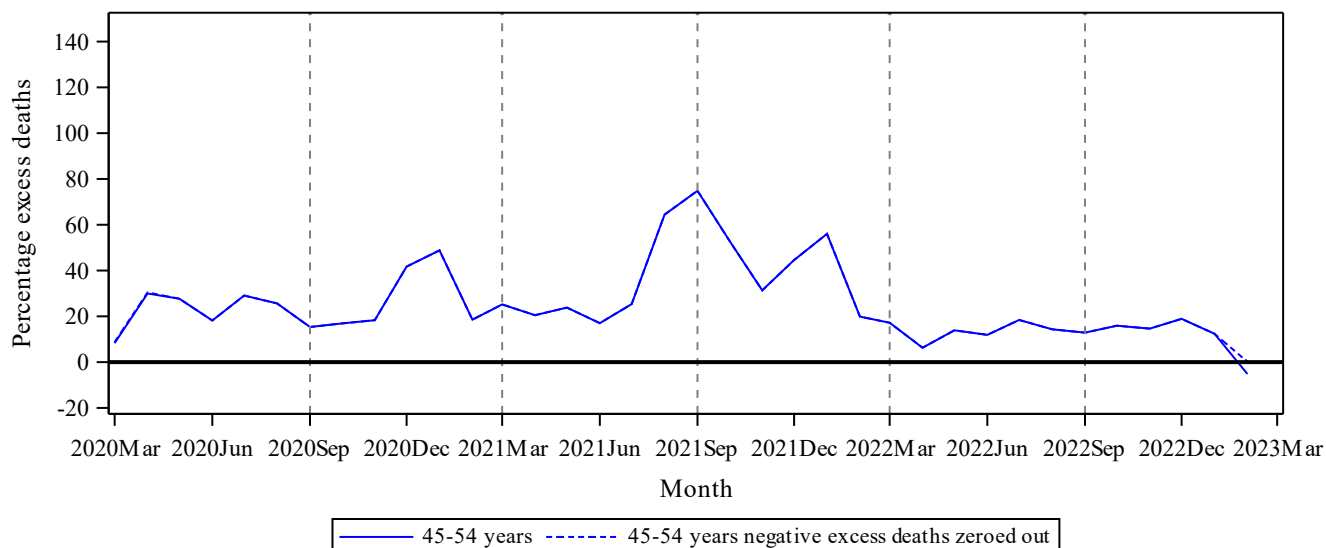
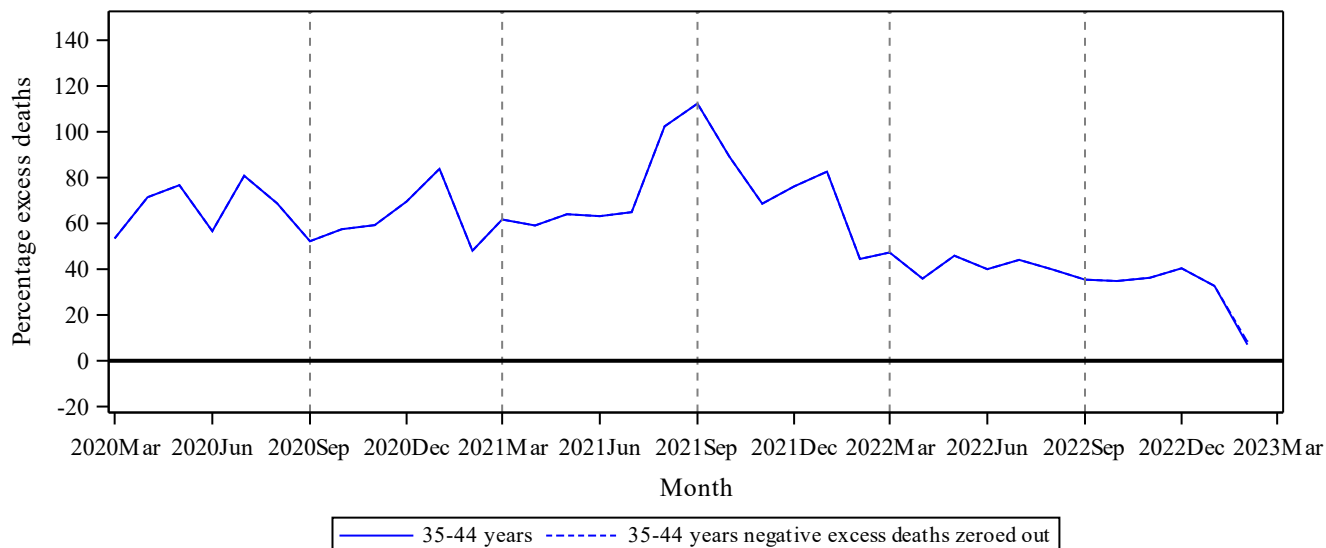
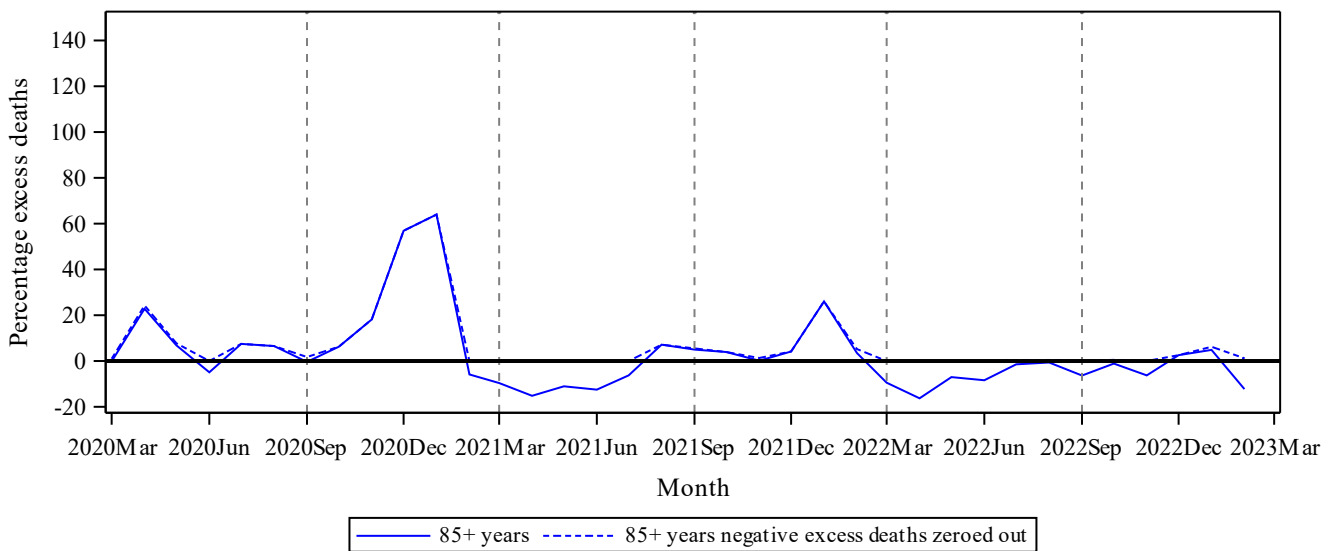
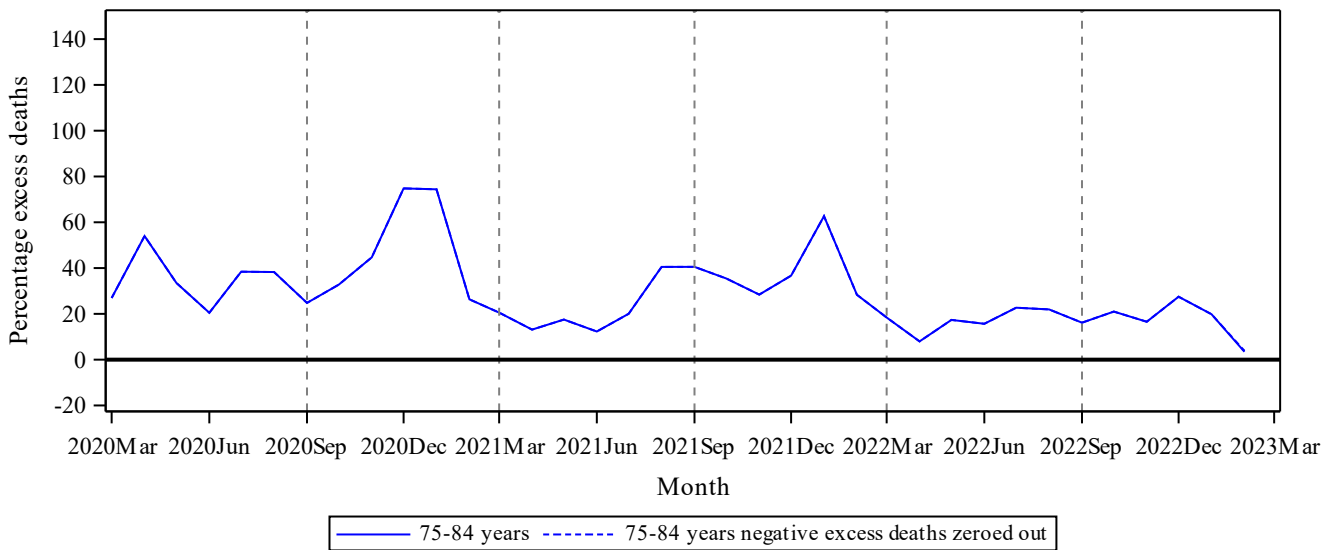
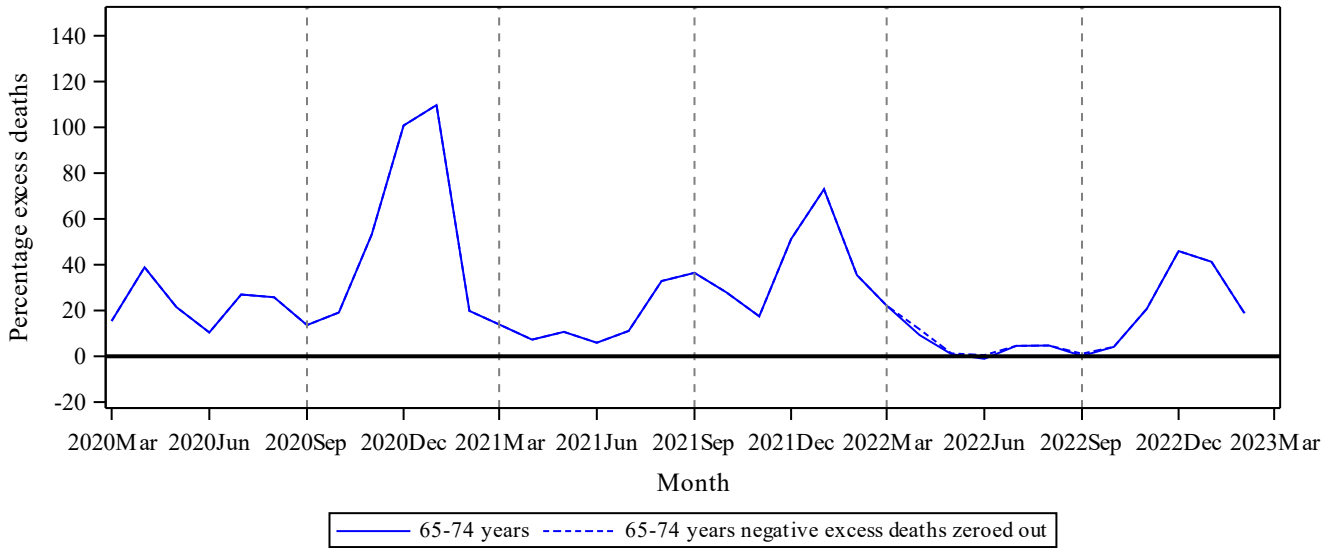


Figure 2.5: Male group- Percent Excess Deaths by month by age group, March 2020 to February 2023







Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Supplemental Appendix 3

Figure 3.1: Female group- Total number of excess deaths by age group and rurality of residence, March 2020 to February 2023

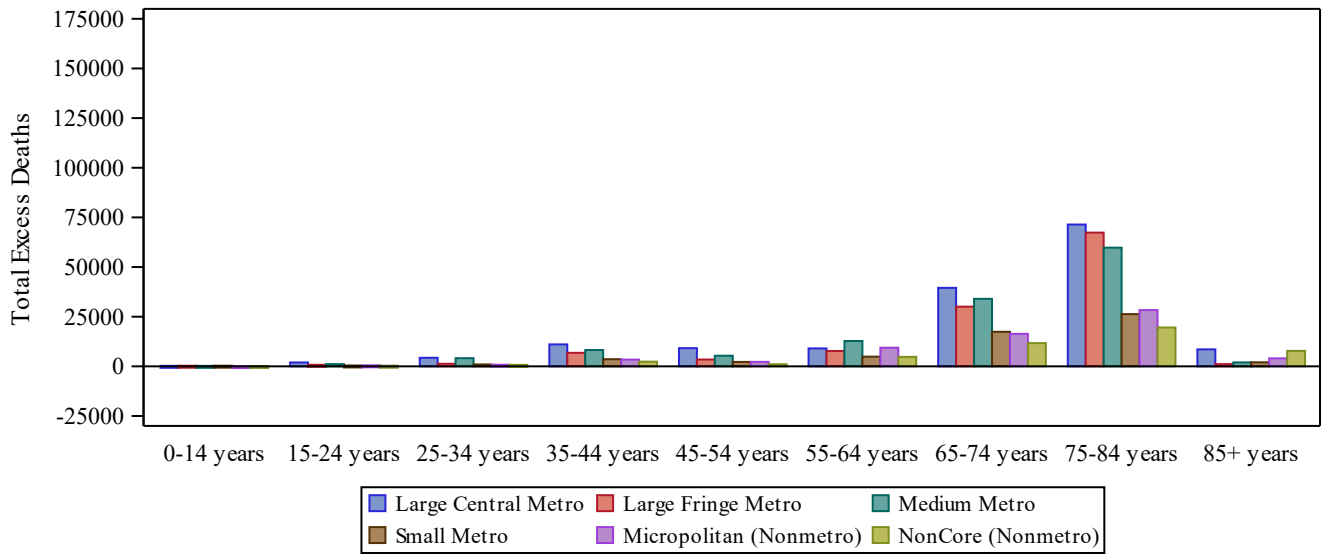


Figure 3.2: Female group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

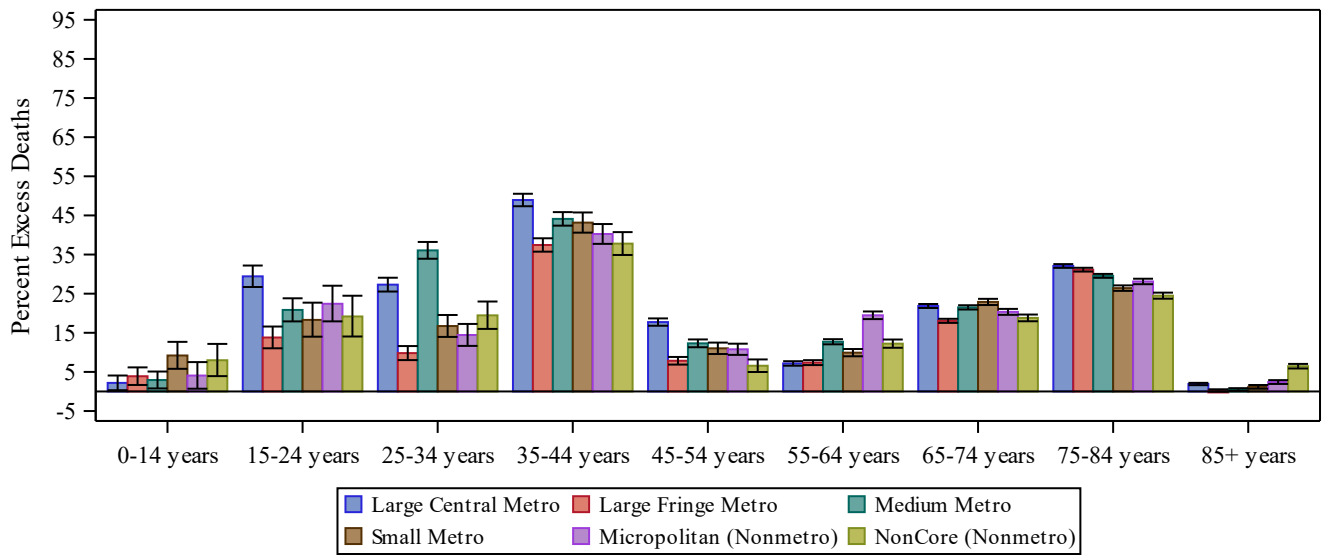
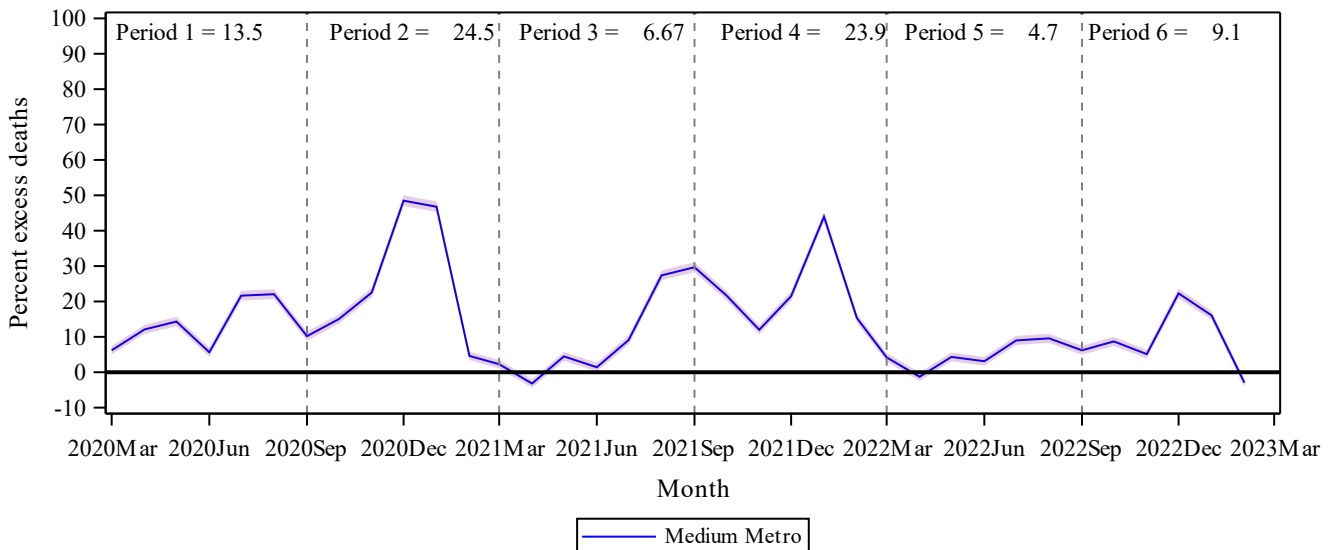
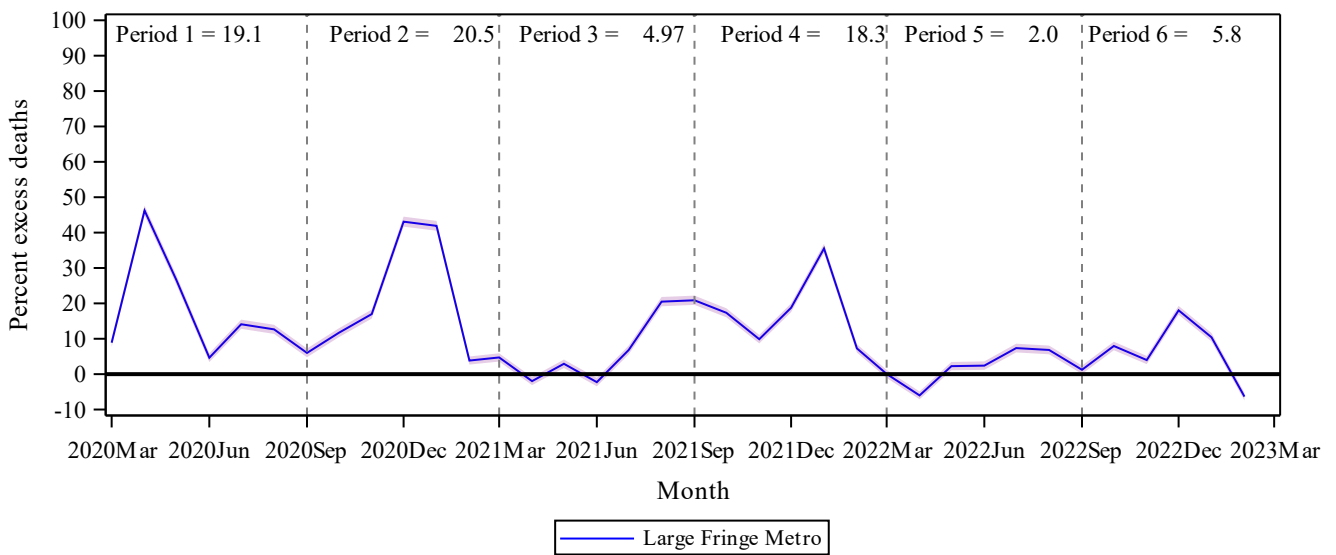
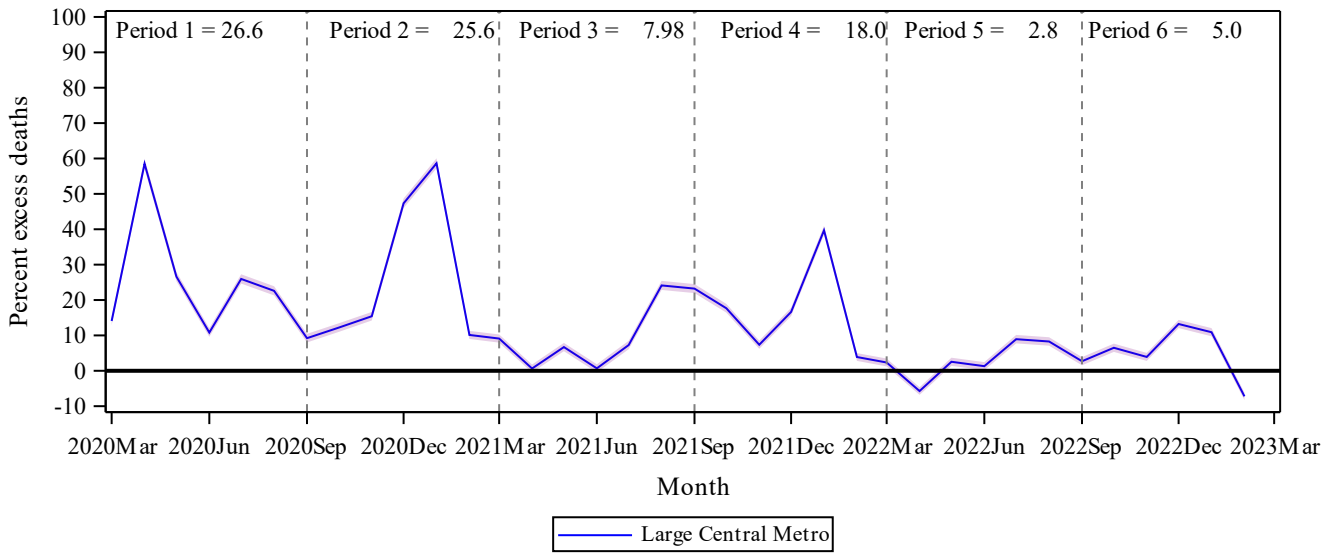
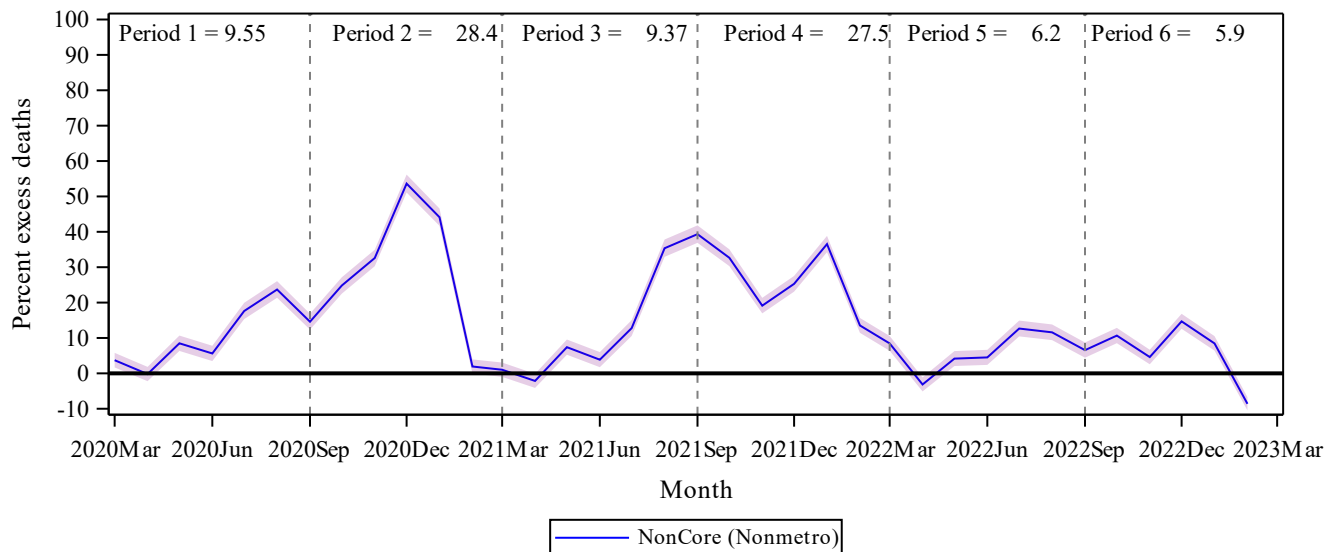
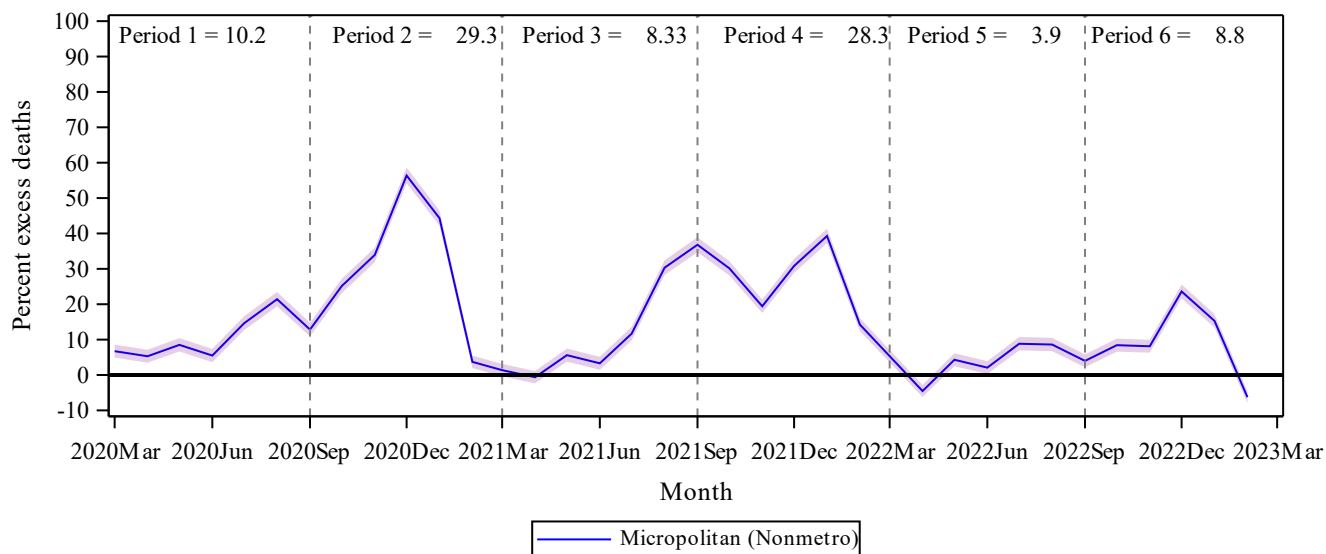
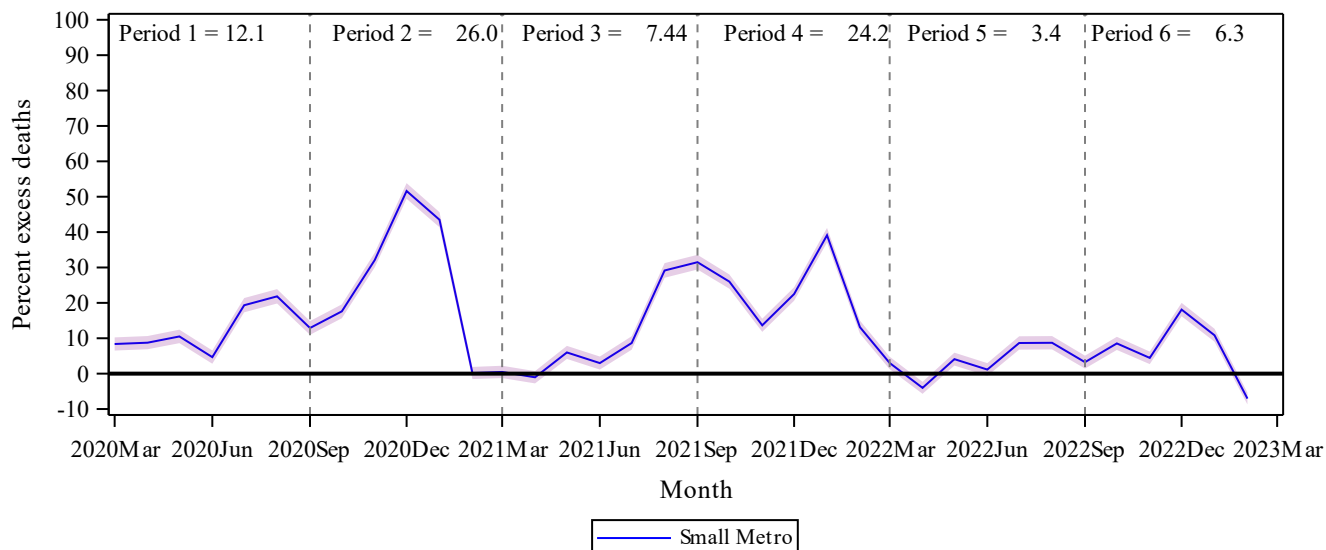


Table 3.1: Female group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	1241759	1086540.13	14.29	14.08	14.49	150816936	823.36	720.44	102.92
Large Fringe Metro	1130012	1011149.10	11.76	11.55	11.96	125453355	900.74	806.00	94.75
Medium Metro	1054192	926680.40	13.76	13.54	13.98	103729326	1016.29	893.36	122.93
Small Metro	495882	437738.07	13.28	12.97	13.60	44406807	1116.68	985.75	130.93
Micropolitan (Nonmetro)	502262	437071.91	14.92	14.60	15.23	39947778	1257.30	1094.11	163.19
NonCore (Nonmetro)	380231	331765.75	14.61	14.24	14.97	26760249	1420.88	1239.77	181.11
Total	4804338	4230945.36	13.55	13.45	13.65	491114451	978.25	861.50	116.75

Figure 3.3: Female group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Table 3.2: Female group- Summary of total observed, expected, and excess deaths by 6-month time period for each rural-urban group, March 2020 to February 2023

Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	219847	173598.08	26.6414	49641970.5	442.865	349.700	93.165
Large Central Metro	Period 2	227214	180805.00	25.6680	49641970.5	457.705	364.218	93.487
Large Central Metro	Period 3	192454	178228.86	7.9814	49731523.5	386.986	358.382	28.604
Large Central Metro	Period 4	220944	187112.03	18.0811	49731523.5	444.274	376.244	68.029
Large Central Metro	Period 5	185365	180280.06	2.8206	49731523.5	372.731	362.507	10.225
Large Central Metro	Period 6	195935	186516.10	5.0499	49731523.5	393.986	375.046	18.940
Large Fringe Metro	Period 1	192747	161834.63	19.1012	40725789.5	473.280	397.376	75.904
Large Fringe Metro	Period 2	200834	166664.60	20.5019	40725789.5	493.137	409.236	83.901
Large Fringe Metro	Period 3	174748	166461.26	4.9782	41511484.0	420.963	401.001	19.963
Large Fringe Metro	Period 4	205536	173606.49	18.3919	41511484.0	495.130	418.213	76.917
Large Fringe Metro	Period 5	172376	168993.97	2.0013	41511484.0	415.249	407.102	8.147
Large Fringe Metro	Period 6	183771	173588.15	5.8661	41511484.0	442.699	418.169	24.530
Medium Metro	Period 1	170603	150292.69	13.5138	33909767.5	503.109	443.214	59.895
Medium Metro	Period 2	191175	153535.86	24.5149	33909767.5	563.776	452.778	110.998
Medium Metro	Period 3	164698	154392.60	6.6748	34354465.0	479.408	449.411	29.997
Medium Metro	Period 4	194100	156636.33	23.9176	34354465.0	564.992	455.942	109.050
Medium Metro	Period 5	162165	154812.41	4.7494	34354465.0	472.035	450.633	21.402
Medium Metro	Period 6	171451	157010.51	9.1972	34354465.0	499.065	457.031	42.034
Small Metro	Period 1	78321	69838.81	12.1454	14662633.5	534.154	476.305	57.849
Small Metro	Period 2	91369	72492.28	26.0396	14662633.5	623.142	494.401	128.740
Small Metro	Period 3	77544	72172.24	7.4430	14804747.5	523.778	487.494	36.284
Small Metro	Period 4	92932	74822.21	24.2038	14804747.5	627.718	505.393	122.324
Small Metro	Period 5	75793	73245.71	3.4777	14804747.5	511.951	494.745	17.206
Small Metro	Period 6	79923	75166.82	6.3275	14804747.5	539.847	507.721	32.126
Micropolitan (Nonmetro)	Period 1	77452	70259.95	10.2363	13344824.0	580.390	526.496	53.894
Micropolitan (Nonmetro)	Period 2	93629	72407.46	29.3085	13344824.0	701.613	542.588	159.025
Micropolitan (Nonmetro)	Period 3	78144	72130.88	8.3364	13451721.5	580.922	536.220	44.701
Micropolitan (Nonmetro)	Period 4	96405	75123.47	28.3287	13451721.5	716.674	558.467	158.207
Micropolitan (Nonmetro)	Period 5	75914	72998.29	3.9942	13451721.5	564.344	542.669	21.675
Micropolitan (Nonmetro)	Period 6	80718	74151.85	8.8550	13451721.5	600.057	551.244	48.813
NonCore (Nonmetro)	Period 1	58714	53591.75	9.5579	9123238.0	643.565	587.420	56.145
NonCore (Nonmetro)	Period 2	71226	55447.79	28.4560	9123238.0	780.710	607.764	172.945
NonCore (Nonmetro)	Period 3	59134	54064.22	9.3773	9100312.5	649.802	594.092	55.710
NonCore (Nonmetro)	Period 4	72607	56938.46	27.5184	9100312.5	797.852	625.676	172.176
NonCore (Nonmetro)	Period 5	57822	54421.75	6.2480	9100312.5	635.385	598.021	37.364
NonCore (Nonmetro)	Period 6	60728	57301.78	5.9793	9100312.5	667.318	629.668	37.650

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 3.4: Female group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023

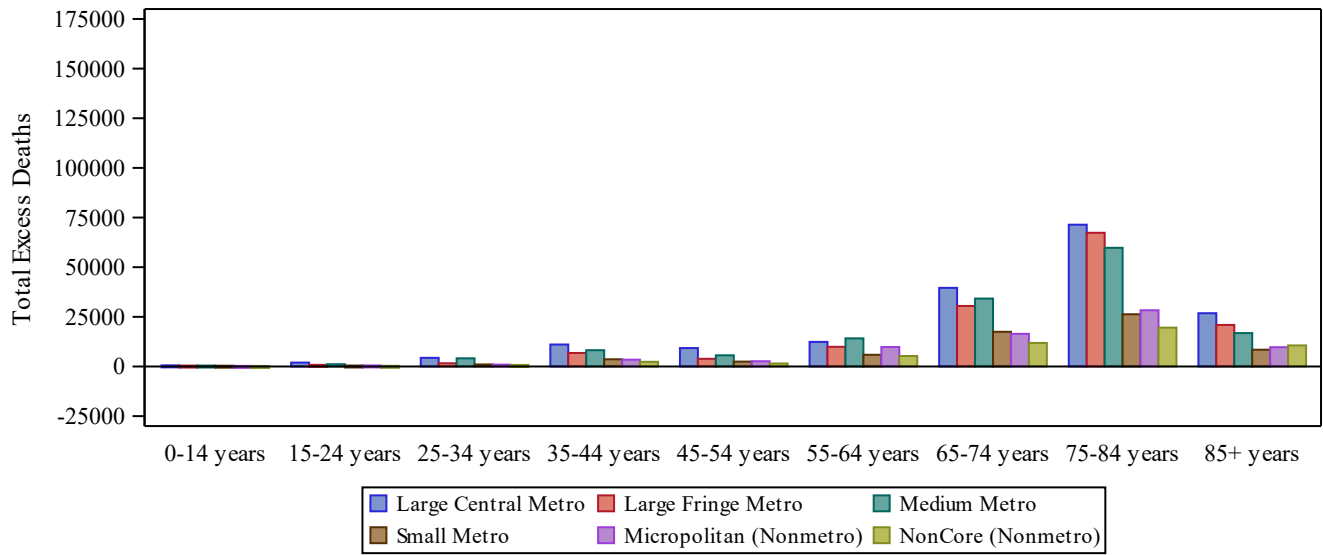
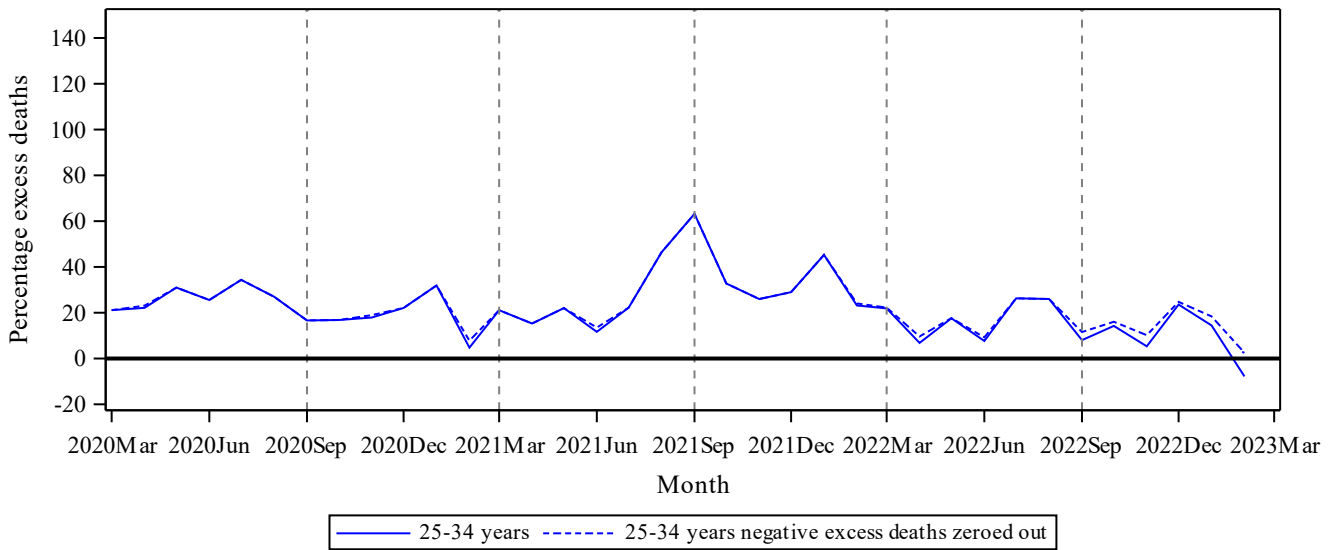
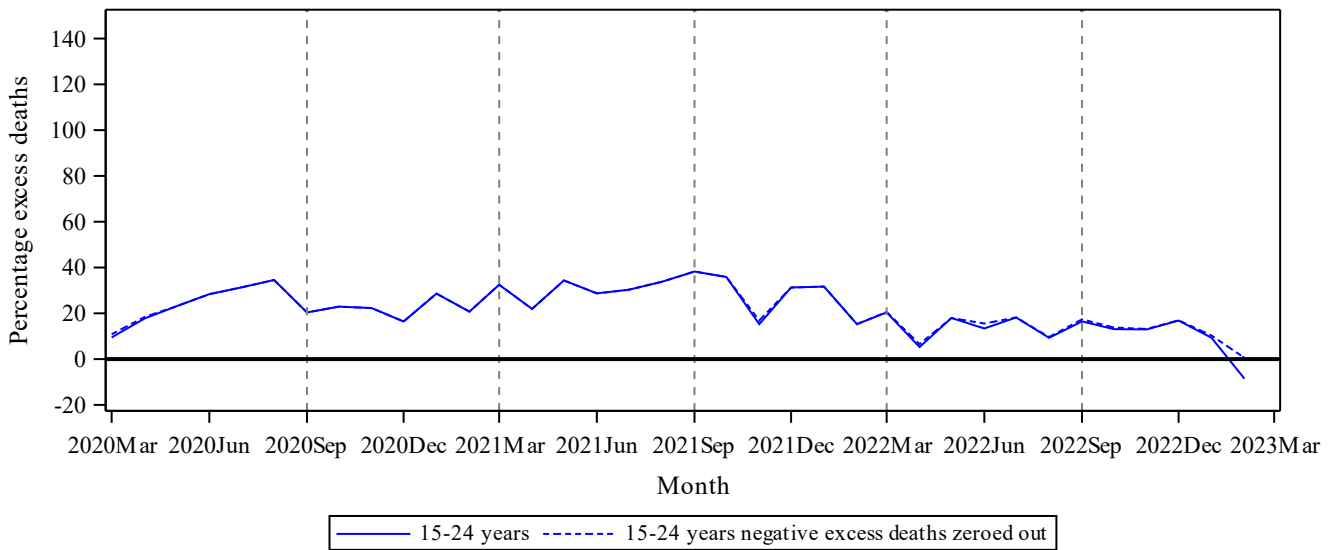
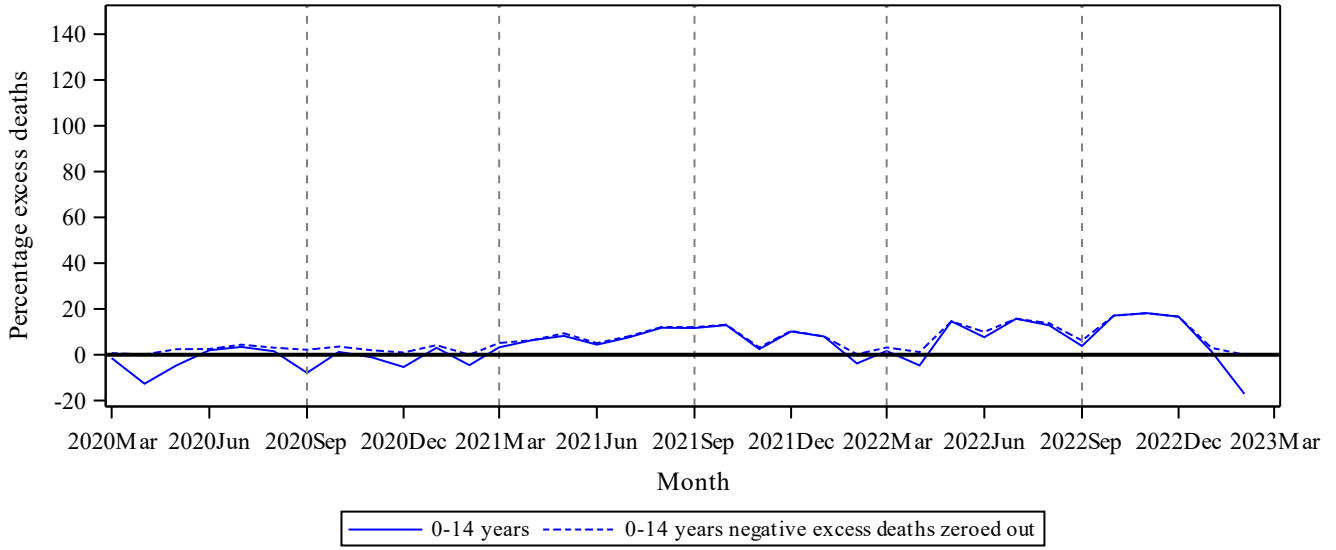
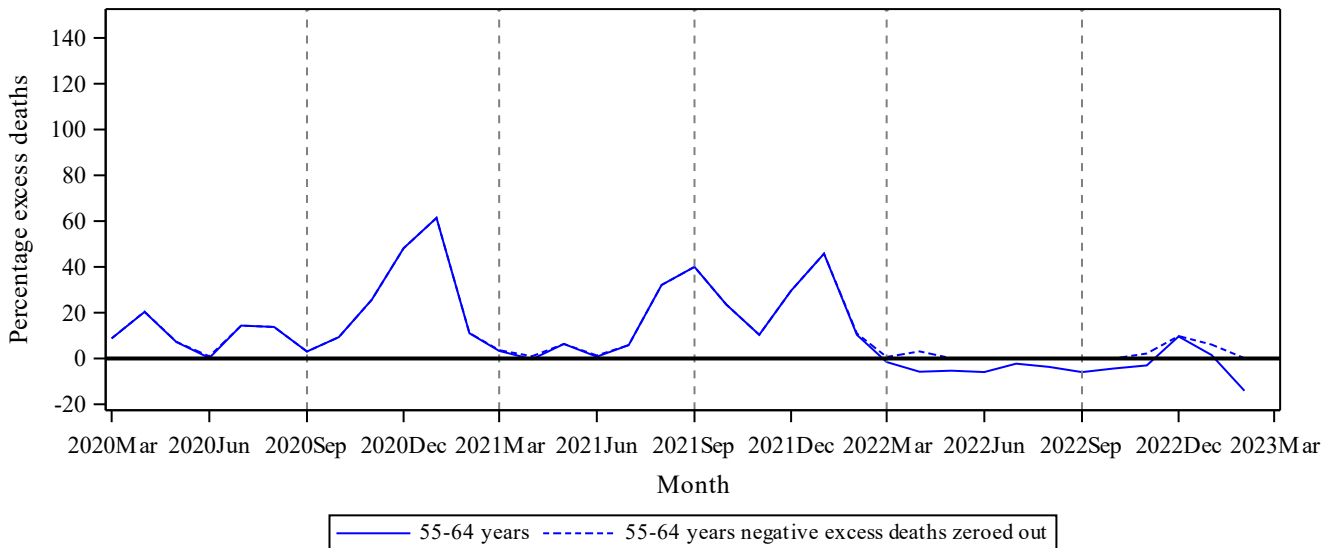
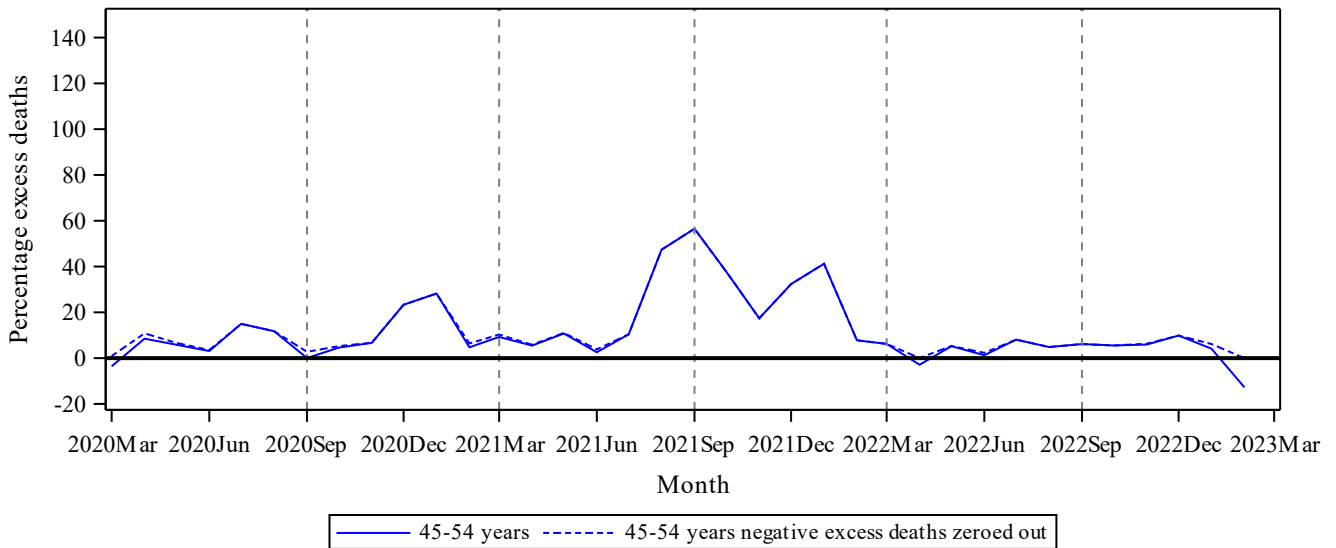
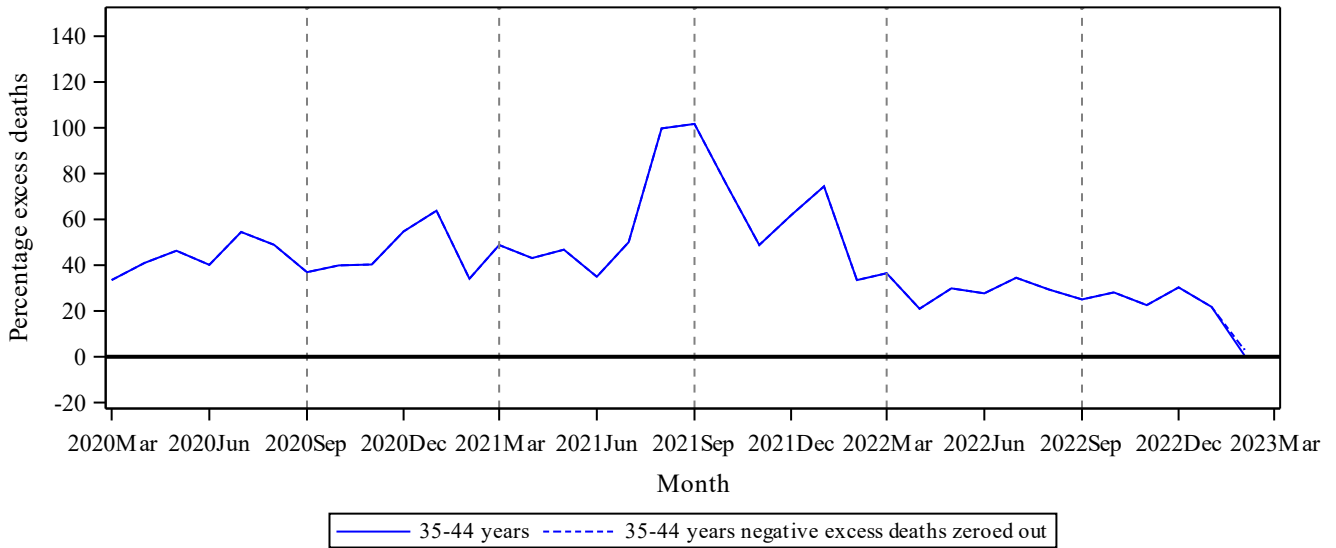
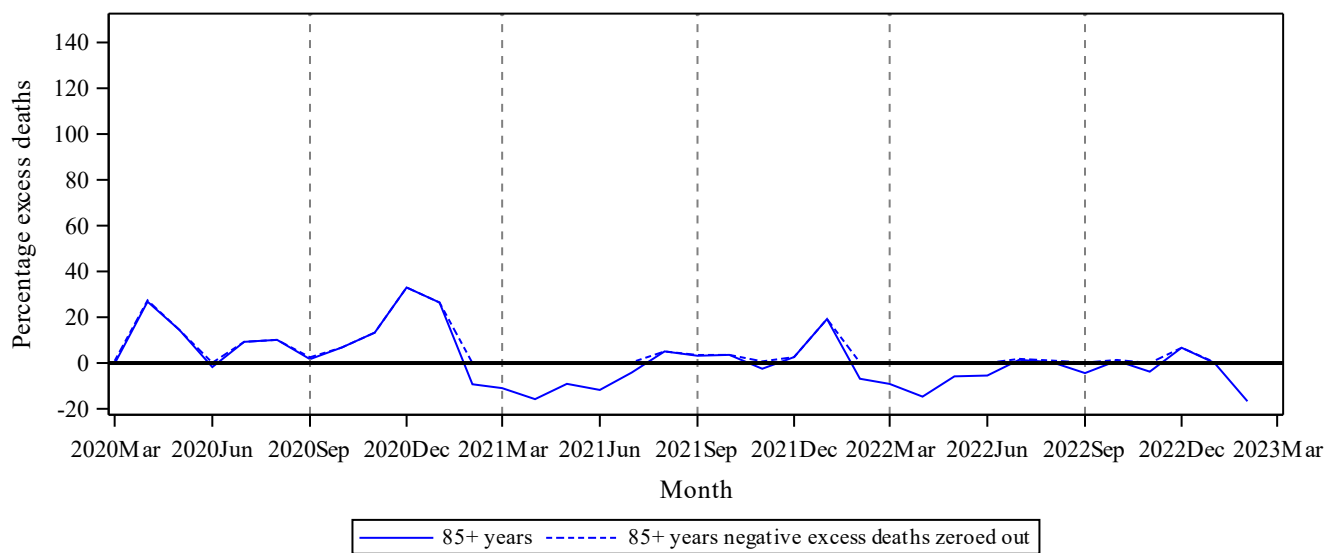
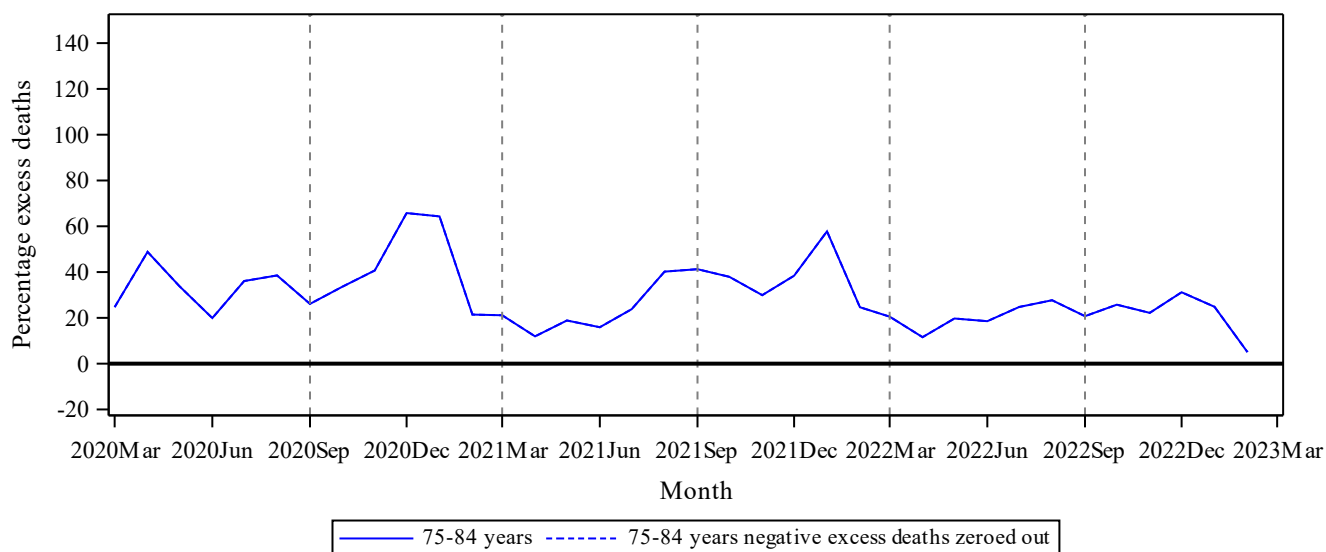
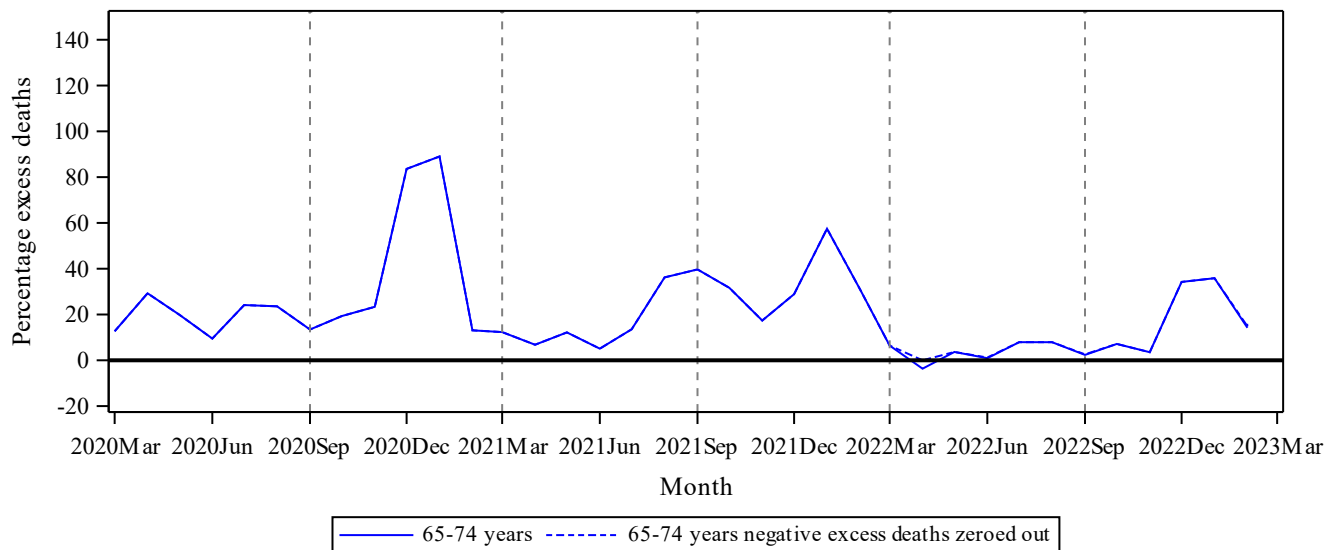


Figure 3.5: Female group- Percent Excess Deaths by month by age group, March 2020 to February 2023







Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Supplemental Appendix 4

Figure 4.1: Non-Hispanic white group- Total number of excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

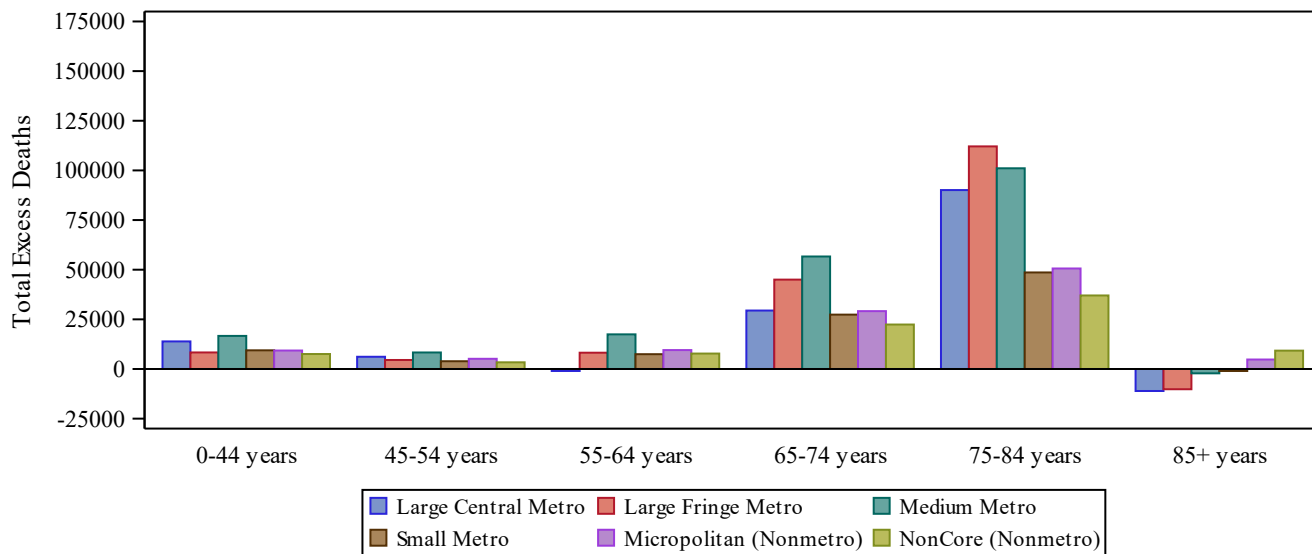


Figure 4.2: Non-Hispanic white group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

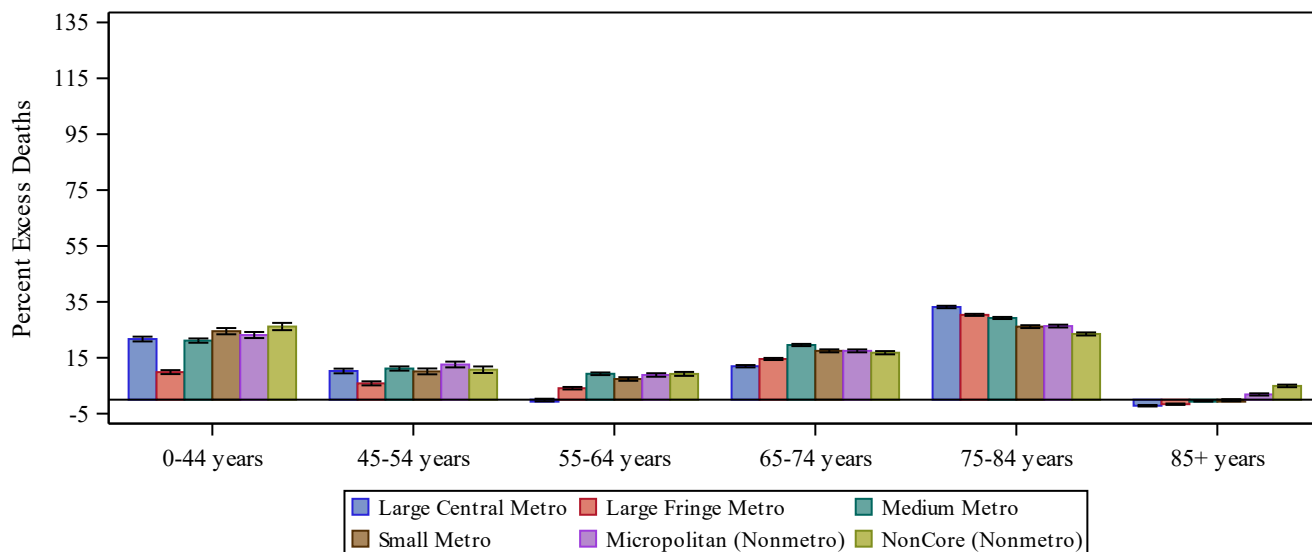
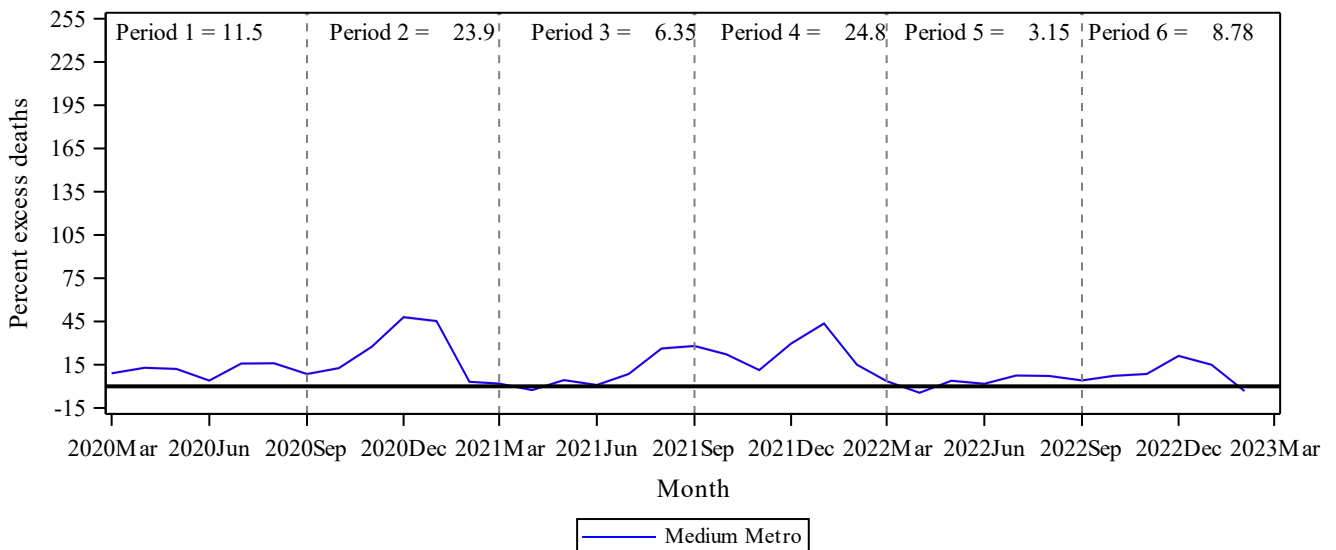
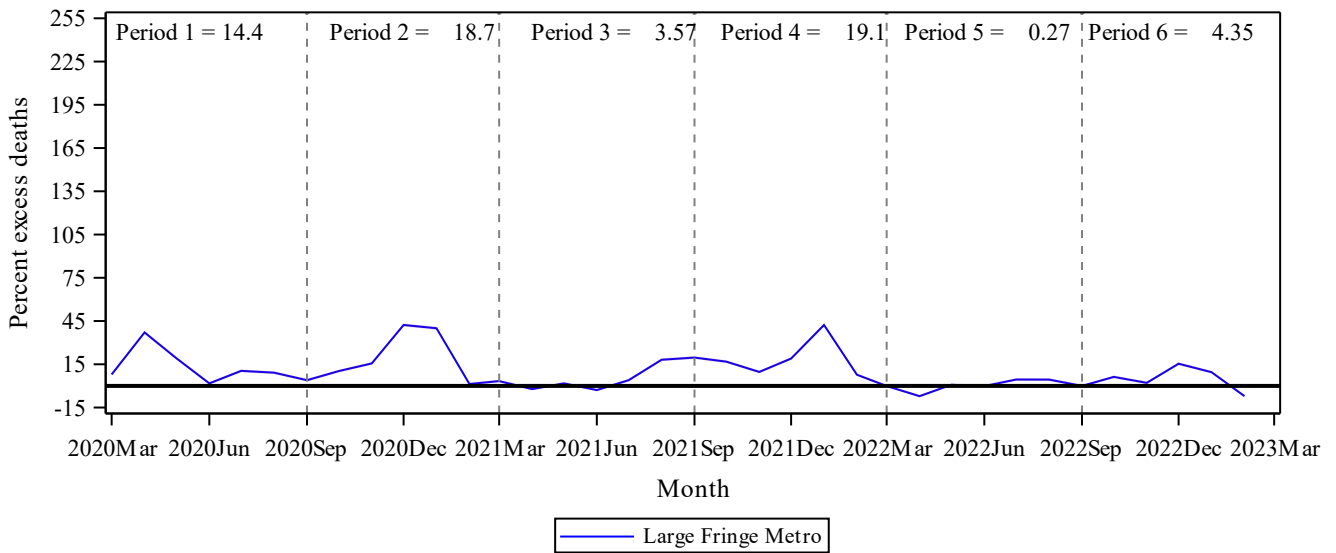
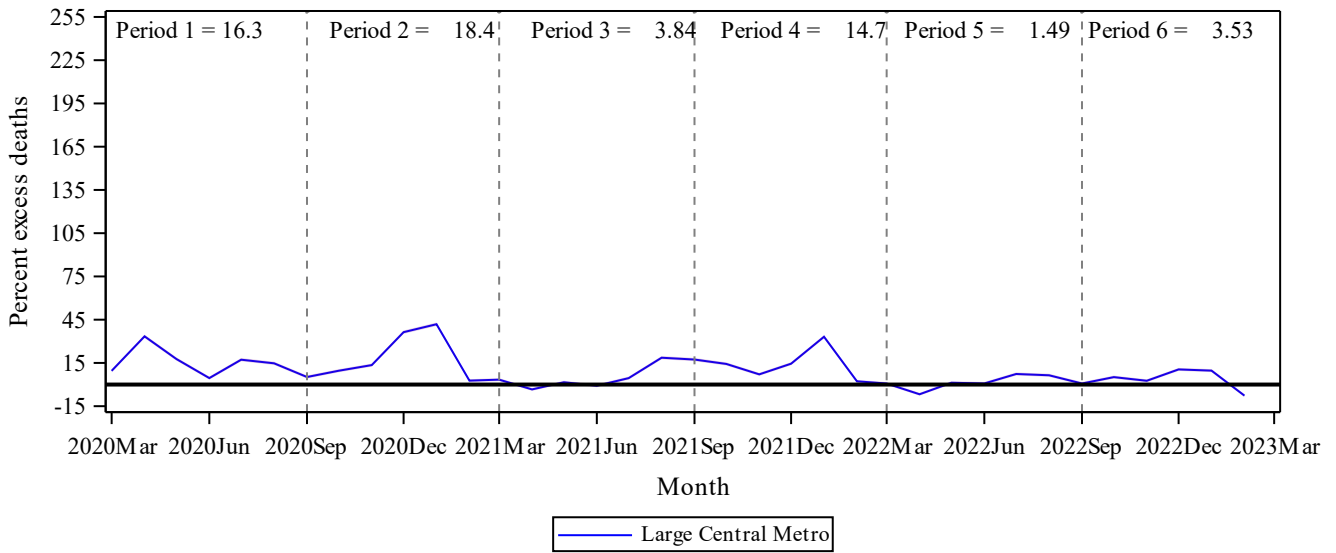


Table 4.1: Non-Hispanic white group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	1443745	1315504.09	9.75	9.57	9.93	123612429	1167.96	1064.22	103.74
Large Fringe Metro	1835913	1667955.53	10.07	9.91	10.23	155681496	1179.28	1071.39	107.89
Medium Metro	1711911	1513979.70	13.07	12.90	13.24	128876511	1328.33	1174.75	153.58
Small Metro	881242	785069.55	12.25	12.02	12.48	64096833	1374.86	1224.82	150.04
Micropolitan (Nonmetro)	910042	801583.15	13.53	13.30	13.76	61300026	1484.57	1307.64	176.93
NonCore (Nonmetro)	710075	622762.41	14.02	13.76	14.29	43082334	1648.18	1445.52	202.66
Total	7492928	6706854.44	11.72	11.64	11.80	576649629	1299.39	1163.07	136.32

Figure 4.3: Non-Hispanic white group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)



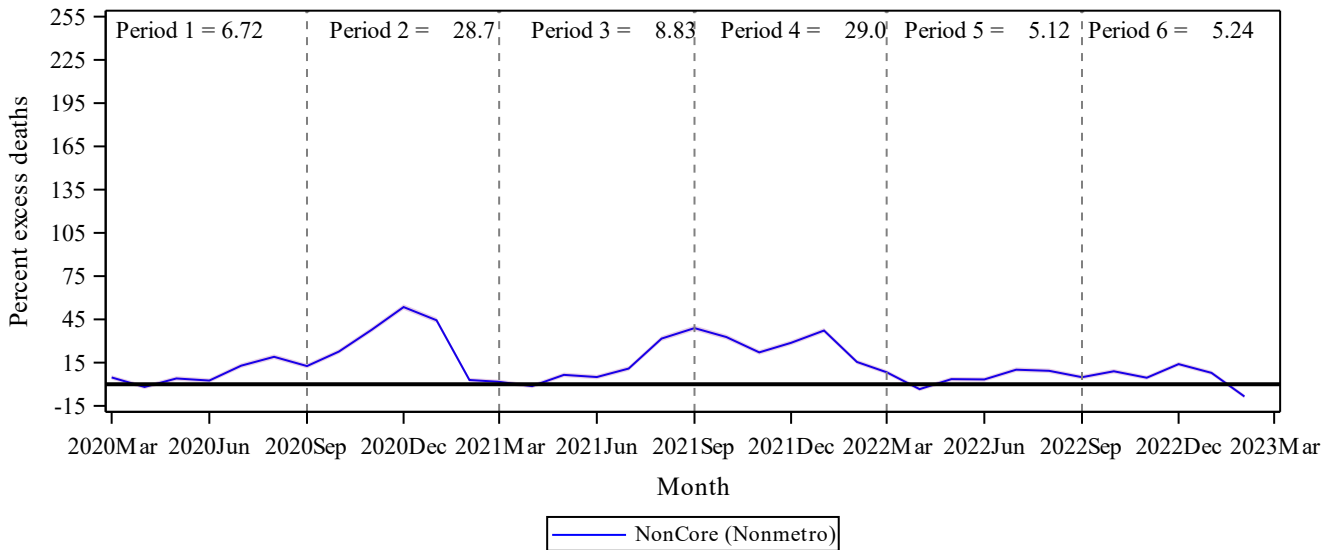
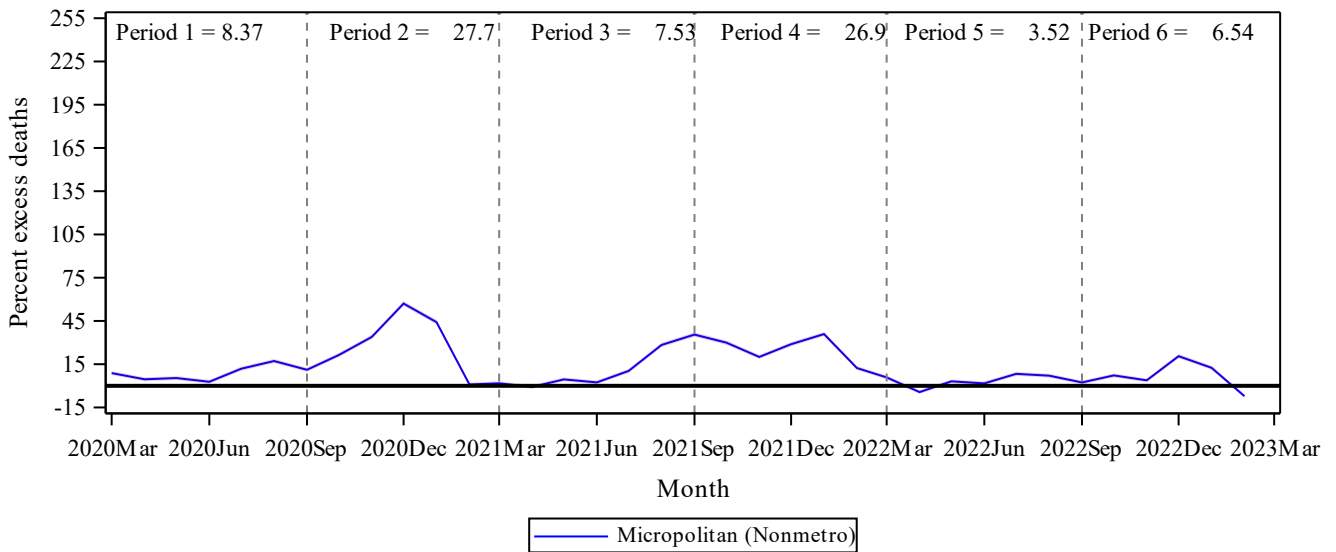
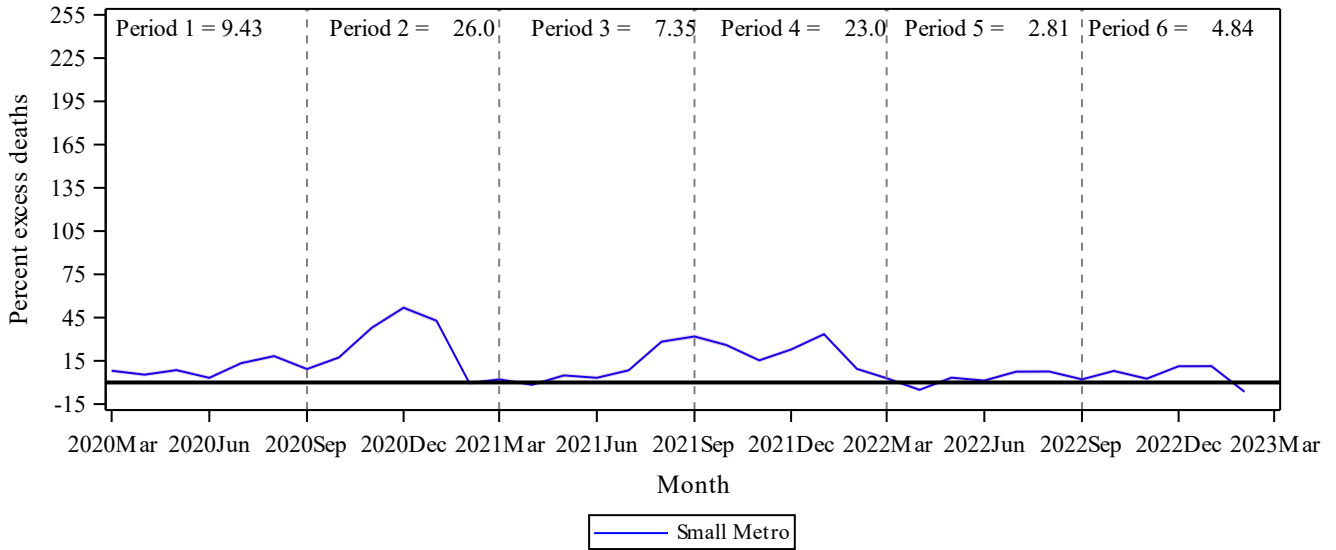


Table 4.2: Non-Hispanic white group- Percent excess death by time period for each urban rural group

Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	247113	212478.17	16.3004	8396007.5	2943.22	2530.70	412.52
Large Central Metro	Period 2	262225	221419.89	18.4288	8396007.5	3123.21	2637.20	486.01
Large Central Metro	Period 3	224476	216161.81	3.8463	8435856.5	2660.97	2562.42	98.56
Large Central Metro	Period 4	258966	225612.07	14.7838	8435856.5	3069.82	2674.44	395.38
Large Central Metro	Period 5	220243	216994.61	1.4970	8435856.5	2610.80	2572.29	38.51
Large Central Metro	Period 6	230722	222837.55	3.5382	8435856.5	2735.02	2641.55	93.46
Large Fringe Metro	Period 1	307310	268466.56	14.4686	5082531.0	6046.40	5282.14	764.25
Large Fringe Metro	Period 2	326730	275139.12	18.7508	5082531.0	6428.49	5413.43	1015.06
Large Fringe Metro	Period 3	285498	275631.26	3.5797	5224596.0	5464.50	5275.65	188.85
Large Fringe Metro	Period 4	338226	283769.79	19.1903	5224596.0	6473.73	5431.42	1042.30
Large Fringe Metro	Period 5	280374	279607.93	0.2740	5224596.0	5366.42	5351.76	14.66
Large Fringe Metro	Period 6	297775	285340.88	4.3576	5224596.0	5699.48	5461.49	237.99
Medium Metro	Period 1	273054	244686.54	11.5934	3733034.5	7314.53	6554.63	759.90
Medium Metro	Period 2	308389	248724.33	23.9883	3733034.5	8261.08	6662.79	1598.29
Medium Metro	Period 3	269592	253483.11	6.3550	3784309.5	7123.94	6698.27	425.68
Medium Metro	Period 4	317741	254507.65	24.8454	3784309.5	8396.27	6725.34	1670.93
Medium Metro	Period 5	265017	256920.72	3.1513	3784309.5	7003.05	6789.10	213.94
Medium Metro	Period 6	278118	255657.35	8.7855	3784309.5	7349.24	6755.72	593.52
Small Metro	Period 1	136836	125038.08	9.4355	1420073.5	9635.84	8805.04	830.80
Small Metro	Period 2	161218	127909.29	26.0409	1420073.5	11352.79	9007.23	2345.56
Small Metro	Period 3	138812	129299.67	7.3568	1433617.5	9682.64	9019.12	663.52
Small Metro	Period 4	167242	135953.99	23.0137	1433617.5	11665.73	9483.28	2182.45
Small Metro	Period 5	135243	131539.47	2.8155	1433617.5	9433.69	9175.35	258.33
Small Metro	Period 6	141891	135329.05	4.8489	1433617.5	9897.41	9439.69	457.72
Micropolitan (Nonmetro)	Period 1	139055	128307.12	8.3767	1042231.5	13342.05	12310.81	1031.24
Micropolitan (Nonmetro)	Period 2	168965	132224.58	27.7864	1042231.5	16211.85	12686.68	3525.17
Micropolitan (Nonmetro)	Period 3	141946	131997.62	7.5368	1044846.5	13585.34	12633.21	952.14
Micropolitan (Nonmetro)	Period 4	175852	138504.06	26.9652	1044846.5	16830.41	13255.92	3574.49
Micropolitan (Nonmetro)	Period 5	138469	133749.38	3.5287	1044846.5	13252.57	12800.86	451.70
Micropolitan (Nonmetro)	Period 6	145755	136800.39	6.5457	1044846.5	13949.90	13092.87	857.03
NonCore (Nonmetro)	Period 1	107252	100494.85	6.7239	777427.5	13795.76	12926.59	869.17
NonCore (Nonmetro)	Period 2	132447	102840.79	28.7884	777427.5	17036.57	13228.35	3808.23
NonCore (Nonmetro)	Period 3	110913	101913.63	8.8304	764927.0	14499.82	13323.31	1176.50
NonCore (Nonmetro)	Period 4	137796	106777.02	29.0502	764927.0	18014.27	13959.11	4055.16
NonCore (Nonmetro)	Period 5	108162	102892.63	5.1212	764927.0	14140.17	13451.30	688.87
NonCore (Nonmetro)	Period 6	113505	107843.48	5.2498	764927.0	14838.67	14098.53	740.14

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 4.4: Non-Hispanic white group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023

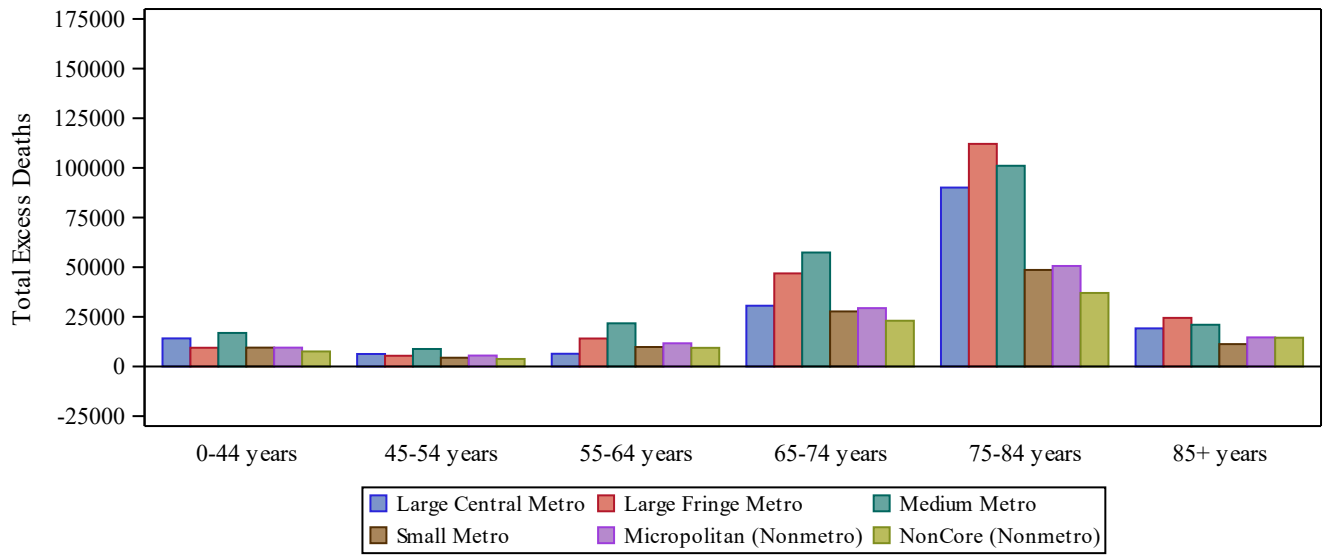
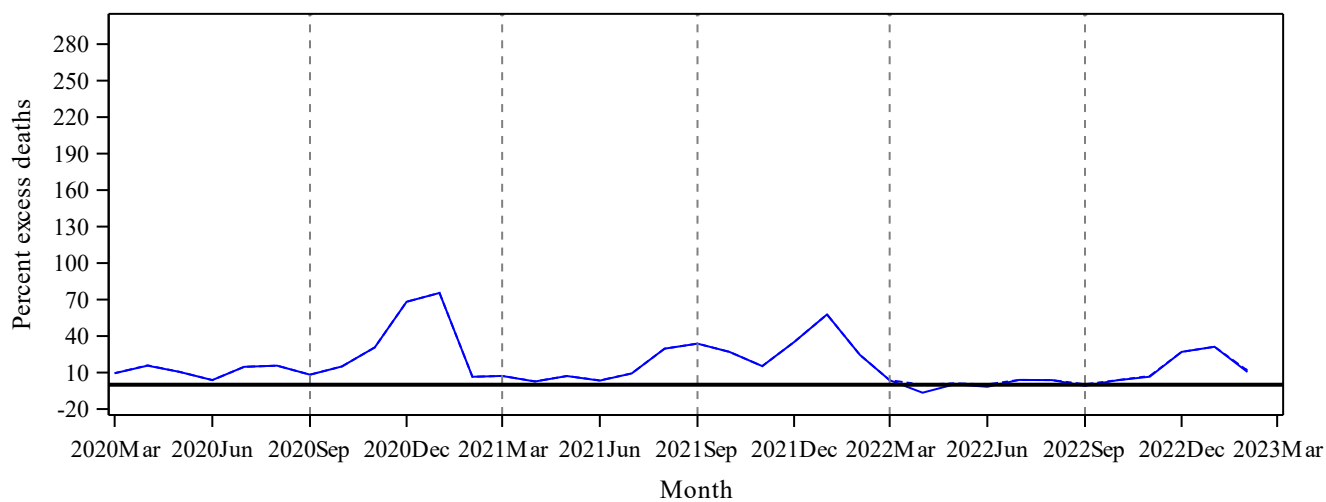
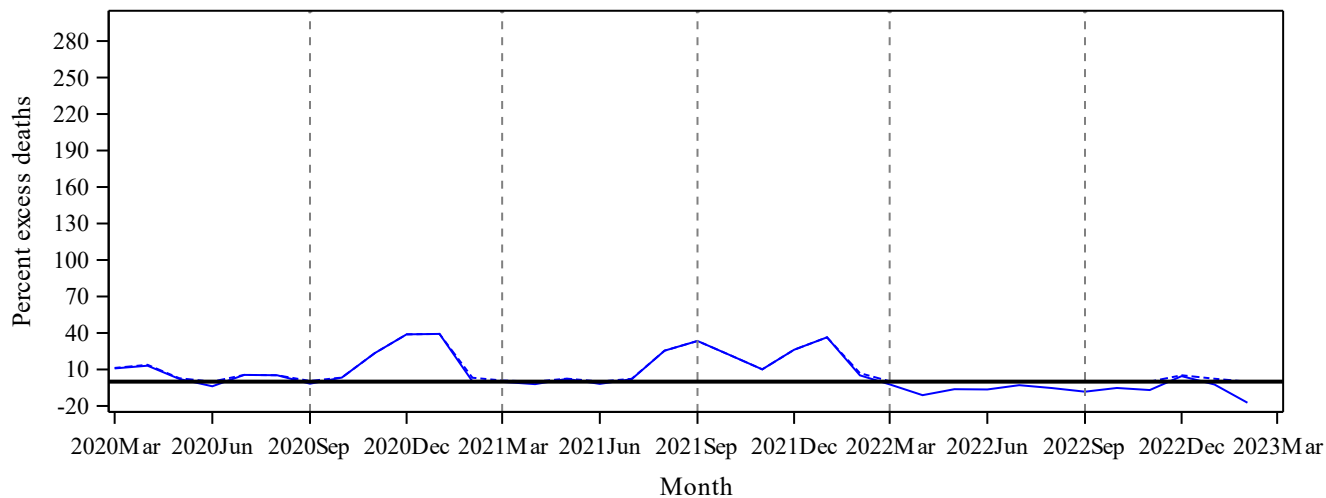
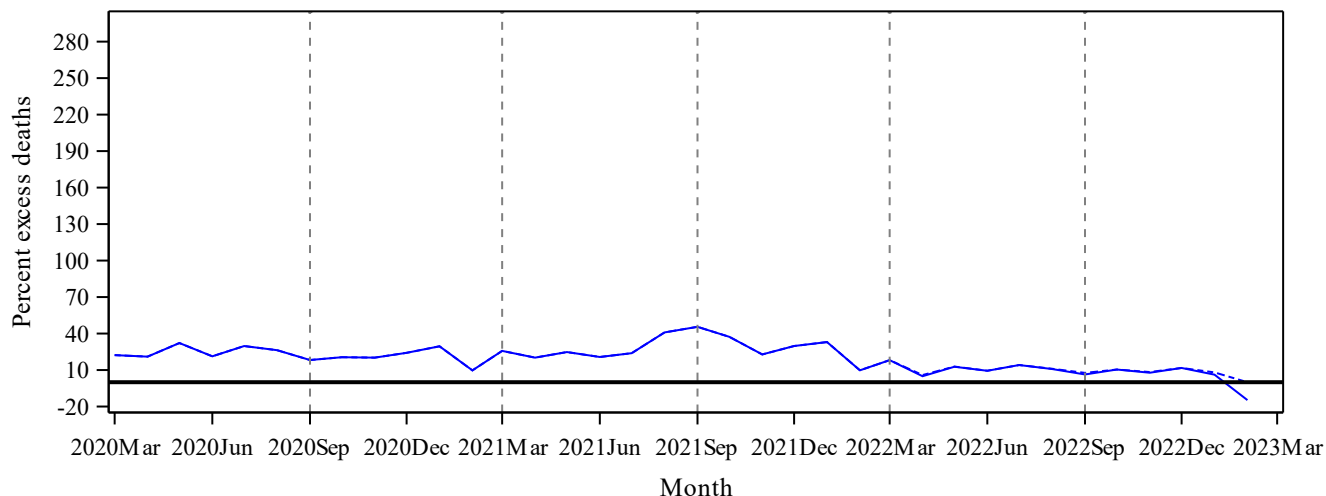
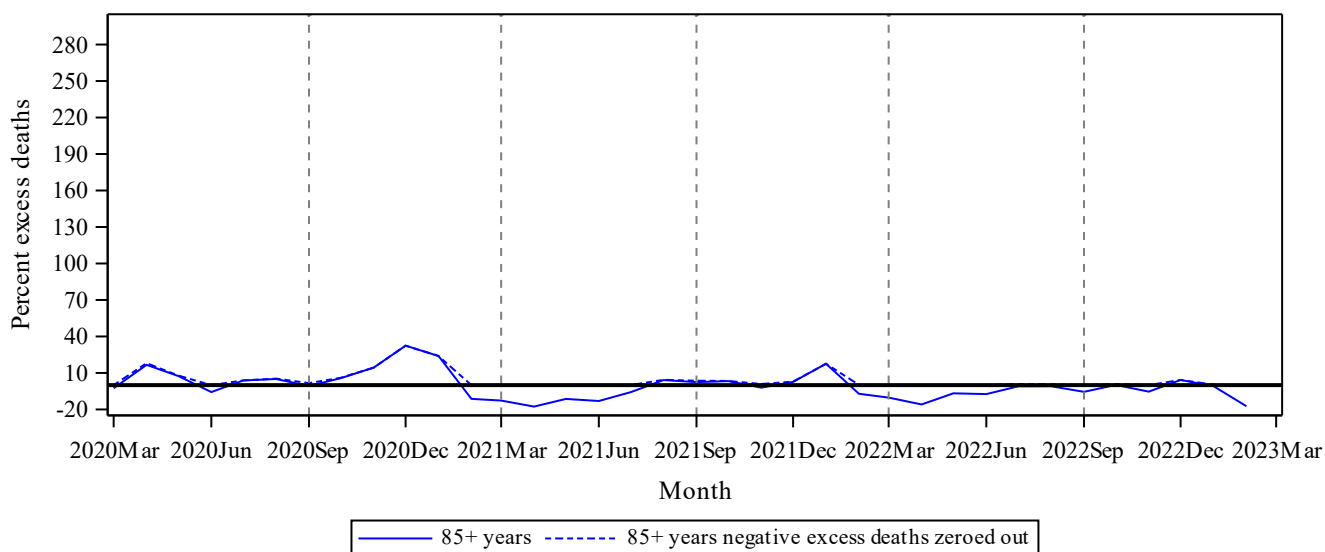
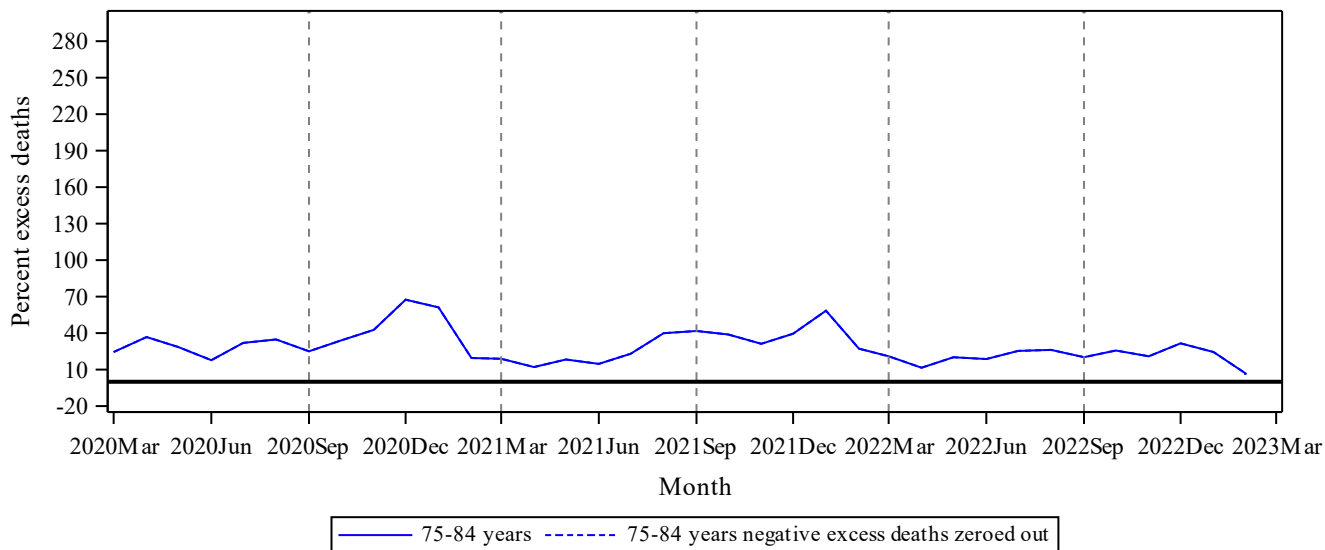


Figure 4.5: Non-Hispanic white group- Percent Excess Deaths by month by age group, March 2020 to February 2023





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Supplemental Appendix 5

Figure 5.1: Hispanic group- Total number of excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

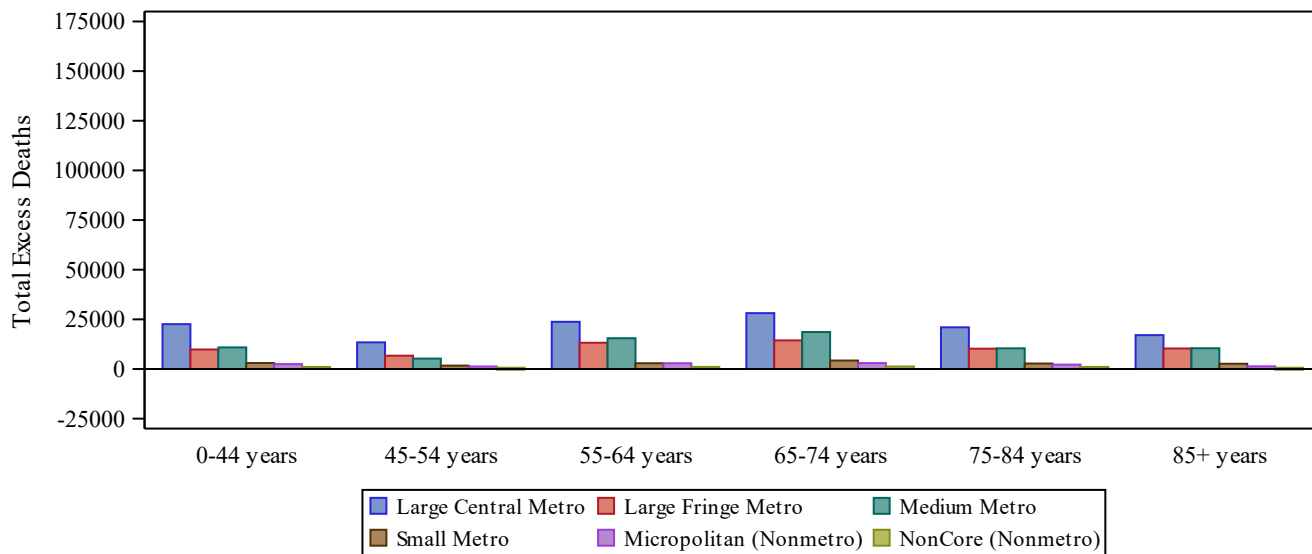


Figure 5.2: Hispanic group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

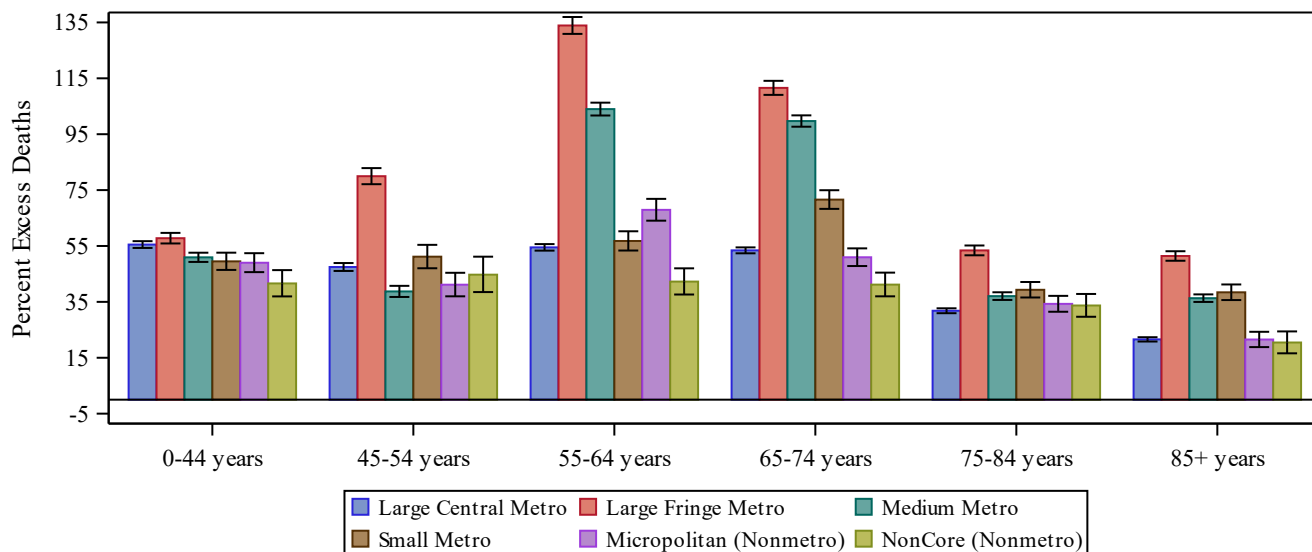
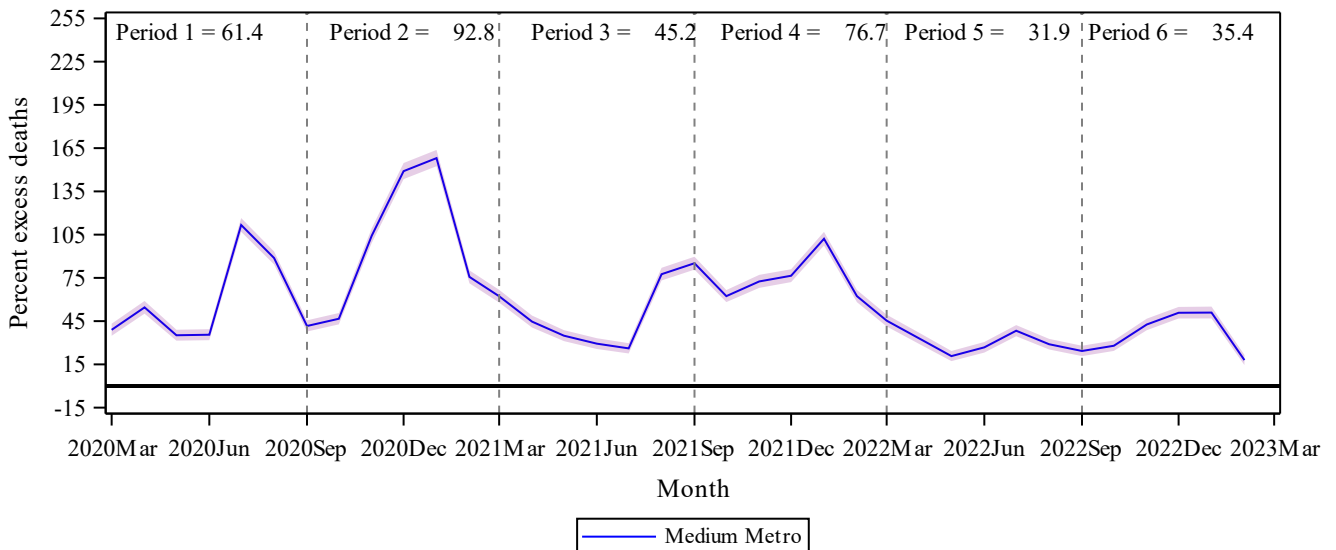
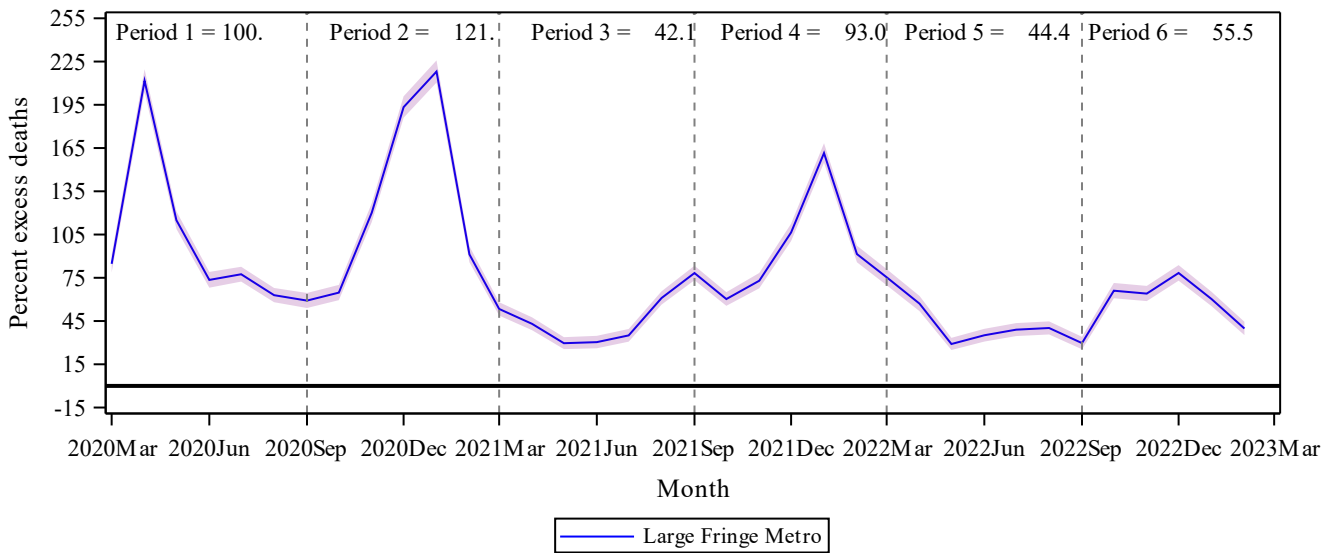
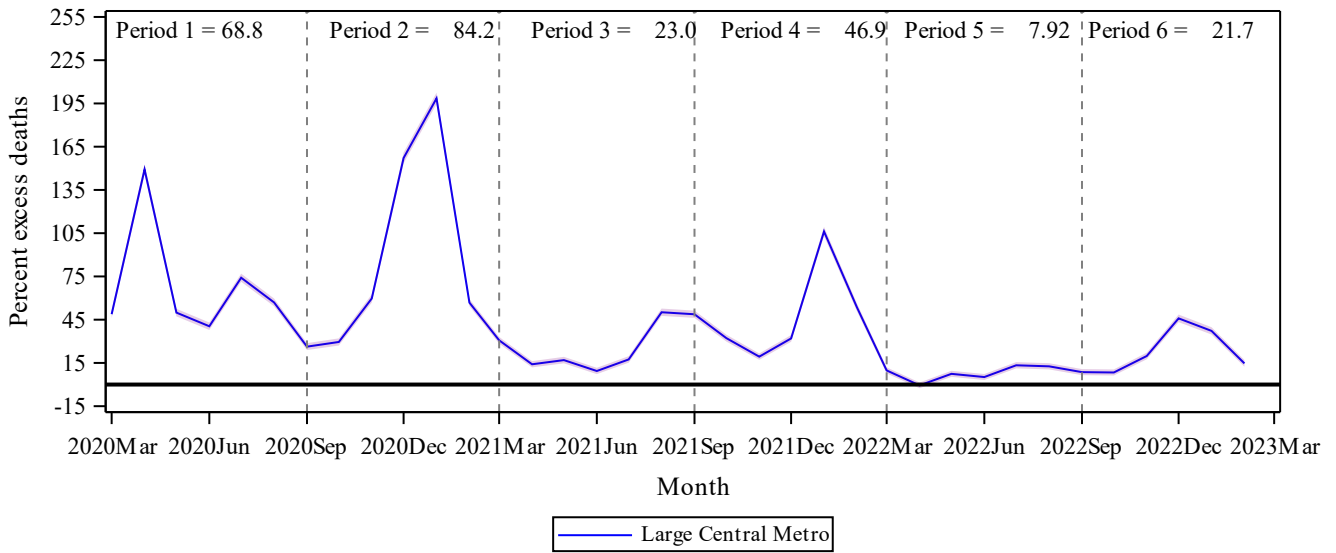
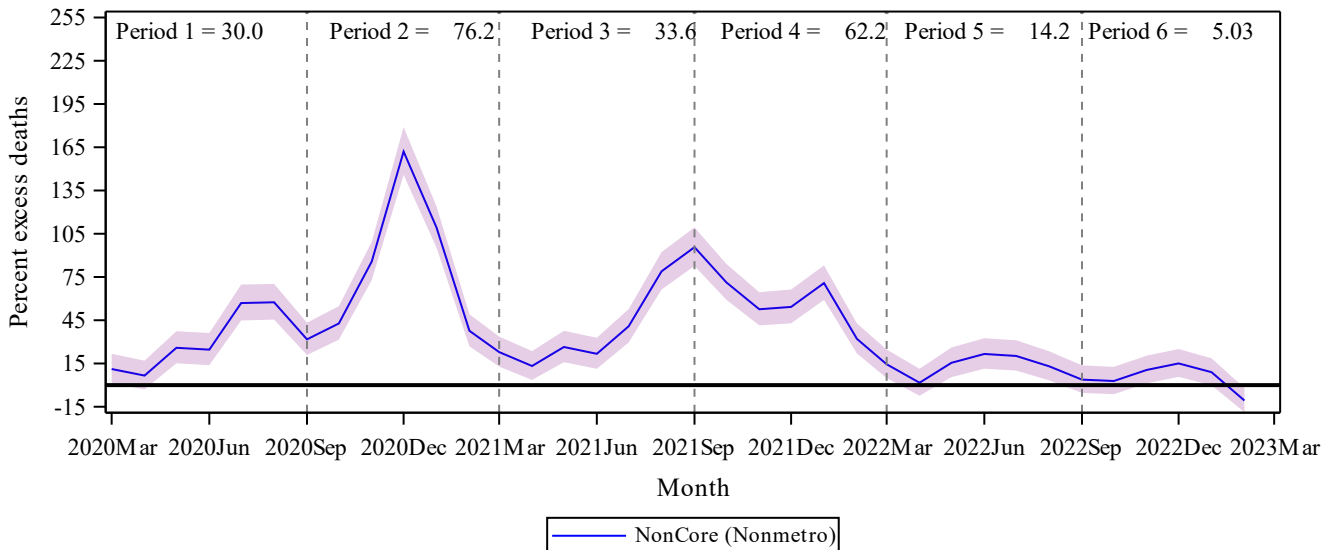
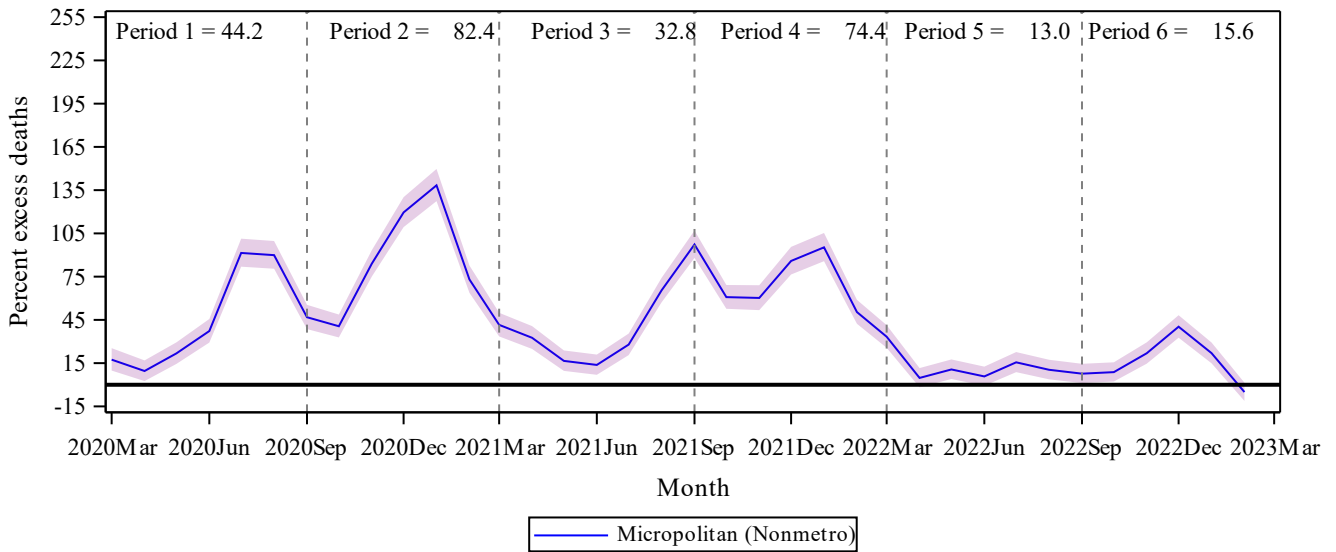
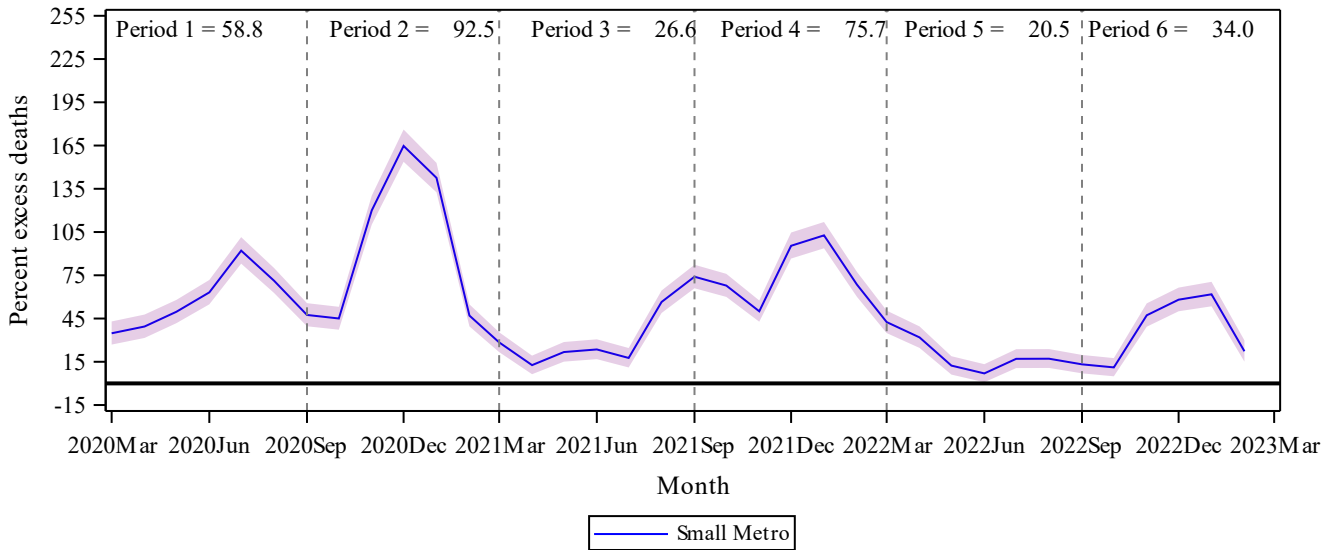


Table 5.1: Hispanic group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	436031	310136.33	40.59	40.18	41.01	84909000	513.53	365.26	148.27
Large Fringe Metro	152041	87367.13	74.03	73.15	74.90	38810106	391.76	225.11	166.64
Medium Metro	196356	125283.95	56.73	56.04	57.42	39063567	502.66	320.72	181.94
Small Metro	51581	34323.32	50.28	48.99	51.58	10885305	473.86	315.32	158.54
Micropolitan (Nonmetro)	44019	30875.98	42.57	41.24	43.91	8666946	507.90	356.25	151.65
NonCore (Nonmetro)	21222	15580.75	36.21	34.38	38.05	4087461	519.20	381.18	138.01
Total	901250	603567.46	49.32	49.01	49.63	186422385	483.45	323.76	159.68

Figure 5.3: Hispanic group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Table 5.2: Hispanic group- Percent excess death by time period for each urban rural group

Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	80304	47563.26	68.836	49641970.5	161.766	95.813	65.9537
Large Central Metro	Period 2	88354	47959.09	84.228	49641970.5	177.982	96.610	81.3725
Large Central Metro	Period 3	66347	53904.98	23.081	49731523.5	133.410	108.392	25.0184
Large Central Metro	Period 4	76708	52184.44	46.994	49731523.5	154.244	104.932	49.3119
Large Central Metro	Period 5	60943	56467.76	7.925	49731523.5	122.544	113.545	8.9988
Large Central Metro	Period 6	63375	52056.80	21.742	49731523.5	127.434	104.676	22.7586
Large Fringe Metro	Period 1	26911	13437.62	100.266	40725789.5	66.079	32.995	33.0832
Large Fringe Metro	Period 2	28899	13035.72	121.691	40725789.5	70.960	32.009	38.9514
Large Fringe Metro	Period 3	23805	16742.76	42.181	41511484.0	57.346	40.333	17.0127
Large Fringe Metro	Period 4	27918	14465.09	93.003	41511484.0	67.254	34.846	32.4077
Large Fringe Metro	Period 5	21779	15073.35	44.487	41511484.0	52.465	36.311	16.1537
Large Fringe Metro	Period 6	22729	14612.60	55.544	41511484.0	54.754	35.201	19.5522
Medium Metro	Period 1	33081	20495.87	61.403	33909767.5	97.556	60.442	37.1136
Medium Metro	Period 2	38391	19904.84	92.873	33909767.5	113.215	58.699	54.5157
Medium Metro	Period 3	30506	21000.51	45.263	34354465.0	88.798	61.129	27.6689
Medium Metro	Period 4	36801	20815.82	76.793	34354465.0	107.121	60.591	46.5301
Medium Metro	Period 5	28254	21416.33	31.927	34354465.0	82.243	62.339	19.9033
Medium Metro	Period 6	29323	21650.57	35.438	34354465.0	85.354	63.021	22.3331
Small Metro	Period 1	8244	5188.57	58.888	14662633.5	56.225	35.386	20.8382
Small Metro	Period 2	10267	5331.67	92.566	14662633.5	70.022	36.362	33.6593
Small Metro	Period 3	7789	6151.85	26.612	14804747.5	52.612	41.553	11.0583
Small Metro	Period 4	10301	5860.95	75.756	14804747.5	69.579	39.588	29.9907
Small Metro	Period 5	7351	6099.11	20.526	14804747.5	49.653	41.197	8.4560
Small Metro	Period 6	7629	5691.17	34.050	14804747.5	51.531	38.442	13.0893
Micropolitan (Nonmetro)	Period 1	6954	4822.07	44.212	13344824.0	52.110	36.134	15.9757
Micropolitan (Nonmetro)	Period 2	8778	4811.00	82.457	13344824.0	65.778	36.051	29.7268
Micropolitan (Nonmetro)	Period 3	6944	5228.67	32.806	13451721.5	51.622	38.870	12.7518
Micropolitan (Nonmetro)	Period 4	8785	5034.51	74.495	13451721.5	65.308	37.427	27.8811
Micropolitan (Nonmetro)	Period 5	6204	5486.47	13.078	13451721.5	46.120	40.786	5.3341
Micropolitan (Nonmetro)	Period 6	6354	5493.26	15.669	13451721.5	47.236	40.837	6.3988
NonCore (Nonmetro)	Period 1	3166	2434.16	30.066	9123238.0	34.703	26.681	8.0218
NonCore (Nonmetro)	Period 2	4302	2441.11	76.232	9123238.0	47.154	26.757	20.3973
NonCore (Nonmetro)	Period 3	3401	2544.89	33.640	9100312.5	37.372	27.965	9.4075
NonCore (Nonmetro)	Period 4	4363	2689.09	62.248	9100312.5	47.943	29.549	18.3940
NonCore (Nonmetro)	Period 5	3007	2631.52	14.268	9100312.5	33.043	28.917	4.1260
NonCore (Nonmetro)	Period 6	2983	2839.98	5.036	9100312.5	32.779	31.207	1.5716

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 5.4: Hispanic group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023

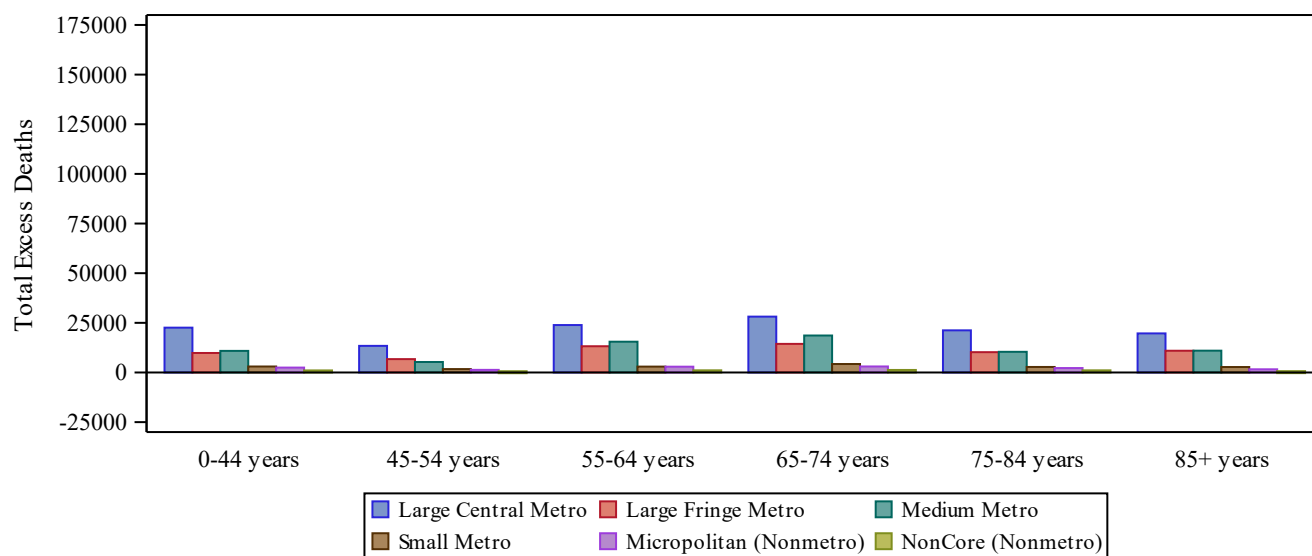
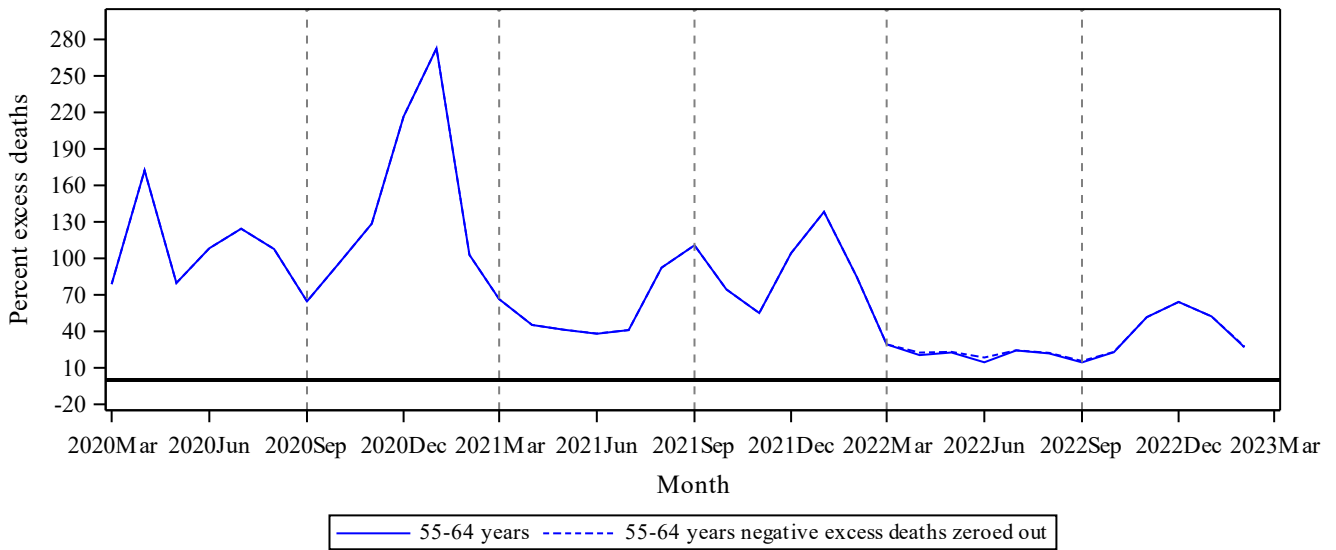
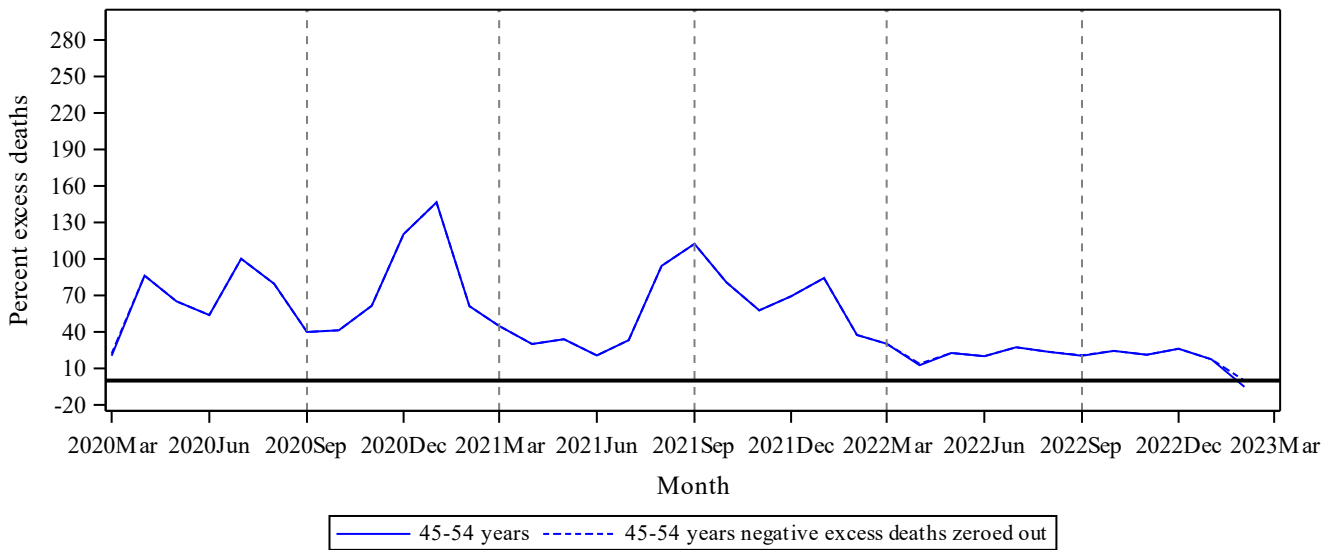
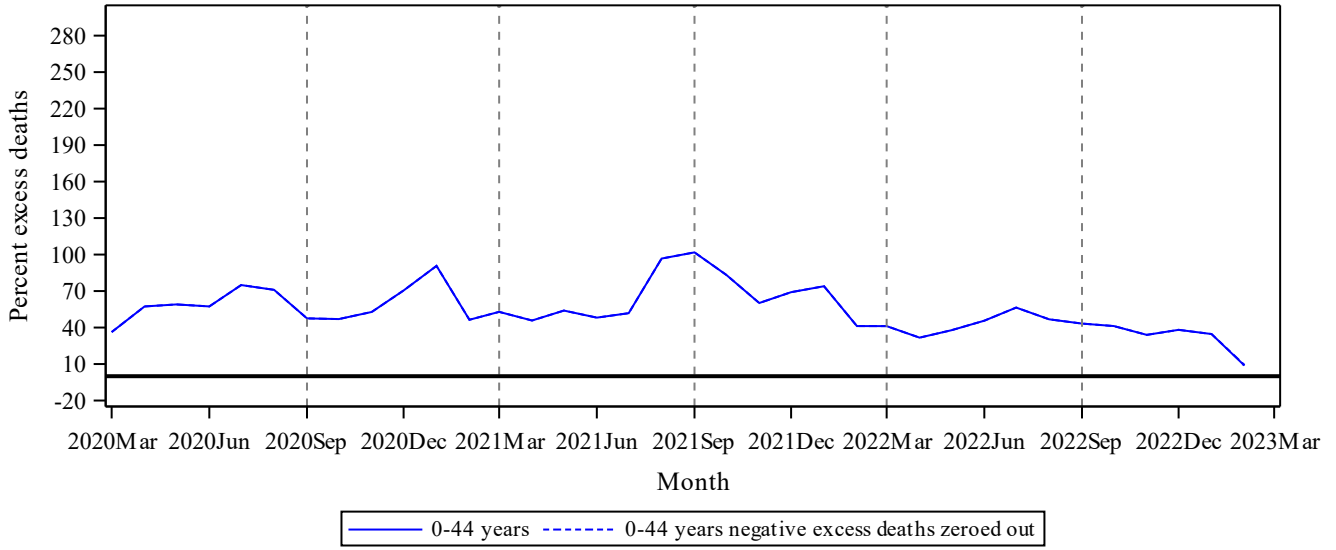
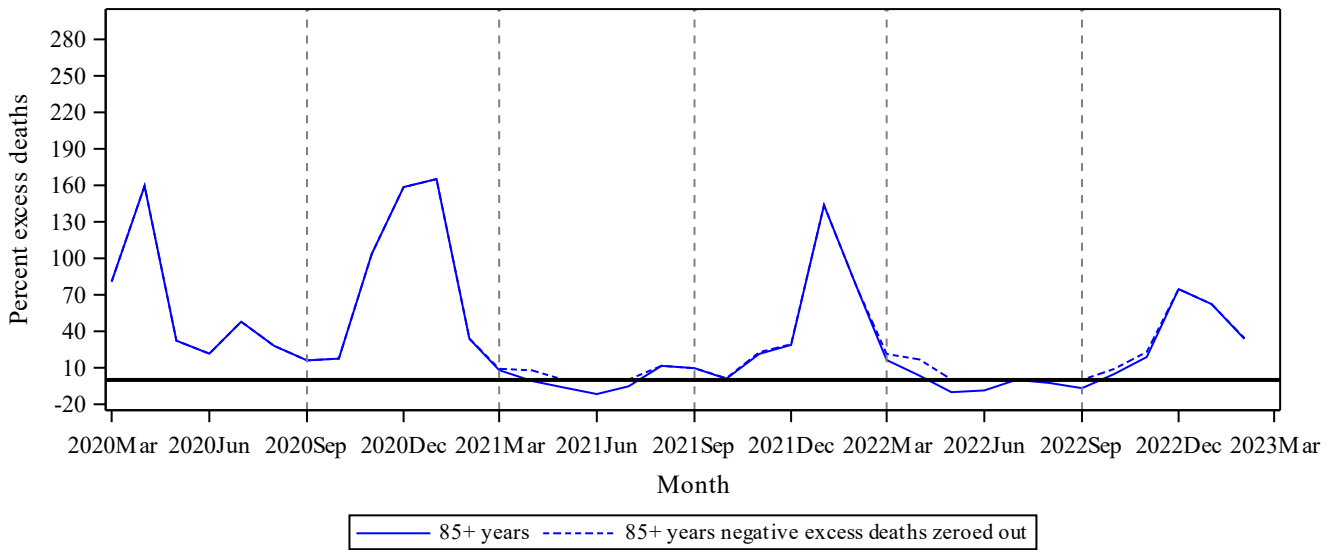
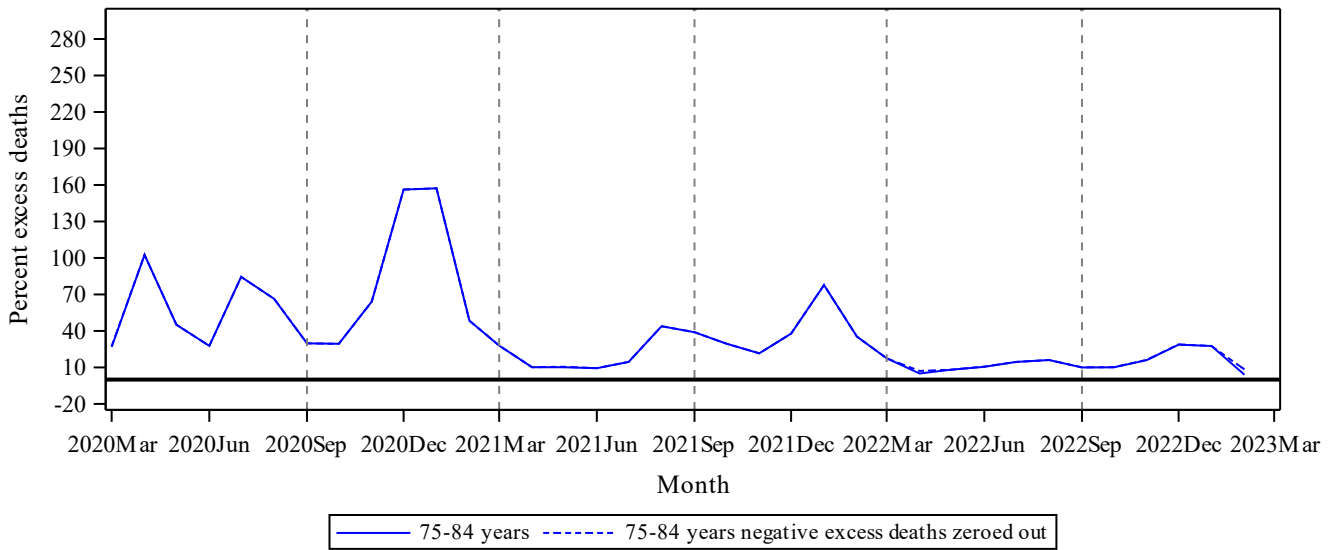
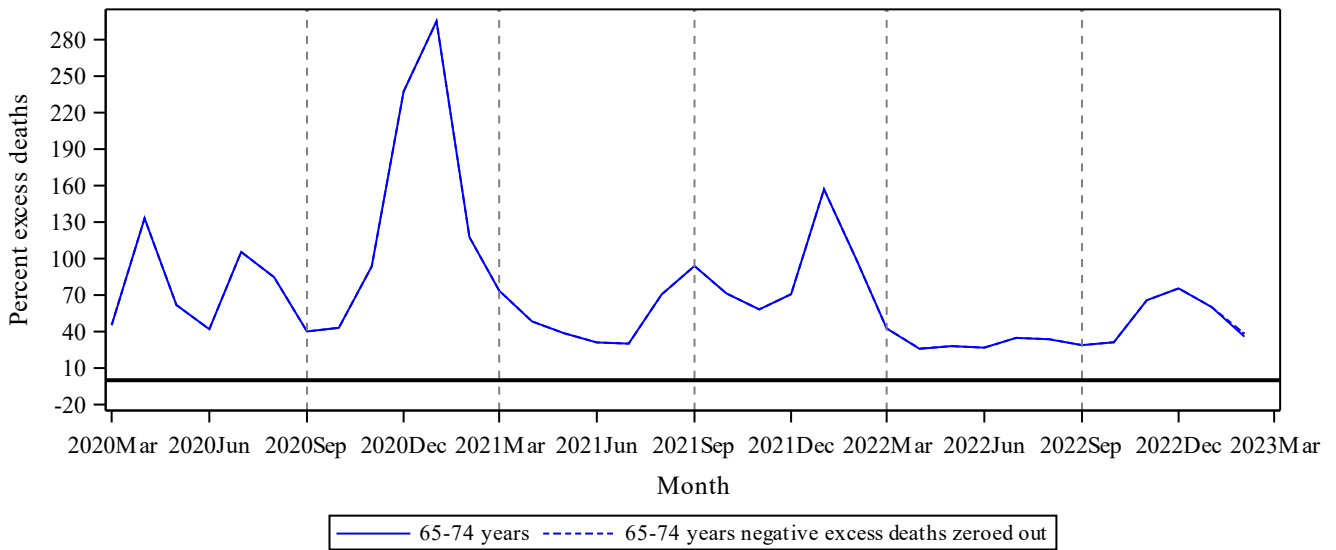


Figure 5.5: Hispanic group- Percent Excess Deaths by month by age group, March 2020 to February 2023





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Supplemental Appendix 6

Figure 6.1: Non-Hispanic Black group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

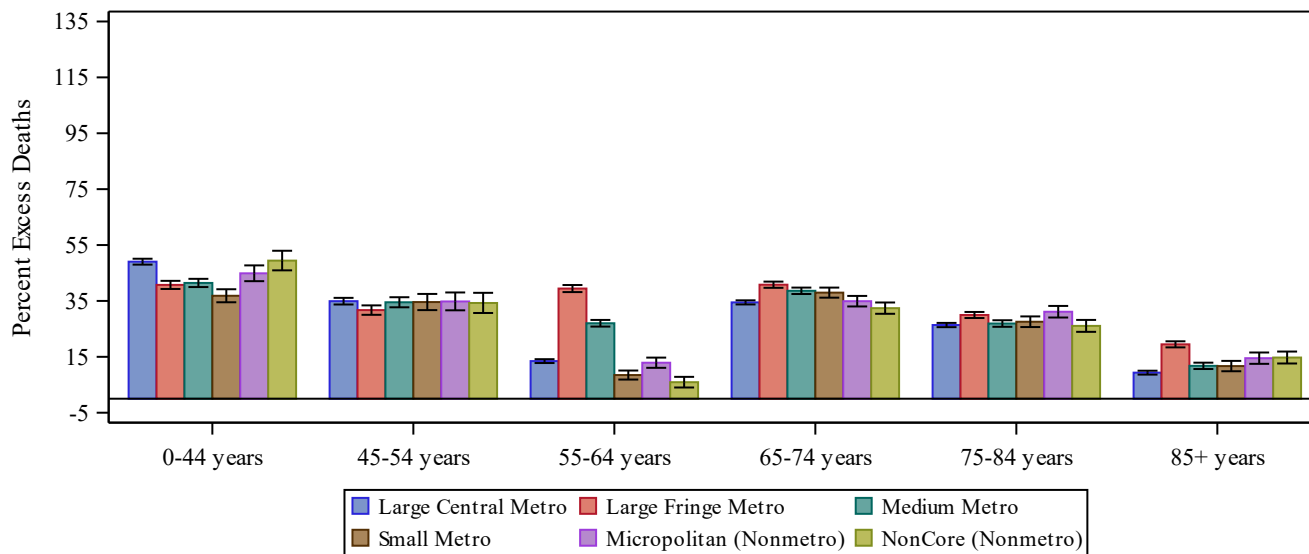


Figure 6.2: Non-Hispanic Black group- Total number of excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

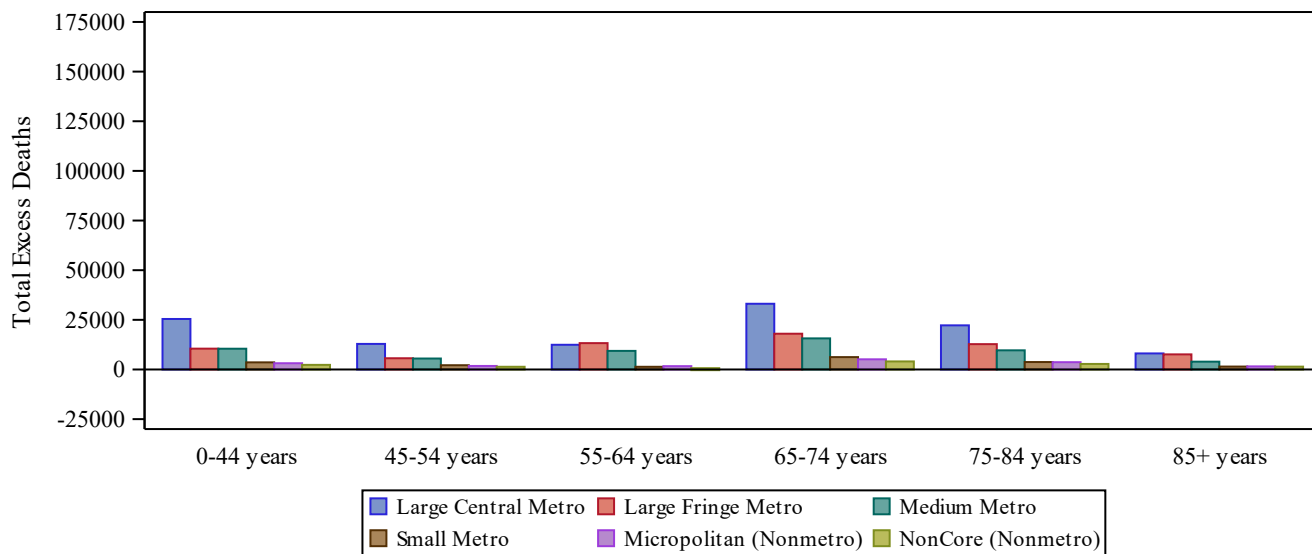
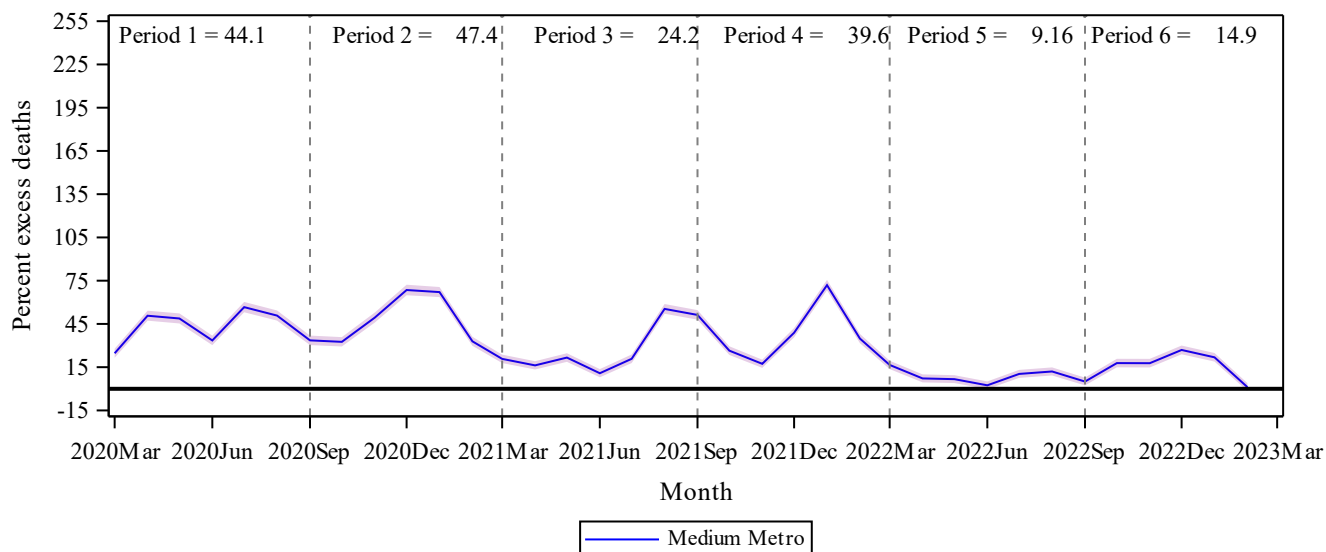
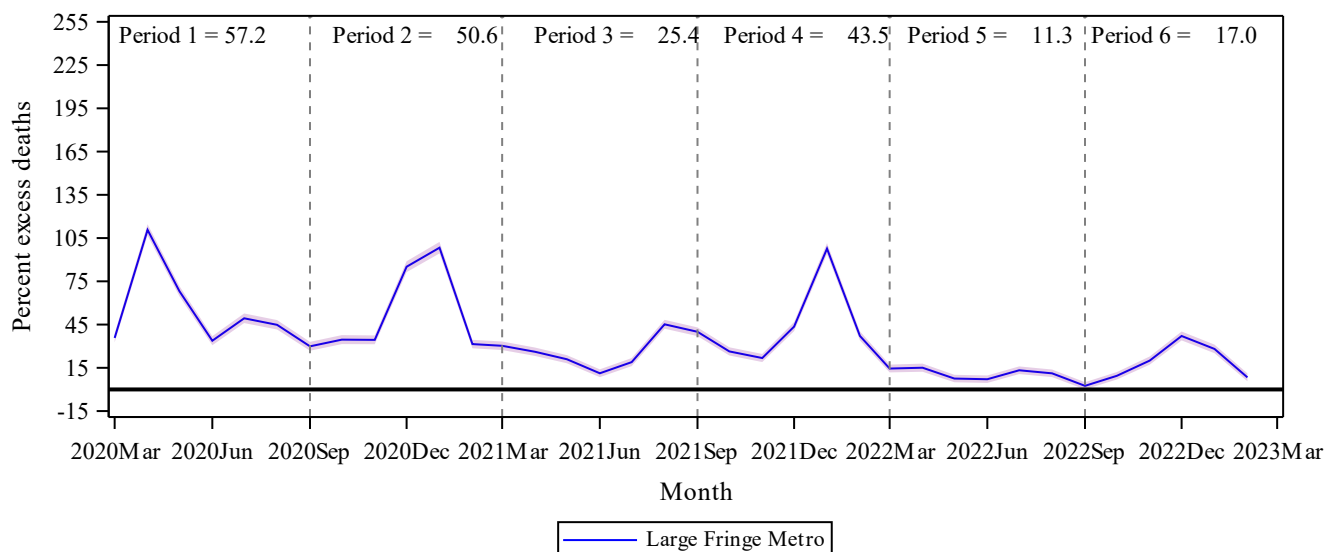
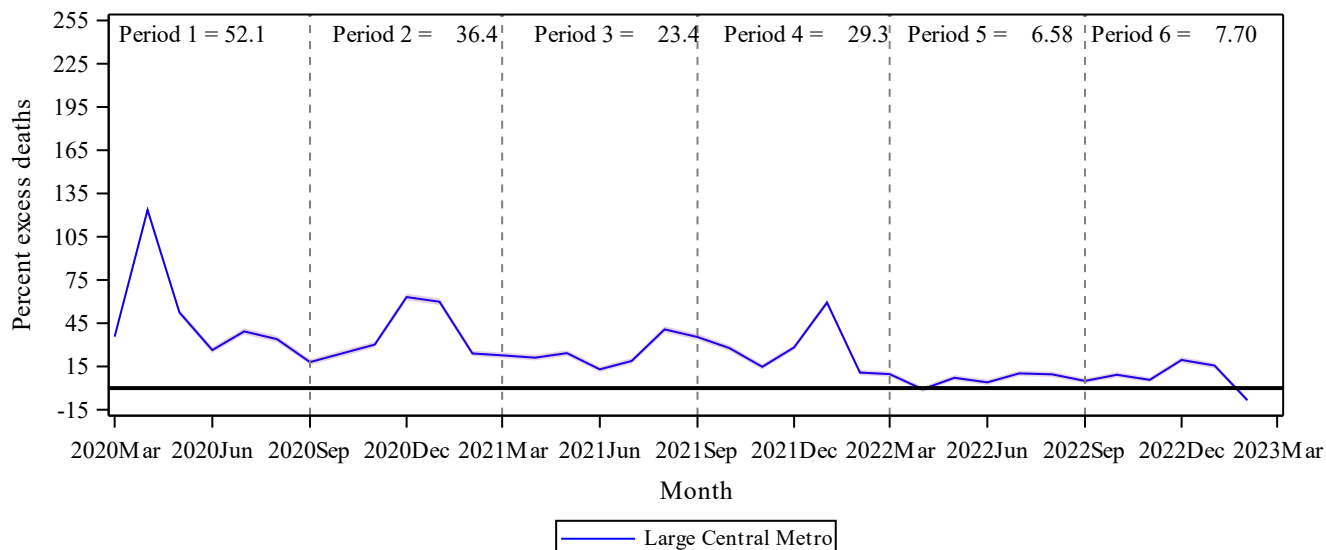


Table 6.1: Non-Hispanic Black group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	562332	448172.33	25.47	25.14	25.80	50615139	1111.00	885.45	225.54
Large Fringe Metro	270950	203138.98	33.38	32.88	33.88	31347576	864.34	648.02	216.32
Medium Metro	240442	185844.64	29.38	28.86	29.90	22705857	1058.94	818.49	240.45
Small Metro	93201	74649.54	24.85	24.05	25.66	8601705	1083.52	867.85	215.67
Micropolitan (Nonmetro)	79414	62445.16	27.17	26.29	28.06	6269079	1266.76	996.08	270.68
NonCore (Nonmetro)	65596	52957.24	23.87	22.92	24.82	4589562	1429.24	1153.86	275.38
Total	1311935	1027207.89	27.72	27.50	27.94	124128918	1056.91	827.53	229.38

Figure 6.3: Non-Hispanic Black group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)



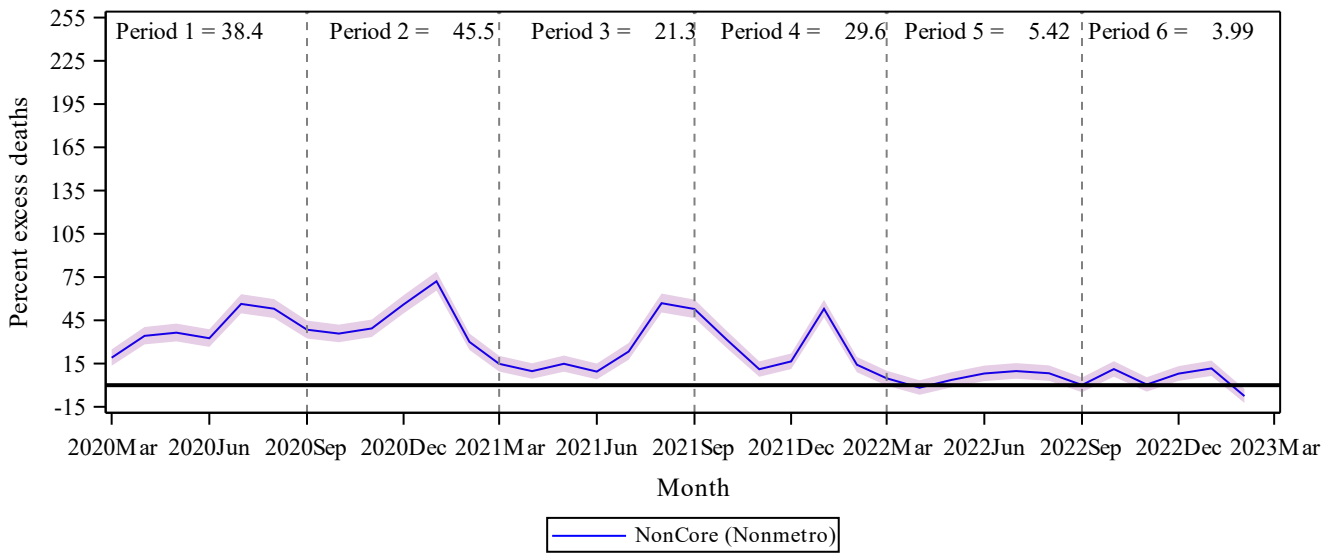
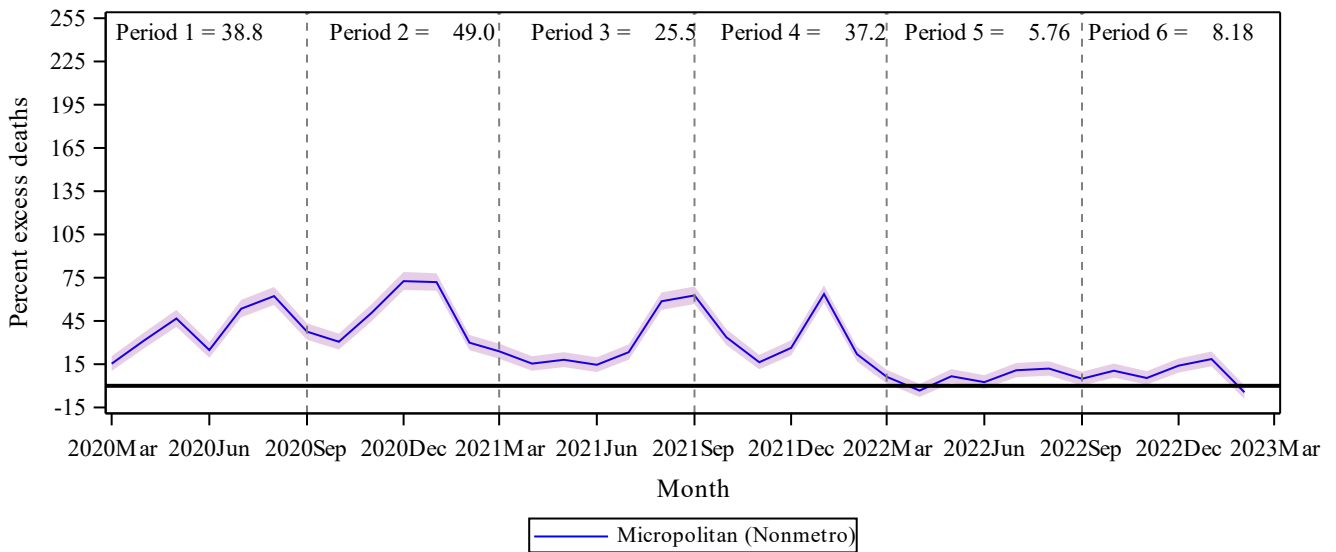
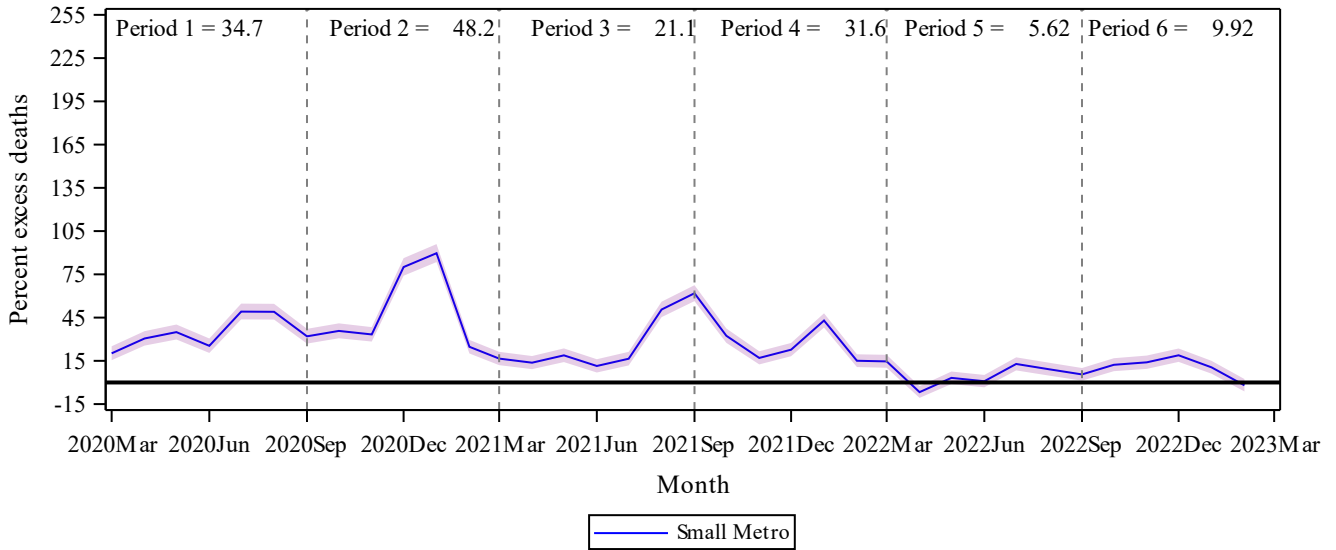
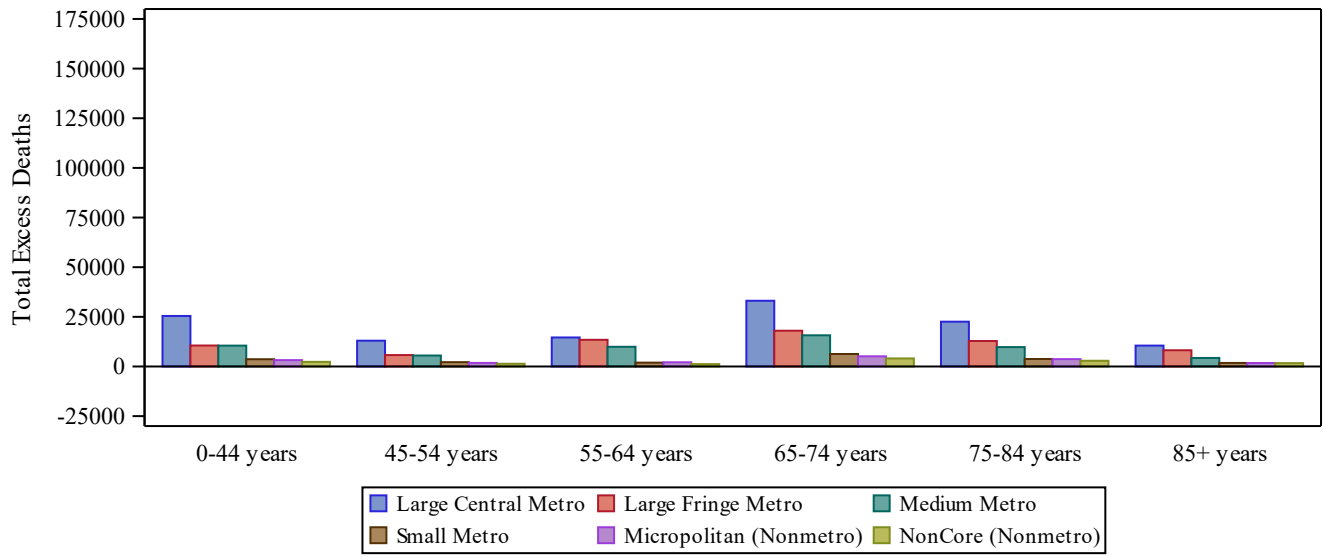


Table 6.2: Non-Hispanic Black group- Percent excess death by time period for each urban rural group

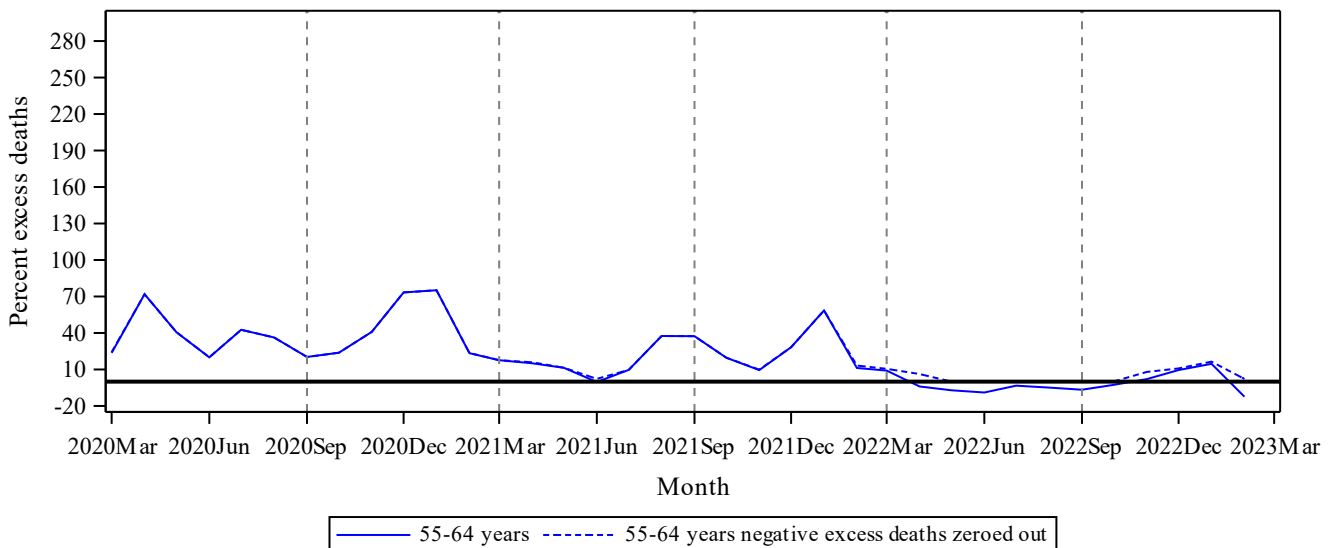
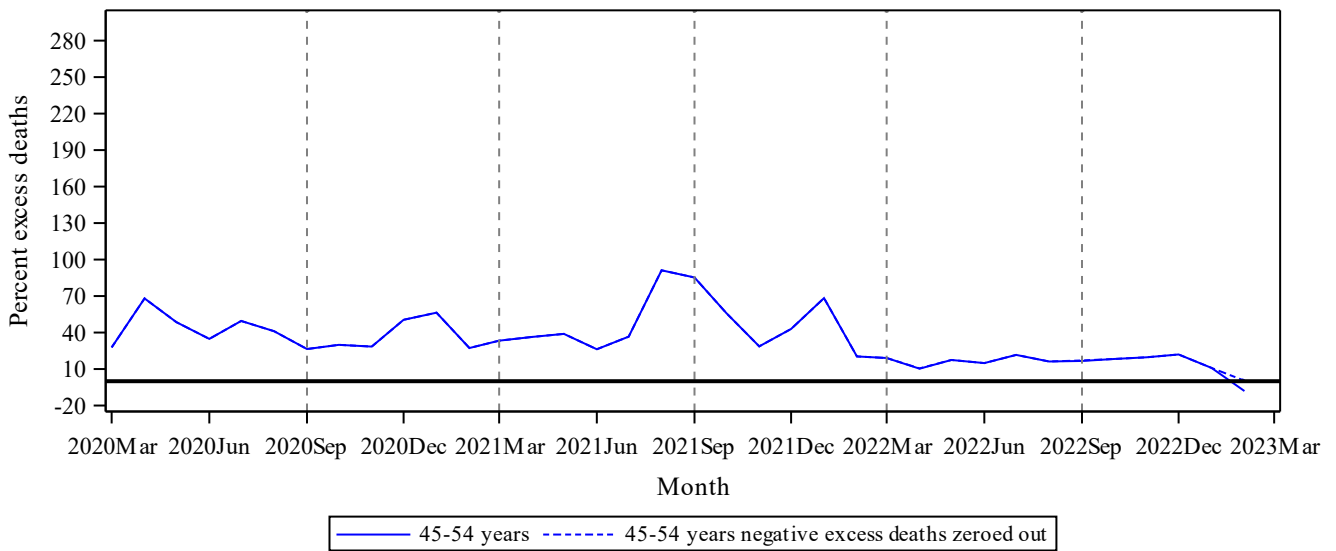
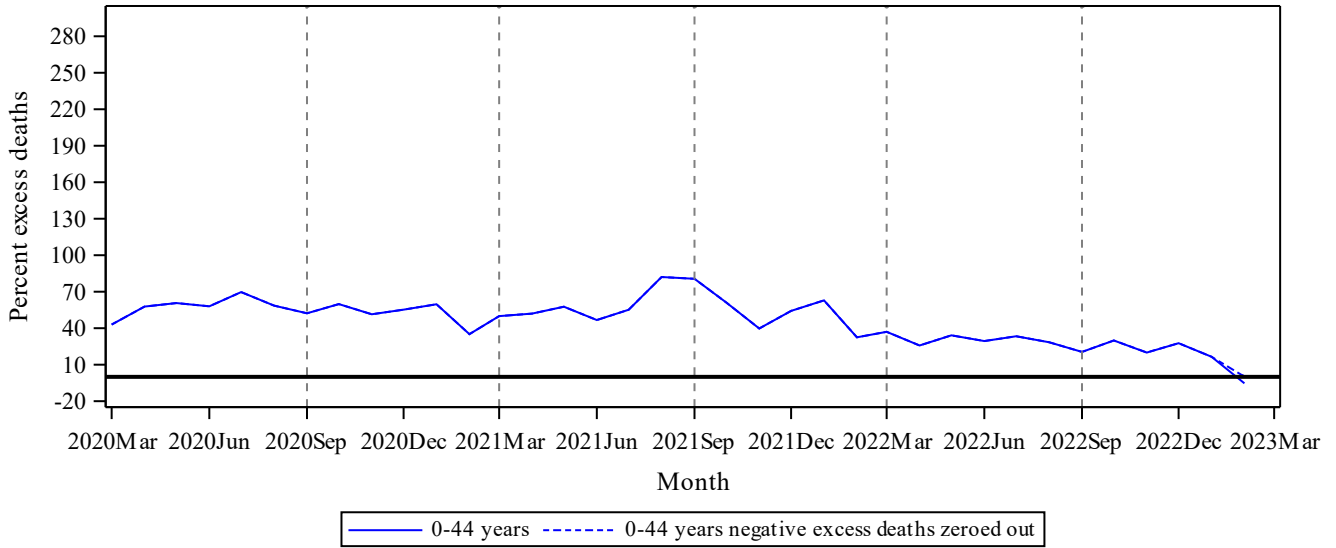
Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	107094	70365.66	52.1964	14002453.5	764.82	502.52	262.299
Large Central Metro	Period 2	98454	72136.39	36.4831	14002453.5	703.12	515.17	187.950
Large Central Metro	Period 3	90875	73633.73	23.4149	14151500.0	642.16	520.32	121.834
Large Central Metro	Period 4	100531	77692.48	29.3961	14151500.0	710.39	549.01	161.386
Large Central Metro	Period 5	81661	76612.50	6.5897	14151500.0	577.05	541.37	35.675
Large Central Metro	Period 6	83717	77731.57	7.7001	14151500.0	591.58	549.28	42.295
Large Fringe Metro	Period 1	49340	31368.28	57.2926	6221433.5	793.06	504.20	288.868
Large Fringe Metro	Period 2	47777	31703.73	50.6983	6221433.5	767.94	509.59	258.353
Large Fringe Metro	Period 3	43649	34796.38	25.4412	6468351.0	674.81	537.95	136.861
Large Fringe Metro	Period 4	48840	34027.90	43.5293	6468351.0	755.06	526.07	228.993
Large Fringe Metro	Period 5	40348	36230.92	11.3635	6468351.0	623.78	560.13	63.650
Large Fringe Metro	Period 6	40996	35011.76	17.0921	6468351.0	633.79	541.28	92.516
Medium Metro	Period 1	41066	28495.20	44.1155	6318970.5	649.88	450.95	198.937
Medium Metro	Period 2	43699	29633.43	47.4652	6318970.5	691.55	468.96	222.593
Medium Metro	Period 3	39583	31866.95	24.2133	6510594.5	607.98	489.46	118.515
Medium Metro	Period 4	44054	31540.01	39.6766	6510594.5	676.65	484.44	192.210
Medium Metro	Period 5	35685	32689.30	9.1642	6510594.5	548.11	502.09	46.013
Medium Metro	Period 6	36355	31619.75	14.9756	6510594.5	558.40	485.67	72.731
Small Metro	Period 1	15820	11739.74	34.7559	1769706.0	893.93	663.37	230.561
Small Metro	Period 2	17647	11907.26	48.2037	1769706.0	997.17	672.84	324.333
Small Metro	Period 3	14979	12362.16	21.1682	1814217.5	825.65	681.40	144.241
Small Metro	Period 4	17193	13062.10	31.6250	1814217.5	947.68	719.99	227.696
Small Metro	Period 5	13627	12901.80	5.6209	1814217.5	751.12	711.15	39.973
Small Metro	Period 6	13935	12676.48	9.9280	1814217.5	768.10	698.73	69.370
Micropolitan (Nonmetro)	Period 1	13709	9872.32	38.8630	1401626.0	978.08	704.35	273.731
Micropolitan (Nonmetro)	Period 2	15364	10307.19	49.0610	1401626.0	1096.16	735.37	360.782
Micropolitan (Nonmetro)	Period 3	12908	10279.79	25.5668	1444491.0	893.60	711.65	181.947
Micropolitan (Nonmetro)	Period 4	14572	10616.55	37.2575	1444491.0	1008.80	734.97	273.830
Micropolitan (Nonmetro)	Period 5	11243	10630.24	5.7643	1444491.0	778.34	735.92	42.421
Micropolitan (Nonmetro)	Period 6	11618	10739.07	8.1844	1444491.0	804.30	743.45	60.847
NonCore (Nonmetro)	Period 1	11572	8360.20	38.4178	674604.0	1715.38	1239.27	476.102
NonCore (Nonmetro)	Period 2	12917	8873.16	45.5738	674604.0	1914.75	1315.31	599.439
NonCore (Nonmetro)	Period 3	10461	8620.91	21.3445	681243.5	1535.57	1265.47	270.108
NonCore (Nonmetro)	Period 4	11784	9086.97	29.6802	681243.5	1729.78	1333.88	395.898
NonCore (Nonmetro)	Period 5	9306	8827.07	5.4257	681243.5	1366.03	1295.73	70.303
NonCore (Nonmetro)	Period 6	9556	9188.94	3.9946	681243.5	1402.73	1348.85	53.881

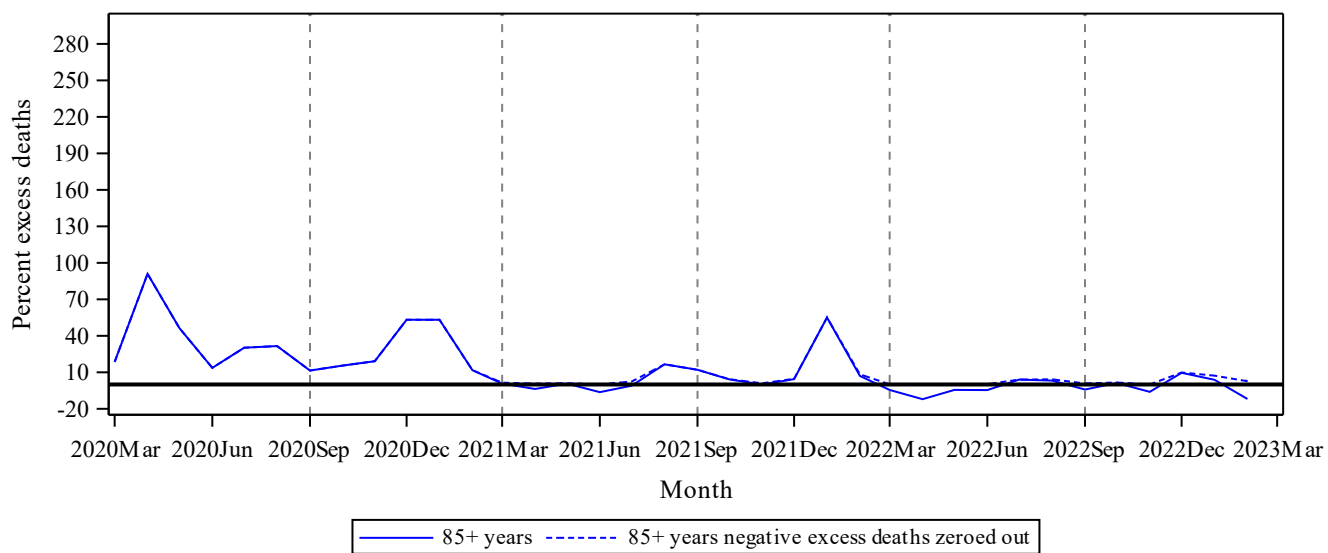
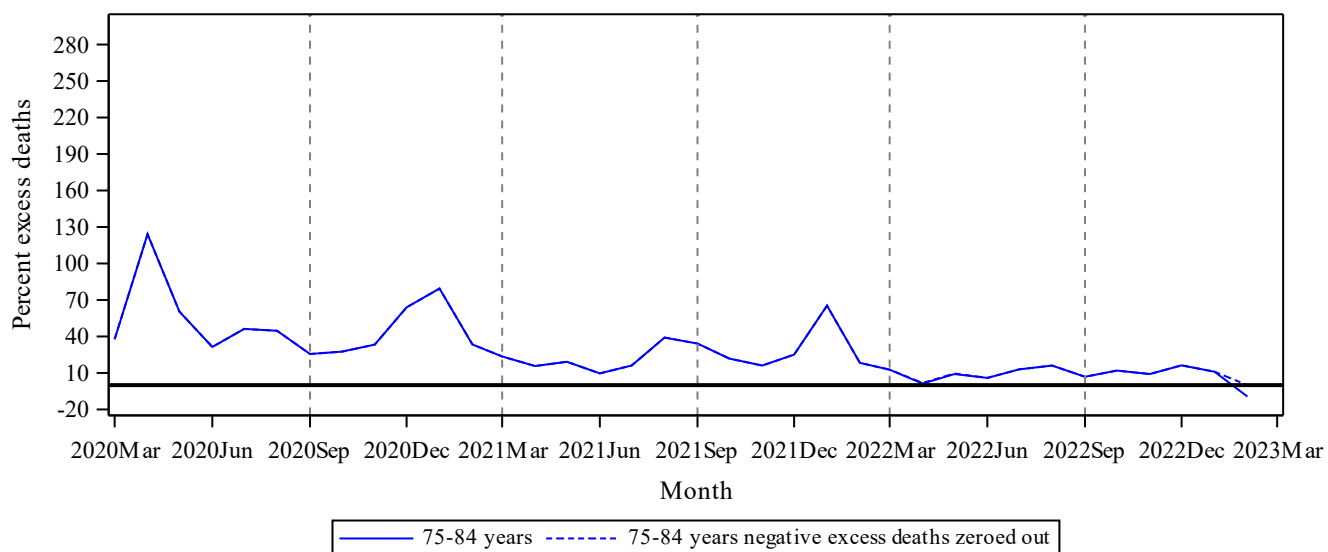
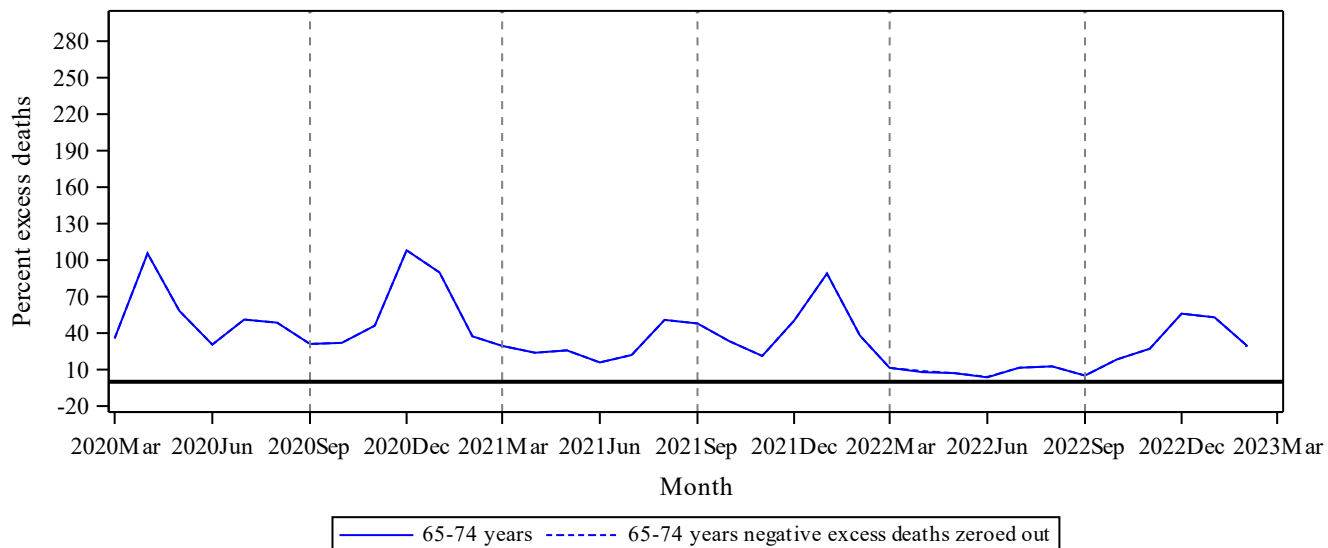
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Figure 6.4: Non-Hispanic Black group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023



Supplemental Figure 6.5: Non-Hispanic Black group- Percent Excess Deaths by month by age group, March 2020 to February 2023





Supplemental Appendix 7

Figure 7.1: Overall 10yr lookback group- Total number of excess deaths by age group and rurality of residence, March 2020 to February 2023

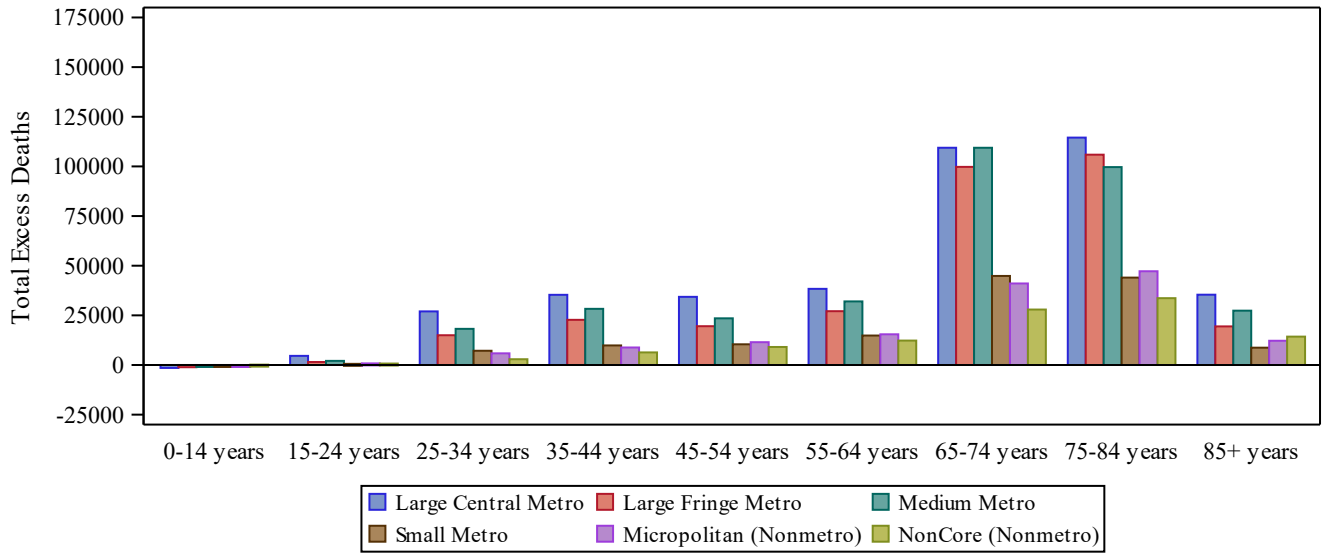


Figure 7.2: Overall 10yr lookback group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

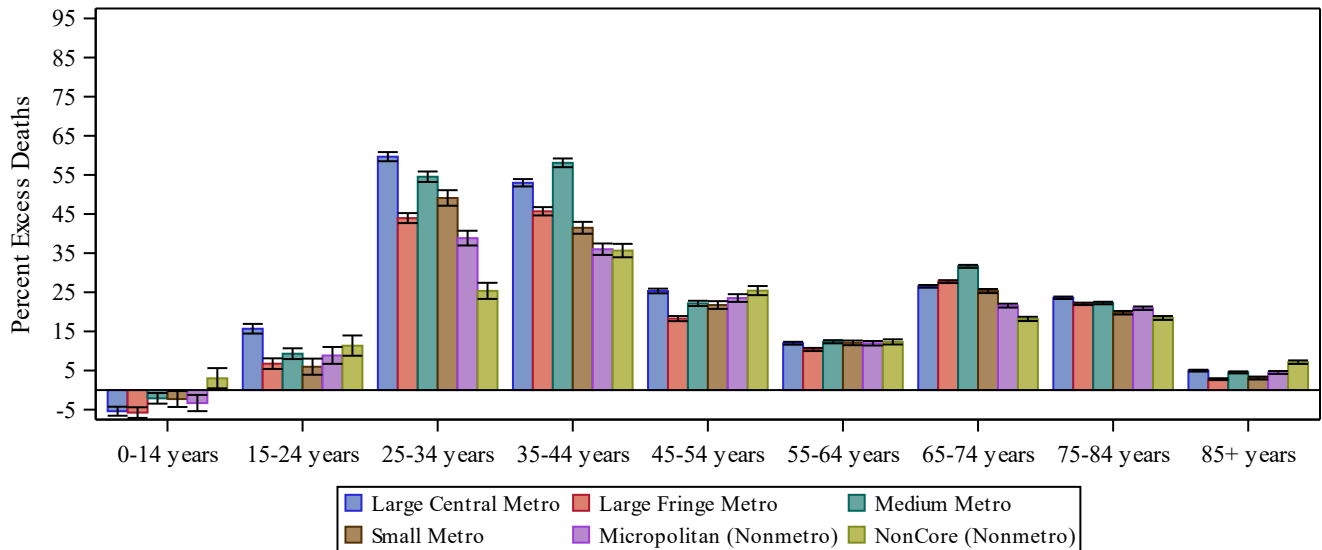
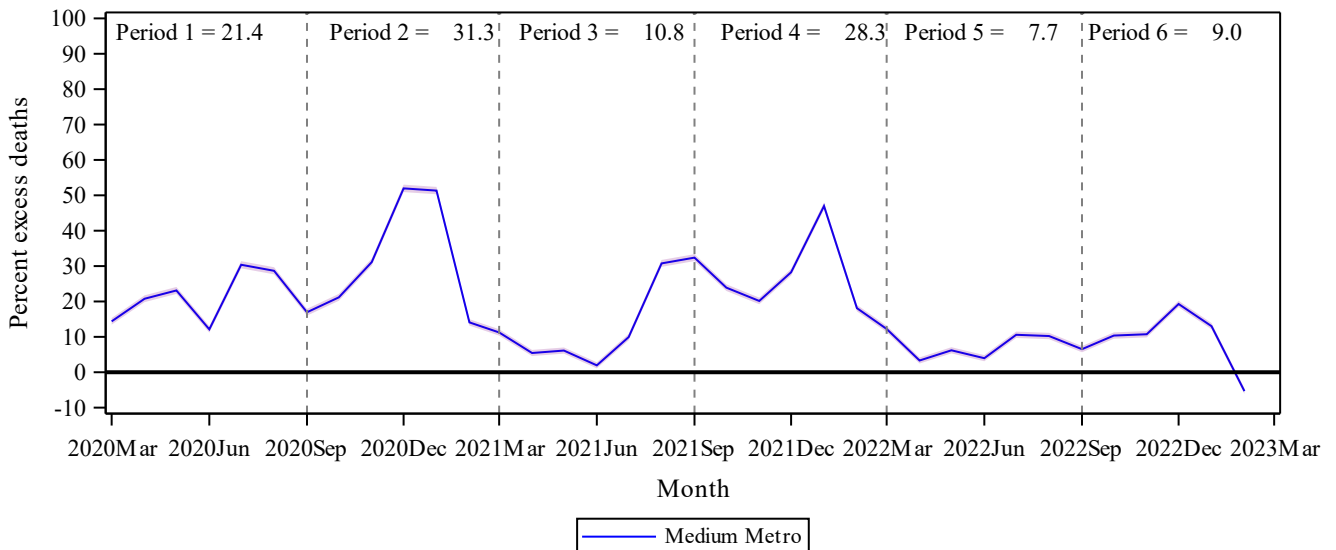
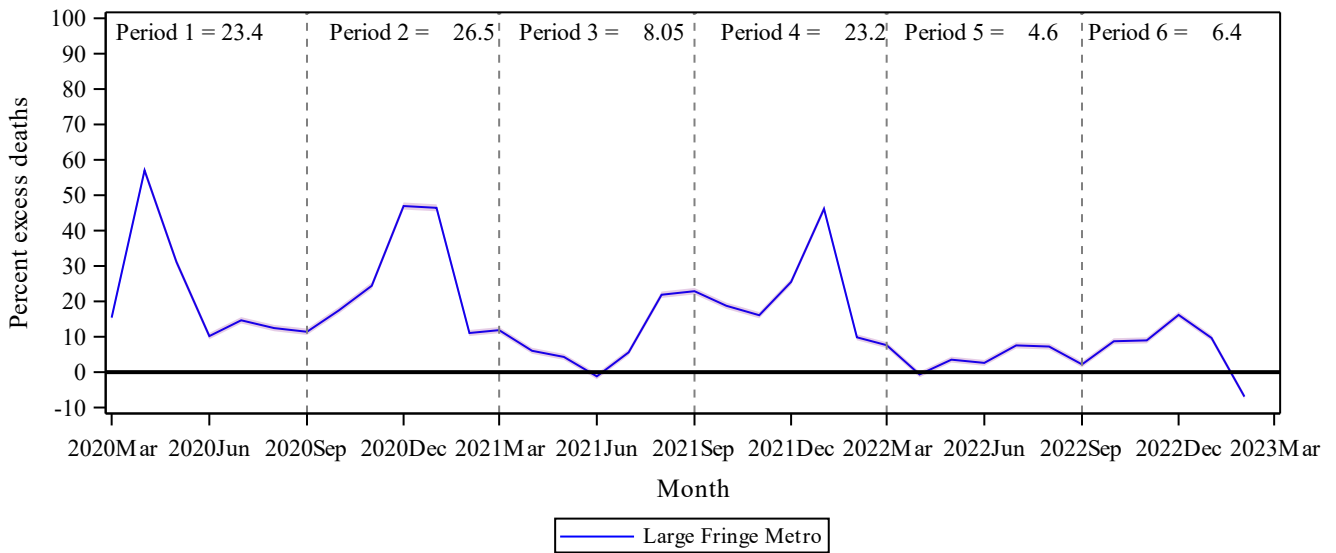
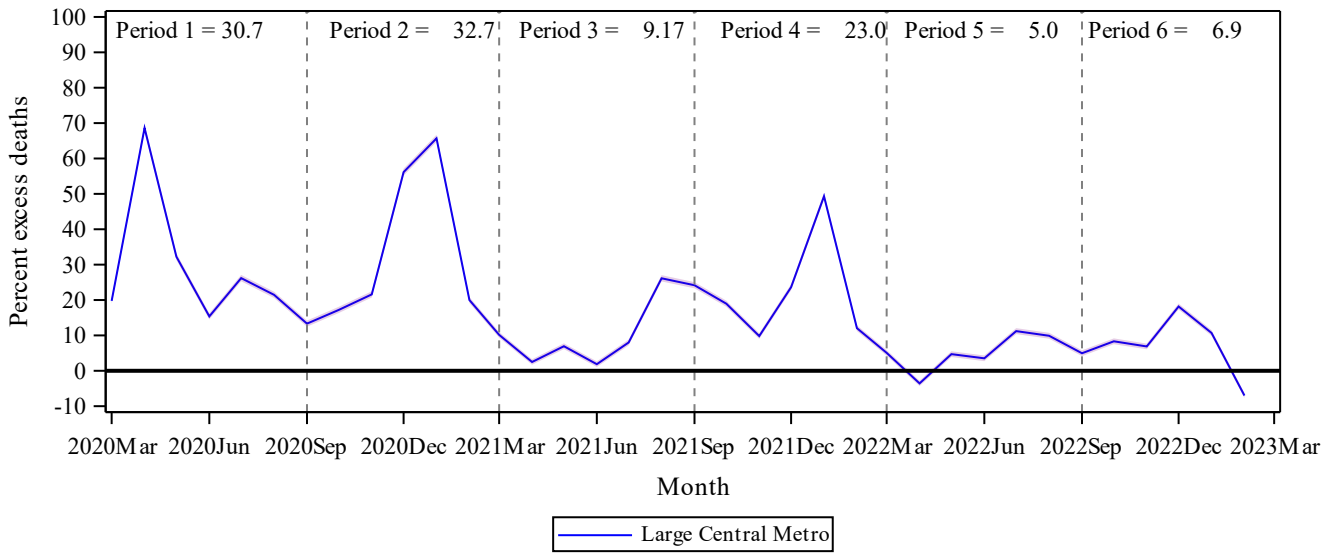
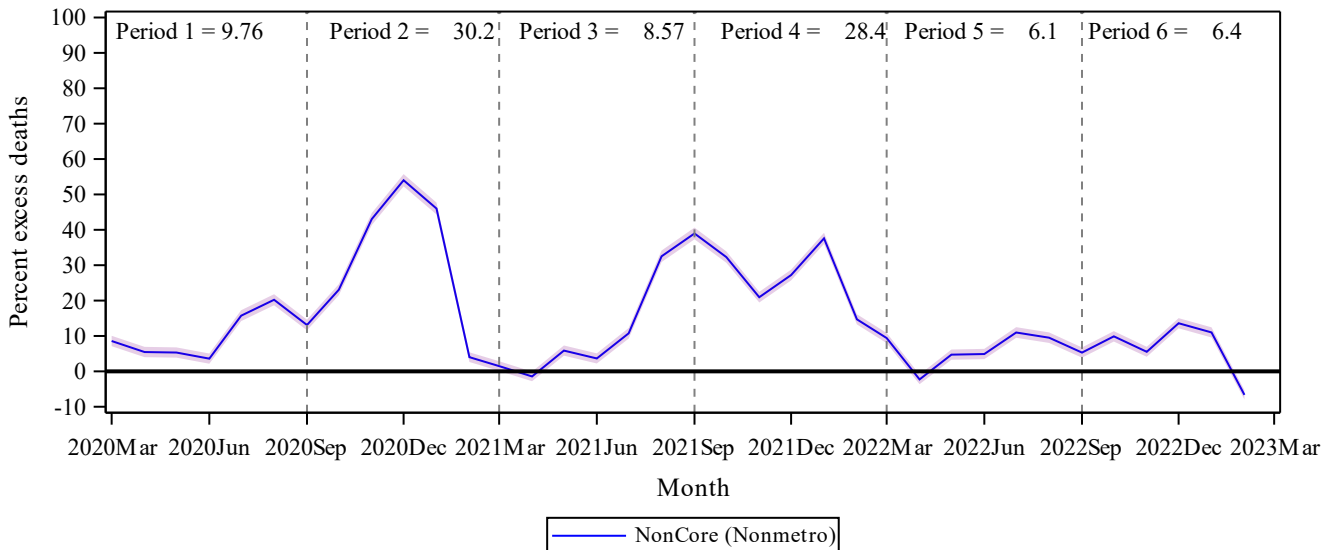
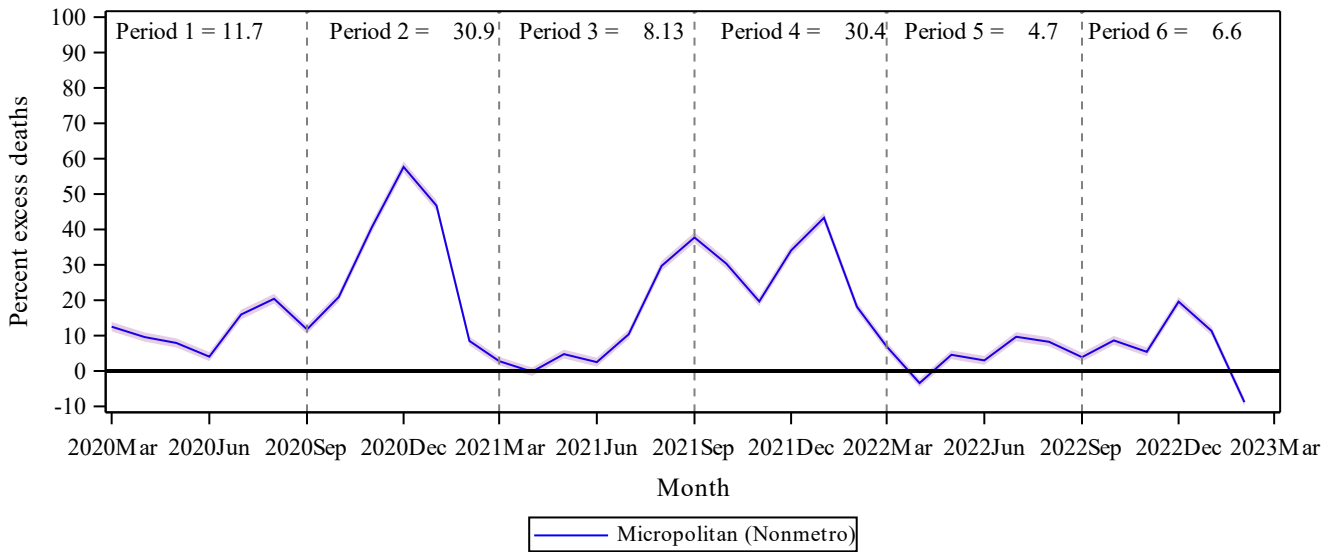
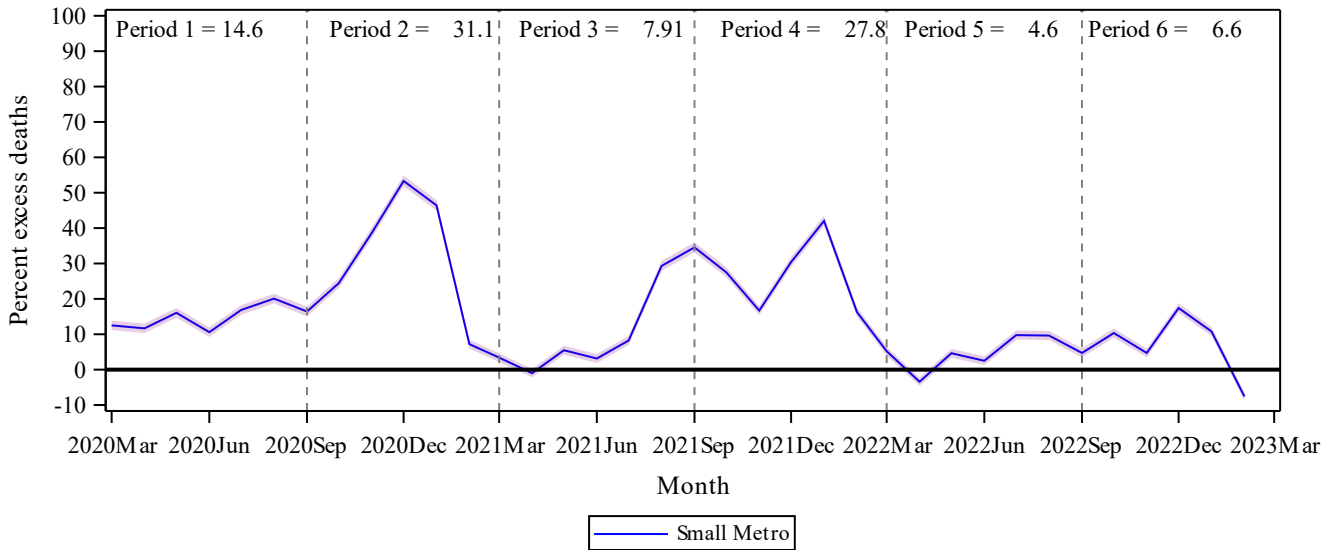


Table 7.1: Overall 10yr lookback group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	2632738	2235366.85	17.78	17.63	17.92	298389141	882.32	749.14	133.17
Large Fringe Metro	2340327	2030521.28	15.26	15.11	15.41	249068904	939.63	815.24	124.39
Medium Metro	2228452	1888431.78	18.01	17.85	18.16	206126790	1081.11	916.15	164.96
Small Metro	1051099	910904.92	15.39	15.17	15.61	88828485	1183.29	1025.46	157.83
Micropolitan (Nonmetro)	1065192	922601.30	15.46	15.24	15.67	80710329	1319.77	1143.10	176.67
NonCore (Nonmetro)	820852	713484.74	15.05	14.80	15.30	54601875	1503.34	1306.70	196.64
Total	10138660	8701310.88	16.52	16.45	16.59	977725524	1036.96	889.95	147.01

Figure 7.3: Overall 10yr lookback group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Table 7.2: Overall 10yr lookback group- Summary of total observed, expected, and excess deaths by 6-month time period for each rural-urban group, March 2020 to February 2023

Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	466914	357071.01	30.7622	49641970.5	940.56	719.29	221.270
Large Central Metro	Period 2	485140	365436.86	32.7562	49641970.5	977.28	736.14	241.133
Large Central Metro	Period 3	410339	375864.77	9.1720	49731523.5	825.11	755.79	69.321
Large Central Metro	Period 4	469539	381660.06	23.0254	49731523.5	944.15	767.44	176.707
Large Central Metro	Period 5	391988	373195.78	5.0355	49731523.5	788.21	750.42	37.787
Large Central Metro	Period 6	408818	382138.38	6.9817	49731523.5	822.05	768.40	53.647
Large Fringe Metro	Period 1	396605	321179.67	23.4838	40725789.5	973.84	788.64	185.203
Large Fringe Metro	Period 2	417520	330028.94	26.5101	40725789.5	1025.20	810.37	214.830
Large Fringe Metro	Period 3	365822	338551.52	8.0550	41511484.0	881.25	815.56	65.694
Large Fringe Metro	Period 4	429907	348701.54	23.2880	41511484.0	1035.63	840.01	195.622
Large Fringe Metro	Period 5	355282	339554.83	4.6317	41511484.0	855.86	817.98	37.886
Large Fringe Metro	Period 6	375191	352504.77	6.4357	41511484.0	903.82	849.17	54.650
Medium Metro	Period 1	358413	295024.67	21.4858	33909767.5	1056.96	870.03	186.932
Medium Metro	Period 2	404293	307800.01	31.3492	33909767.5	1192.26	907.70	284.558
Medium Metro	Period 3	352695	318161.95	10.8539	34354465.0	1026.64	926.12	100.520
Medium Metro	Period 4	414149	322750.73	28.3185	34354465.0	1205.52	939.47	266.045
Medium Metro	Period 5	341896	317340.98	7.7377	34354465.0	995.20	923.73	71.475
Medium Metro	Period 6	357006	327353.43	9.0583	34354465.0	1039.18	952.87	86.314
Small Metro	Period 1	164425	143415.64	14.6493	14662633.5	1121.39	978.10	143.285
Small Metro	Period 2	193586	147618.40	31.1395	14662633.5	1320.27	1006.77	313.502
Small Metro	Period 3	165696	153544.15	7.9142	14804747.5	1119.21	1037.13	82.081
Small Metro	Period 4	199791	156280.00	27.8417	14804747.5	1349.51	1055.61	293.899
Small Metro	Period 5	160167	153098.03	4.6173	14804747.5	1081.86	1034.11	47.748
Small Metro	Period 6	167434	156948.69	6.6807	14804747.5	1130.95	1060.12	70.824
Micropolitan (Nonmetro)	Period 1	164417	147178.05	11.7130	13344824.0	1232.07	1102.88	129.181
Micropolitan (Nonmetro)	Period 2	198807	151834.31	30.9368	13344824.0	1489.77	1137.78	351.992
Micropolitan (Nonmetro)	Period 3	166947	154382.72	8.1384	13451721.5	1241.08	1147.68	93.403
Micropolitan (Nonmetro)	Period 4	205455	157477.15	30.4665	13451721.5	1527.35	1170.68	356.667
Micropolitan (Nonmetro)	Period 5	160736	153437.05	4.7570	13451721.5	1194.91	1140.65	54.260
Micropolitan (Nonmetro)	Period 6	168830	158292.02	6.6573	13451721.5	1255.08	1176.74	78.339
NonCore (Nonmetro)	Period 1	125542	114368.49	9.7697	9123238.0	1376.07	1253.60	122.473
NonCore (Nonmetro)	Period 2	154347	118503.64	30.2466	9123238.0	1691.80	1298.92	392.880
NonCore (Nonmetro)	Period 3	128557	118402.75	8.5760	9100312.5	1412.67	1301.08	111.581
NonCore (Nonmetro)	Period 4	158681	123520.70	28.4651	9100312.5	1743.69	1357.32	386.364
NonCore (Nonmetro)	Period 5	124099	116920.90	6.1393	9100312.5	1363.68	1284.80	78.878
NonCore (Nonmetro)	Period 6	129626	121768.27	6.4530	9100312.5	1424.41	1338.07	86.346

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 7.4: Overall 10yr lookback group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023

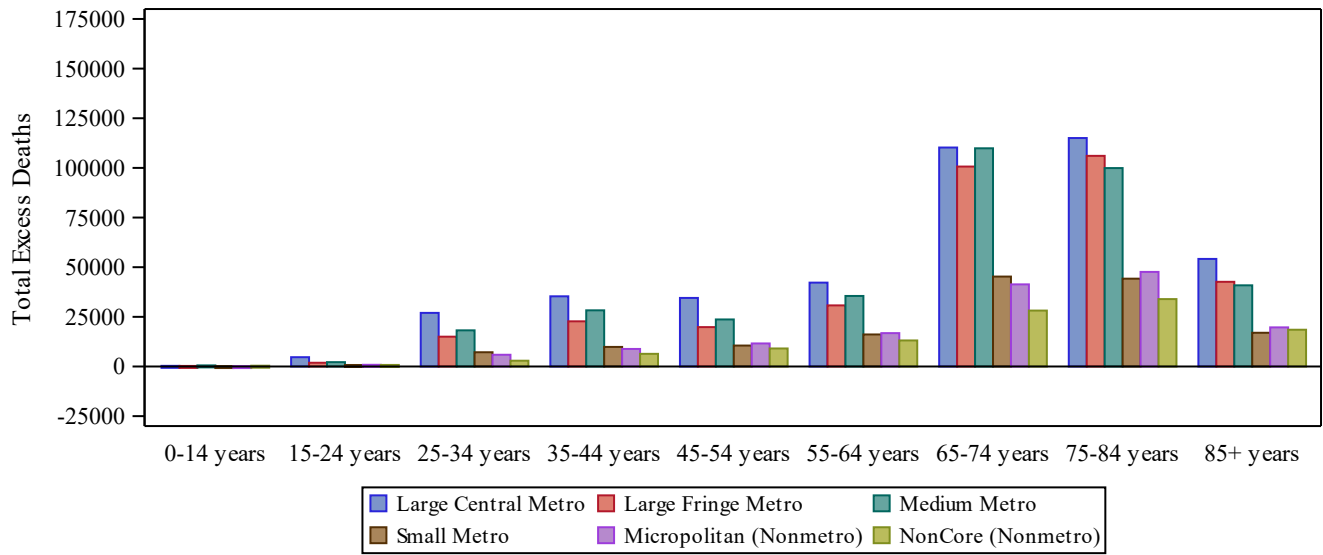
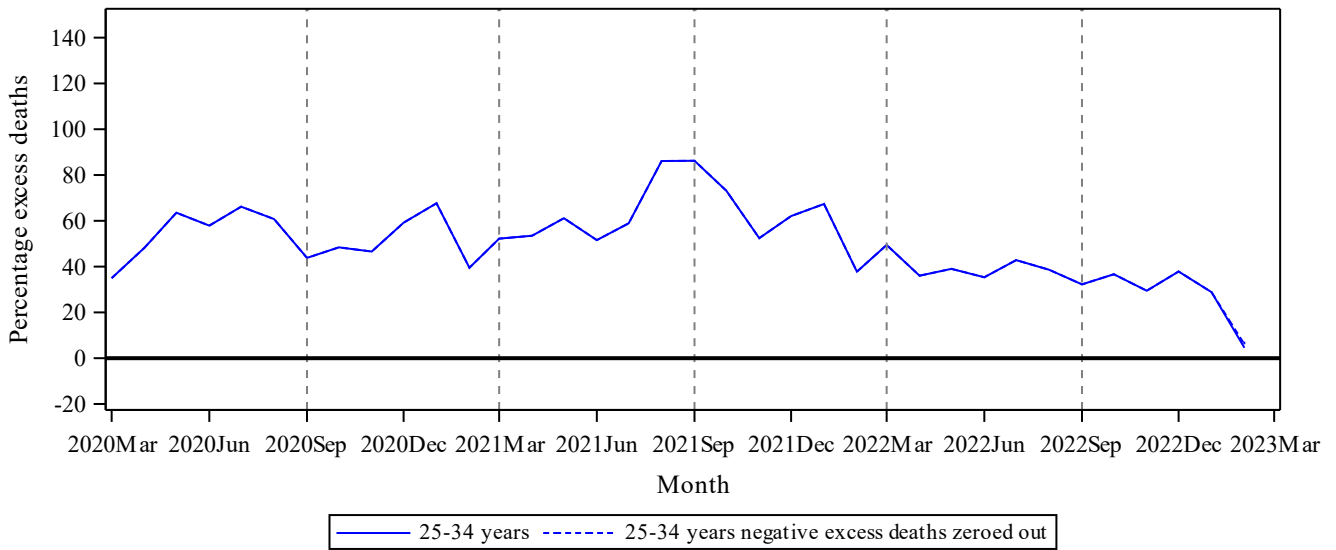
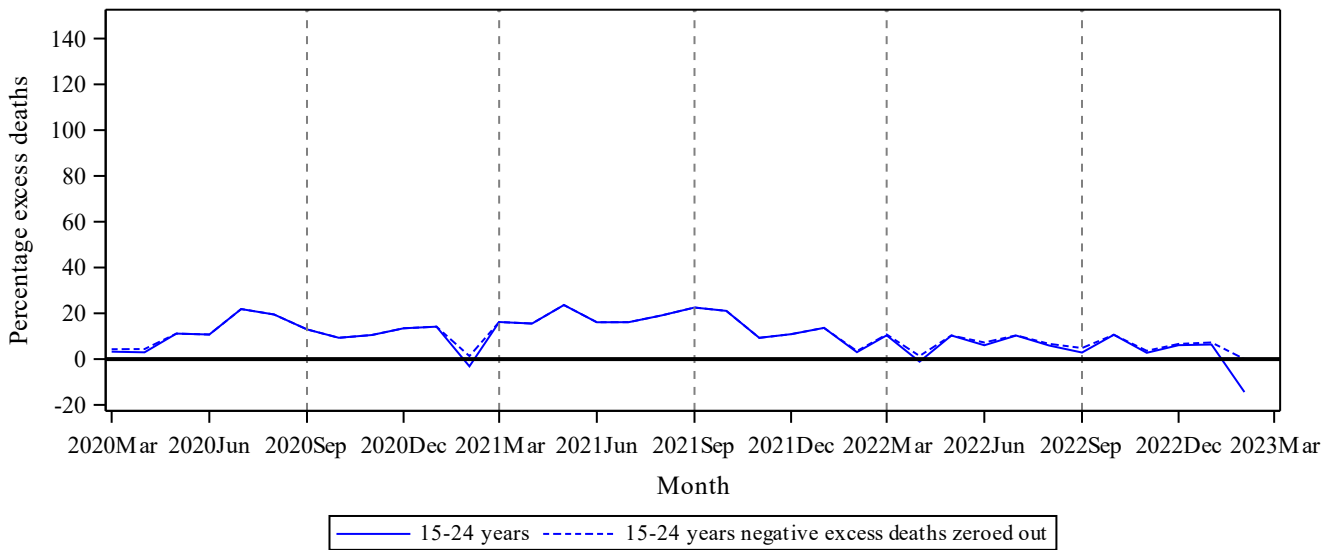
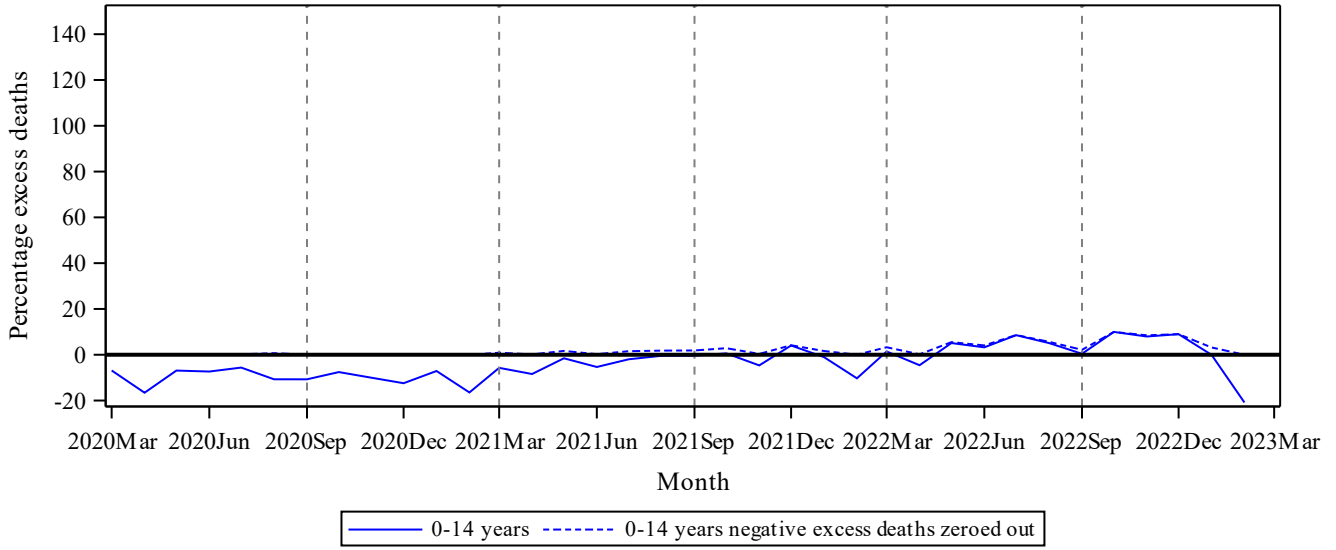
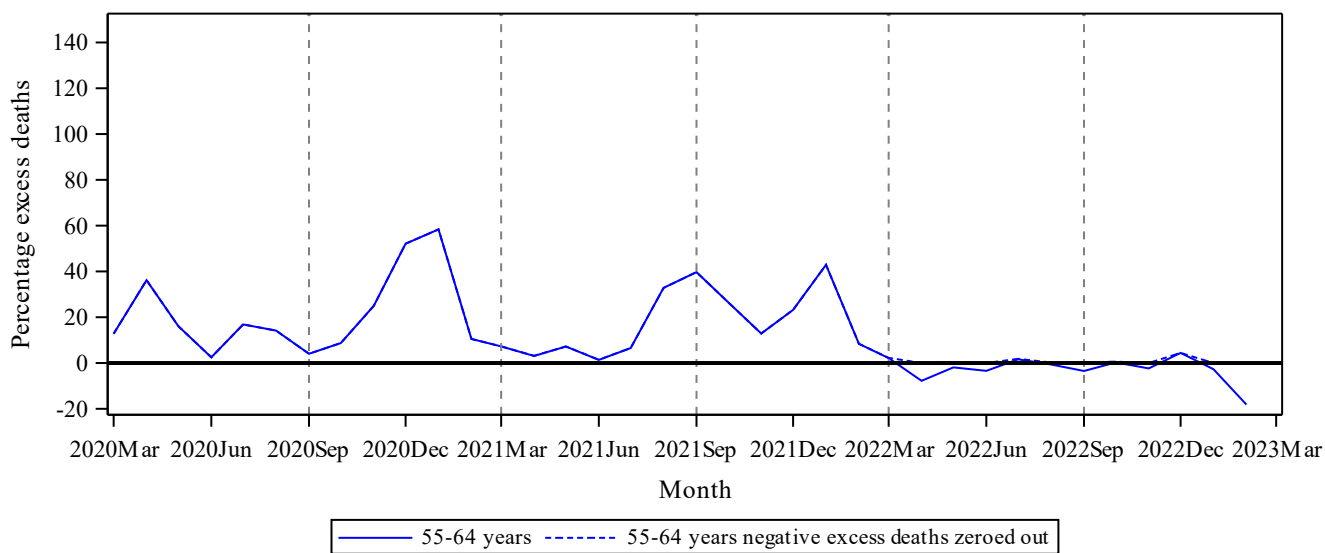
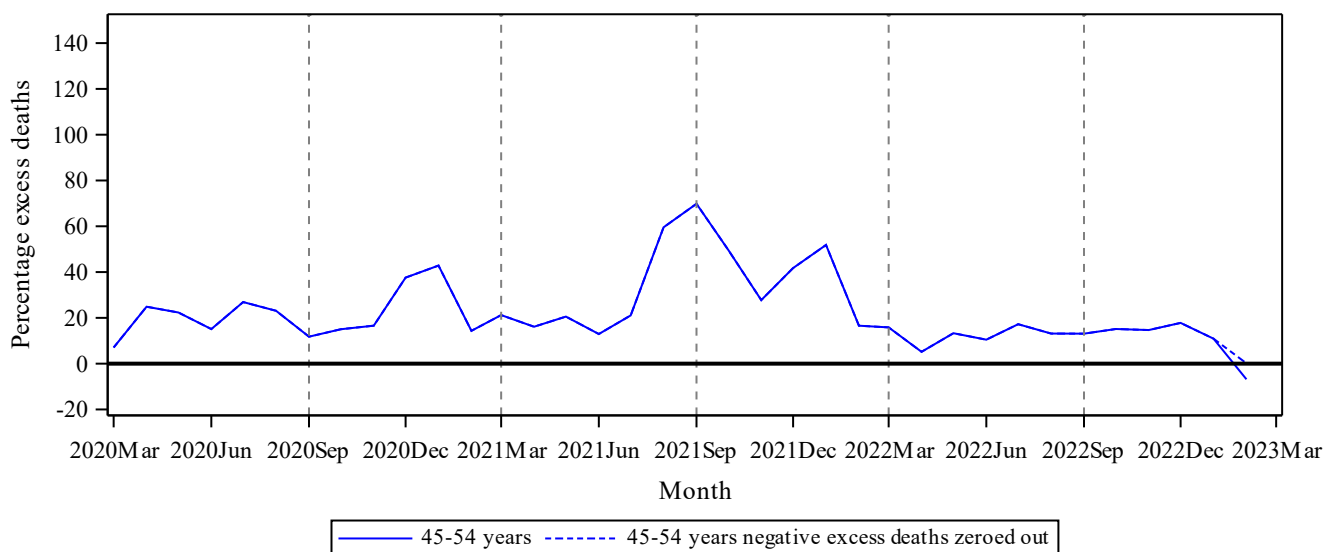
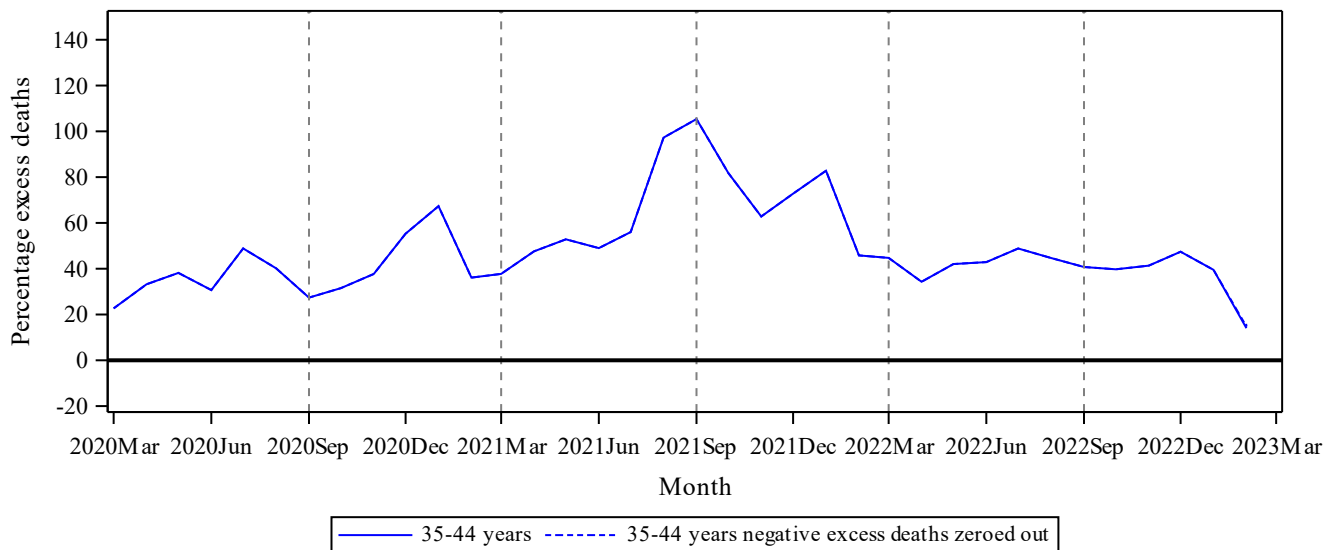
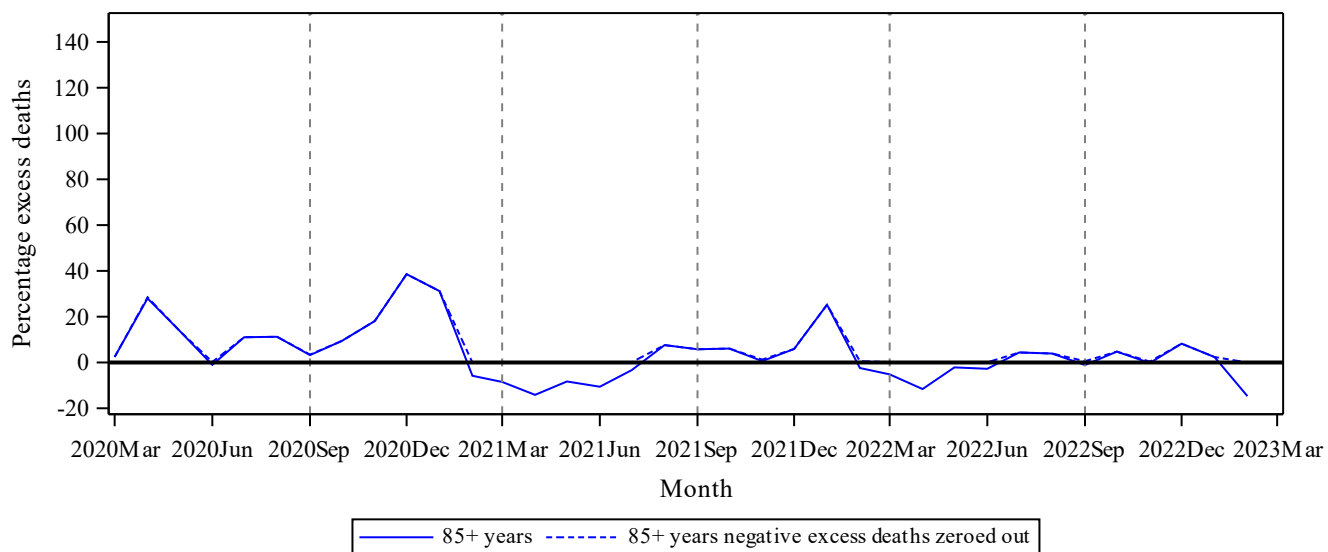
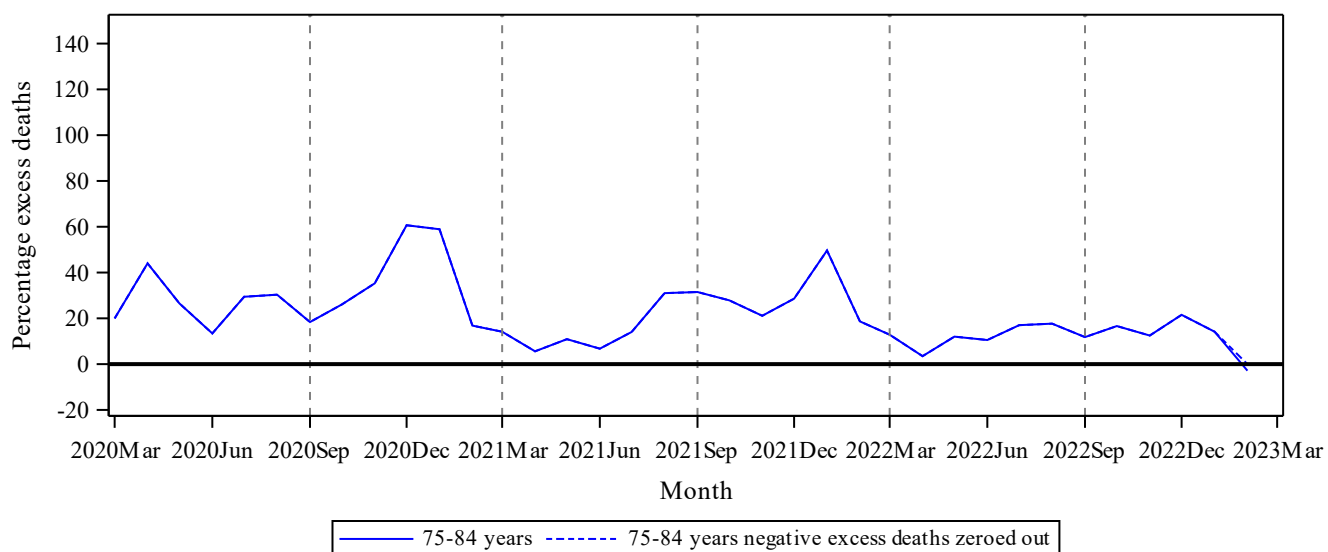
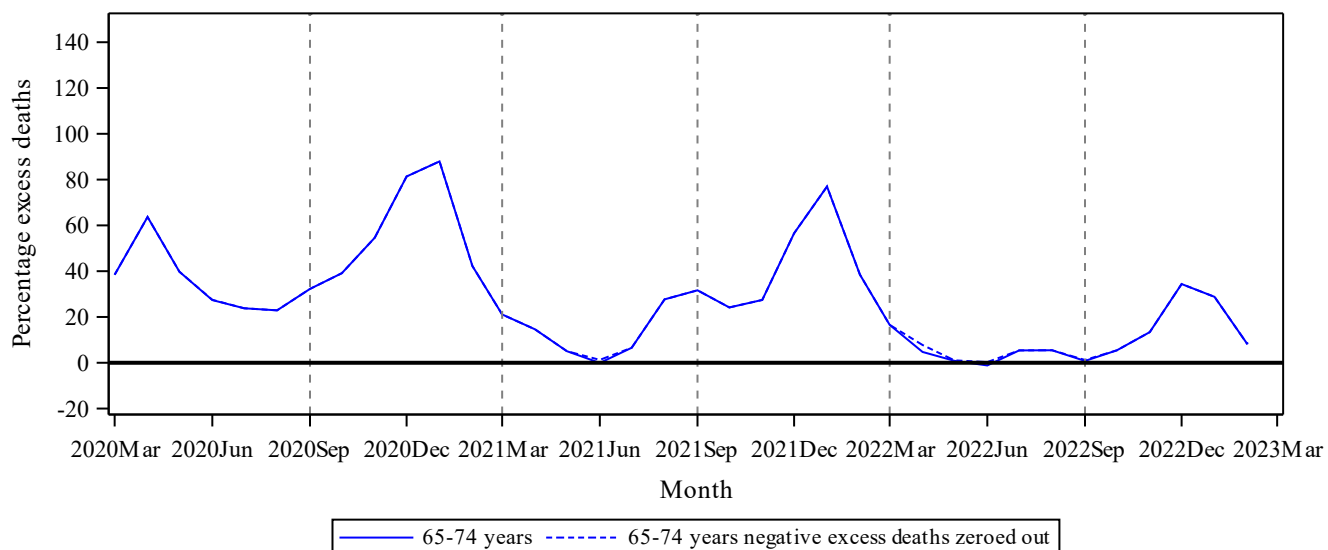


Figure 7.5: Overall 10yr lookback group- Percent Excess Deaths by month by age group, March 2020 to February 2023







Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Supplemental Appendix 8

Figure 8.1: Overall 20yr lookback group- Total number of excess deaths by age group and rurality of residence, March 2020 to February 2023

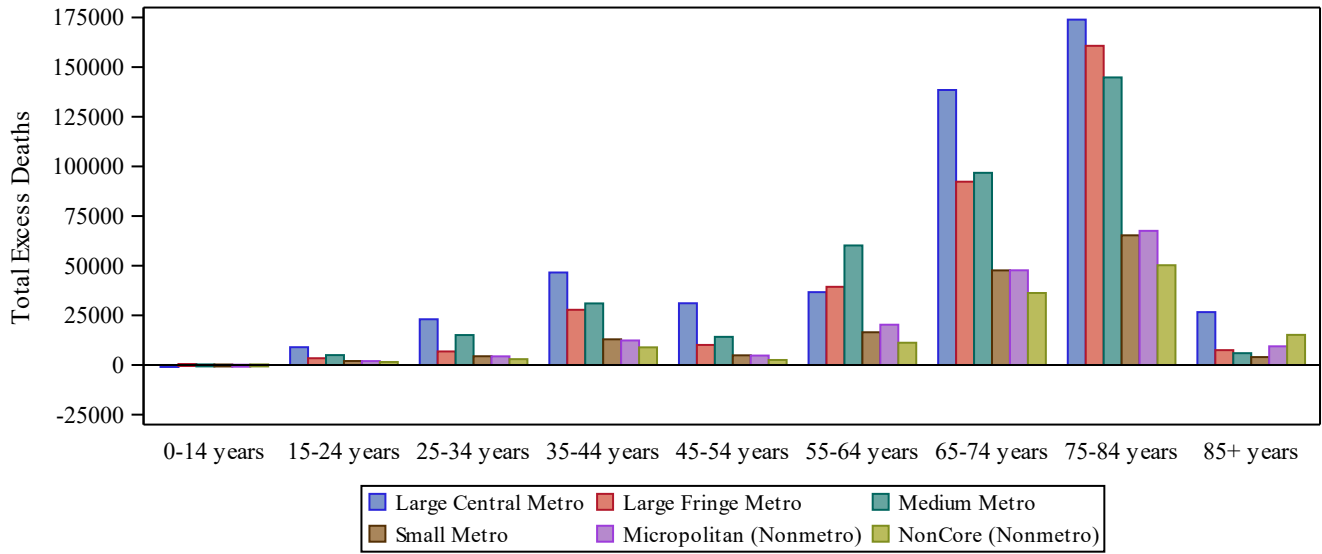


Figure 8.2: Overall 20yr lookback group- Percent excess deaths by age group and rurality of residence (with 95% confidence intervals), March 2020 to February 2023

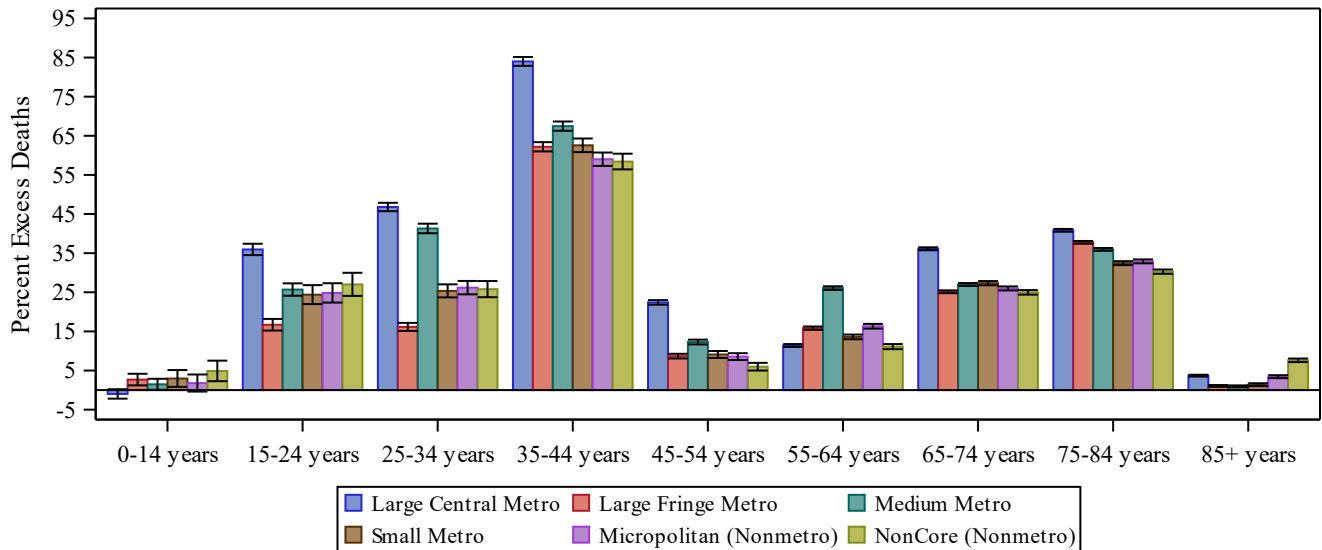
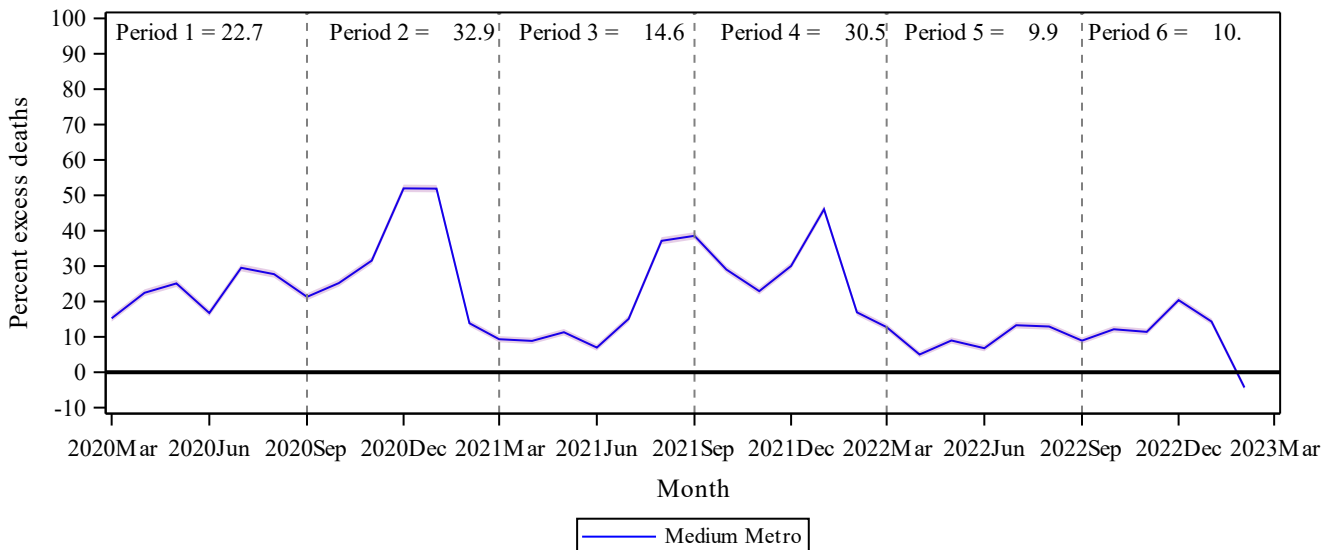
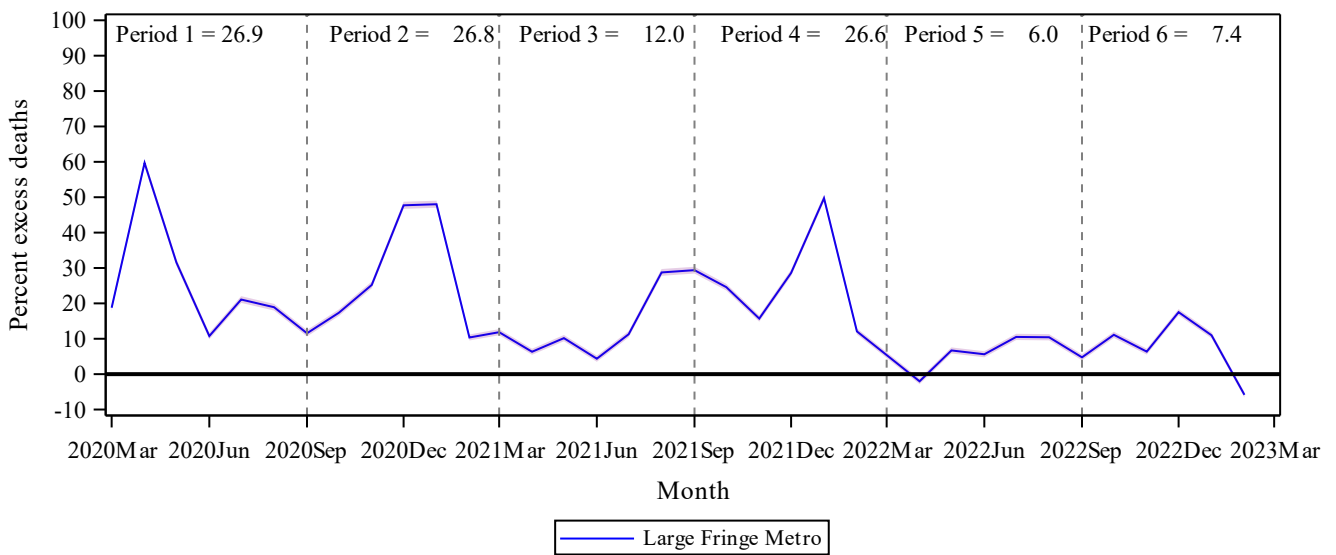
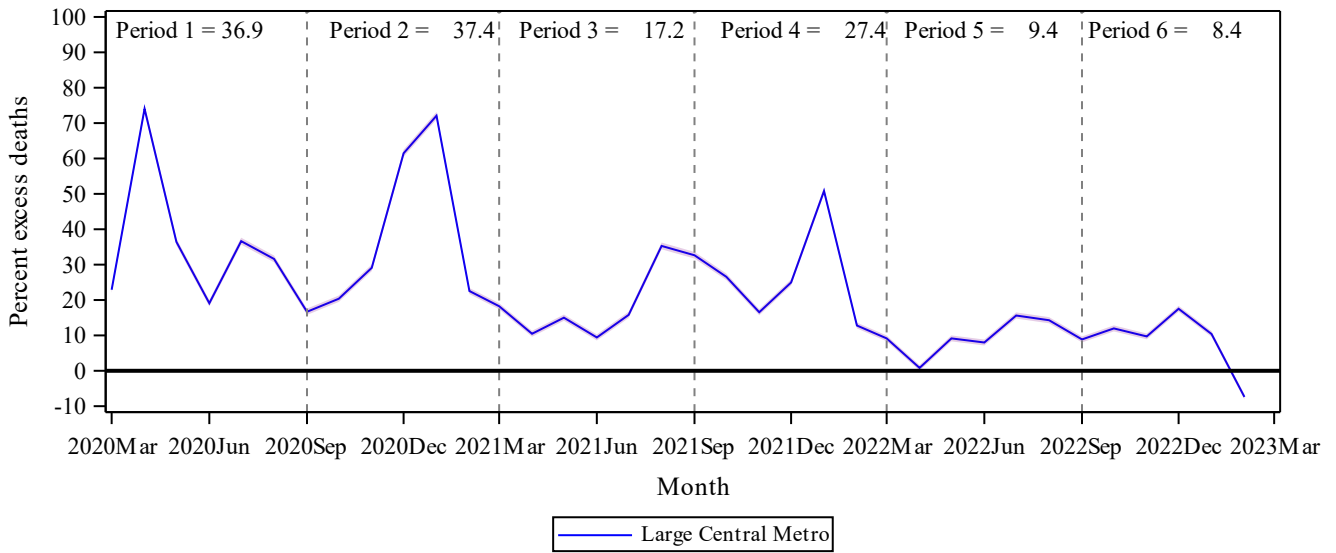
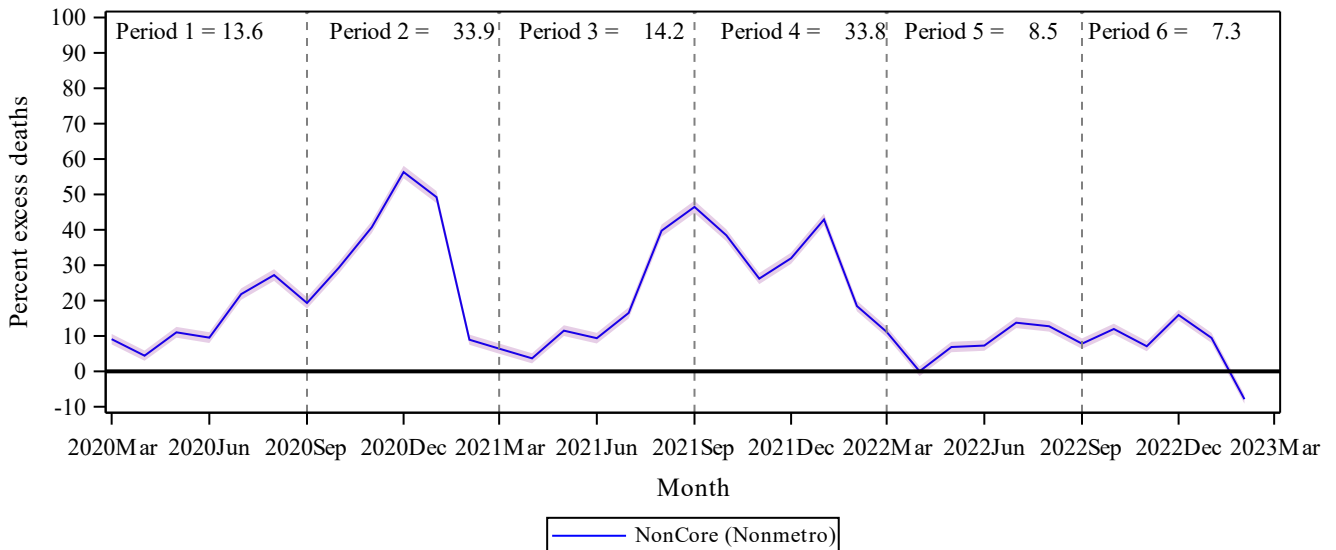
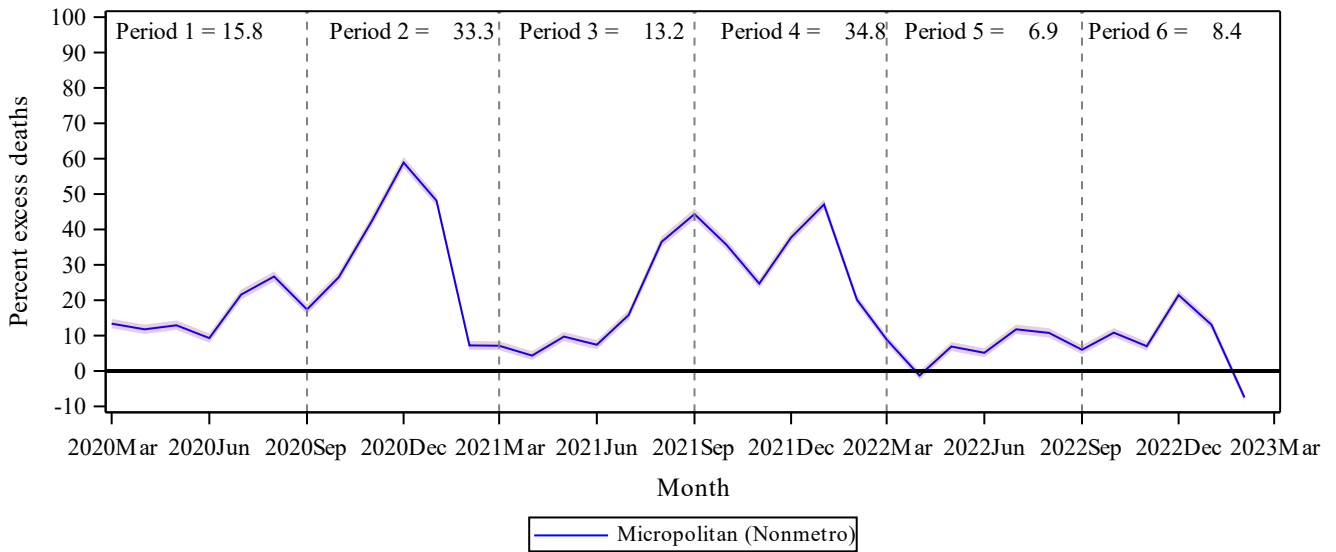
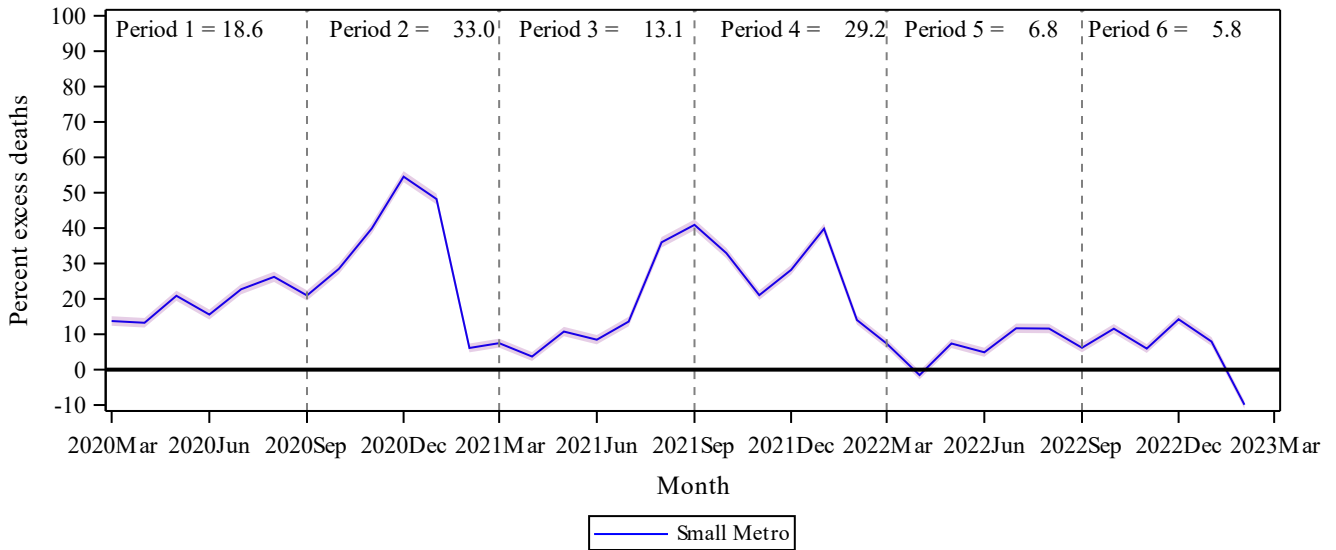


Table 8.1: Overall 20yr lookback group- Summary of total observed, expected, and excess deaths by rurality of residence, March 2020 to February 2023

Rural-urban category	Total observed deaths	Total expected deaths	Percent excess deaths	95% CL Percent excess deaths	95% CU Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	2632738	2147652.60	22.59	22.44	22.73	298389141	882.32	719.75	162.57
Large Fringe Metro	2340327	1991860.26	17.49	17.34	17.65	249068904	939.63	799.72	139.91
Medium Metro	2228452	1855218.88	20.12	19.96	20.28	206126790	1081.11	900.04	181.07
Small Metro	1051099	893252.03	17.67	17.45	17.90	88828485	1183.29	1005.59	177.70
Micropolitan (Nonmetro)	1065192	896710.72	18.79	18.56	19.01	80710329	1319.77	1111.02	208.75
NonCore (Nonmetro)	820852	691828.18	18.65	18.39	18.91	54601875	1503.34	1267.04	236.30
Total	10138660	8476522.67	19.61	19.54	19.68	977725524	1036.96	866.96	170.00

Figure 8.3: Overall 20yr lookback group- Line graph of percent excess deaths by month and 6-month time period for each rural-urban group (with 95% confidence bands)





Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Table 8.2: Overall 20yr lookback group- Summary of total observed, expected, and excess deaths by 6-month time period for each rural-urban group, March 2020 to February 2023

Rural-urban category	period	Total observed deaths	Total expected deaths	Percent excess deaths	Population denominator	Observed death rate	Expected death rate	Excess death rate
Large Central Metro	Period 1	466914	340836.44	36.9906	24437287.5	1910.66	1394.74	515.923
Large Central Metro	Period 2	485140	353000.90	37.4331	24437287.5	1985.24	1444.52	540.727
Large Central Metro	Period 3	410339	349865.01	17.2849	24595367.5	1668.36	1422.48	245.876
Large Central Metro	Period 4	469539	368549.10	27.4020	24595367.5	1909.05	1498.45	410.605
Large Central Metro	Period 5	391988	358286.95	9.4062	24595367.5	1593.75	1456.73	137.022
Large Central Metro	Period 6	408818	377114.19	8.4070	24595367.5	1662.17	1533.27	128.902
Large Fringe Metro	Period 1	396605	312495.78	26.9153	20100007.0	1973.16	1554.70	418.454
Large Fringe Metro	Period 2	417520	329129.93	26.8557	20100007.0	2077.21	1637.46	439.751
Large Fringe Metro	Period 3	365822	326539.27	12.0300	20602591.5	1775.61	1584.94	190.669
Large Fringe Metro	Period 4	429907	339338.10	26.6899	20602591.5	2086.66	1647.07	439.600
Large Fringe Metro	Period 5	355282	335152.29	6.0061	20602591.5	1724.45	1626.75	97.705
Large Fringe Metro	Period 6	375191	349204.89	7.4415	20602591.5	1821.09	1694.96	126.130
Medium Metro	Period 1	358413	291921.85	22.7770	16758707.0	2138.67	1741.91	396.756
Medium Metro	Period 2	404293	304204.41	32.9018	16758707.0	2412.44	1815.20	597.233
Medium Metro	Period 3	352695	307628.55	14.6496	17066244.0	2066.62	1802.56	264.068
Medium Metro	Period 4	414149	317203.78	30.5624	17066244.0	2426.71	1858.66	568.052
Medium Metro	Period 5	341896	310987.98	9.9387	17066244.0	2003.35	1822.24	181.106
Medium Metro	Period 6	357006	323272.32	10.4351	17066244.0	2091.88	1894.22	197.663
Small Metro	Period 1	164425	138547.03	18.6781	7296189.0	2253.57	1898.90	354.678
Small Metro	Period 2	193586	145551.68	33.0016	7296189.0	2653.25	1994.90	658.348
Small Metro	Period 3	165696	146491.32	13.1098	7403613.0	2238.04	1978.65	259.396
Small Metro	Period 4	199791	154544.53	29.2773	7403613.0	2698.56	2087.42	611.140
Small Metro	Period 5	160167	149964.48	6.8033	7403613.0	2163.36	2025.56	137.805
Small Metro	Period 6	167434	158153.00	5.8684	7403613.0	2261.52	2136.16	125.358
Micropolitan (Nonmetro)	Period 1	164417	141887.18	15.8787	6702399.0	2453.11	2116.96	336.146
Micropolitan (Nonmetro)	Period 2	198807	149091.70	33.3455	6702399.0	2966.21	2224.45	741.754
Micropolitan (Nonmetro)	Period 3	166947	147390.56	13.2684	6793758.5	2457.36	2169.50	287.859
Micropolitan (Nonmetro)	Period 4	205455	152385.09	34.8262	6793758.5	3024.17	2243.02	781.157
Micropolitan (Nonmetro)	Period 5	160736	150278.92	6.9584	6793758.5	2365.94	2212.01	153.922
Micropolitan (Nonmetro)	Period 6	168830	155677.27	8.4487	6793758.5	2485.08	2291.47	193.600
NonCore (Nonmetro)	Period 1	125542	110464.85	13.6488	4623703.5	2715.18	2389.10	326.084
NonCore (Nonmetro)	Period 2	154347	115198.93	33.9830	4623703.5	3338.17	2491.49	846.682
NonCore (Nonmetro)	Period 3	128557	112491.90	14.2811	4640271.0	2770.46	2424.25	346.210
NonCore (Nonmetro)	Period 4	158681	118556.49	33.8442	4640271.0	3419.65	2554.95	864.702
NonCore (Nonmetro)	Period 5	124099	114315.79	8.5581	4640271.0	2674.39	2463.56	210.833
NonCore (Nonmetro)	Period 6	129626	120800.21	7.3061	4640271.0	2793.50	2603.30	190.200

Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.

Figure 8.4: Overall 20yr lookback group- Total number of excess deaths (zeroed out) by age group and rurality of residence, March 2020 to February 2023

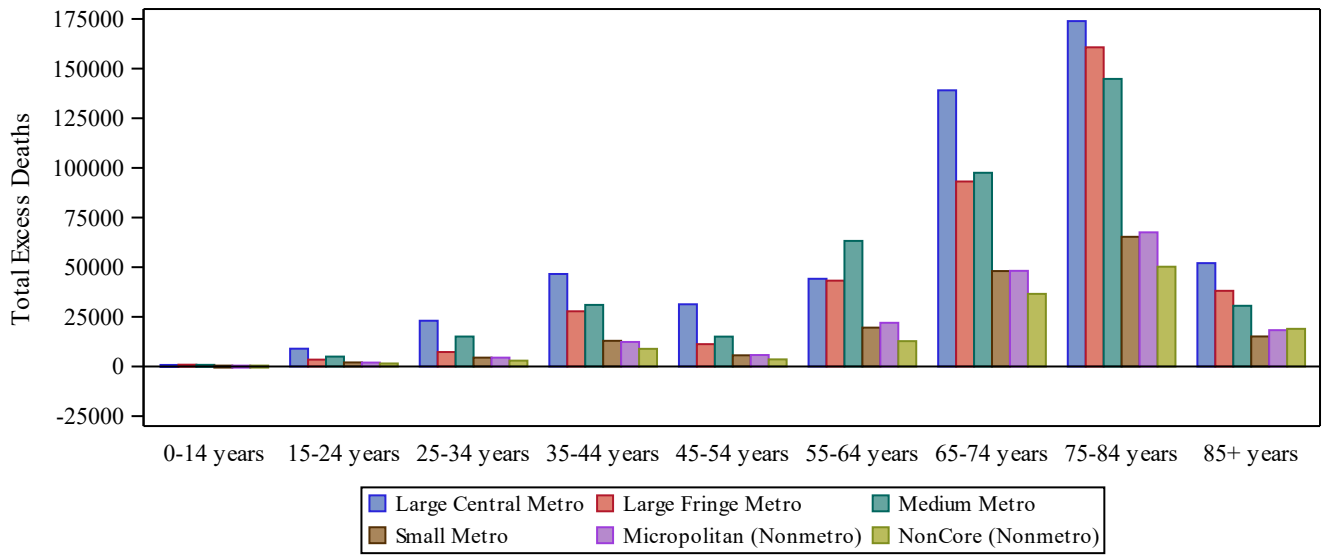
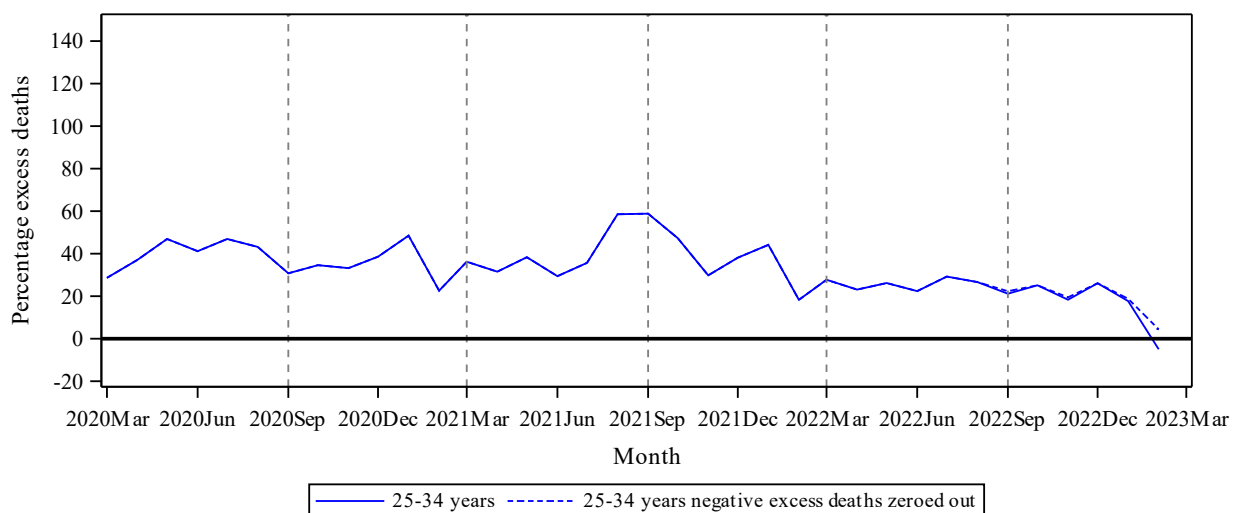
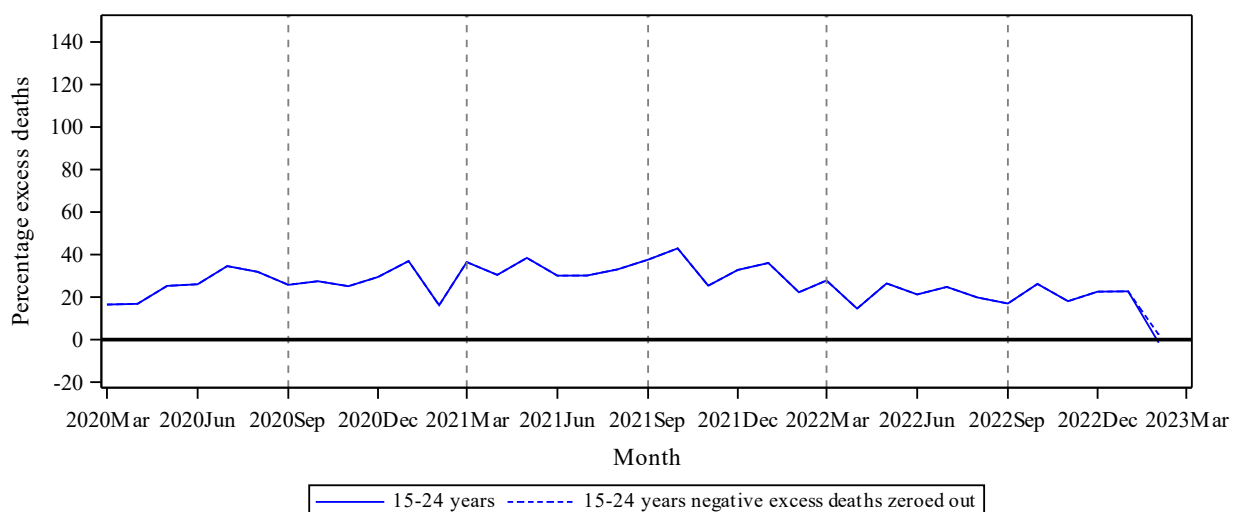
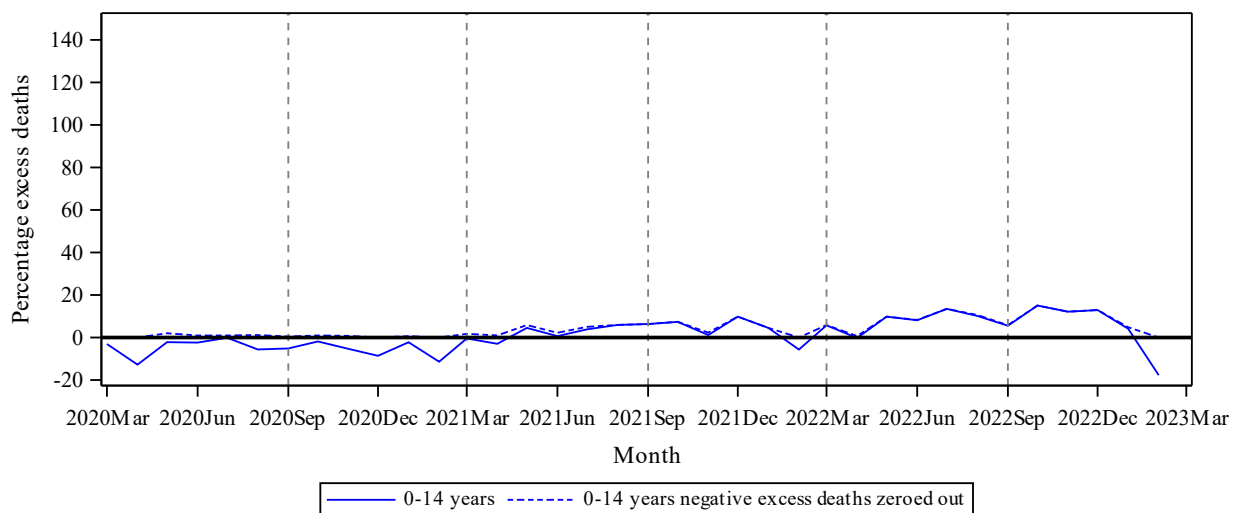
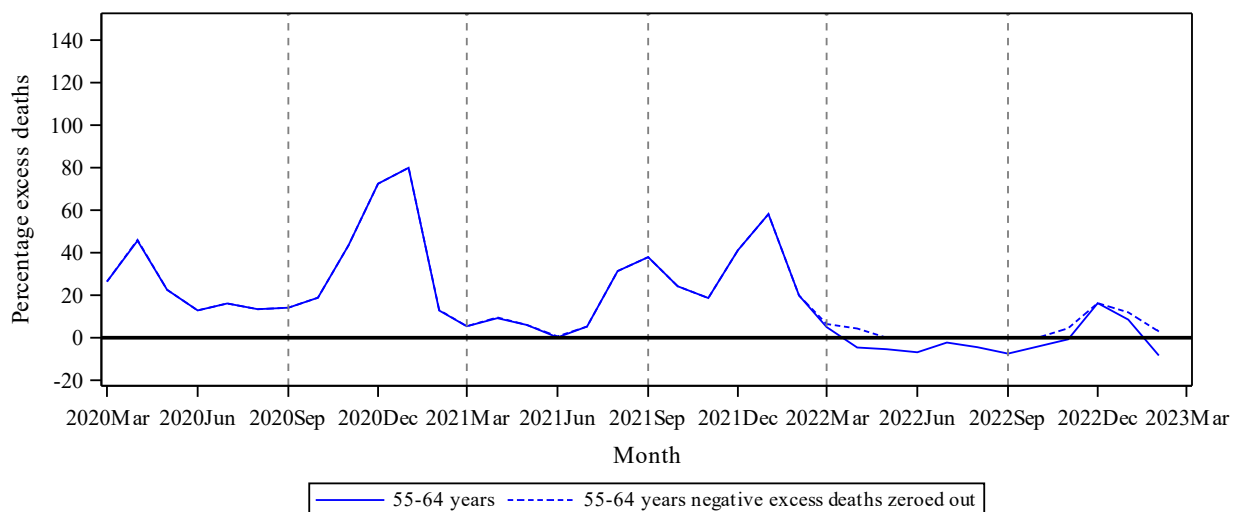
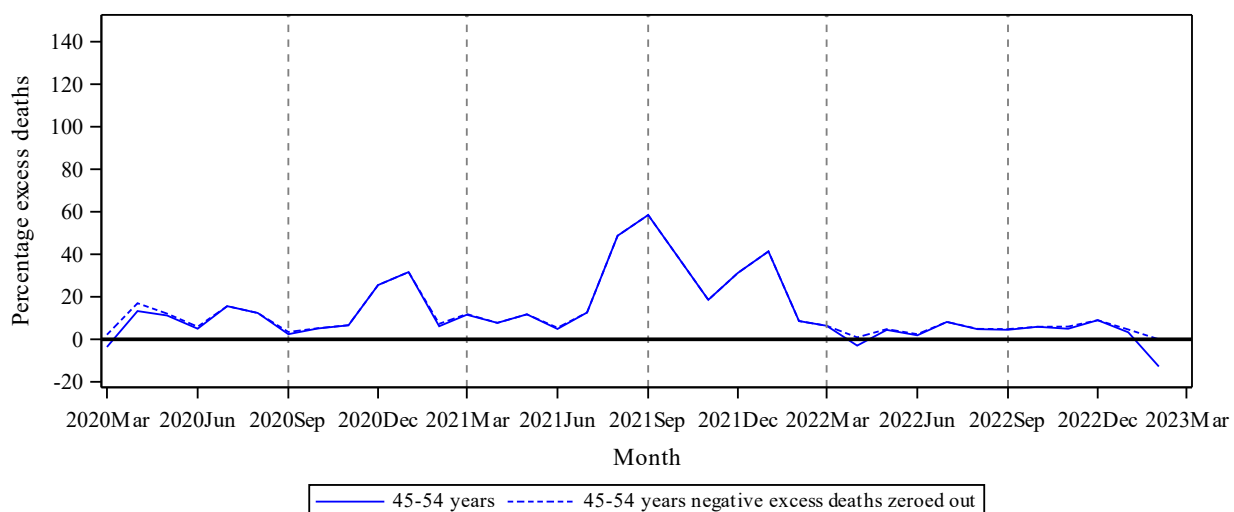
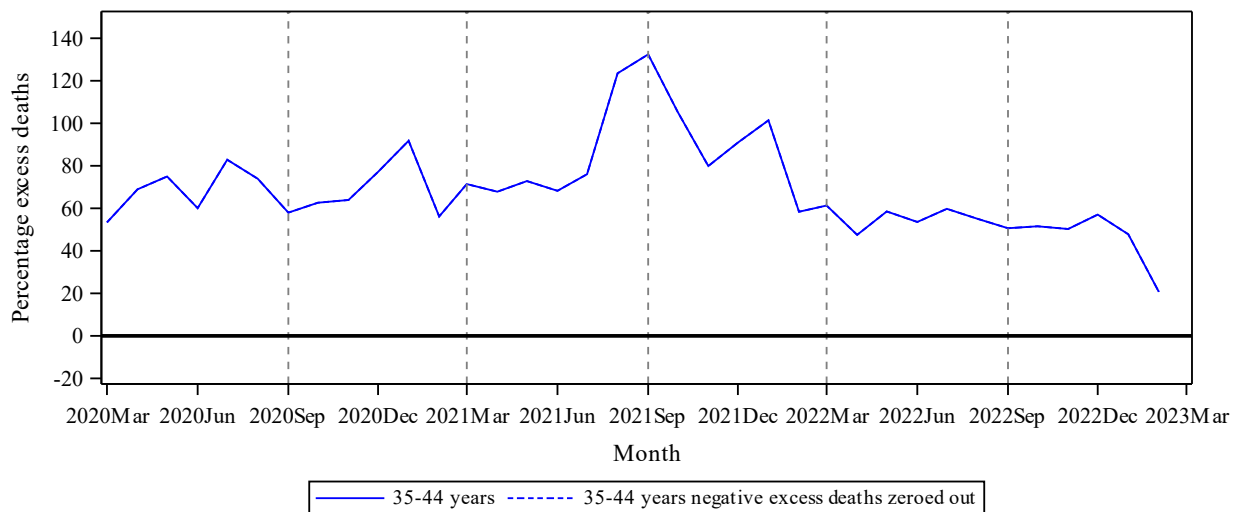
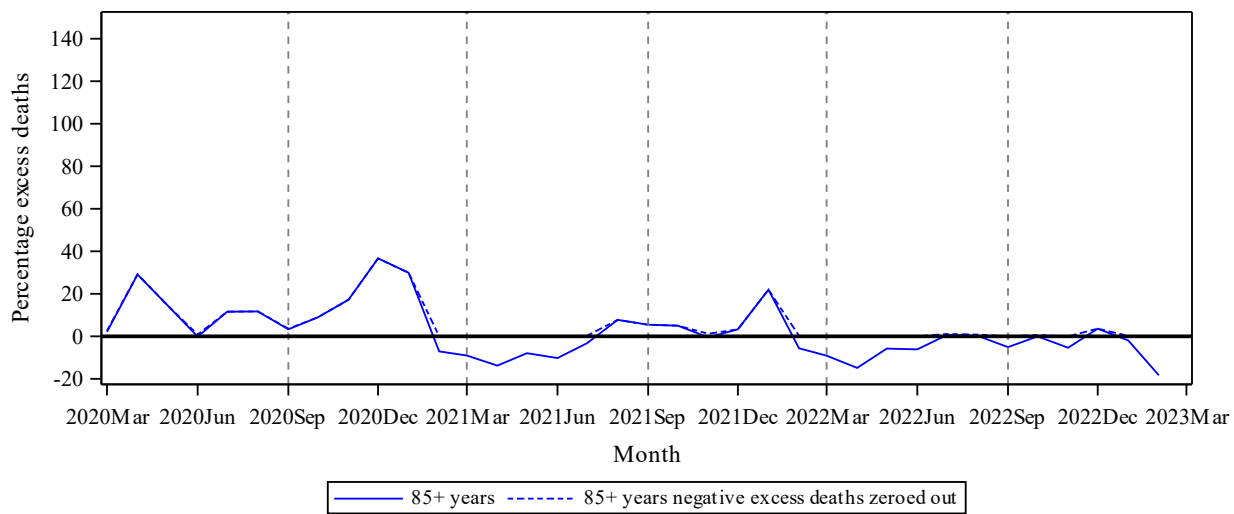
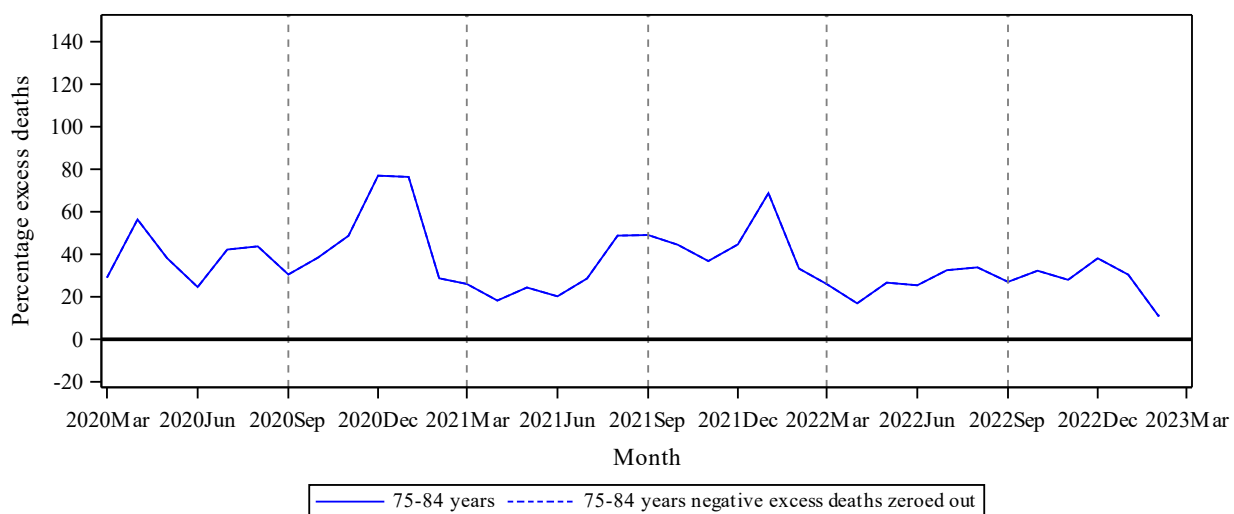
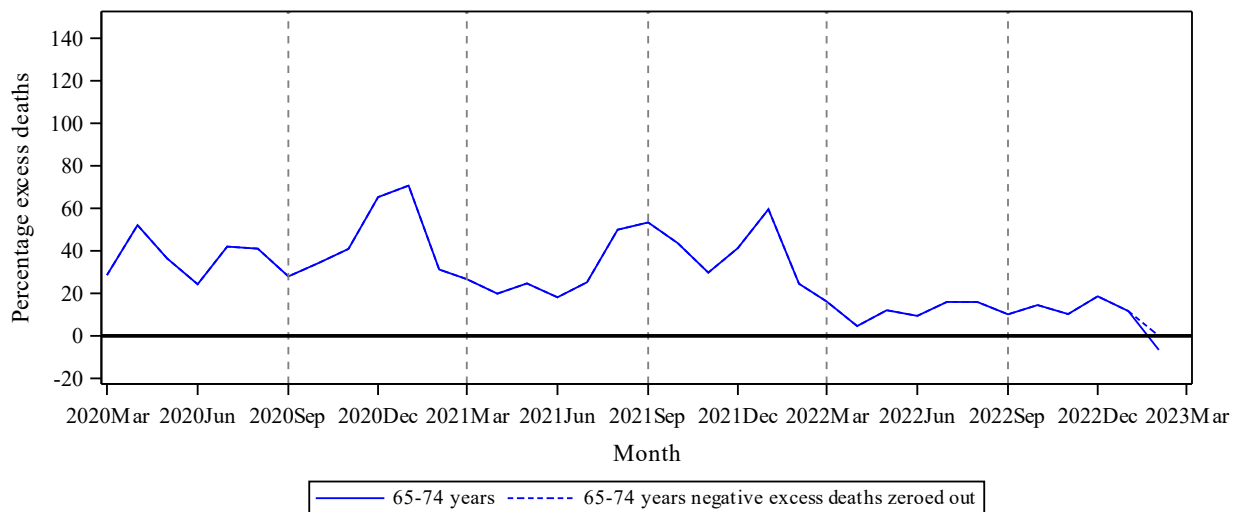


Figure 8.5: Overall 20yr lookback group- Percent Excess Deaths by month by age group, March 2020 to February 2023







Period 1= March 2020 to August 2020; Period 2= September 2020 to February 2021; Period 3=, March 2021 to August 2021;Period 4= September 2021 to February 2022; Period 5= March 2022 to August 2022; Period 6 = September 2022 to February 2023.