**Power outages increase cardiovascular and respiratory hospitalizations among US older adults supplement**

Supplementary Table 1: Estimates of the association between power outage exposure and CVD and respiratory hospitalizations in US 2018 fee-for-service Medicare beneficiaries for 8+ hour power outages affecting >=1%, >=3%, and >=5% of county electrical customers.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Power outage cut point (county customers out >= cut point for 8+ hrs) | Outcome type | Lag day 0 | Lag day 1 | Lag day 2 | Lag day 3 | Lag day 4 | Lag day 5 | Lag day 6 |
| 1% | CVD no hypertension | 0.999,  [0.985, 1] | 1.02,  [1.013, 1] | 1.025,  [1.016, 1] | 1.006,  [1, 1] | 0.987,  [0.978, 1] | 0.992,  [0.985, 1] | 1.012,  [0.999, 1] |
| 3% | CVD no hypertension | 1.011,  [0.993, 1] | 1.027,  [1.017, 1] | 1.028,  [1.015, 1] | 1.01,  [1, 1] | 0.992,  [0.979, 1] | 0.995,  [0.986, 1] | 1.013,  [0.995, 1] |
| 5% | CVD no hypertension | 1.018,  [0.996, 1] | 1.032,  [1.021, 1] | 1.033,  [1.017, 1] | 1.014,  [1.004, 1] | 0.996,  [0.981, 1] | 0.998,  [0.987, 1] | 1.013,  [0.991, 1] |
| 1% | Respiratory | 1.026,  [1.012, 1] | 1.017,  [1.01, 1] | 1.009,  [1.002, 1] | 1.003,  [0.995, 1] | 1,  [0.993, 1] | 0.998,  [0.992, 1] | 0.997,  [0.985, 1] |
| 3% | Respiratory | 1.052,  [1.034, 1] | 1.031,  [1.022, 1] | 1.013,  [1.003, 1] | 1.001,  [0.989, 1] | 0.997,  [0.988, 1] | 0.998,  [0.99, 1] | 1.003,  [0.986, 1] |
| 5% | Respiratory | 1.067,  [1.045, 1] | 1.039,  [1.028, 1] | 1.016,  [1.005, 1] | 1.001,  [0.988, 1] | 0.997,  [0.986, 1] | 1,  [0.989, 1] | 1.007,  [0.986, 1] |





Supplemental table 1: ICD codes used to identify CVD and respiratory-related hospitalizations

Code lists were created by pulling all codes reported in Medicare data, then categorizing them into CVD, respiratory, and hypertension categories.

|  |  |
| --- | --- |
| Hypertension-related codes | I10,I110,I119,I120,I129,I130,I1310,I1311,I132,I150,I151,I152,I158,I159,I160,I161,I169 |
| All respiratory codes | J00,J0100,J0101,J0110,J0111,J0120,J0121,J0130,J0131,J0140,J0141,J0180,J0181,J0190,J0191,J020,J028,J029,J0300,J0301,J0380,J0381,J0390,J040,J0410,J0411,J042,J0430,J0431,J050,J0510,J0511,J060,J069,J09X1,J09X2,J09X3,J09X9,J1000,J1001,J1008,J101,J102,J1081,J1082,J1083,J1089,J1100,J1108,J111,J112,J1181,J1182,J1183,J1189,J120,J121,J122,J123,J1281,J1289,J129,J13,J14,J150,J151,J1520,J15211,J15212,J1529,J153,J154,J155,J156,J157,J158,J159,J160,J168,J17,J180,J181,J182,J188,J189,J200,J201,J202,J203,J204,J205,J206,J207,J208,J209,J210,J211,J218,J219,J22,J300,J301,J302,J305,J3081,J3089,J309,J310,J311,J312,J320,J321,J322,J323,J324,J328,J329,J330,J331,J338,J339,J340,J341,J342,J343,J3481,J3489,J349,J3501,J351,J352,J353,J358,J359,J36,J370,J371,J3800,J3801,J3802,J381,J382,J383,J384,J385,J386,J387,J390,J391,J392,J393,J398,J399,J40,J410,J411,J418,J42,J430,J431,J432,J438,J439,J440,J441,J449,J4520,J4521,J4522,J4530,J4531,J4532,J4540,J4541,J4542,J4550,J4551,J4552,J45901,J45902,J45909,J45990,J45991,J45998,J470,J471,J479,J60,J61,J620,J628,J630,J632,J633,J634,J636,J64,J65,J660,J661,J662,J668,J670,J672,J674,J677,J678,J679,J680,J681,J682,J683,J684,J688,J689,J690,J691,J698,J700,J701,J702,J703,J704,J705,J708,J709,J80,J810,J811,J82,J8401,J8402,J8403,J8409,J8410,J84111,J84112,J84113,J84114,J84115,J84116,J84117,J8417,J842,J8481,J8482,J8483,J84841,J84843,J84848,J8489,J849,J850,J851,J852,J853,J860,J869,J90,J910,J918,J920,J929,J930,J9311,J9312,J9381,J9382,J9383,J939,J940,J941,J942,J948,J949,J9500,J9501,J9502,J9503,J9504,J9509,J951,J952,J953,J954,J955,J9561,J9562,J9571,J9572,J95811,J95812,J95821,J95822,J95830,J95831,J9584,J95850,J95851,J95859,J95860,J95861,J95862,J95863,J9588,J9589,J9600,J9601,J9602,J9610,J9611,J9612,J9620,J9621,J9622,J9690,J9691,J9692,J9801,J9809,J9811,J9819,J982,J983,J984,J9851,J9859,J986,J988,J989,J99 |
| All CVD codes | I00,I010,I011,I012,I018,I019,I020,I029,I050,I051,I052,I058,I059,I060,I061,I062,I068,I069,I070,I071,I072,I078,I079,I080,I081,I082,I083,I088,I089,I090,I091,I092,I0981,I0989,I099,I10,I110,I119,I120,I129,I130,I1310,I1311,I132,I150,I151,I152,I158,I159,I160,I161,I169,I200,I201,I208,I209,I2101,I2102,I2109,I2111,I2119,I2121,I2129,I213,I214,I219,I21A1,I21A9,I220,I221,I222,I228,I229,I230,I231,I232,I233,I234,I235,I236,I237,I238,I240,I241,I248,I249,I2510,I25110,I25111,I25118,I25119,I252,I253,I2541,I2542,I255,I256,I25700,I25701,I25708,I25709,I25710,I25711,I25718,I25719,I25720,I25721,I25728,I25729,I25730,I25731,I25738,I25739,I25750,I25751,I25758,I25759,I25760,I25761,I25768,I25769,I25790,I25791,I25798,I25799,I25810,I25811,I25812,I2582,I2583,I2584,I2589,I259,I2601,I2602,I2609,I2690,I2692,I2699,I270,I271,I2720,I2721,I2722,I2723,I2724,I2729,I2781,I2782,I2783,I2789,I279,I280,I281,I288,I289,I300,I301,I308,I309,I310,I311,I312,I313,I314,I318,I319,I32,I330,I339,I340,I341,I342,I348,I349,I350,I351,I352,I358,I359,I360,I361,I362,I368,I369,I370,I371,I372,I378,I379,I38,I39,I400,I401,I408,I409,I41,I420,I421,I422,I423,I424,I425,I426,I427,I428,I429,I43,I440,I441,I442,I4430,I4439,I444,I445,I4460,I4469,I447,I450,I4510,I4519,I452,I453,I454,I455,I456,I4581,I4589,I459,I462,I468,I469,I470,I471,I472,I479,I480,I481,I482,I483,I484,I4891,I4892,I4901,I4902,I491,I492,I493,I4940,I4949,I495,I498,I499,I501,I5020,I5021,I5022,I5023,I5030,I5031,I5032,I5033,I5040,I5041,I5042,I5043,I50810,I50811,I50812,I50813,I50814,I5082,I5083,I5084,I5089,I509,I510,I511,I512,I513,I514,I515,I517,I5181,I5189,I519,I52,I6000,I6001,I6002,I6010,I6011,I6012,I602,I6030,I6031,I6032,I604,I6050,I6051,I6052,I606,I607,I608,I609,I610,I611,I612,I613,I614,I615,I616,I618,I619,I6200,I6201,I6202,I6203,I621,I629,I6300,I63011,I63012,I63013,I63019,I6302,I63031,I63032,I63033,I63039,I6309,I6310,I63111,I63112,I63113,I63119,I6312,I63131,I63132,I63133,I63139,I6319,I6320,I63211,I63212,I63213,I63219,I6322,I63231,I63232,I63233,I63239,I6329,I6330,I63311,I63312,I63313,I63319,I63321,I63322,I63323,I63329,I63331,I63332,I63333,I63339,I63341,I63342,I63343,I63349,I6339,I6340,I63411,I63412,I63413,I63419,I63421,I63422,I63423,I63429,I63431,I63432,I63433,I63439,I63441,I63442,I63443,I63449,I6349,I6350,I63511,I63512,I63513,I63519,I63521,I63522,I63523,I63529,I63531,I63532,I63533,I63539,I63541,I63542,I63543,I63549,I6359,I636,I638,I6381,I6389,I639,I6501,I6502,I6503,I6509,I651,I6521,I6522,I6523,I6529,I658,I659,I6601,I6602,I6603,I6609,I6611,I6612,I6613,I6619,I6621,I6622,I6623,I6629,I663,I668,I669,I670,I671,I672,I673,I674,I675,I676,I677,I6781,I6782,I6783,I67841,I67848,I67850,I67858,I6789,I679,I680,I682,I688,I6900,I69010,I69011,I69012,I69013,I69014,I69015,I69018,I69019,I69020,I69021,I69022,I69023,I69028,I69031,I69032,I69033,I69034,I69039,I69041,I69044,I69051,I69052,I69053,I69054,I69059,I69062,I69064,I69065,I69069,I69090,I69091,I69092,I69093,I69098,I6910,I69110,I69111,I69112,I69113,I69114,I69115,I69118,I69119,I69120,I69121,I69122,I69123,I69128,I69131,I69132,I69133,I69134,I69139,I69141,I69142,I69144,I69149,I69151,I69152,I69153,I69154,I69159,I69161,I69162,I69163,I69164,I69165,I69169,I69190,I69191,I69192,I69193,I69198,I6920,I69210,I69211,I69212,I69213,I69214,I69215,I69218,I69219,I69220,I69221,I69222,I69223,I69228,I69231,I69232,I69234,I69239,I69241,I69242,I69244,I69249,I69251,I69252,I69253,I69254,I69259,I69261,I69262,I69263,I69264,I69265,I69269,I69290,I69291,I69292,I69293,I69298,I6930,I6931,I69310,I69311,I69312,I69313,I69314,I69315,I69318,I69319,I69320,I69321,I69322,I69323,I69328,I69331,I69332,I69333,I69334,I69339,I69341,I69342,I69343,I69344,I69349,I69351,I69352,I69353,I69354,I69359,I69361,I69362,I69363,I69364,I69365,I69369,I69390,I69391,I69392,I69393,I69398,I6980,I69810,I69811,I69812,I69813,I69814,I69815,I69818,I69819,I69820,I69821,I69822,I69823,I69828,I69831,I69832,I69833,I69834,I69839,I69841,I69842,I69843,I69844,I69849,I69851,I69852,I69853,I69854,I69859,I69861,I69862,I69864,I69865,I69869,I69890,I69891,I69892,I69893,I69898,I6990,I69910,I69911,I69912,I69913,I69914,I69915,I69918,I69919,I69920,I69921,I69922,I69923,I69928,I69931,I69932,I69933,I69934,I69939,I69941,I69942,I69943,I69944,I69949,I69951,I69952,I69953,I69954,I69959,I69961,I69962,I69963,I69964,I69965,I69969,I69990,I69991,I69992,I69993,I69998,I700,I701,I70201,I70202,I70203,I70208,I70209,I70211,I70212,I70213,I70218,I70219,I70221,I70222,I70223,I70228,I70229,I70231,I70232,I70233,I70234,I70235,I70238,I70239,I70241,I70242,I70243,I70244,I70245,I70248,I70249,I7025,I70261,I70262,I70263,I70268,I70269,I70291,I70292,I70293,I70298,I70299,I70301,I70302,I70303,I70308,I70309,I70311,I70312,I70313,I70318,I70319,I70321,I70322,I70323,I70328,I70329,I70332,I70333,I70334,I70335,I70338,I70339,I70341,I70342,I70343,I70344,I70345,I70348,I70349,I7035,I70361,I70362,I70363,I70368,I70369,I70391,I70392,I70393,I70399,I70401,I70402,I70403,I70408,I70409,I70411,I70412,I70413,I70418,I70419,I70421,I70422,I70423,I70428,I70429,I70432,I70433,I70434,I70435,I70438,I70439,I70442,I70443,I70444,I70445,I70448,I70449,I7045,I70461,I70462,I70463,I70468,I70469,I70491,I70492,I70493,I70499,I70501,I70502,I70503,I70511,I70512,I70513,I70518,I70521,I70522,I70523,I70534,I70535,I70538,I70541,I70542,I70543,I70544,I70545,I70548,I70561,I70562,I70568,I70569,I70591,I70592,I70593,I70599,I70601,I70602,I70603,I70608,I70611,I70612,I70613,I70619,I70621,I70622,I70623,I70629,I70632,I70633,I70634,I70635,I70638,I70642,I70643,I70644,I70645,I70648,I70661,I70662,I70663,I70668,I70692,I70693,I70701,I70702,I70703,I70711,I70712,I70713,I70718,I70719,I70721,I70722,I70723,I70728,I70732,I70733,I70734,I70735,I70738,I70739,I70741,I70742,I70743,I70744,I70745,I70748,I7075,I70761,I70762,I70763,I70768,I70791,I70792,I70793,I70799,I708,I7090,I7091,I7092,I7100,I7101,I7102,I7103,I711,I712,I713,I714,I715,I716,I718,I719,I720,I721,I722,I723,I724,I725,I726,I728,I729,I7300,I7301,I731,I7381,I7389,I739,I7401,I7409,I7410,I7411,I7419,I742,I743,I744,I745,I748,I749,I75011,I75012,I75013,I75019,I75021,I75022,I75023,I75029,I7581,I7589,I76,I770,I771,I772,I773,I774,I775,I776,I7770,I7771,I7772,I7773,I7774,I7775,I7776,I7777,I7779,I77810,I77811,I77812,I77819,I7789,I779,I780,I781,I788,I789,I790,I791,I798,I8000,I8001,I8002,I8003,I8010,I8011,I8012,I8013,I80201,I80202,I80203,I80209,I80211,I80212,I80213,I80219,I80221,I80222,I80223,I80229,I80231,I80232,I80239,I80291,I80292,I80293,I80299,I803,I808,I809,I81,I820,I821,I82210,I82211,I82220,I82221,I82290,I82291,I823,I82401,I82402,I82403,I82409,I82411,I82412,I82413,I82419,I82421,I82422,I82423,I82429,I82431,I82432,I82433,I82439,I82441,I82442,I82443,I82449,I82491,I82492,I82493,I82499,I824Y1,I824Y2,I824Y3,I824Y9,I824Z1,I824Z2,I824Z3,I824Z9,I82501,I82502,I82503,I82509,I82511,I82512,I82513,I82519,I82521,I82522,I82523,I82529,I82531,I82532,I82533,I82539,I82541,I82542,I82543,I82549,I82591,I82592,I82593,I82599,I825Y1,I825Y2,I825Y3,I825Y9,I825Z1,I825Z2,I825Z3,I825Z9,I82601,I82602,I82603,I82609,I82611,I82612,I82613,I82619,I82621,I82622,I82623,I82629,I82701,I82702,I82703,I82709,I82711,I82712,I82713,I82719,I82721,I82722,I82723,I82729,I82811,I82812,I82813,I82819,I82890,I82891,I8290,I8291,I82A11,I82A12,I82A13,I82A19,I82A21,I82A22,I82A23,I82A29,I82B11,I82B12,I82B13,I82B19,I82B21,I82B22,I82B23,I82B29,I82C11,I82C12,I82C13,I82C19,I82C21,I82C22,I82C23,I82C29,I83001,I83002,I83003,I83004,I83005,I83008,I83009,I83011,I83012,I83013,I83014,I83015,I83018,I83019,I83021,I83022,I83023,I83024,I83025,I83028,I83029,I8310,I8311,I8312,I83201,I83202,I83203,I83204,I83205,I83208,I83209,I83211,I83212,I83213,I83214,I83215,I83218,I83219,I83221,I83222,I83223,I83224,I83225,I83228,I83229,I83811,I83812,I83813,I83819,I83891,I83892,I83893,I83899,I8390,I8391,I8392,I8393,I8500,I8501,I8510,I8511,I860,I861,I862,I863,I864,I868,I87001,I87002,I87003,I87009,I87011,I87012,I87013,I87019,I87021,I87022,I87023,I87029,I87031,I87032,I87033,I87091,I87092,I87093,I87099,I871,I872,I87301,I87302,I87303,I87309,I87311,I87312,I87313,I87319,I87321,I87322,I87323,I87329,I87331,I87332,I87333,I87339,I87391,I87392,I87393,I87399,I878,I879,I880,I881,I888,I889,I890,I891,I898,I899,I950,I951,I952,I953,I9581,I9589,I959,I96,I970,I97110,I97111,I97120,I97121,I97130,I97131,I97190,I97191,I972,I973,I97410,I97411,I97418,I9742,I9751,I9752,I97610,I97611,I97618,I97620,I97621,I97622,I97630,I97631,I97638,I97640,I97641,I97648,I97710,I97711,I97790,I97791,I97810,I97811,I97820,I97821,I9788,I9789,I998,I999 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Outage duration | Outcome type | Lag day 0 | Lag day 1 | Lag day 2 | Lag day 3 | Lag day 4 | Lag day 5 | Lag day 6 |
| 4+ hour | CVD no hypertension | 0.994,  [0.984, 1] | 1.014,  [1.008, 1] | 1.021,  [1.014, 1] | 1.008,  [1.002, 1] | 0.992,  [0.985, 1] | 0.993,  [0.988, 1] | 1.005, [0.995, 1] |
| 8+ hour | CVD no hypertension | 0.999,  [0.985, 1] | 1.02,  [1.013, 1] | 1.025,  [1.016, 1] | 1.006,  [1, 1] | 0.987,  [0.978, 1] | 0.992,  [0.985, 1] | 1.012, [0.999, 1] |
| 12+ hour | CVD no hypertension | 1.007,  [0.992, 1] | 1.022,  [1.014, 1] | 1.023,  [1.012, 1] | 1.003,  [0.995, 1] | 0.985,  [0.975, 1] | 0.992,  [0.985, 1] | 1.016, [1.001, 1] |
| 4+ hour | Respiratory | 1.013, [  1.002, 1] | 1.01,  [1.005, 1] | 1.008,  [1.002, 1] | 1.005,  [0.999, 1] | 1.003,  [0.998, 1] | 1.001,  [0.995, 1] | 0.998, [0.988, 1] |
| 8+ hour | Respiratory | 1.026,  [1.012, 1] | 1.017,  [1.01, 1] | 1.009,  [1.002, 1] | 1.003,  [0.995, 1] | 1,  [0.993, 1] | 0.998,  [0.992, 1] | 0.997, [0.985, 1] |
| 12+ hour | Respiratory | 1.032,  [1.017, 1] | 1.019,  [1.011, 1] | 1.007,  [1, 1] | 1,  [0.991, 1] | 0.998,  [0.991, 1] | 1,  [0.993, 1] | 1.003, [0.989, 1] |