

National Study of Treatment and Addiction Recovery Residences Report

KENTUCKY

The National Study of Treatment and Addiction Recovery Residences (NSTARR) constitutes the largest and most diverse study of recovery housing in the U.S. to date. NSTARR compiled data from publicly available sources (e.g., Oxford House, National Alliance for Recovery Residences, and Substance Abuse and Mental Health Services Administration websites) and lists maintained by entities tracking recovery housing. Residences for which locating information was available were geocoded and linked with U.S. Census data on urbanicity, alcohol- and drug-involved mortality, and COVID vulnerability. Data collection began in January 2020 and is ongoing until June 2023. The NSTARR database currently contains information on 10,358 residences operated by 3,628 providers in all 50 states. For a detailed description of methods and national findings, please see Mericle et al., 2022.

KEY FINDINGS

The NSTARR team identified 202 recovery residences (4.54 houses per 100,000 population) in Kentucky (see Table 1). Compared to other states (which include DC), Kentucky ranked 12 in terms of recovery housing availability per capita. Ninety-five percent of residences in Kentucky could be geocoded for these analyses. Rowan County, a non-adjacent rural county, had the most recovery residences per 100,000 population, and 84 counties had no identified recovery residences, representing a mix of rural-urban classifications; 113 (94% of counties) had fewer than 5 recovery residences (see Figure 1).

We used geographic information systems to identify hot and cold spots in Kentucky. A hot spot is a cluster of high values (county with a high number of residences surrounded by other counties with high numbers of residences) and a cold spot is a cluster of low values (county with low counts surrounded by counties also with low counts). Our analyses found hot spots but no cold spots within the state (see Figure 2).

The age-adjusted alcohol- and drug-involved mortality rate (per 100,000 population) was 18.60 in Kentucky for the years 2009–2019. Kentucky ranked 25 on alcohol- and drug-involved mortality out of the 50 states and DC. Among the counties ranked, Owsley County had the highest alcohol- and drug-involved mortality rate and Larue County had the lowest alcohol- and drug-involved mortality rate. Of the five counties that had the highest mortality rates in Kentucky (i.e., Owsley, Clay, Kenton, Powell, and Floyd), four of them also ranked in the bottom half recovery housing availability per capita (only one had any recovery housing at all), suggesting more recovery resources may be needed (see Table 1 and Figure 3).

COVID vulnerability was summarized using the county-level data from the Centers for Disease Control and Prevention's COVID Vulnerability Index (CCVI). The CCVI is a composite measure of seven social determinants of health, encompassing modified themes from the Centers for Disease Control and Prevention's Social Vulnerability Index in combination with COVID risk factors to identify communities in need of additional support during the COVID pandemic. Nine counties were classified as having very high vulnerability, and only one of these had any recovery housing at all again suggesting that more recovery resources may be needed (see Table 1 and Figure 4).

202
RESIDENCES
TOTAL

12
NATIONAL
AVAILABILITY
RANKING

84
COUNTIES
WITHOUT
RESIDENCES

Table 1. County-level Descriptive Statistics on Recovery Residences

County Name	Population ¹	RUCC Classification ²	Number of Recovery Residences ³	Recovery Residences Per 100,000 Population	Recovery Residences Availability per Capita (Rank) ⁴	Age-Adjusted Alcohol/Drug Mortality ⁵ Rate per 100,000 Population	Mortality Rate (Rank) ⁶	CCVI Quintile ⁷
KENTUCKY	4,449,052		202	4.54	12	18.60	25	
Adair	19,222	Non-adjacent rural	0	0.00	120	28.10	104	High
Allen	20,944	Urban	0	0.00	120	38.30	73	High
Anderson	22,409	Adjacent rural	0	0.00	120	44.40	59	Moderate
Ballard	8,032	Non-adjacent rural	0	0.00	120	40.30	70	Low
Barren	43,884	Adjacent rural	0	0.00	120	28.40	102	High
Bath	12,355	Adjacent rural	0	0.00	120	58.90	32	High
Bell	26,791	Non-adjacent rural	0	0.00	120	79.40	6	High
Boone	130,820	Urban	1	0.76	36	44.80	58	Moderate
Bourbon	20,058	Urban	0	0.00	120	47.70	51	High
Boyd	47,682	Urban	2	4.19	20	68.10	17	High
Boyle	29,972	Non-adjacent rural	0	0.00	120	41.50	67	Moderate
Bracken	8,305	Urban	0	0.00	120	45.90	55	Low
Breathitt	12,977	Non-adjacent rural	0	0.00	120	63.60	23	Moderate
Breckinridge	20,176	Adjacent rural	0	0.00	120	24.10	113	High
Bullitt	80,171	Urban	0	0.00	120	42.80	61	Low
Butler	12,764	Urban	0	0.00	120	37.50	77	Very high vulnerability
Caldwell	12,702	Non-adjacent rural	0	0.00	120	31.00	94	Moderate
Calloway	38,837	Non-adjacent rural	0	0.00	120	30.50	97	Low
Campbell	92,861	Urban	4	4.31	19	74.80	11	Moderate
Carlisle	4,784	Non-adjacent rural	0	0.00	120	Suppressed	-	Moderate
Carroll	10,671	Adjacent rural	0	0.00	120	67.50	18	Very high vulnerability
Carter	27,159	Adjacent rural	1	3.68	23	58.00	34	High
Casey	15,885	Non-adjacent rural	0	0.00	120	42.10	63	Very high vulnerability
Christian	71,414	Urban	0	0.00	120	35.20	82	Very high vulnerability
Clark	35,971	Urban	0	0.00	120	68.20	16	High
Clay	20,368	Non-adjacent rural	0	0.00	120	87.00	2	High
Clinton	10,193	Non-adjacent rural	0	0.00	120	59.10	31	High
Crittenden	9,000	Non-adjacent rural	0	0.00	120	27.60	106	Moderate
Cumberland	6,697	Non-adjacent rural	0	0.00	120	46.20	54	Moderate
Daviess	100,474	Urban	13	12.94	4	35.50	81	High
Edmonson	12,138	Urban	0	0.00	120	37.40	78	Moderate
Elliott	7,510	Non-adjacent rural	0	0.00	120	38.60	72	Moderate
Estill	14,224	Adjacent rural	1	7.03	13	75.90	10	Moderate
Fayette	320,601	Urban	25	7.80	10	56.20	37	Moderate
Fleming	14,513	Non-adjacent rural	2	13.78	3	41.00	69	High

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Floyd	36,456	Non-adjacent rural	0	0.00	120	81.10	5	High
Franklin	50,529	Adjacent rural	1	1.98	32	42.00	65	High
Fulton	6,130	Non-adjacent rural	0	0.00	120	Suppressed	-	High
Gallatin	8,737	Urban	0	0.00	120	79.40	6	High
Garrard	17,445	Adjacent rural	0	0.00	120	51.20	42	Moderate
Grant	24,951	Urban	0	0.00	120	59.20	30	High
Graves	37,248	Non-adjacent rural	0	0.00	120	28.10	104	High
Grayson	26,247	Adjacent rural	0	0.00	120	49.20	47	High
Green	10,979	Adjacent rural	1	9.11	7	27.60	106	Moderate
Greenup	35,555	Urban	1	2.81	27	54.40	38	Moderate
Hancock	8,720	Urban	0	0.00	120	29.10	101	Low
Hardin	108,527	Urban	8	7.37	12	34.80	84	High
Harlan	26,699	Non-adjacent rural	0	0.00	120	63.60	23	High
Harrison	18,722	Adjacent rural	0	0.00	120	56.70	36	Moderate
Hart	18,729	Adjacent rural	0	0.00	120	23.60	114	High
Henderson	45,829	Urban	1	2.18	30	31.90	92	High
Henry	15,911	Urban	0	0.00	120	42.40	62	Moderate
Hickman	4,510	Non-adjacent rural	0	0.00	120	Suppressed	-	High
Hopkins	45,331	Non-adjacent rural	1	2.21	29	40.20	71	High
Jackson	13,369	Non-adjacent rural	1	7.48	11	25.20	110	Moderate
Jefferson	767,419	Urban	67	8.73	8	50.10	46	Very high vulnerability
Jessamine	53,032	Urban	0	0.00	120	52.30	41	High
Johnson	22,634	Non-adjacent rural	0	0.00	120	60.90	29	Moderate
Kenton	165,668	Urban	11	6.64	14	83.20	3	Moderate
Knott	15,260	Non-adjacent rural	1	6.55	15	67.20	19	High
Knox	31,365	Non-adjacent rural	0	0.00	120	61.70	28	High
Larue	14,204	Urban	0	0.00	120	19.90	116	High
Laurel	60,357	Non-adjacent rural	1	1.66	33	33.10	91	High
Lawrence	15,671	Adjacent rural	1	6.38	16	51.00	43	Moderate
Lee	6,881	Non-adjacent rural	0	0.00	120	77.50	8	Moderate
Leslie	10,283	Non-adjacent rural	0	0.00	120	76.30	9	Moderate
Letcher	22,295	Non-adjacent rural	0	0.00	120	64.40	22	High
Lewis	13,417	Adjacent rural	0	0.00	120	46.40	53	Moderate
Lincoln	24,476	Non-adjacent rural	0	0.00	120	54.20	39	High
Livingston	9,235	Non-adjacent rural	0	0.00	120	37.80	76	Low
Logan	26,902	Adjacent rural	1	3.72	22	29.70	99	High

Lyon	8,271	Non-adjacent rural	0	0.00	120	31.40	93	Moderate
Madison	90,802	Adjacent rural	1	1.10	35	49.20	47	Moderate
Magoffin	12,491	Non-adjacent rural	0	0.00	120	62.50	26	High
Marion	19,244	Non-adjacent rural	0	0.00	120	34.90	83	Very high vulnerability
Marshall	31,192	Non-adjacent rural	0	0.00	120	38.10	75	Moderate
Martin	11,648	Non-adjacent rural	0	0.00	120	69.30	14	High
Mason	17,112	Adjacent rural	0	0.00	120	58.80	33	High
McCracken	65,268	Non-adjacent rural	3	4.60	18	45.80	56	High
McCreary	17,465	Non-adjacent rural	0	0.00	120	35.70	80	High
McLean	9,283	Urban	0	0.00	120	36.20	79	Low
Meade	28,182	Urban	0	0.00	120	38.30	73	Moderate
Menifee	6,443	Non-adjacent rural	0	0.00	120	48.30	50	Low
Mercer	21,592	Adjacent rural	0	0.00	120	41.10	68	Moderate
Metcalf	10,036	Non-adjacent rural	0	0.00	120	24.70	111	Moderate
Monroe	10,627	Adjacent rural	0	0.00	120	45.50	57	High
Montgomery	27,884	Adjacent rural	1	3.59	24	50.70	44	High
Morgan	13,288	Non-adjacent rural	0	0.00	120	21.50	115	Moderate
Muhlenberg	30,951	Adjacent rural	1	3.23	25	34.80	84	Moderate
Nelson	45,650	Adjacent rural	0	0.00	120	42.90	60	Moderate
Nicholas	7,153	Adjacent rural	0	0.00	120	50.30	45	Very high vulnerability
Ohio	24,071	Adjacent rural	0	0.00	120	30.60	95	High
Oldham	65,967	Urban	1	1.52	34	24.20	112	Low
Owen	10,796	Adjacent rural	0	0.00	120	63.10	25	Moderate
Owsley	4,442	Non-adjacent rural	0	0.00	120	87.80	1	High
Pendleton	14,572	Urban	0	0.00	120	53.40	40	Moderate
Perry	26,624	Non-adjacent rural	3	11.27	5	66.10	21	High
Pike	59,497	Non-adjacent rural	0	0.00	120	66.20	20	High
Powell	12,304	Adjacent rural	0	0.00	120	81.30	4	High
Pulaski	64,350	Non-adjacent rural	2	3.11	26	41.90	66	High
Robertson	2,123	Adjacent rural	0	0.00	120	Suppressed	-	Moderate
Rockcastle	16,820	Non-adjacent rural	0	0.00	120	57.30	35	High
Rowan	24,507	Non-adjacent rural	7	28.56	1	48.40	49	High
Russell	17,778	Non-adjacent rural	0	0.00	120	61.80	27	Very high vulnerability
Scott	54,667	Urban	3	5.49	17	34.70	86	Moderate
Shelby	47,325	Urban	1	2.11	31	28.30	103	High
Simpson	18,183	Adjacent rural	2	11.00	6	33.20	90	High
Spencer	18,680	Urban	0	0.00	120	29.50	100	Low
Taylor	25,571	Non-adjacent rural	1	3.91	21	47.40	52	High
Todd	12,316	Adjacent rural	0	0.00	120	33.30	89	Very high vulnerability
Trigg	14,449	Urban	0	0.00	120	26.30	109	Low

Trimble	8,558	Urban	0	0	120	34.6	87	High
Union	14,638	Adjacent rural	0	0.00	120	70.00	13	Moderate
Warren	128,652	Urban	19	14.77	2	29.90	98	High
Washington	12,023	Non-adjacent rural	1	8.32	9	34.00	88	High
Wayne	20,546	Non-adjacent rural	0	0.00	120	30.60	95	High
Webster	13,068	Adjacent rural	0	0.00	120	26.50	108	High
Whitley	36,131	Non-adjacent rural	1	2.77	28	73.30	12	High
Wolfe	7,207	Non-adjacent rural	0	0.00	120	68.80	15	Moderate
Woodford	26,318	Urban	0	0.00	120	42.10	63	Low

¹Population data were downloaded from tables in Social Explorer's ACS five-year estimate (2015-2019). American Community Survey 5-year Estimates, 2015-2019. Social Explorer tables, ACS 2015-2019. Social Explorer.

²The Rural-Urban Continuum Code (RUCC) was used to classify each county as urban, adjacent rural, or non-adjacent rural. Urban counties are counties with codes 1 (Counties in metro areas of 1 million population or more), 2 (Counties in metro areas of 250,000 to 1 million population), and 3 (Counties in metro areas of fewer than 250,000 population). Adjacent rural counties are counties with codes 4 (Urban population of 20,000 or more, adjacent to a metro area), 6 (Urban population of 2,500 to 19,999, adjacent to a metro area), and 8 (Completely rural or less than 2,500 urban population, adjacent to a metro area). Non-adjacent rural counties are the remaining three codes - 5 (Urban population of 20,000 or more, not adjacent to a metro area), 7 (Urban population of 2,500 to 19,999, not adjacent to a metro area), and 9 (Completely rural or less than 2,500 urban population, not adjacent to a metro area). Rural-Urban Continuum Code (RUCC). <https://www.ers.usda.gov/data-products/rural-urban-continuum-codes.aspx>

³Recovery residences are from the NSTARR project and are current as of 2020. Ten (10) recovery residences in the state were not successfully geocoded due to lack of adequate address information, and thus were not assigned to a county.

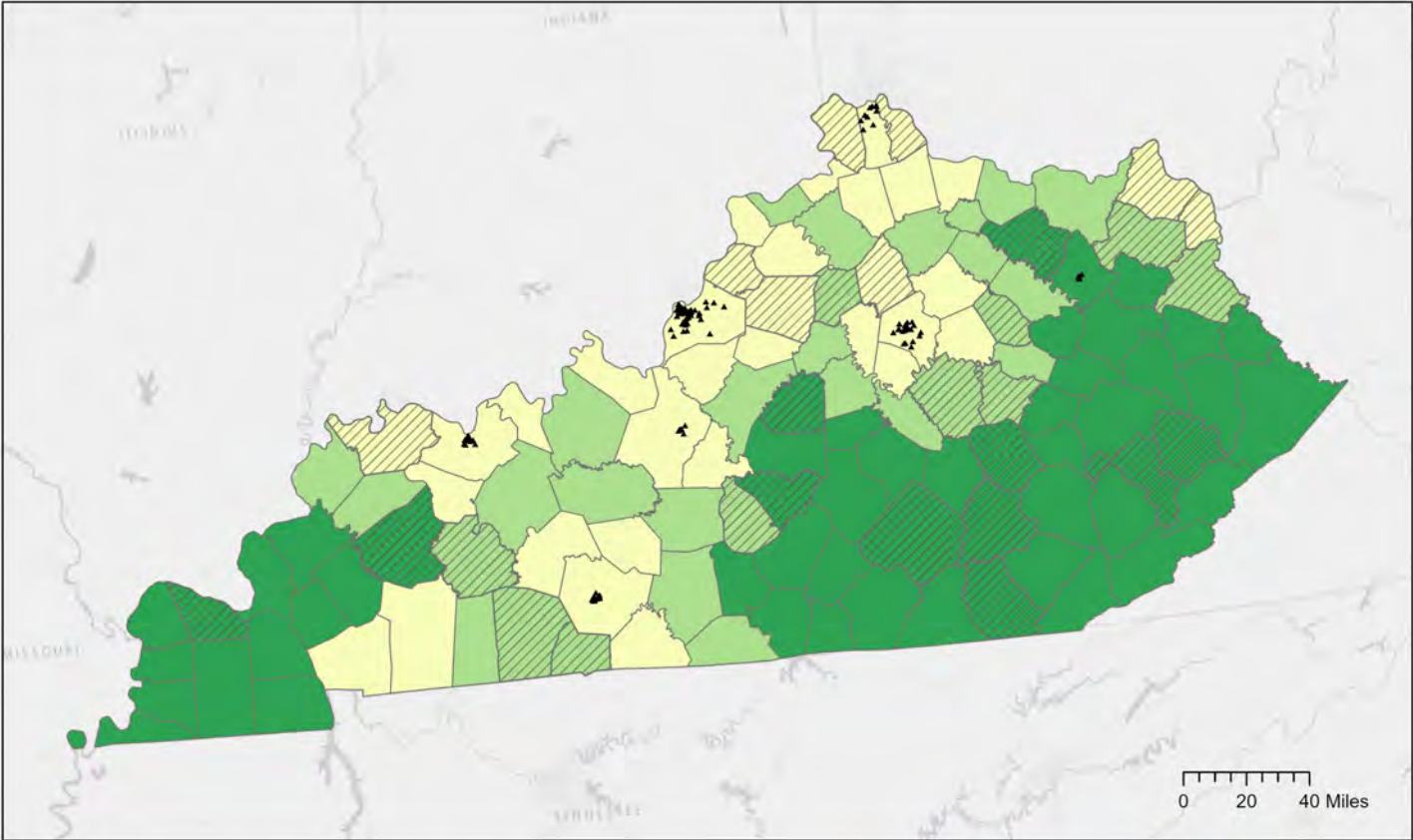
⁴Recovery residences availability per capita is ranked in order of decreasing recovery residence density per 100,000 population per county, with 1 (highest number of residences per 100,000) to 120 (lowest number of residences per 100,000 population). Counties without recovery residences were all assigned a tied rank of 120.

⁵Alcohol- and drug-involved mortality included all deaths as underlying causes of death and selected ICD-10 codes mentioning or attributed to alcohol or drugs as contributing cause of death. Data from the Centers for Disease Control and Prevention, 2020. CDC Wonder (Wide-ranging Online Data for Epidemiologic Research). U.S. Department of Health and Human Services, Atlanta, GA. Available at: <https://wonder.cdc.gov/>. For more information on coding multiple causes of death, see: Centers for Disease Control and Prevention, About Multiple Cause of Death, 1999-2019. <https://wonder.cdc.gov/mcd-icd10.html>. accessed on August 9 2021.

⁶Mortality rate is ranked in order of decreasing alcohol- and drug-involved mortality from 1 (highest mortality per 100,000 population) to 116 (lowest mortality per 100,000 population).

⁷COVID-19 Community Vulnerability Index (CCVI) scores range in value from 0 – 1, with 0 being least vulnerable and 1 being the most vulnerable. Each county is ranked relative to all counties across the country, based on seven themes/domains. Each county was grouped into quintiles: very high (score of 0.8-1), high (0.6-0.8), moderate (0.4-0.6), low (0.2-0.4), and very low (0-0.2). For more information on how the CCVI is calculated, see: COVID-19 Community Vulnerability Index (CCVI) methodology. [https://covid-static-assets.s3.amazonaws.com/US-CCVI/COVID-19+Community+Vulnerability+Index+\(CCVI\)+Methodology.pdf](https://covid-static-assets.s3.amazonaws.com/US-CCVI/COVID-19+Community+Vulnerability+Index+(CCVI)+Methodology.pdf)

Figure 1. Distribution of Residences by Rural-Urban Classification



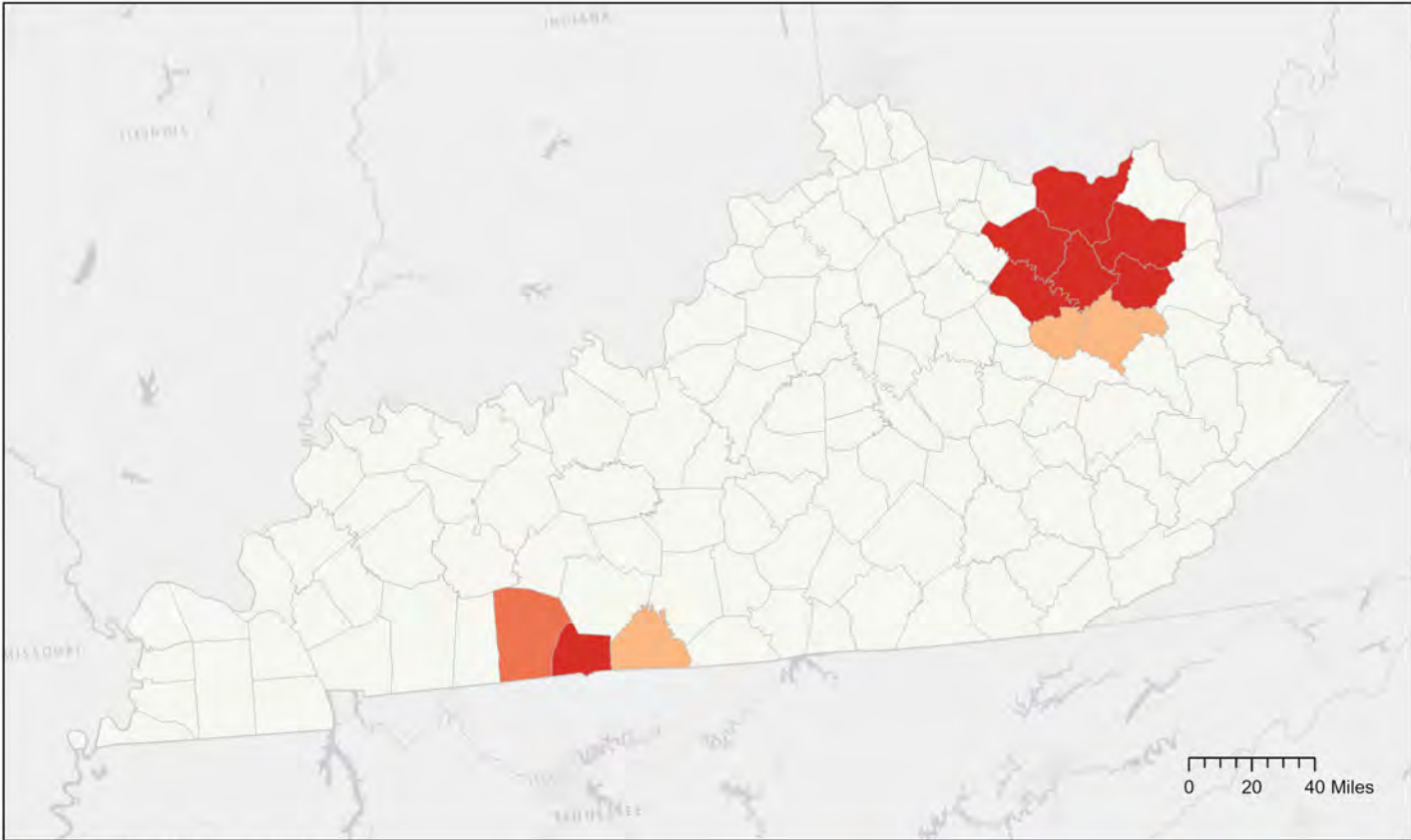
- ▲ Recovery residences
- Rural-Urban Classification Code (RUCC)
 - Urban
 - Adjacent rural
 - Non-adjacent rural
 - Counties with residence locations suppressed (1-4 residences) to protect privacy



Data Credits: Esri, HERE, Garmin, USGS, EPA, NPS
 Recovery residence locations: 2020
 Created by: NSTARR Project (May 2022)



Figure 2. Hot/Cold Spot Analysis of Recovery Residence Locations



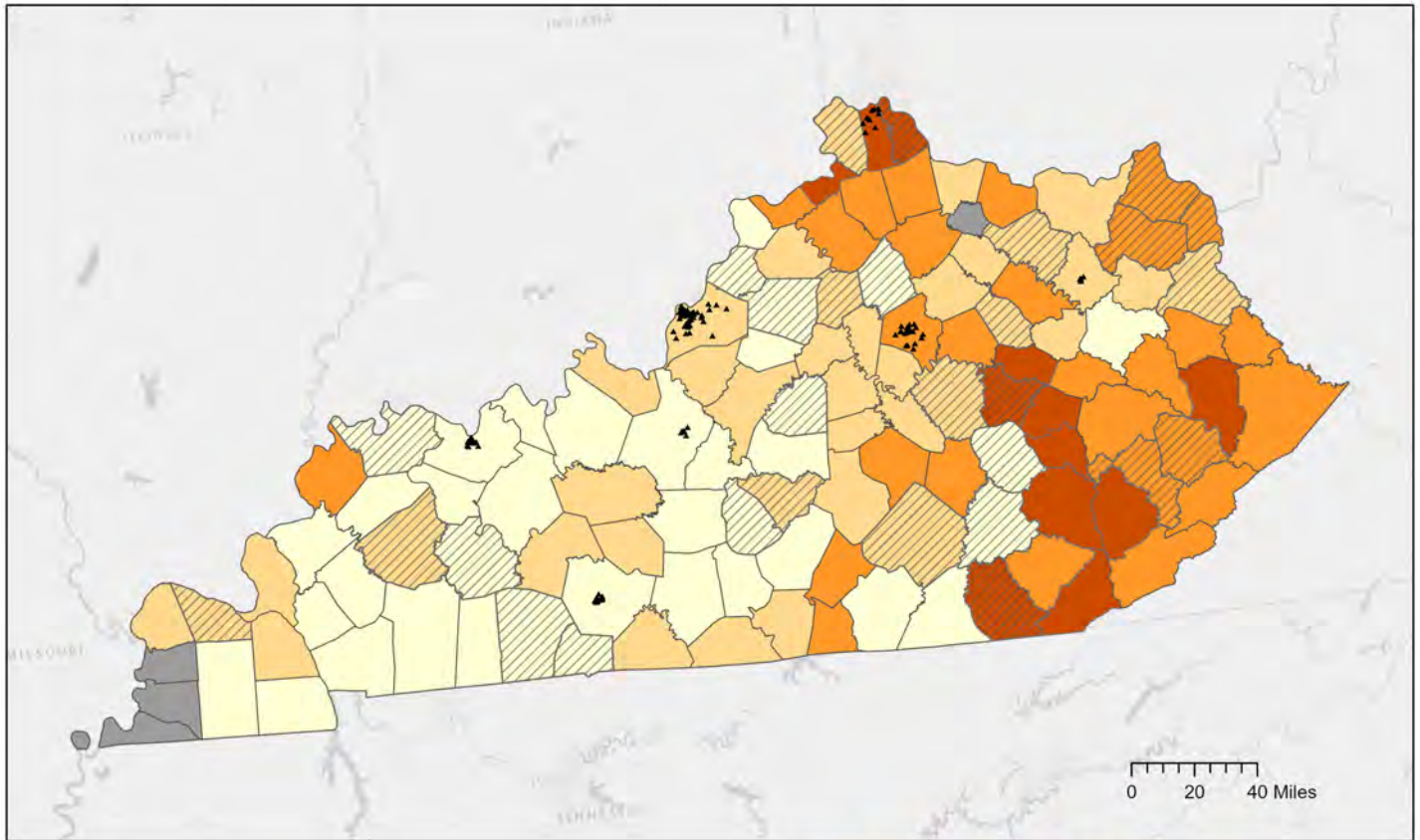
- Hot Spot Analysis (Getis-Ord GI*)**
- Cold Spot with 99% Confidence
 - Cold Spot with 95% Confidence
 - Cold Spot with 90% Confidence
 - Not Significant
 - Hot Spot with 90% Confidence
 - Hot Spot with 95% Confidence
 - Hot Spot with 99% Confidence



Data Credits: Esri, HERE, Garmin, USGS, EPA, NPS
Recovery residence locations: 2020
Created by: NSTARR Project (May 2022)



Figure 3. Distribution of Residences by Age-adjusted Alcohol- and/or Drug-involved Mortality



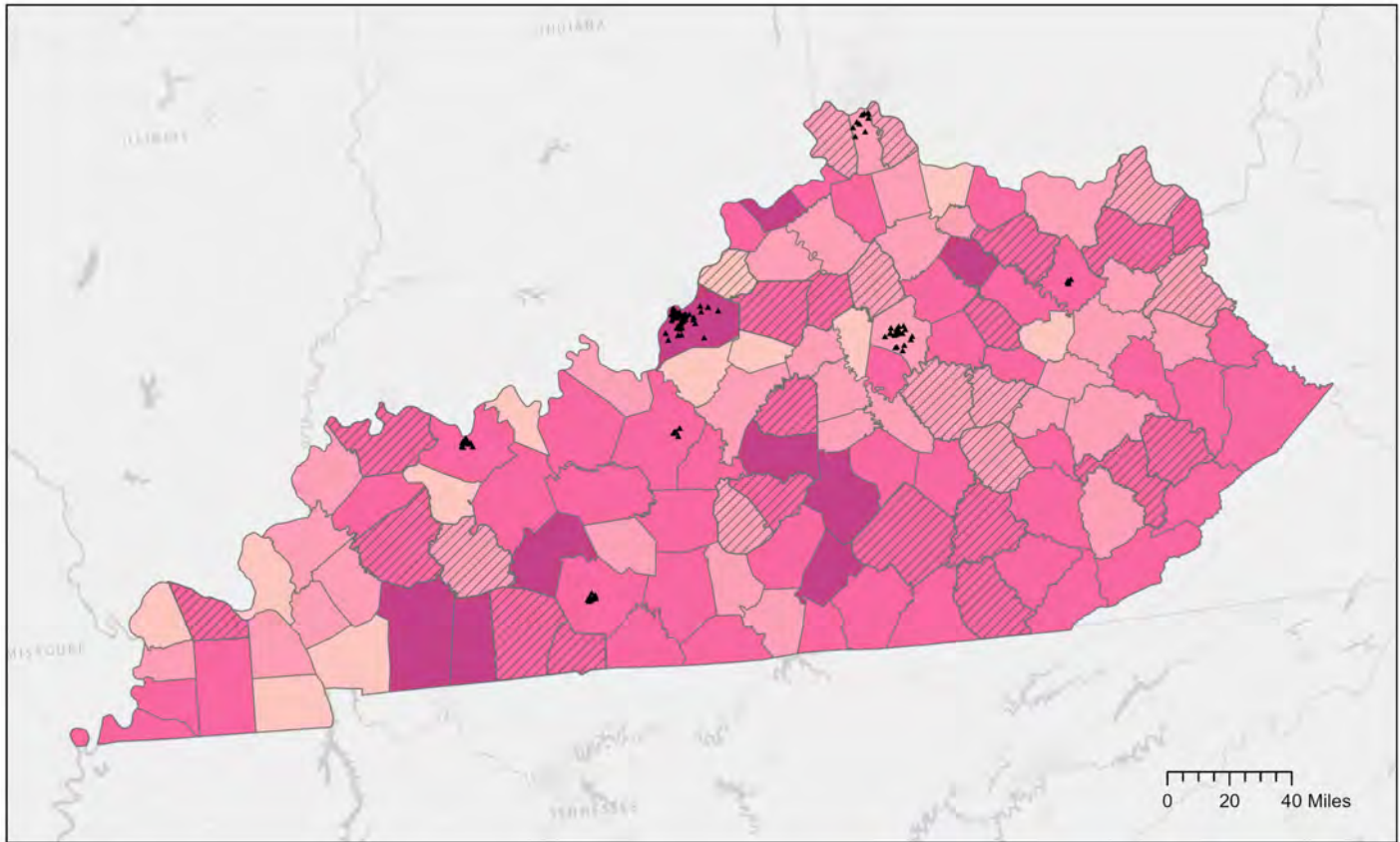
- ▲ Recovery residences
- Age-adjusted alcohol and drug mortality rate per 100,000 population
- 9 - 18
- 19 - 28
- 29 - 52
- 53 - 79
- Suppressed/Unreliable
- Counties with residence locations suppressed (1-4 residences) to protect privacy



Data Credits: Esri, HERE, GARMIN, USGS, EPA, NPS
 Recovery residence locations: 2020
 Created by: NSTARR Project (May 2022)



Figure 4. Distribution of Residences by COVID-19 Community Vulnerability Index



- ▲ Recovery Residences
- COVID-19 Community Vulnerability Index (CCVI)
- Very low vulnerability
- Low
- Moderate
- High
- Very high vulnerability
- Counties with residence locations suppressed (1-4 residences) to protect privacy



Data Credits: Esri, HERE, Garmin, USGS, EPA, NPS
Recovery residence locations: 2020
Created by: NSTARR Project (May 2022)





National Study of Treatment and Addiction Recovery Residences
6001 Shellmound Street, Suite 450
Emeryville, CA 94608

 nstarr.arg.org  nstarr@arg.org  [@NSTARRStudy](https://www.facebook.com/NSTARRStudy)  [@arg_nstarr](https://twitter.com/arg_nstarr)

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