

Kentucky Physician Report 2022



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Introduction

The United States and Kentucky continue to face a shortage of physicians. Aging physicians, increased access to medical insurance, and an aging population continue to strain the healthcare landscape (Howard, 2021). The population is projected to increase by 10.6 % between 2019 and 2031, with an increase of 42.3% in those aged 65 and above (Renfrow, 2021). In 2019, pre-pandemic, two out of five active U.S. physicians will be 65 or older within ten years, and 40% "felt burned out at least once a week" (Renfrow, 2021).

According to the Kaiser Family Foundation (2022), although 51.9% of Kentucky's primary care physician needs are met within the state, there are 244 total designated Primary Care Health Provider Shortage Areas, and an estimated 319 primary care physicians are needed to remove the Health Provider Shortage Area Designation.

Kentucky currently ranks 40th in the United States in PCPs per 100,000 people (Chapman, 2022). As Kentucky's geographical location is mostly rural, recruiting and retaining physicians, especially primary care physicians is a challenge.

KEY STATISTICS

- **25 of 120** Kentucky counties meet the criteria for a **physician** Health Provider Shortage Area (HPSA).
- **43 of 120** Kentucky counties meet the criteria for a **primary care physician** Health Provider Shortage Area (HPSA).
- Almost **a third** of Kentucky physicians have been licensed between 31 and 50+ years (32.3%).
- Almost **half** of Kentucky primary care physicians work in Fayette and Jefferson county.

Methods & Analysis

Kentucky Board of Medical Licensure data was requested through the online system. The data was cleaned by removing inactive, retired, or semi-retired physicians. For the purpose of the full-time physician calculation, residents were also removed. Individuals listed as out of state or missing county of residence, and duplicated physicians were also excluded from the analysis.

Primary care physicians (PCPs) were defined as individuals practicing in Kentucky in the following specialties: Family Medicine, Internal Medicine, Pediatrics, or Geriatric Medicine, and no other Internal Medicine or Pediatric subspecialty listed. No physician was counted twice within the specialties. For example, an internal medicine physician also listing geriatrics as a subspecialty or family medicine was counted only once. Primary care physicians were also only counted if they work in the following as the main employment setting: private practice, hospital-based, or employed outpatient, and not emergency medicine. As with physicians, PCPs were only counted if they practiced within Kentucky and were listed as active within the licensure database.

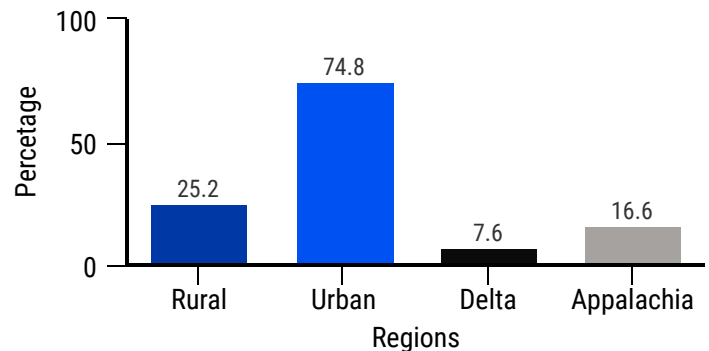
Frequencies were calculated using IBM SPSS Statistics Version 28. Rural and urban counties were assigned in the analysis based on rural designation by Human Resource and Service Administration (HRSA). County-level population counts were obtained through the Census.

Years of physician licensure were calculated using the current year (2022) and the original licensure date within the data.

All Physician Results - 2022

- **10,002 physicians are practicing in Kentucky.**
- Most physicians practice in Urban counties (74.8%; n=7,481 total) as compared to Rural (25.2%; n=2,521).
- 16.2% of physicians are practicing in Appalachian counties (n=1,663)
- 7.6% of Kentucky physicians practice in the Delta region (n=758 total).

Physician Total by Geographic Designation



Type of Setting	%	n
Private Practice	41%	4,105
Hospital Based	37.1%	3,714
Faculty	10.0%	1,000
Emergency Based	5.6%	558
Public Health/ Government	2.9%	295

- The majority of all Kentucky physicians work in private practices or in hospital based settings (63.7%; n=7,819).

Type of Practice	%	n
Family Medicine	14%	1,405
Internal Medicine	12.3%	1,229
Emergency Medicine	6.3%	629
Pediatrics	5.9%	587
Anesthesiology	4.6%	458

- The top two practices, Family Medicine and Internal Medicine, make up roughly a quarter (26%) of the Kentucky physician workforce.

All Physician Results - 2022

Kentucky Physicians: Total Years Licensed

Years Licensed as a Physician	Number of Physicians	%
<1-5	333	3.3%
6-10	1,377	13.8%
11-20	2,683	26.8%
21-30	2,372	23.7%
31-40	2,092	20.9%
41-50	946	9.5%
51+	189	1.9%

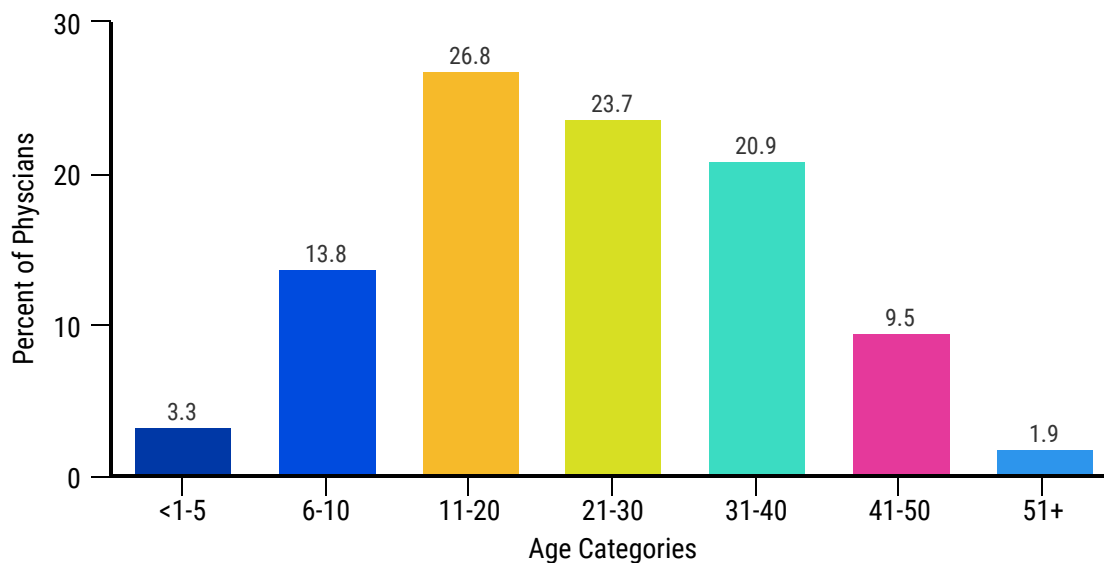
- Most physicians practicing in Kentucky have been licensed between 11 and 20 years (26.8%).
- Almost a third of Kentucky physicians have been licensed between 31 and 50+ years (32.3%).
- Only 17.1% of Kentucky physicians have been licensed for 10 years or less.
- A 2021 study states 21.8% of physicians are considering early retirement and 11.9% are considering change in careers due to burnout from the COVID-19 Pandemic (Doximity, 2021) which could further compound the issue of aging physicians.

All Physician Results - 2022

Kentucky Physicians: Total Years Licensed

Years Licensed	Rural		Urban		Delta		Appalachia	
	Total	%	Total	%	Total	%	Total	%
<1-5	90	3.6	243	3.3	26	3.4	56	3.4
6-10	305	12.1	1072	14.3	93	12.3	229	13.8
11-20	665	26.4	2018	27	199	26.3	450	27.1
21-30	594	23.6	1778	23.8	172	22.8	367	22.1
31-40	555	22.1	1537	20.6	170	22.5	341	20.6
41-50	251	10	695	9.3	81	10.7	177	10.7
51+	56	2.2	133	1.8	15	2	39	2.4

- The Delta and Appalachian physician workforce had a slightly higher percentage of physicians licensed 41 years or more than rural and urban counties.
- Delta and Appalachian counties have the lowest number of newly licensed physicians.



All Physician Results - 2022

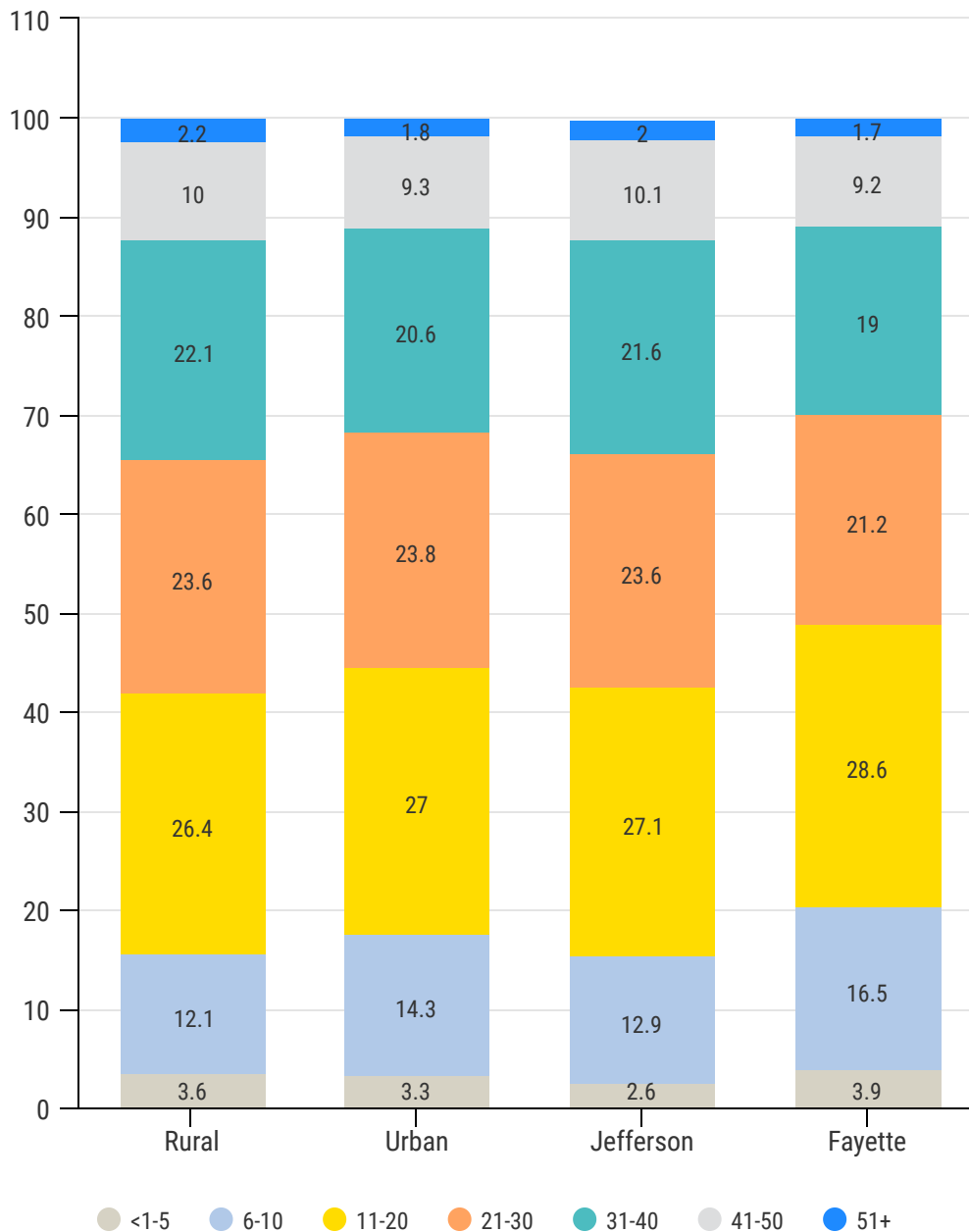
Total Years Licensed By Region



- This stacked bar chart illustrates the table on the previous page. A smaller percentage of new practitioners are practicing in the Delta and Appalachian regions.

All Physician Results - 2022

Total Years Licensed By Region



- Above is a comparison of the distribution of years licensed between Rural and Urban counties and Jefferson and Fayette (which have the highest number of physicians practicing in the state of Kentucky). Jefferson is distributed relatively similar to Rural and Urban counties, however, Fayette county seems to be attracting a greater number of newer physicians.

All Physician Results - 2022

Distribution of Physicians By County

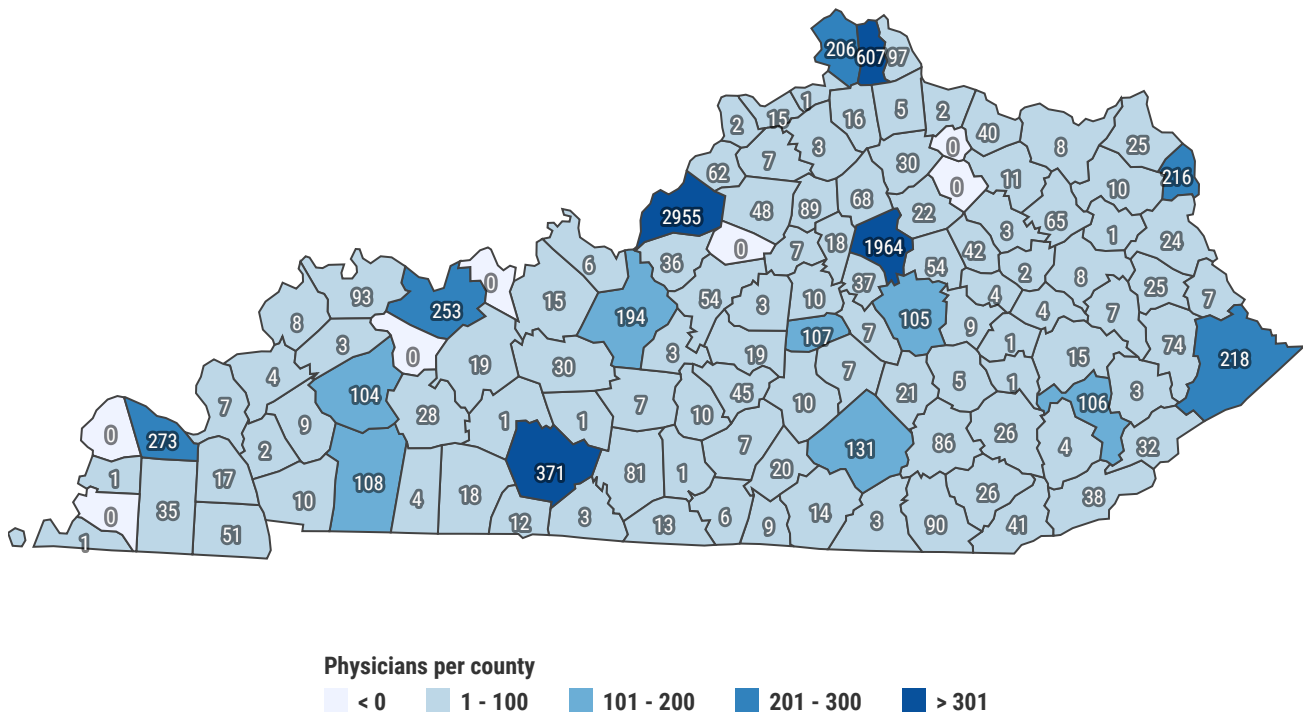


Figure 3.1 is a map of Kentucky by county; each number represents the total number of physicians practicing in each county. The color of each county is represented in the shade of blue; the lighter the shade, the fewer physicians; the darker they are, the more physicians practice in that particular county. In Figure 3.1, there are 35 counties with five or fewer physicians practicing in that county. As of 2022, seven counties in Kentucky have no physicians.

The two Kentucky counties with the most physicians are Fayette and Jefferson. Fayette and Jefferson counties are home to two of Kentucky's largest health organizations, University of Kentucky Healthcare and University of Louisville Health. The county with the third highest number of physicians is Kenton County, located just south of Cincinnati, Ohio.

Primary Care Physicians

Primary care providers (PCPs) are often frontline in health care.

- A PCPs role in a patient's health is typically preventative care, which keeps individual health costs low (AAFP, 2019).
- Being the first physicians sought after, they prevent individuals from seeking specialty care which can be difficult to access through the referral process and availability (AAFP, 2019).
- PCPs work within the context of families and communities, which strengthens populations' overall health (AAFP, 2019).



Primary care physicians were calculated using the following parameters:

- Active status
- Working in KY
- Hospital Based
- Private practice based
- Adolescent medicine
- Family medicine
- General medicine
- Internal medicine
- Pediatrics

Results- Primary Care Physicians

- 2,741 (27.4%) Kentucky physicians are considered PCPs.
- Almost half (49.1%) of Kentucky PCPs work in Fayette (19.6) or Jefferson (29.5%) counties.
- Three-fourths of Kentucky PCPs practice in Urban counties (74.8%).

Results- Primary Care Physicians

The United States Health Resources and Services Administration (HRSA) defines a Health Provider Shortage Area (HPSA) as a ratio of provider to population that is greater than 1:3,500 (KFF, 2022). There are three types of HPSA designations, however, for the scope of this report, county-level HPSAs will be examined.

The provider-to-population ratio reflects the number of PCPs to populations in each county or region. For example, 1:331 means that for every 1 PCP there are 331 residents in the urban region, or for every 331 individuals, there is one provider.

Region	Physician Ratio	PCP Ratio
Urban	1:331	1:1500
Rural	1:714	1:1935
Appalachia	1:678	1:1860
Delta	1:647	1:1543

While the geographic locations within Kentucky do not meet the threshold of 1:3,500 providers to be considered HPSAs, there is a maldistribution between urban and rural counties.

Thirty rural Kentucky counties have a shortage of primary care physicians as compared to thirteen urban Kentucky counties.

Results- Primary Care Physicians

The follow table illustrates the county-level ratio of providers to population. Ratios that fall below the 1:3,500 threshold are highlighted in red. Counties with a HPSA are also highlighted in red.

County	Physician Ratio	PCP Ratio
Adair	1:2104	1:4733
Allen	1:5199	1:10399
Anderson	1:3434	1:4006
Ballard	0:7695	0:7695
Barren	1:550	1:1273
Bath	1:3195	1:12778
Bell	1:555	1:1591
Boone	1:354	1:1374
Bourbon	1:920	1:2023
Boyd	1:220	1:958
Boyle	1:227	1:992
Bracken	1:4220	1:4220
Breathitt	1:847	1:2711
Breckinridge	1:1377	1:3442
Bullitt	1:2241	1:3317
Butler	1:12294	1:12294
Caldwell	1:1403	1:4208
Calloway	1:722	1:1977
Campbell	1:931	1:2023
Carlisle	1:4791	1:4791
Carroll	1:679	1:2173
Carter	1:2641	1:2935

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Results- Primary Care Physicians

Continued from the previous page: county-level ratio of providers to population. Ratios that fall below the 1:3,500 threshold are highlighted in red. Counties with a HPSA are also highlighted in red.

County	Physician Ratio	PCP Ratio
Clark	1:647	1:1941
Clay	1:777	1:1837
Clinton	1:1029	1:1853
Crittenden	1:2237	1:8947
Cumberland	1:980	1:980
Daviess	1:393	1:1747
Edmonson	1:12291	1:12291
Elliott	1:7381	1:7381
Estill	1:1409	1:7046
Fayette	1:148	1:938
Fleming	1:1384	1:2537
Floyd	1:470	1:1138
Franklin	1:581	1:1520
Fulton	1:6512	1:6512
Gallatin	1:4388	1:8775
Garrard	1:2170	1:3472
Grant	1:1578	1:2295
Graves	1:1017	1:3051
Grayson	1:856	1:1895
Green	1:1129	1:2823
Greenup	1:1320	1:2546
Hardin	1:558	1:1993

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Results- Primary Care Physicians

Continued from the previous page: county-level ratio of providers to population. Ratios that fall below the 1:3,500 threshold are highlighted in red. Counties with a HPSA are also highlighted in red.

County	Physician Ratio	PCP Ratio
Harlan	1:654	1:1539
Harrison	1:611	1:2707
Hart	1:2433	1:3892
Hancock	0:9064	0:9064
Henderson	1:457	1:1430
Henry	1:1957	1:2610
Hickman	0:4424	0:4424
Hopkins	1:414	1:1328
Jackson	1:2597	1:4328
Jefferson	1:244	1:1253
Jessamine	1:1341	1:3575
Johnson	1:835	1:1611
Kenton	1:266	1:1211
Knott	1:4684	1:7027
Knox	1:1108	1:3739
Larue	1:5009	1:5009
Laurel	1:719	1:2406
Lawrence	1:679	1:2327
Lee	1:7451	1:7451
Leslie	1:2570	1:3426
Letcher	1:644	1:1063
Lewis	1:1443	1:2165

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Results- Primary Care Physicians

Continued from the previous page: county-level ratio of providers to population. Ratios that fall below the 1:3,500 threshold are highlighted in red. Counties with a HPSA are also highlighted in red.

County	Physician Ratio	PCP Ratio
Lincoln	1:3463	1:8081
Livingston	1:1280	1:4480
Logan	1:1543	1:3967
Lyon	1:2934	1:4402
Madison	1:861	1:2104
Magoffin	1:1642	1:2874
Marion	1:1038	1:2466
Marshall	1:1868	1:3969
Martin	1:1591	1:2228
Mason	1:394	1:1693
McCracken	1:245	1:937
McCreary	1:4223	1:8446
McLean	0:9100	0:9100
Meade	1:5022	1:6026
Menifee	1:2065	1:3097
Mercer	1:2285	1:3808
Metcalfe	0:10349	0:10349
Monroe	1:864	1:1404
Montgomery	1:656	1:1344
Morgan	1:1728	1:3455
Muhlenberg	1:1058	1:2790
Nelson	1:826	1:1811

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Results- Primary Care Physicians

Continued from the previous page: county-level ratio of providers to population. Ratios that fall below the 1:3,500 threshold are highlighted in red. Counties with a HPSA are also highlighted in red.

County	Physician Ratio	PCP Ratio
Nicholas	0:7712	0:7712
Ohio	1:1247	1:2632
Oldham	1:1073	1:2290
Owen	1:3765	1:5647
Owsley	1:3953	1:3953
Pendleton	1:2921	1:3652
Perry	1:259	1:821
Pike	1:259	1:897
Powell	1:3283	1:3283
Pulaski	1:471	1:1212
Robertson	0:2257	0:2257
Rockcastle	1:733	1:1612
Rowan	1:366	1:1381
Russell	1:908	1:1397
Scott	1:798	1:2427
Shelby	1:923	1:2423
Simpson	1:1643	1:2465
Spencer	0:19916	0:19916
Taylor	1:570	1:1381
Todd	1:3071	1:3071
Trigg	1:1419	1:4731
Trimble	1:4265	1:4265

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Results- Primary Care Physicians

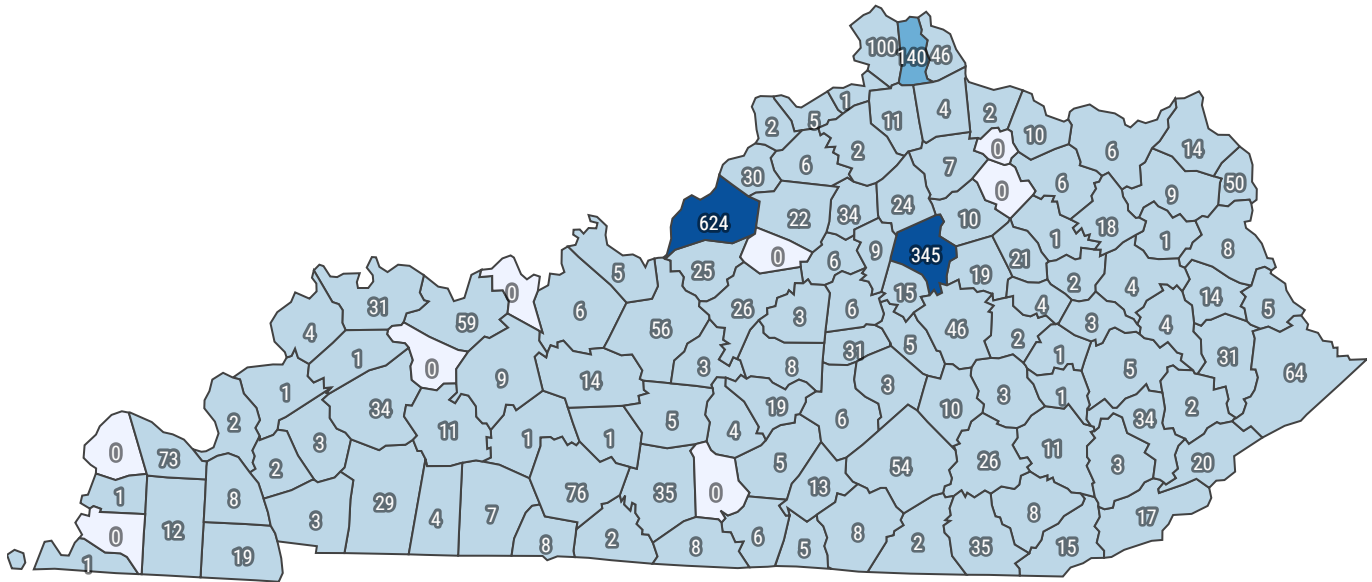
Continued from the previous page: county-level ratio of providers to population. Ratios that fall below the 1:3,500 threshold are highlighted in red. Counties with a HPSA are also highlighted in red.

County	Physician Ratio	PCP Ratio
Union	1:1505	1:3386
Warren	1:350	1:1829
Washington	1:4024	1:4024
Wayne	1:1396	1:2443
Webster	1:4271	1:12813
Whitley	1:410	1:1055
Wolfe	1:1627	1:2169
Woodford	1:1425	1:3008

The table below illustrates the number of HPSA counties within geographical locations (rural, urban, Appalachian, and Delta). The percentage refers to the number of counties out of the total number of counties within the geographical designation.

Total Number of HPSA Counties	Physician (%)	PCP (%)
Rural (n=86)	15 (17%)	32 (37%)
Urban (n=34)	10 (29%)	12 (35%)
Appalachian (n=54)	9 (17%)	16 (30%)
Delta (n=21)	6 (29%)	12 (57%)
Total (n=120)	25 (21%)	44 (37%)

Results- Primary Care Physicians



The map illustrates the distribution of PCPs across Kentucky. The lighter color counties represent fewer PCPs, whereas the darker-colored counties indicated more PCPs practicing in those Kentucky counties.

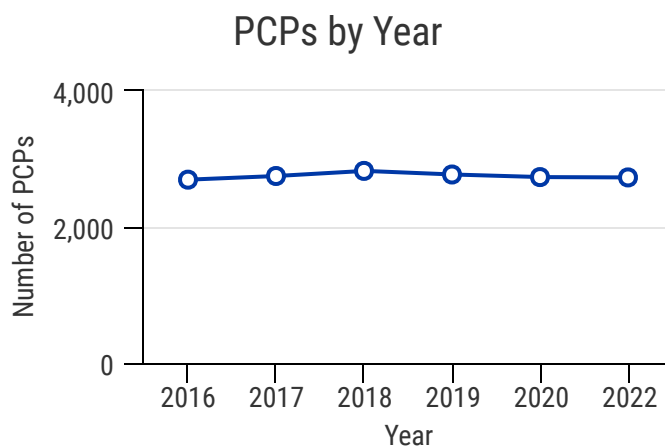
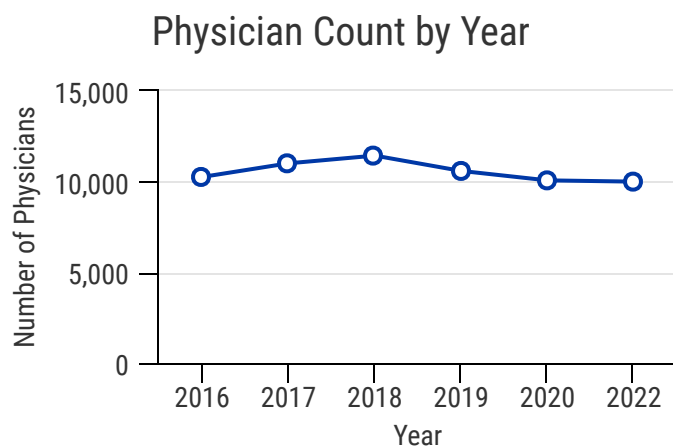
- There are a total of eight counties without a PCP: Ballard (rural Delta), Hancock (urban), Hickman (rural Delta), McLean (urban Delta), Metcalfe (rural Appalachian), Nicholas (rural Appalachian), Robertson (rural Appalachian), and Spencer (urban).
- McCracken and Pike County are the two rural counties with the highest number of PCPs, 73 and 64 respectively.
- The majority (61%) of PCPs in Pike County attended medical school in-state (Pikeville University (n=26), University of Kentucky (n=8), and University of Louisville (n=25)).

Results- Six-Year Trends

The following table illustrates physician data tracked over a five-year period. The year 2021 was omitted due to inaccurate data due to the COVID-19 pandemic.

Year	Physician Count	Physician Year Change	PCP Count	PCP Year Change
2016	10,260		2,696	
2017	11,012	+752	2,750	+54
2018	11,437	+425	2,825	+75
2019	10,592	-845	2,772	-53
2020	10,072	-520	2,734	-38
2022	10,002	-70	2,729	-8

- The largest tracked increase was between the years 2016 and 2017.
- The largest tracked decrease was between the years 2018 and 2019.
- Across the six-year span, a net *loss* of 258 physicians and a net *gain* of 30 PCPs occurred.



Discussion

Most counties in Kentucky have a shortage of physicians. Furthermore, a maldistribution of physicians exists between Kentucky's rural and urban counties; over 75 percent of physicians in the state practice in urban counties despite the majority of the population living in rural counties. Without access to physicians, specifically primary care physicians, individuals in rural are forced to travel to another county for care which can be complicated by transportation and financial barriers, or individuals can go without care.

While significant improvements have been made in getting individuals insured for care, access to care remains an issue. As discussed, primary care physicians serve as the first line in diagnosing illness and have been associated with a reduced number of hospitalizations and emergency room department visits (Pham & Greiner, 2019).

Recent efforts have been made to alieve the physician shortage in Kentucky and in the United States. Through changes in legislation, more residency placements have been created and an increase in admissions into medical school, although somewhat limited. The rural and Appalachian regions of Kentucky have been highlighted as areas of emphasis. The hope is to encourage medical school graduates to complete their residencies in rural and Appalachia so they might be compelled to continue practicing in rural.

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