

## Key Findings:

- **Median Age of PA is 40.7 with 23.7% of the state being 60 Plus**
- **11 counties report having 0 ICU beds, 7 of which are because they have no hospitals**
- **62 counties are full or partial health professional shortage areas**
- **Non-Metro counties at particular disadvantage for healthcare infrastructure**

As the novel coronavirus (COVID-19) spreads through the Commonwealth, it is imperative that we recognize how this virus may have differential impacts across our population. For instance, the Pennsylvania Department of Health (PADOH) and Centers for Disease Control and Prevention (CDC) have noted that individual who are 65 years of age or older are at increased risk for severe illness and complications from COVID-19. This is of particular concern to Pennsylvania, as the median age of residents is 40.7 and almost one quarter (23.7%) are over the age of 60.

Increased spread of illness will likely be accompanied by increased demand for specialty care and use of specialty care facilities such as intensive care unit (ICU) beds. In this report, we explore the geographic distribution of aging residents, the availability of ICU beds and how these factors overlap.

## Number of Confirmed Cases

As of March 26, 2020, the PADOH reported a total of 1,687 confirmed cases in 48 out of 67 counties. Currently, 5 counties have over 100 confirmed cases; Bucks, Allegheny, Delaware, Montgomery, and Philadelphia. Montgomery and Philadelphia counties have the highest number of cases, 282 and 402 cases respectively. The first two cases within the state were reported on March 7, 2020, less than 3 weeks ago (Levy 2020).

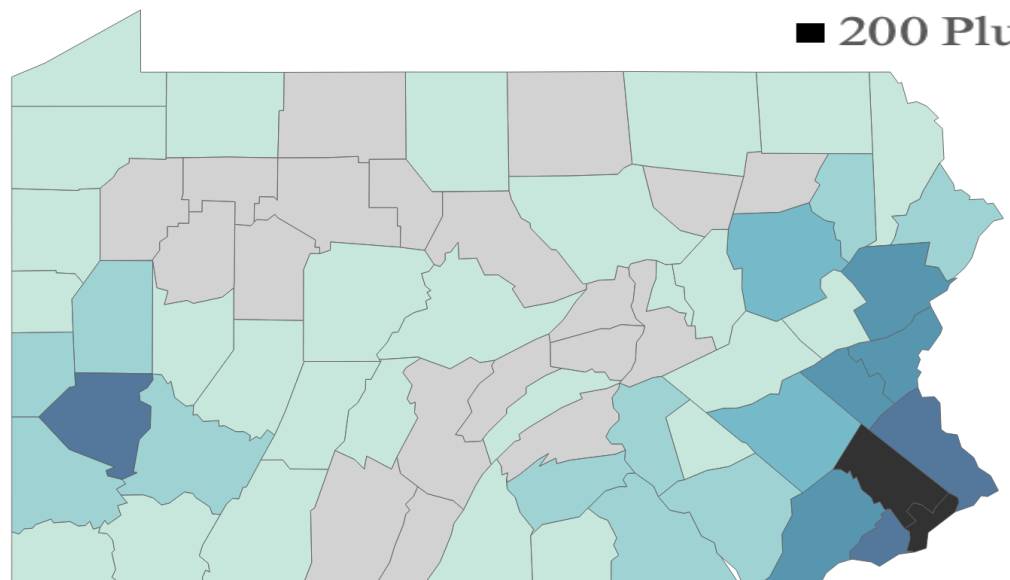


Figure 1 Confirmed Cases by County 3/26/2020

# Aging in the Keystone State

The median age of PA residents is just over the 40 (i.e. Roughly half of the population is older than 40). In all counties, except for Centre (29.8%) and Philadelphia (30.5%), residents aged 50 or older comprise at least one third of the county's population. That is, 4,889,280 residents of Pennsylvania are 50 years of age or older. And, although the CDC have focused on 65 years of age and older as being high risk, they have also reported that in a small initial sample of 508 patients hospitalized in the U.S. 17% were 55 to 64 years old and another 18% were 45 to 54 (CDC 2020). Thus, it may be necessary to expand the age groups which we consider "high risk." Moreover, when we look specifically at county populations aged 60 or older throughout the state we see that these numbers are still quite high, varying from 18.3% in Centre County to 36.1% in Sullivan County.

Table 1 displays the counties with the largest percent of the population aged 50 and older and the counties with the largest percent aged 60 and older. These are mostly the counties with the exception of Warren County with slightly more residents at the older end of the age spectrum and Susquehanna County with fewer.

Table 1 Top 5 Counties with Largest Elderly Population, PA, ACS 2013-2017

<b>Largest percent of Population 50+</b>	<b>Largest percent of Population 60+</b>
Potter (45.7%)	Warren (29.6%)
Wayne (46.5%)	Potter (29.9%)
Susquehanna (46.5%)	Wayne (29.9%)
Cameron (51.0%)	Cameron (34.2%)
Sullivan (54.5%)	Sullivan (36.1%)

## ICU Beds & Health Professional Shortages

Figure 2 displays the number of ICU beds per county. These figures are derived from a recent Kaiser Health News article which evaluated number of ICU beds each hospital reported in its most recent financial cost report (Fiscal Year 2018-2019), filed annually to the Centers for Medicare & Medicaid Services (Schulte et al. 2020). It is important to note that there may be some error in reporting among hospitals. There are 3,169 ICU beds across the state, but 11 counties (Cameron, Centre, Elk, Forest, Fulton, Greene, Juniata, Perry, Pike, Snyder, Sullivan) report having 0 ICU beds, 7 of which have no hospitals (Cameron, Juniata, Forest, Perry, Pike, Snyder, Sullivan). It is also important to note that 9 of these counties are classified as non-metropolitan. However, all are considered rural using the Center for Rural Pennsylvania's (CRP) Rural/Urban Classification.

Another important way to characterize the healthcare availability of counties is to consider which ones are designated as healthcare professional shortage areas (HPSA) by the Health Resources and Services Administration. Figure 3 displays counties designated as HSPAs. The majority of counties in Pennsylvania are designated as being a partial HPSA, meaning one or more parts of the county is a shortage area. Additionally, Cameron County is an HPSA in its entirety, which is problematic due to resident age in the county. Only five counties are not designated as even having a partial shortage of healthcare professionals: Berks, Bucks, Cumberland, Lehigh, and Montgomery.

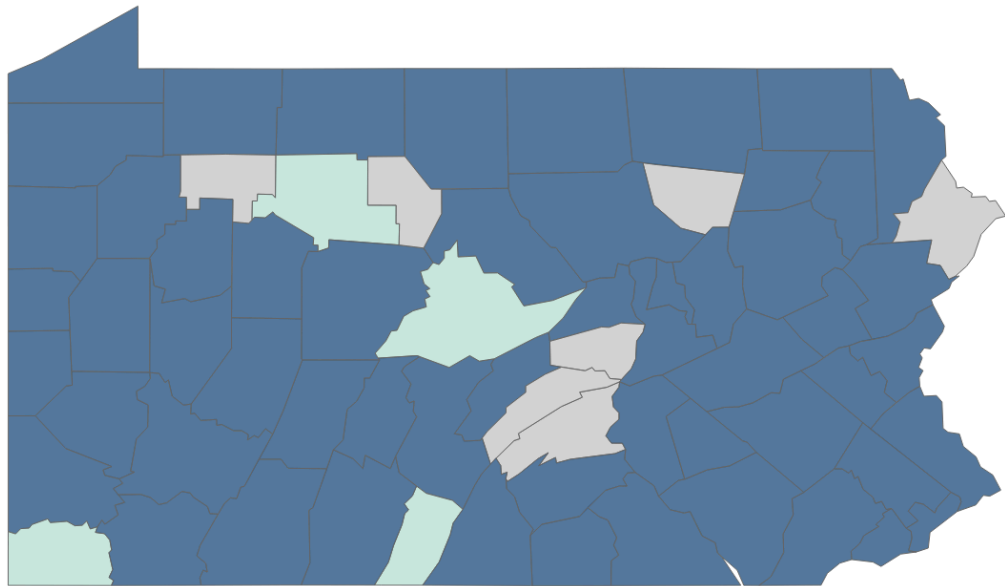


Figure 2 ICU Beds by County, PA, 2018-2019

- No hospitals
- Hospitals without ICU beds
- Hospitals with ICU beds

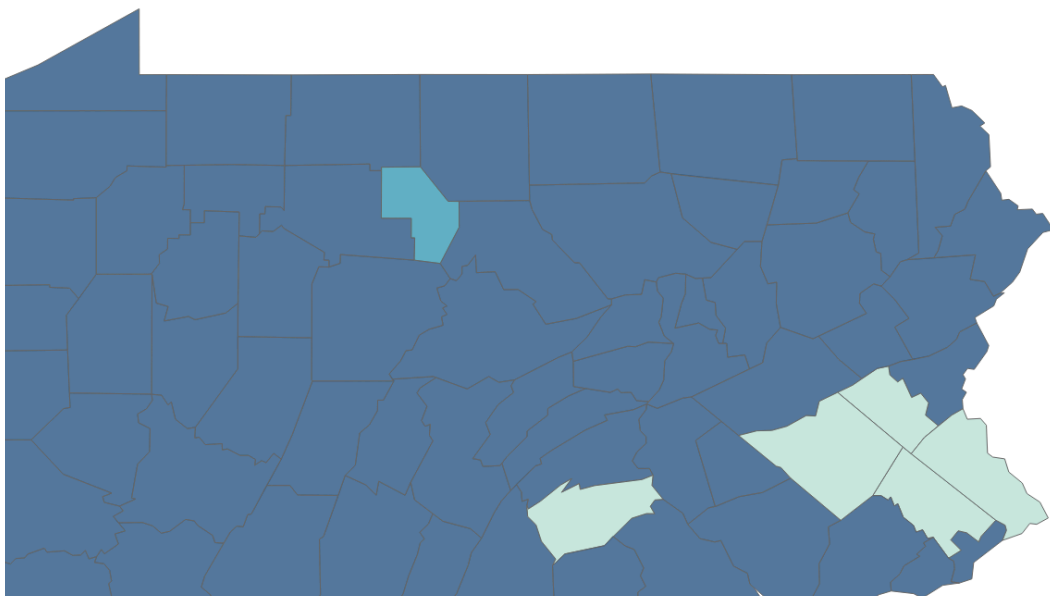


Figure 3 Healthcare Professional Shortage Areas by County, PA, 2019

- Not a shortage area
- Whole County a shortage area
- One or more parts designated shortage area

# ICU Beds & The Aging Population

Figure 4 displays the number of residents aged 60 years of age or older, per ICU bed in the county. This scale ranges from a low of 120 residents per bed in Montour County to a high of 4,151 residents per bed in Northumberland County. The counties that have the largest number of residents in this age category, per ICU bed (Adams, Bedford, Northumberland, Susquehanna) are also disproportionately non-metropolitan and rural according to the Center for Rural Pennsylvania. Figure 5 shows the increase in residents per ICU bed, when we increase the age group to individuals 50 and older. The range of individuals per ICU bed is now a low of 186 to a high of 6,591. With the inclusion of this age group four more counties are included in the group with the largest number of residents per bed; Beaver, Fayette, Jefferson, and Schuylkill. Only Beaver County is considered to be non-metropolitan by the Census Bureau and rural by the CRP.

- 1 - 700
- 701 - 1400
- 1401 - 2100
- 2101 - 2800
- 2801 - 3500
- 3501 Plus
- No ICU Beds

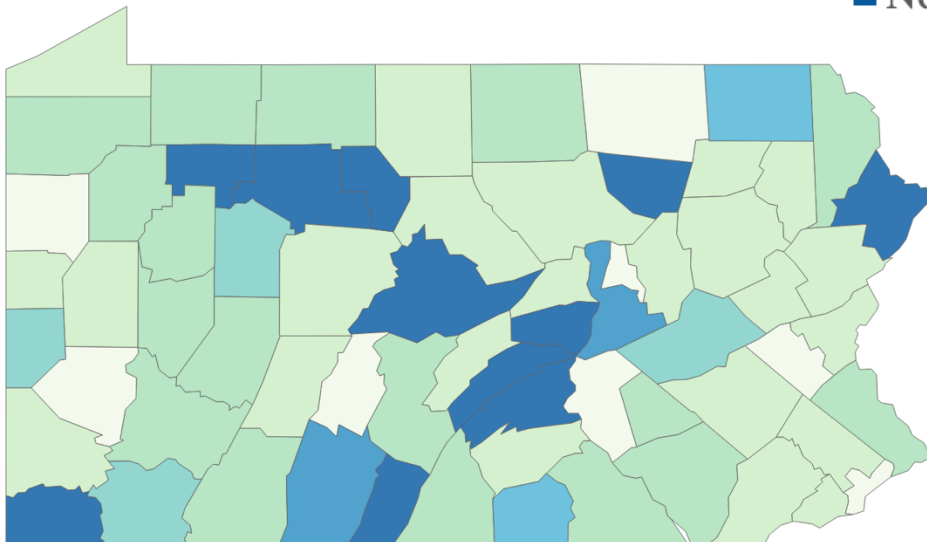


Figure 4 Residents 60+ per ICU Beds by County, PA, 2018-2019

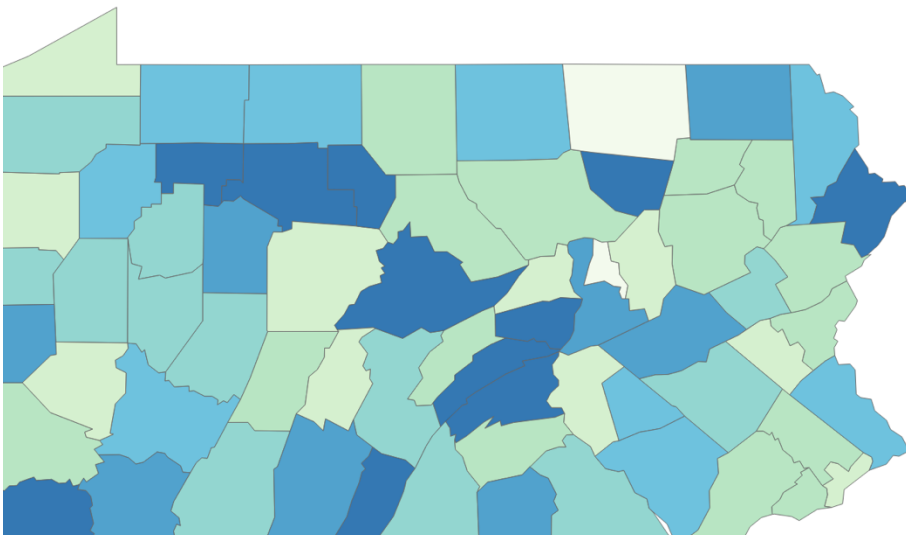


Figure 5 Residents 50+ per ICU Beds by County, PA, 2018-2019

# Policy Implications

As the spread of COVID19 continues throughout Pennsylvania it is likely that we will see an increase in demand medical services. The median age of Pennsylvania is one of the highest in the United States. Thus, many residents are at an increased risk for severity in illness and subsequently additional need for more intense medical intervention. The limited number of ICU beds available near this population is of concern. Moreover, older rural residents may be facing a double jeopardy of high risk and a lack of access. It is imperative that we recognize how our population age structure and the distribution of healthcare infrastructure increase vulnerability across communities during this unprecedented time.

## About the Network:

The Pennsylvania Population Network (PPN) is a visible program of demographic and health research, application, and outreach focusing on population characteristics and change in Pennsylvania, the United States and the world.

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# Data Table

County	Percent 50+	Percent 60+	ICU Beds	Residents 50+ Per ICU Beds	Residents 60+ Per Each ICU Bed	HPSA Code 2019
Adams	40.9	25.9	8	5195	3289	2
Allegheny	39.2	24.7	580	832	523	2
Armstrong	44.3	28.1	12	2463	1560	2
Beaver	43.6	27.2	20	3662	2290	2
Bedford	44.4	29.2	4	5427	3565	2
Berks	36.9	22.4	71	2159	1311	0
Blair	41.2	26.6	50	1027	665	2
Bradford	42.7	27.1	42	626	397	2
Bucks	40.7	24.2	90	2835	1687	0
Butler	40.1	24.1	35	2130	1281	2
Cambria	43.7	28.9	30	1979	1307	2
Cameron	51.0	34.2	0	null	null	1
Carbon	43.5	26.9	13	2139	1326	2
Centre	29.8	18.3	0	null	null	2
Chester	36.5	21.3	93	2022	1176	2
Clarion	39.7	25.4	7	2197	1404	2
Clearfield	41.6	26.2	27	1240	782	2
Clinton	37.1	23.4	10	1459	920	2
Columbia	38.7	24.6	22	1173	744	2
Crawford	41.0	26.5	16	2224	1437	2
Cumberland	37.8	23.6	45	2065	1291	0
Dauphin	37.0	22.3	142	712	430	2
Delaware	36.3	22	100	2048	1238	2
Elk	45.0	28	0	null	null	2
Erie	37.2	22.8	88	1174	720	2
Fayette	42.5	27.3	15	3777	2420	2
Forest	37.6	26.7	0	null	null	2
Franklin	38.9	24.9	24	2482	1585	2
Fulton	42.2	26.8	0	null	null	2
Greene	39.5	24.4	0	null	null	2
Huntingdon	40.5	25.9	7	2644	1689	2
Indiana	38.5	24.4	12	2780	1760	2
Jefferson	42.1	27	5	3722	2392	2
Juniata	40.5	25.7	0	null	null	2
Lackawanna	40.2	25.9	51	1670	1076	2
Lancaster	36.4	22.9	64	3055	1916	2
Lawrence	43.5	28.3	18	2133	1389	2
Lebanon	38.9	24.9	18	2974	1904	2
Lehigh	36.1	22.2	143	911	560	0
Luzerne	40.5	25.9	71	1817	1162	2
Lycoming	39.4	24.9	32	1421	897	2
McKean	39.9	24.8	5	3361	2084	2
Mercer	42.5	27.4	45	1073	691	2

<b>County</b>	<b>Percent 50+</b>	<b>Percent 60+</b>	<b>ICU Beds</b>	<b>Residents 50+ Per ICU Beds</b>	<b>Residents 60+ Per Each ICU Bed</b>	<b>HPSA Code 2019</b>
Mifflin	41.4	27.1	10	1925	1260	2
Monroe	39.4	22.5	44	1498	855	2
Montgomery	38.1	23.2	215	1449	884	0
Montour	42.6	27.6	42	186	120	2
Northampton	39.3	24.7	64	1849	1161	2
Northumberland	42.5	26.8	6	6591	4151	2
Perry	40.0	24.6	0	null	null	2
Philadelphia	30.5	18.3	528	908	544	2
Pike	45.1	28.1	0	null	null	2
Potter	45.7	29.9	4	1949	1275	2
Schuylkill	41.6	26.7	16	3752	2406	2
Snyder	37.6	23.7	0	null	null	2
Somerset	44.2	28.4	14	2388	1536	2
Sullivan	54.5	36.1	0	null	null	2
Susquehanna	46.5	28.7	4	4854	2994	2
Tioga	42.6	27.3	6	2947	1894	2
Union	35.7	22.3	12	1342	838	2
Venango	45.0	28.8	8	2974	1907	2
Warren	45.4	29.6	6	3056	1991	2
Washington	42.3	26.7	50	1755	1109	2
Wayne	46.5	29.9	8	3003	1931	2
Westmoreland	45.0	29.1	51	3150	2035	2
Wyoming	42.2	26.2	6	1952	1212	2
York	37.7	22.5	60	2782	1656	2