Pennsylvania Population Network

COVID19 & The Commonwealth:

Vulnerable Populations in Pennsylvania: Health Risks & Factors

By Raeven Faye Chandler

Key Findings:

- Smoking, obesity, diabetes rates vary across the state

- Philadelphia County has second highest smoking rate in the state

- Rural counties have higher rates of smoking, obesity, and diabetes

- Rural counties may be at unique disadvantage due to health risks/status, age struture, and healthcare infrastructure

In addition to the warnings released by both the Centers for Disease Control and Prevention (CDC) and the PA Department of Health (PaDOH) concerning increased severity of COVID19 illness among the aging population, they have also highlighted concern for individuals of all ages who suffer from underlining medical conditions such as obesity, diabetes, and asthma, as well as those who are immunocompromised due to conditions like smoking, cancer treatment and being HIV/AIDS positive. Regardless of the presence of COVID19, two of the leading causes of preventable deaths and chronic illness in the United States are smoking and obesity (CDC 2014). Variation in prevalence of these two risk factors, across demographic groups, largely accounts for differences in mortality rates. In fact, Frisco, Van Hook, and Hummer (2019) find that elimination of obesity and smoking would significantly diminish life expectancy differences between black and white adults. Moreover, rural/urban disparities in obesity, smoking, and preventable death have also been documented (Befort, Nazir, Perry 2012; Garcia MC, Rossen LM, Bastian B, et al. 2019; Shan, Jump, and Lancet 2012). As these risk factors influence chronic illness and mortality alone, as well as potentially in conjunction with COVID19, it is important to know which communities in Pennsylvania are at highest risk.

Number of Confirmed Cases

As of April 7, 2020, the PaDOH reported a total of 14,559 confirmed cases throughout all counties in the state. This is an increase of 12,872 cases since our last brief on March 26, 2020. At this time, cases range from 1 confirmed (Cameron, Fulton, Jefferson, McKean, Sullivan, and Warren) to 4,012 confirmed in Philadelphia County. Just over 50% of confirmed cases are located in the Philadelphia-Camden-Wilmington Metropolitan Statistical Area, which includes Bucks, Chester, Delaware, Montgomery, and Philadelphia
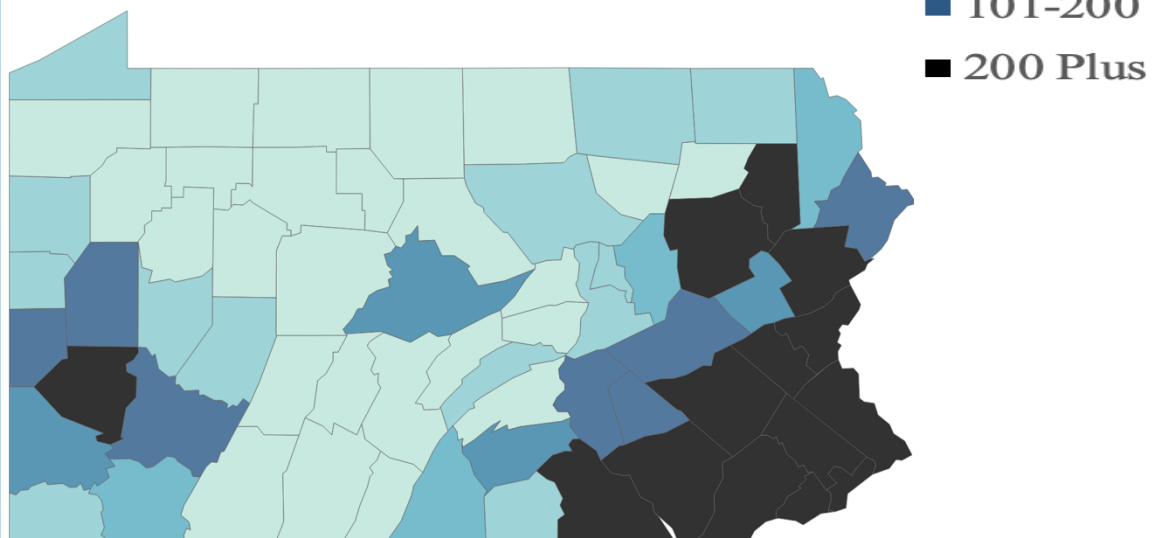
- 0
- 1–10
- 11–30
- 31–50
- 51–100
- 101–200
- 200 Plus

Figure 1 Confirmed Cases by County 4/7/2020

Smoking Rates

Using data from the 2017 Behavioral Risk Factor Surveillance System, the Robert Wood Johnson County Health Rankings find just under 1/5 of adults in PA (19%) report smoking every day or most days and have smoked at least 100 cigarettes in their lifetime (County Health Rankings 2020). This is slightly higher than the national average of 17%. The rates vary from a low of 13.19% in Montgomery County to a high of 21.43% in Fayette County. At this point the number of confirmed COVID19 cases in high smoking counties are minimal, except for Lackawanna and Philadelphia Counties. However, the remainder of the counties, aside from Eerie, are all considered rural by the Center for Rural Pennsylvania (CRP).

Table 1 Proportion Adult Smokers, by County PA, 2020

Highest Proportion Smokers
Clarion (19.41%)
Northumberland (19.48%)
Forest (19.52%)
Clearfield (19.79%)
Crawford (20.09%)
Eerie (20.30%)
Lackawanna (20.31%)
McKean (20.49%)
Philadelphia (20.61%)
Fayette (21.43%)

Figure 2 displays county level adult smoking rates. Philadelphia County is of particular concern having both the highest number of confirmed COVID19 cases and the second largest proportion of adult smokers. The suburban surrounding counties have much lower levels of smoking. The lower levels of smoking in Bucks, Chester, Delaware, and Montgomery Counties, may serve to limit the comparative severity in COVID19 related illness in these hard-afflicted counties. Concern persists for more rural areas where smoking is prevalent.

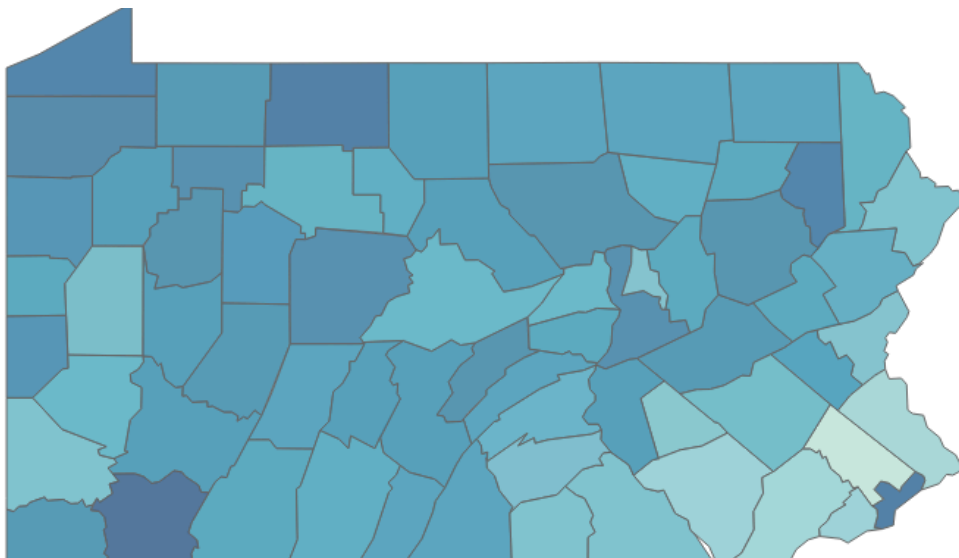### Percent Adult Smokers

13.195   21.427

Figure 2 Adult Smoking Rates by County, PA, 2020

Obesity & Diabetes

In addition to smoking, obesity and, related diseases like diabetes, impact life expectancy and may influence severity of COVID19 related illness. Pennsylvania has an obesity rate of 30.3%, which is slightly higher than the national average of 29%. Here again there is geographic diversity: The obesity rate in the state ranges from a low of 22.2% in Chester County to a high of 42.3% in Armstrong County. Table 2 displays the counties with the highest proportions of obese adults and adults with diabetes. The adult diabetes rate across Pennsylvania (10.6%) is comparable to the national average of roughly 10.5% (National Diabetes Statistics Report, 2020). But, this varies within the state from 7.2% in Perry County to 17.9% in Fulton County. Unsurprisingly, there is overlap here: Fayette, Venango, and Mifflin all experience a higher prevalence of both obesity and diabetes across the state. It is important to note that all of the counties listed on Table 2 are designated rural by CRP.

Table 2 Proportion Adult Obesity and Diabetes, by County PA, 2020

Highest Proportion Obese	Highest Proportion Diabetic
Crawford (37.1%)	Schulykill (13.9%)
Bradford (37.5%)	Fayette (14%)
Lycoming (38.1%)	Cambria (14.3%)
Somerset (38.2%)	Clarion (14.5%)
Fayette (39.7%)	Blair (14.6%)
Venango (39.9%)	Sullivan (15.1%)
Northumberland (40.2%)	Venango (15.9%)
Mifflin (40.5%)	Huntingdon (16.2%)
Clearfield (40.8%)	Mifflin (17.7%)
Armstrong (42.3%)	Fulton (17.9%)

Figures 3 and 4 display obesity and diabetes rates across Pennsylvania. Similar to smoking rates, counties with large proportions of obese residents and individuals who suffer from diabetes are not currently the counties most impacted by positive COVID19 cases. However, as we continue to see case numbers spread from the suburbs of Philadelphia, there is potential that we see increases in illness severity and the needs for increased medical attention due to underlining comorbidities. For instance, Berks County has seen COVID19 cases rise and has an obesity rate of 36.4%.

There is also overlap between obesity, diabetes and smoking, which is of particular concern for rural PA. Among counties with the highest levels of smoking, five are also high obesity (Northumberland, Clearfield, and Crawford), high diabetes (Clarion), or both (Fayette); all of which are rural. This is of particular concern, because rural counties often have limited abilities to address critical care needs. As of April 10, 2020, these five "high risk" counties have 39 ICU beds and 70 ventilators available (PaDOH Dashboard, 2020). Should case numbers and illness severity increase in the near future, this could become challenging for health professionals and county officials to address.
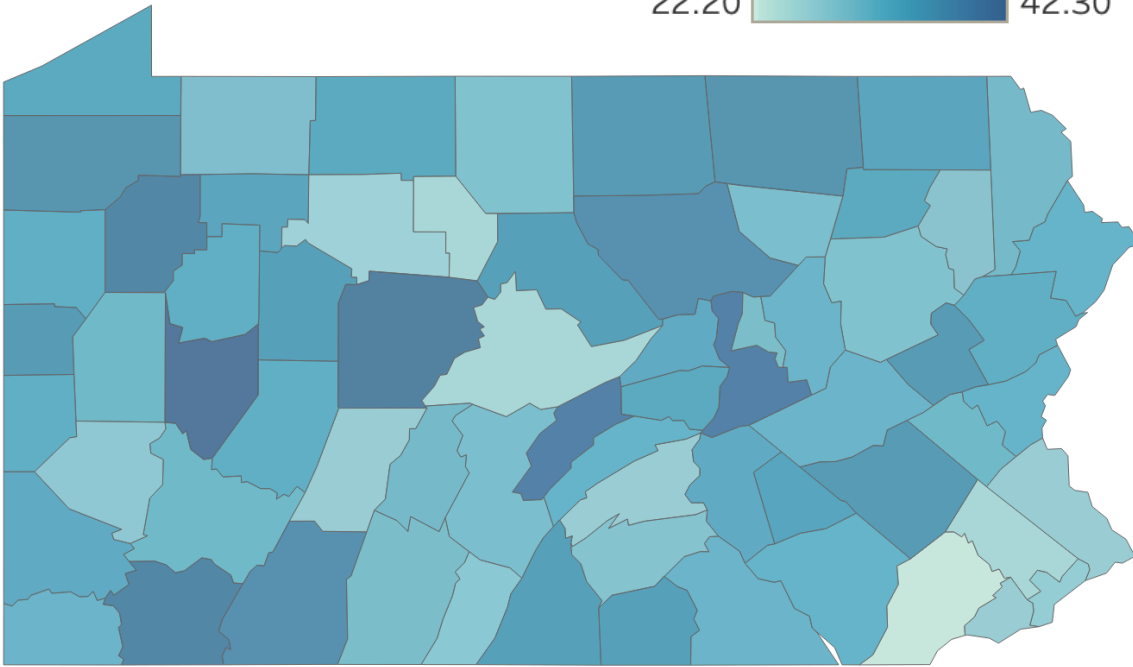
Percent Adults with Obesity

22.20 ▢ 42.30

Figure 3 Adult Obesity Rates by County, PA, 2020

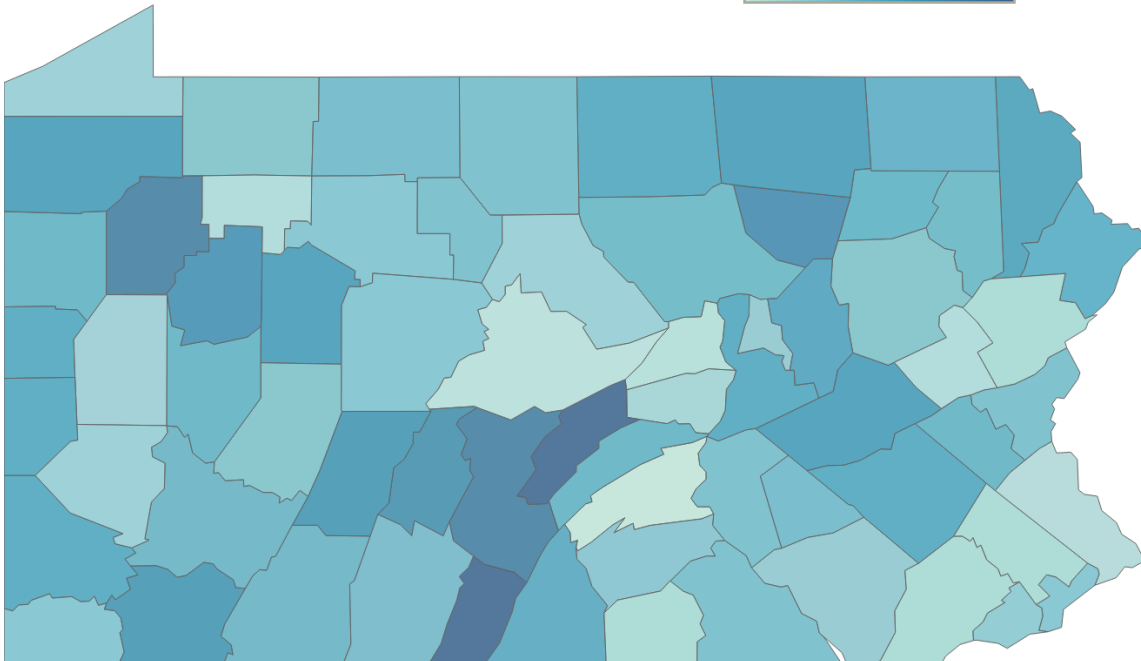Percent Adults with Diabetes

7.20 ▢ 17.90

Figure 4 Adult Diabetes Rates by County, PA, 2020

Policy Implications

As the number of COVID19 cases and subsequent medical interventions continues to rise throughout Pennsylvania and the United States, there is increased awareness of the ways in which underlying health risks are interacting to increase the severity of illness and the need for significant medical intervention. Of particular concern are rates of smoking and obesity, and obesity related illnesses like diabetes. The spread of COVID19 in Pennsylvania is already significant in vulnerable communities. The prevalence of smoking among adults in Philadelphia is of clear concern. In addition, overlapping risks and limited health care access may be compounding in some rural counties. There is reason to be concerned that a number of rural counties have high rates of smoking, obesity, and diabetes, and also have a limited number of available ICU beds and ventilators. And, as we've noted in previous briefs, these populations are also older on average – another characteristic of vulnerablity to COVID19. Thus, even though numbers of infection appear to be rising more slowly in these counties, local stakeholders and community members need to be aware of the potential increased risk for residents. With limited resources available to assist those with severe COVID19 related illness, even minimal increases in positive cases could be taxing to local infrastructure.

Acknowledgements

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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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