## Pennsylvania Population Network

ISSUE 08

#### .....

### Key Findings:

- Children in rural counties are more likely to lack internet and device access, potentiallt placing them at a greater educational disadvantage.
- Those who make less money are more likely to lack internet and device access which could be problematic for remote work
- Due to health conditions and aging rural residents may rely heavier on telemedicine but are also more likely to encounter issues with internet and device access.

### COVID19 & The Commonwealth:

Remote Communications: Technology & Internet Access By Andrew J. Ritchey, Emily F. McNamara, & Raeven Faye Chandler

The COVID19 pandemic has laid bare underlying vulnerabilities in the population that make mitigation strategies difficult to implement successfully. Internet access has become even more important in the recent period of social distancing as schools deliver education online, businesses send workers home to work and routine medical care is delivered remotely (Penn Medicine 2020). In short, the COVID19 pandemic has all but made it a requirement to have some form of internet connection to remain productive and healthy. Yet internet access is not universally available with considerable geographic disparities in access. This brief highlights Pennsylvania's geographic disparities in access and unmet need for internet.

# Number of Confirmed Cases

As of July 28, 2020, the PADOH reported a total of 109,384 cases throughout all counties in Pennsylvania. This is an increase of 22,778 cases since our last brief on June 30, 2020. At this time, cases range from 5 in Cameron County to 25,296 in Philadelphia County. Just slightly over 50% of confirmed cases (54,907) are still located in the Philadelphia-Camden-Wilmington Metropolitan Statistical Area, which includes Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties. However, at this time case growth is increasingly concentrated in the Southwestern region, and in more rural locations.





Figure 1 Confirmed Cases by County 7/28/2020

## **Device & Internet Access**

Of the over 5 million households in Pennsylvania, 20.1% of them have no internet subscription (S2801). Figure 2 demonstrates the geographic disparity in access by showing the percent of households without internet across Pennsylvania counties. Households in rural counties are less likely to have an internet service subscription. Forest, Mifflin, and Fulton counties have the largest percentage of households without an internet subscription. Over one third of households in Forest county, sparsely populated and with a large prison facility, are without internet (35.8 percent). These are some of the poorest counties in the state (S1902). Among urban counties, Philadelphia is noteworthy for its high poverty rate (25%) and low prevalence of internet subscriptions (25.9%). Suburban wealthier counties are better equipped with internet access. Montgomery, Bucks, and Chester counties fair the best in regards to percentage of households with internet subscription. In Montgomery county only 11.6% of households are without an internet subscription.



Figure 2: Percent without an Internet Subscription, by County, PA, 2018

Another important component of accessing services remotely is having an appropriate device. Approximately 13.5% of households in the Commonwealth report that they do not own any computing device, such as a laptop/desktop, smartphone, or tablet (S2801). Figure 3 shows a county level comparison of the percentage of households without a computer. There are several noticeable similarities when comparing Figures 2 and 3. Once again, Figure 3 shows poor and rural counties as those with the least amount of access to a computer. The top-3 counties with the highest percentage of households without a computer are Forest, Mifflin, and Bedford counties, with Forest once again the state's highest at 23.1%. Similarly, the counties with the highest proportions of individuals without internet access are Forest, Mifflin, and Fulton. Interestingly, Fulton and Bedford are neighboring counties. As with internet access shown in Figure 2, Montgomery, Chester, and Bucks Counties have the lowest percent of households without a computer, with Montgomery once again as the top county with a low percentage of 7.7. In sum, rural populations are the least likely to have the access and devices necessary to thrive in the pandemic period marked by increasing dependency on remotely delivered services.



Figure 3: Percent without a Computer, by county, PA, 2018

Rural counties, with the exception of Philadelphia county, also have the highest poverty rates across the Commonwealth. Philadelphia has the highest proportion of residents living below the poverty line at 24.9%, while Montgomery county has the lowest rate at 6.2%. Other rural counties with high poverty rates also have moderately high proportions of residents without computer or internet access, suggesting a link between the two. Centre county (18.4%), Fayette county (17.7%), Clinton county (17.4%), and Indiana county (16.8%) have the next highest poverty rates across the Commonwealth. It should be noted that the high poverty rate in Centre county may be due to the high proportion of student residents in the area, whose income is generally low and living arrangements may be subsidized by parents.

### **Education & Technology**

The lack of internet and computer access is not the result of the COVID19 pandemic, but rather this stratification between those with and without access has been amplified with our increased dependence on services delivered remotely in the virtual world. The classroom is one of many places affected by the pandemic, and internet and computer access is crucial to the success and educational wellbeing of students all across The Commonwealth. Pennsylvania has over 1.7 million students enrolled in pre-k to 12<sup>th</sup> grade (PA Department of Education 2019). The pandemic forced almost 1.7 million students to revert to some form of remote learning. The ability to do this successfully depends on the resources available and, as described above, access to these resources varies considerably across the Commonwealth.





Figure 4 demonstrates how the 1.7 million Pennsylvania students are dispersed by county. The proportion of children ages 5-17 within the population ranges from 6.2% in Forest county to 17.4% in Chester county (B09001). Not surprisingly counties near major urban centers, such as Philadelphia have the highest population of children 5-17 in households. But this also means there are hundreds of thousands of school age children in rural counties throughout Pennsylvania where many do not have access to the internet and/or computers. This put many children at a severe disadvantage when schools closed their physical locations. While there are means by which these disadvantaged children could obtain access, such as visiting a family member or friend, several other usual means have been limited by the COVID19 pandemic. Places such as libraries, schools, and public places that offer Wi-Fi have been closed for much of the pandemic, providing students with little options. This disparity creates an unfair disadvantage for those students lacking internet and/or computer access.

### **Remote Work**

Just as children were sent home for pandemic mitigation, many adults have been encouraged or required to work remotely during the past few months. As of May 2020, unemployment in Pennsylvania is approximately 13 percent (PA Monthly Workstats 2020). This is an increase over prior months but also reflects that a large majority of the Pennsylvania workforce is still employed. While some workers continued to report to the workplace (i.e. the 'essential' workers), many others transitioned to working from home. In fact, it is estimated that over 60 percent of U.S. workers have worked from home at some point during the COVID19 pandemic (Brenan, 2020). Of course, such work arrangements are not possible without reliable internet access or the ability to pay for an internet subscription exacerbating income disparities. For example, as shown in Table 2, low-income households are the least likely to have an internet subscription. This means that higher income households are also best positioned to handle the challenges posed by the COVID19 pandemic by maintaining employment even when mitigation policies restrict movement and gathering in a work space.

	\$24,999 dollars and below	\$25,000 to \$74,999 dollars	\$75,000 and more
Percent without an Internet Subscription	46.70%	23.40%	5.80%

Table 2: Percent without an Internet Subscription by Income in PA, 2018

## Telemedicine

Similar to the increase in remote learning and working since the start of the COVID19 pandemic, telemedicine is another area that has experienced great expansion. Traditional in-person health visits have been largely reduced to avoid unnecessary contact between patients and healthcare workers, and between non-COVID and COVID patients (Hirko et al., 2020). The increase in telemedicine requires that patients have access to a capable electronic device as well as access to high-speed internet. Figures 2 & 3 above demonstrate that this access is more difficult for rural areas and areas with concentrated poverty. Residents in these areas are least likely to have access to a computer and/or internet subscription in the home. Rural residents are also more likely to experience worse health and higher rates of obesity, diabetes, hypertension, and cigarette smoking (Hirko et al., 2020), suggesting a likely higher need for regular interactions with healthcare providers. Further exacerbating this vulnerability in rural areas is the age composition of Pennsylvania. Many rural counties have a high proportion of elderly (65 and over) residents. As seen in Table 3 below, all counties with the highest percentage of elderly residents are rural, with Sullivan county having the highest prevalence with 27% of individuals age 65 and over. The "youngest" county in the Commonwealth is York county where 11.2% of residents are age 65 and older. Older Pennsylvania residents are also over five times more likely to not have a computer in the home when compared to their younger counterparts (S2802), further hindering their access to telemedicine. Without the ability to complete telemedicine visits from home, individuals in rural counties will either go without treatment or will have to take the possibly unnecessary risk of visiting a healthcare provider in person.

5 5	
<b>County (Percent of Residents 65+)</b>	
Sullivan (27.0%)	
Cameron (26.2%)	
Potter (22.8)	
Susquehanna (22.2%)	
Forest (22.1%)	

Table 3: Percent of Elderly Residents. PA. 201	Percent of Elderly Residents. PA	. PA. 201
--	----------------------------------	-----------

## **Policy Implications**

The COVID19 pandemic has exposed the lack of internet and device access across the Commonwealth. With an increase in education, health care and work activities performed remotely, the need for access is becoming universal - an issue that affects nearly every Pennsylvanian. Moreover, there has been talk about several businesses staying remote, even after the pandemic may be over (Fung 2021). Businesses have argued that in large part they are just as profitable and the lack of having to pay for a building and the overhead costs associated with it is advantageous (Park 2020). While this likely will not affect everyone, it is indicative of where we are as a society, as well as the reliance on internet in our modern world. Increasing access to the internet and affordable equipment will increase residents' ability to interface with government services, schools and businesses. This has the potential to reduce disparities across geographic areas - rural communities and low-income areas- and could increase Pennsylvania's competitiveness in the global economy as employment, schooling and healthcare become even more disconnected from their physical location. The Pennsylvania legislature has pushed rural broadband access to the top of their agenda (Prose 2020), and it is something they must act on.

## Acknowledgements

The Pennsylvania Population Network and all associated research is made possible by a Penn State strategic initiative seed grant funded by the Office of the Executive Vice President and Provost.



Part of the Social Science Research Institute at Penn State

#### References:

American Community Survey. 5 Year Estimates. 2014-2018.

Brenan, Megan (2020). U.S. Workers Discovering Affinity for Remote Work. Gallup.

Hirko, K. A., Kerver, J. M., Ford, S., Szafranski, C., Beckett, J., Kitchen, C., & Wendling, A. L. (2020). Telehealth in Response to the Covid-19 Pandemic: Implications for Rural Health Disparities. *Journal of the American Medical Informatics Association*.

PA Department of Education.

https://www.education.pa.gov/DataAndReporting/Enrollment/Pages/PublicSchEnrReports.aspx

PaDOH Dashboard. 2020. https://www.arcgis.com/apps/opsdashboard/index.html#/85054b06472e4208b02285b8557f24cf

PA Monthly Workstats (2020). *Pennsylvania Department of Labor and Industry*. https://www.workstats.dli.pa.gov/Documents/PAMW/PAMW.pdf

Park, Katie (2020). <u>Coronavirus telework is creating opportunities to expand the workforce</u>. *The Philadelphia Inquirer*.

Penn Medicine (2020). Telemedicine During COVID-19: How to make the most of your Virtual Visit. *Penn Medicine*.

Prose, J.D. (2020). COVID-19 pandemic pushes rural broadband access to top of Pa. Legislative agenda. *York Daily Record*.

#### 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.

#### Pennsylvania Population Network

The Pennsylvania State University

Raeven Faye Chandler, Ph.D. Director 716 Oswald Tower

University Park, PA 16802

814-863-6332