

Extending health care access via telemedicine in public libraries

Pamela B. DeGuzman, PhD, RN, CNL (Associate Professor and Nurse Scientist)^{1,2}, Jennifer L. Garth, BA (Research Assistant)³, Kamy Sanjay, BA (Research Assistant)³, & Rebekah M. Compton, DNP, FNP (Director of Ambulatory Quality Improvement)⁴

ABSTRACT

Background: Despite the potential for telemedicine in public libraries to expand health care access to those living a long distance from care and in broadband poor areas, there are few libraries that collaborate with providers to extend access.

Purpose: To explore licensed health care providers' perspectives on telemedicine in public libraries as a method of improving equitable access to care for populations lacking the ability to connect to telemedicine from home.

Methods: We used a two-phase explanatory sequential mixed methods design with a quantitative strand followed by a qualitative strand. Surveys were analyzed descriptively. Interviews were analyzed thematically using descriptive content analysis.

Results: Of the 50 survey respondents, 13 were physicians and 36 were nurse practitioners (NPs); 12 NPs were interviewed. NPs were overwhelmingly supportive of telemedicine in public libraries, describing how connecting at-risk populations to a video visit (VV) allowed for a more thorough and accurate assessment than a phone call. Although several NPs were concerned with privacy, others considered a library to be more private than the home. Interviews revealed how chronic illness management may be the ideal visit type for public library-based telemedicine.

Conclusions: Given the importance of expanding access sites for telemedicine, NPs should consider partnering with libraries in their catchment areas where broadband access is sparse and patients must travel long distances to care.

Implications: Managing chronic illnesses using telemedicine in public libraries may be an important approach toward reducing health disparities in populations who live in long distances from care and do not have home-based internet access.

Keywords: Access to care; rural populations; telemedicine.

Journal of the American Association of Nurse Practitioners 35 (2023) 208–215, © 2022 American Association of Nurse Practitioners

DOI# 10.1097/JXX.0000000000000819

Introduction

Limitations in broadband connectivity in the United States have stifled the ability for residents of many communities to connect to their health care providers

over a telemedicine video visit (VV) (DeGuzman, Jain, & Loureiro, 2022). For example, when providers switched to telemedicine visits during the coronavirus pandemic of 2019 (COVID-19), patients without broadband internet access were unable to participate in a VV from home (Chu et al., 2021). Although this inequity is most apparent in rural areas, urban residents can also have difficulty connecting to telemedicine (DeGuzman, Jain, Aziz, et al., 2022). Lack of computer equipment and digital literacy (which typically accompanies poor digital access) further limits telemedicine use (Ali, 2020; LaRose et al., 2007; Martin, 2021; Whitacre et al., 2017). As such, lack of broadband access exacerbates an already inequitable situation in which those who experience difficulty traveling to receive care (i.e., rural populations, those lacking transportation) cannot participate in a VV (Chan

¹University of Virginia School of Nursing, Charlottesville, Virginia, ²UVA Health, Charlottesville, Virginia, ³University of Virginia College of Arts and Sciences, Charlottesville, Virginia, ⁴Department of Family Medicine, University of Virginia School of Medicine, Charlottesville, Virginia

Correspondence: Pamela B. DeGuzman, PhD, RN, UVA Health, PO Box 800788, Charlottesville, Virginia 22908. Tel: 434-833-0159; E-mail: prb7y@uvahealth.org

Supplemental digital content is available for this article. Direct URL citations appear in the printed text and are provided in the HTML and PDF versions of this article on the journal's Web site (www.jaanp.com).

Received: 2 October 2022; **revised:** 7 November 2022; **accepted:** 11 November 2022

et al., 2006; MacKinney et al., 2014). Until broadband is broadly and affordably available across the United States, solutions are needed to ensure equitable access to care.

During COVID-19, a promising solution emerged: A few public libraries began offering spaces for residents to connect to a telemedicine VV (Ewen, 2021; New York StateWide Senior Action Council, 2020; Pottsville Area Library, 2020; Quinn, 2021). The benefits of public libraries providing space for VVs are multifold. Not only can community members access high-speed internet with assistance from technologically savvy librarians but also research evaluating rural librarians perspectives on telemedicine conducted during the pandemic highlighted how many small and remote libraries never closed or opened quickly after the initial lockdown, demonstrating how libraries can be instrumental in keeping people connected during a public health crisis (DeGuzman, Aboali, et al., 2022). Furthermore, researchers evaluating connecting rural cancer survivors to a nurse-led psychosocial intervention through telehealth found that in rural and remote areas, the travel time to a library can be far shorter than to a regionally based specialty care provider (DeGuzman et al., 2020) As such, public libraries are emerging as an important link in supporting equitable health access.

Although most librarians favor the idea of telemedicine in public libraries (TIPL), research conducted during the first year of the pandemic found that across the United States, few adopted this type of programming (DeGuzman, Aboali, et al., 2022). However, research conducted with the early adopters of TIPL found a hallmark of successful programs to be strong library-provider partnerships. As such, provider support may be critical to adoption because patients are often directed to these programs through a provider rather than through traditional community-based library marketing channels (DeGuzman, Jain, Aziz, et al., 2022). However, to date, there has been no research evaluating how providers view TIPL and whether they recognize how these programs help reduce disparities. Thus, the purpose of this research was to explore providers' perspectives on TIPL to improve equitable access to care for underserved populations.

Methods

We used a two-phase, explanatory, sequential, mixed methods design with a quantitative strand followed by a qualitative strand. This design may be used when researchers wish to explore why quantitative results occurred when no explanatory theory or framework is available (Creswell & Clark, 2017). Moreover, when conducting implementation research to evaluate barriers to adoption of health-promoting technologies and services, Glasgow and colleagues suggested conducting interviews and distributing surveys to nonparticipants of the

technology (Glasgow et al., 1999). Accordingly, we first collected quantitative data using closed-ended survey questions and followed this with qualitative interviews intended to provide a deeper explanation of survey responses. We used a combination of purposive and snowball sampling designs to recruit a broad sample of providers to participate. The research was approved by the University of Virginia Institutional Review Board for Social and Behavioral Research. All data were collected between May and August 2021.

Quantitative methods

We recruited providers including physicians, nurse practitioners (NPs), physician assistants, nurse midwives, and clinical nurse specialists through multiple channels to gain broad participation. We emailed the survey to four statewide provider groups and sent survey links by means of social media through statewide nursing and medical agencies and encouraged sharing of the survey through snowball sampling. Of note, although we primarily recruited through health care provider agencies and associations in one US state, any provider from any practice setting or geographical location was eligible to participate.

The quantitative survey was designed by the authors and included information about the research study and eight questions. The first four were about the provider's practice (health provider role, practice environment, care delivery model, and patient population), and the last four were about their perspectives on TIPL, specifically support for and concerns with such programs, what types of services they envisioned TIPL being appropriate for, and any perceived barriers to TIPL. A copy of the survey and permission to use it is available by request from the corresponding author. All data were analyzed descriptively. Inferential analysis using chi-square was conducted to determine differences between survey responses by categories with sufficient group sizes.

Qualitative methods

Eligibility for the qualitative strand was the same. All who completed the survey were recruited to participate in the qualitative portion: At the end of the survey, participants were asked to provide follow-up information if they were interested in participating in an in-depth interview. In addition, at the end of each interview, participants were asked to share information about the study with colleagues. All participants who provided follow-up contact information or who contacted the principal investigator through email were sent a link to the survey and scheduled for an interview.

The interview guide (**Figure 1**) was designed to illuminate findings of the quantitative strand with more precise data. First, we asked questions about the provider's practice area and community served. Next, we

Thank you for speaking with us today. I'm going to start with a few background questions about you and your health care practice, and then ask you about your own perspectives.

1. First, I'd like to hear about your practice.
 - a. What is your role?
 - b. What types of patients do you see [probe: ages, diseases treated]
 - c. How many providers work in your practice?
 - d. Is it part of a larger system, or a stand-alone practice?
2. I'm going to ask you about the community that your practice is located in:
 - a. Is it in an urban, suburban, or rural community?
 - b. What is the major industry in that community?
 - c. What types of providers, including specialists work in the community?
3. Now I'm going to ask you about the communities that your patients come from:
 - a. Do patients live close to the practice, or come from far away?
 - b. In your experience, which patients are willing/able to connect to a telemedicine visit? Which ones seem less able or willing?
 - c. What effect has the COVID pandemic had on your ability to treat patients who are unable to connect to telemedicine

As you know, the purpose of our research is to understand if and how members of a community can use the space and possibly the equipment in a library to connect to a healthcare provider using telemedicine. Specifically with this study, we are asking health care providers for their perspectives on this practice.

1. Have you had or heard of any experience with patrons using telemedicine in a public library? (if yes, probe: more about their experience; what do they know/heard about it; what challenges were encountered)
2. What benefits can you see to this practice?
3. What concerns you? [probe: privacy, scheduling, logistical coordination, no-shows]
4. In your practice environment, if you wanted to offer this type of service, what information or resources do you think you would need?

Figure 1. Semistructured interview guide.

investigated items revealed through the survey as important to respondents, specifically to uncover drivers of support for TIPL and to gain a clearer understanding of concerns and perceived barriers.

All interviews were recorded using Zoom videoconferencing (Zoom Videoconferencing Inc.; v.5.10.4). Verbal consent was obtained before recording. Interviews were transcribed verbatim. Once transcriptions were checked for accuracy, the original interviews were deleted. Identifying information was removed, and transcriptions were uploaded into Dedoose (v.9.0.17, Los Angeles, CA: Socio-Cultural Research Consultants, LLC).

We used an inductive, descriptive, qualitative approach to analyze data and reach saturation (Sandelowski, 2000) as guided by the study aim. One researcher (J.G.) read through the entire data set multiple times to familiarize themselves with the data before coding, then

coded all data. A second researcher (P.D.) reviewed the codes and the two discussed and resolved coding discrepancies collaboratively. Codes were collapsed into broader categories, and related categories into themes, which were validated by three members of the research team (P.D., J.G., and K.S). After reaching data saturation, we used the final three interviews to verify findings (Creswell, 1998).

Results

Quantitative result

Fifty providers completed the survey. **Table 1** contains a full description of participants' practice characteristics. Most participants were NPs (36 of 50; 72%), practiced in an outpatient environment (46 of 50; 92%), worked in primary care (36 of 51; 72%), and cared for adult patients (29 of 50; 58%).

Table 1. Participant Practice Characteristics (n = 50)

Characteristic	N	%
Provider type		
Nurse practitioner	36	72.0
Physician	13	26.0
Clinical nurse specialist	1	2.0
Practice environment		
Outpatient	46	92.0
Inpatient	2	4.0
Mixed	2	4.0
Care delivery model		
Primary care	36	72.0
Specialty care	12	24.0
Urgent care	1	2.0
Hospice	1	2.0
Patient population		
Adult	29	58.0
All ages	17	34.0
Pediatric	4	8.0

Appendix 1, Supplemental Digital Content 1, <http://links.lww.com/JAANP/A183> contains responses to the survey questions for all respondents, categorized by provider type. Eighty-two percent of providers reported being supportive of TIPL. The largest concerns with TIPL were privacy and security (68%) and patient familiarity with technology (44%). Providers were most favorable of conducting health education using TIPL (52%), followed by health promotion/disease prevention (48%) and chronic illness management (48%). Few providers identified barriers to TIPL; the most common was the lack of internet access (20%) followed by inaccurate diagnoses (16%).

Because most providers (98%) were either physicians or NPs, inferential analysis was conducted to determine differences between these two groups. Physicians had greater concerns about privacy and security in the library (92.3% vs 58.3%, $p = .025$), patient familiarity with technology (76.9% vs 33.3%, $p = .007$), and connectivity issues in the library (53.8% vs 19.4%, $p = .019$). Physicians were more supportive of providing telemedicine in the library than NPs for health education (92.3% vs 33.3%, $p < .001$), health promotion/disease prevention (92.3% vs 30.6%, $p < .001$), chronic illness management (92.3% vs 27.8%, $p < .001$), and health screening (84.6% vs 19.4%, $p < .001$). There were no differences in the barriers identified to TIPL.

Appendix 2, Supplemental Digital Content 1, <http://links.lww.com/JAANP/A184> contains responses to the survey questions categorized by care delivery model (i.e., primary care, specialty care, hospice, and urgent care). Due to low numbers of hospice and urgent care providers ($n = 1$ each, respectively), inferential statistics were calculated between primary and specialty care. There were no significant differences between the groups.

Qualitative results

Twelve providers agreed to an interview. All 12 were NPs. To preserve anonymity and aid analysis, NPs are identified in the results as working in primary ($n = 7$), specialty ($n = 4$), or psychiatric ($n = 1$) care. Three worked in a rural setting, five in a suburban setting, and four in an urban setting. Two worked primarily with pediatric patients, 5 with all ages, and five primarily with adults. Four themes emerged from the qualitative data: *improving access for multiple at-risk populations, privacy concerns, chronic illness management as an ideal public library telemedicine visit, and providers' reliance on visual aspects of telemedicine.*

Theme 1: improving access for multiple at-risk populations

Providers identified populations that could benefit from the improved access that TIPL setting offers, including those with long travel distances, transportation barriers, limited internet access, and limited digital skills; the uninsured and underinsured; and caregivers of young children. Rural patients and the underinsured were among those often noted as having long travel distances and limited transportation options. A primary care NP working in a suburban community commented on the long driving time for their rural patients: "Round trip is probably four hours." A rural primary care NP who often referred their clientele to a regional academic center for specialty care noted the travel difficulties their patients experienced, leading to missed appointments: "[Planning for the trip begins] five days ahead to get set up with transport ...[then] you're looking at the transport not showing up missing the specialty consultation that they've been waiting months for." NPs serving a suburban and urban clientele reported fewer issues with transportation to appointments. One primary care NP stated, "Most of our patients have ... independent, easy access to their own personal transportation." However, transportation difficulties were not exclusive to rural areas. One primary care NP working in a suburban area who treated a predominantly uninsured and underinsured population described most patients as having to take "two and three buses" to attend their appointments.

NPs serving rural populations recognized how libraries could help their clientele lacking home-based

broadband internet connect to a telemedicine. Several primary care NP described the difficulties rural patients had connecting to the internet for telemedicine visits. According to one, "If you do not live in a neighborhood with Comcast or FiOS, you only have satellite ... the connection is very poor. And then if people are dependent on their phones, for mobile access to internet, the connections did not [always] work." Another primary care NP reported the same experience with patients attempting to connect: "We have had some access issues of patients that are in rural, or more remote locations ... actually connecting to the internet [but then] having connection issues." A specialty care NP with a surgical practice envisioned how their rural patients could use TIPL for postoperative visits, stating, "if they don't have Internet at their rural house ... [they] can drive 10 minutes to the library or five minutes and still get that that video call in."

An NP working in an urban setting stated that libraries may be useful for patients who "are unsure of [how to use] their phone or their computer" because libraries can help them understand how to use the technology. A primary care NP commented on how the library could help bridge the gap to support telemedicine for the digitally underserved: "[The] library is genius because of the internet connection." Similarly, a specialty care NP stated, "being able to use, like, newer technology at the library, equipment, internet is I think the big [benefit]."

NPs identified how caregivers of young children could benefit from telemedicine visits in the library. One primary care NP serving a rural population stated, "a lot of [patients] want to continue seeing us over telehealth ... because they still have kids [at home]." A specialty care NP identified that parents and caregivers lacking supervision for their children could benefit from a place where children have access to activities while the parent is engaged in the visit: "I've been [the provider] on visits before where there's five kids bouncing around in the background, and I'm trying to teach things [to the parent or caregiver] ... And so you might be better even just to be able to put your other two kids in the reading circle or whatever, right?"

Theme 2: privacy concerns

NPs across multiple practice types and settings expressed concerns about the ability for libraries to provide adequate privacy for a health visit. One primary care NP serving a rural population stated that they would want "assurance that patients know that nobody in the library can hear what they're saying." They further described how patients might also have similar concerns. "You might see some hesitation unless there is an established channel.... It would need to be a space that for HIPAA regulations could be pretty confined." A psychiatric NP working in addictions medicine in a suburban community described similar but specialty-specific concerns:

"There's another layer of privacy on top of psychiatry, which is super private anyway. ... The ability to openly communicate is concerning. It's already concerning [depending on] who's in the background of their home Add strangers [in the library] ... that's very concerning to me." A specialty care NP working in an urban setting doubted that their patients would trust the library as a health care setting: "Some of my patients are very private ... would have nothing, want nothing to do with a public library."

Despite these concerns, two NPs viewed the library as a place where privacy could be *enhanced* compared with a home visit. A specialty care NP working in an urban setting stated, "A public library would actually probably be more secure than what I've seen. Even within the home, there are people coming and going and interruptions and things." They further described how libraries accommodate privacy: "They have these little rooms that you can reserve Something like that would be an awesome thing to offer." Another NP with knowledge of library spaces commented on the ability for patrons to use a private room stated, "A lot of libraries have community rooms, you know, and that's the ideal place to do some of this."

Theme 3: chronic illness management as ideal public library telemedicine visits

Most visits that providers described as appropriate for TIPL involved chronic illness management. Providers described the usefulness of telemedicine for management and education visits, if visits did not require physical palpation. A pediatric primary care NP described how, as their office began to open up for more in-person visits after the initial shut down of COVID-19, they planned to keep many follow-up appointments online for particular groups of patients, including "every three to six months check ins [for patients taking] anxiety medication or depression, or [those] managing behavioral concerns, ADHD ... We can follow up with them more frequently and regularly and easier [using telemedicine]." Another primary care NP provider commented on the use of telemedicine for their psychiatric visits: "I find that televisits [sic] lend well to psych follow ups ... 'everything's fine I just need my medication refills.' This is just a routine follow up." Another pediatric primary care NP described the usefulness of telemedicine for managing certain illnesses, including "asthma management, depression management ... a lot of those things you can do over a televisit that the population really needs, and you know, they don't ever come back until they need that next refill in three months or a year."

NPs discussed how libraries could be enhance a predominantly education-based visit. A specialty care NP noted the benefit of conducting an education visit in the library before a scheduled procedure because of the

potential to disseminate educational material electronically to patients. “If I could fax something, or email something to be printed off at the library, that might be good, because [I give patients] a lot of educational material.” Furthermore, a primary care NP serving a rural population described how patients could take advantage of libraries’ place as source of educational information for community members lacking internet access: “It’s a place where patients are getting resources already. They’re often going and looking up things if they don’t have a computer.”

NPs noted some visits that would not be conducive to either telemedicine or the public library setting, either due to limited assessment when relying on remote care or the need for high levels of privacy. A primary care NP stated, “acute visits are absolutely terrible. Anything ... respiratory-related or skin-related [can lead] to deviation from the standard of care.” A specialty care NP serving a pediatric population explained, “There are some exam portions that you might do at home that you might not do in a library.”

Theme 4: providers’ reliance on visual aspects of telemedicine

Providers in our study discussed the benefits of the visual aspect of a telemedicine visit compared with a phone call for assessment. A specialty care NP commented that being able to “see the person is invaluable.” One provider stated a preference for video rather than relying on the patient’s description: “I always find that even talking on the phone, you kind of get half of the picture. But then when I can get that video, I can see the patient, I can see that they’re not in distress, they’re sitting there, they don’t look like they’re wincing in pain.” Similarly, a primary care NP serving a rural community described how a VV allowed them to assess the environment, stating “[I can] actually see what’s going on in their homes. I can see how they look in their own environment, ... with their overall being, a little bit better than when they take a shower and come and see me in the office and look all so well.”

Additional benefits of VV identified by NPs were the enhanced ability to develop a therapeutic relationship and diagnose patients appropriately. A psychiatric NP described the ability to see the patient’s facial expressions as a critical visit component. “[When] you’re working in psychiatry ... in that small setting of just needing to talk to somebody in the room and you can’t see facial expressions. That’s hard.” A primary care NP stated a preference for video visits because they felt it increased the ability to ensure an accurate diagnosis, noting, “patients do a lot of self-diagnoses with telephone calls.”

Discussion

Support for telemedicine in public libraries

More than 80% of all providers surveyed supported the idea of patients connecting to a telemedicine video visit

from a public library. Interviews indicated that support was driven chiefly by their experience with patients who regularly encountered barriers both connecting to a VV from home and travelling to appointments, both well-known barriers for those with lower incomes, the underinsured, and uninsured (DeGuzman et al., 2020; Syed et al., 2013; Whitacre et al., 2017). Of note, in the United States, those lacking home-based broadband internet are more likely to be poor, have lower education, are less likely to have health insurance, and more likely to be disabled and have a shorter life expectancy (Singh et al., 2020). Although little is yet known about patients who use TIPL, there is much evidence to suggest that libraries target health-related programming toward similarly vulnerable populations (Rubenstein, 2012). As such, expanding TIPL programs represents an important step toward equalizing access for those already struggling to maintain health.

Providers also suggested that they supported TIPL because of the benefit of visualizing the patient, compared with an audio-only visit. However, without alternative access points, many patients will be left with telephone as the only remote option, which our study suggest leads to a poorer quality visit, thus broadening the digital health divide. In the United States, computer ownership is lower among rural residents, older persons, disabled persons, and those with lower incomes and education (Martin, 2021). Although one can connect to a visit from a smartphone, 20% of those living in the rural United States do not own one, and only 72% of rural residents have home broadband (Pew Research Center, 2019). In many rural communities, libraries are the only accessible place where residents can connect to broadband internet (Hughes & Boss, 2021). Furthermore, rural residents are less likely to have digital skills, and libraries offer the added benefit of technology-savvy librarians who can assist with navigating digital equipment platforms needed for telemedicine (Real & Rose, 2017).

Addressable concerns

Both qualitative and quantitative data indicated that ensuring privacy during a TIPL visit was the top concern among providers, followed by patients’ ability to use technology to connect to a visit. Providers may lack familiarity with the privacy and technology support available for telemedicine at modern public libraries, which include standalone soundproof kiosks, mobile libraries, white noise machines, and exclusive use of private meeting rooms (DeGuzman, Jain, Aziz, et al., 2022). Finally, it is important to note that not all NPs viewed privacy in the library as a concern. Two NPs stated that the library would be *more* private than patients’ homes. The potential for enhanced privacy is particularly relevant in situations where overheard communication may place a patient at risk from someone in their own home

(such as with someone who is subject to violence at home). In this case, using the internet to connect to a VV with a provider *outside* of the home, when unable to attend an in-person visit may increase both access and safety. Providers may be similarly unaware of other services offered at modern libraries that can enhance health and safety, such as social workers who are deployed throughout many public libraries (Wahler et al., 2020). A potential solution is for provider practice groups and health systems caring for underserved populations to consider integrating information from libraries in their service area when conducting community health assessments, and involving them as collaborative stakeholders in planning, so that library health programming can be disseminated among all relevant providers.

Implications for health care delivery, research, and policy

Providers who currently offer chronic illnesses management visits over telemedicine may find TIPL to be an ideal way to increase visit attendance for those patients who have difficulty both attending in-person appointments and streaming a telemedicine visit. In the United States, people who live in communities with lower internet access have significantly higher rates of mortality from cardiovascular disease, cancer, and diabetes (Singh et al., 2020). Offering TIPL as an alternative access point to this population has the potential to improve health and quality of life for the digitally underserved. No research has yet evaluated the impact of TIPL on patient health outcomes, but this is an important direction for future study (DeGuzman, Jain, & Loureiro, 2022). As programs continue to emerge, research is needed that will measure the impact on missed appointments, distance traveled, and population-specific health outcomes such as hemoglobin A1C for diabetics or adherence to cancer prevention behaviors for cancer survivors.

This is the first study to document reasons why a video visit may be superior to telephone calls for patient assessment, establishment of therapeutic communication, and diagnosis. This is an important finding in the current policy climate, due to the continued preponderance of telemedicine visits and the current debate over the breadth of reimbursement funding for telemedicine because insurance companies may soon cease reimbursing nonmental health providers for telephone visits, making improving access to VV that much more critical (Anthem Blue Cross Blue Shield, 2022). Regardless of funding current changes, research evaluating differences in quality of audio-only and audio-visual visits compared with in-person visits can help support efforts to identify opportunities to reduce access disparities going forward.

Limitations

This study was conducted with a limited recruitment and a small sample and may not represent all health

provider perspectives. Our survey was answered predominantly by NPs and physicians, and only NPs participated in the interviews, limiting generalizability across providers. Only providers from a few specialty areas were represented in the interviews, and given the potential for TIPL to impact specialized chronic illness management, future studies need to more robustly capture these providers. In addition, we did not gather data about the providers' geographic location (other than rurality), and our recruitment was primarily conducted through statewide groups or sample may be further limited to one geographic area of the United States. Overall, a larger, more representative study is needed to better identify support for and concerns with telemedicine programs in public libraries. Finally, although telemedicine familiarity has increased since COVID-19, participants may still have limited experience with its use.

Conclusions

Providing support for patients without broadband to connect to a telemedicine video visit from alternative locations is critical to reducing health disparities related to the digital divide. Few providers seem to be aware of how TIPL programs can improve access to a technologically supported, private health care visit in a public library. TIPL may be particularly appropriate for visits aimed at managing chronic diseases. Future research is needed to evaluate how TIPL impacts health care outcomes in specific patient populations with limited digital and health care access.

Authors' contributions: *Drs. DeGuzman and Compton designed the study. Ms. Garth and Sanjay collected data and performed analyses. Dr. DeGuzman provided oversight of study procedures and collaborated on analyses. All authors contributed to interpretation of findings and manuscript development, including writing, revisions, and approval of the final version.*

Competing interests: *The authors report no conflicts of interest.*

References

- Ali, C. (2020). The politics of good enough: Rural broadband and policy failure in the United States. *International Journal of Communication, 14*, 23.
- Anthem Blue Cross Blue Shield (2022). *Information from Anthem for Care Providers about COVID-19*. <https://providernews.anthem.com/georgia/article/information-from-anthem-for-care-providers-about-covid-19-4>.
- Chan, L., Hart, L. G., & Goodman, D. C. (2006). Geographic access to health care for rural Medicare beneficiaries. *The Journal of Rural Health, 22*(2), 140–146.
- Chu, C., Cram, P., Pang, A., Stamenova, V., Tadrous, M., & Bhatia, R. S. (2021). Rural telemedicine use before and during the COVID-19 pandemic: Repeated cross-sectional study. [*Journal of Medical Internet Research Electronic Resource*], *23*(4). <https://doi.org/10.2196/26960>.

- Creswell, J. (1998) *Data analysis and representation*. Qualitative Inquiry and Research Design
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
- DeGuzman, P. B., Aboali, S., Jain, N., Scicchitano, A., & Siegfried, Z. C. (2022). Improving equitable access to care via telemedicine in rural public libraries. *Public Health Nursing*, 39(2), 431–437.
- DeGuzman, P. B., Bernacchi, V., Cupp, C. A., Dunn, B., Ghamandi, B. J. F., Hinton, I. D., Jameson, M. J., Lewandowski, D. L., & Sheffield, C. (2020). Beyond broadband: Digital inclusion as a driver of inequities in access to rural cancer care. *Journal of Cancer Survivorship*, 14(5), 643–652. <https://doi.org/10.1007/s11764-020-00874-y>.
- DeGuzman, P. B., Jain, N., Aziz, H., & Martin, N. (2022). Telemedicine in public libraries: Innovation among early adopters. In Press at *Library Quarterly*.
- DeGuzman, P. B., Jain, N., & Loureiro, C. G. (2022b). Public libraries as partners in telemedicine delivery: A Review and research agenda. *Public Library Quarterly*, 41(3), 294–304. <https://doi.org/10.1080/01616846.2021.1877080>.
- Ewen, L. (2021). *Healthy Distance: Telemedicine Brings House Calls to Local Libraries*. American Libraries Magazine. <https://american-librariesmagazine.org/2021/05/03/healthy-distance-libraries-telemedicine/>.
- Glasgow, R. E., Vogt, T. M., & Boles, S. M. (1999). Evaluating the public health impact of health promotion interventions: The RE-AIM framework. *American Journal of Public Health*, 89(9), 1322–1327. <https://doi.org/10.2105/AJPH.89.9.1322>.
- Hughes, C., & Boss, S. (2021). How rural public libraries support local economic development in the mountain plains. *Public Library Quarterly*, 40(3), 258–281.
- LaRose, R., Gregg, J. L., Strover, S., Straubhaar, J., & Carpenter, S. (2007). Closing the rural broadband gap: Promoting adoption of the Internet in rural America. *Telecommunications Policy*, 31(6–7), 359–373. <https://doi.org/10.1016/j.telpol.2007.04.004>.
- MacKinney, A. C., Coburn, A. F., Lundblad, J. P., McBride, T. D., Mueller, K. J., & Watson, S. D. (2014). *Access to Rural Health Care: A Literature Review and New Synthesis*. Rural Policy Research Institute. <http://www.rupri.org/?library=access-to-rural-health-care-a-literature-review-and-new-synthesis-report-prepared-by-the-rupri-health-panel-august-2014>.
- Martin, M. (2021). *Computer and Internet Use in the United States: 2018 American Community Survey Reports*. York StateWide Senior Action Council, Inc. (2020). *Community Telehealth Access Sites*. (2019). *Mobile Fact Sheet*. Potttsboro Area Library. (2020). *Check Out Telehealth at Your Local Library*. <https://www.nysenior.org/telehealth-initiative/PewResearchCenter>.
- Quinn, H. (2021). *Delaware Libraries just launched 3 telehealth kiosks in Sussex County, with more to come*. Technically Media.
- Real, B., & Rose, R. N. (2017). *Rural libraries in the United States: Recent Strides, Future Possibilities, and Meeting Community Needs (Issue July)*. [http://www.ala.org/advocacy/sites/ala.org/advocacy/files/content/pdfs/Rural paper 07-31-2017.pdf](http://www.ala.org/advocacy/sites/ala.org/advocacy/files/content/pdfs/Rural%20paper%2007-31-2017.pdf).
- Rubenstein, E. (2012). From social hygiene to consumer health: Libraries, health information, and the American public from the late nineteenth century to the 1980s. *Library & Information History*, 28(3), 202–219. <https://doi.org/10.1179/1758348912z.00000000016>.
- Sandelowski, M. (2000). Whatever happened to qualitative description?. *Research in Nursing & Health*, 23(4), 334–340.
- Singh, G. K., Girmay, M., Allender, M., & Christine, R. T. (2020). Digital divide: Marked disparities in computer and broadband internet use and associated health inequalities in the United States. *International Journal of Translational Medical Research and Public Health*, 4(1), 64–79. <https://doi.org/10.21106/ijtmrph.148>.
- Syed, S. T., Gerber, B. S., & Sharp, L. K. (2013). Traveling towards disease: Transportation barriers to health care access. *Journal of Community Health*, 38, 976–993. <https://doi.org/10.1007/s10900-013-9681-1>.
- Wahler, E. A., Provence, M. A., Helling, J., & Williams, M. A. (2020). The changing role of libraries: How social workers can help. *Families in Society: The Journal of Contemporary Social Services*, 101(1), 34–43. <https://doi.org/10.1177/1044389419850707>.
- Whitacre, B. E., Wheeler, D., & Landgraf, C. (2017). What can the national broadband map tell us about the health care connectivity gap?. *Journal of Rural Health*, 33(3), 284–289. <https://doi.org/10.1111/jrh.12177>.

For more than 569 additional continuing education activities related to Advanced Practice Nursing topics, go to [NursingCenter.com/CE](https://www.nursingcenter.com/CE).

Instructions:

- Read the article on page 208.
- The test for this CE activity can be taken online at [www.NursingCenter.com/CE/JAANP](https://www.nursingcenter.com/CE/JAANP). Find the test under the article title.
- You will need to create a username and password and login to your personal CE Planner account before taking online tests. Your planner will keep track of all your Lippincott Professional Development online CE activities for you.
- There is only one correct answer for each question. A passing score for this test is 7 correct answers. If you pass, you can print your certificate of earned contact hours and access the answer key. If you fail, you have the option of taking the test again at no additional cost.
- For questions, contact Lippincott Professional Development: 1-800-787-8985.

Registration Deadline: March 1, 2024

Disclosure Statement: The authors and planners have disclosed that they have no financial relationships related to this article.

Provider Accreditation:

This activity is approved for 1.0 contact hour of continuing education by the American Association of Nurse Practitioners. Activity ID 23025963. This activity was planned in accordance with AANP CE Standards and Policies. This activity is also provider approved by the California Board of Registered Nursing, Provider Number CEP 11749 for 1.0 contact hour. Lippincott Professional Development is also an approved provider of continuing nursing education by the District of Columbia, Georgia, West Virginia, New Mexico, South Carolina, and Florida, CEBroker #50-1223. Your certificate is valid in all states.

Payment:

- The registration fee for this test is \$12.95. AANP members are eligible for a 50% discount. Visit the member-benefit section on AANP website (<https://aanp.org/membership/memberbenefits>) to obtain the discount code. Use the code when asked for payment during checkout.

DOI: 10.1097/JXX.0000000000000852