Disparities from bedside to "webside": barriers to achieving equity in telemedicine in obstetrics

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Given the urgency of the COVID-19 pandemic, telehealth was swiftly implemented in the United States and shifted from an optional to an essential modality of care. This was important in both maintaining continuity of care, especially for those with chronic illnesses, and in evaluating individuals presenting with illness or acute needs. One of the primary benefits of telemedicine is convenience; however, this is juxtaposed with the various downsides that result from a lack of physical appointments and accessible technology. Notably, there are large barriers to achieving equity for certain communities, of which the most apparent is the "digital divide" that results from a lack of adequate broadband infrastructure and lower technology literacy among members of certain communities and those in rural areas. Without attention to factors that can improve availability, uptake, and experience, disparities will increase with telemedicine. As this technology becomes common practice, it will be important to provide equal reimbursement for in-person and telehealth visits, center patient design and cultural competency in telemedicine programs, and improve broadband and technology access, ensuring that the highest-quality care is delivered to all patients.

Key words: digital divide, disparities, health equity, health policy, obstetrics, telemedicine

General considerations and history of telemedicine

Despite the recent surge in the use of telemedicine as a mode of care delivery, telemedicine has existed for decades as a means of providing care to those in rural areas. For example, it has been used previously for individuals unable to access care because of chronic conditions or disabilities.[1] The first instances of telemedicine date back to the 1900s with the use of the radio for medical consultations to provide remote medical care.[1] This progressed to teleradiology used to diagnose patients by transmitting radiographs through telephones across states.[1] Modern telemedicine, as it is known today, could be considered as first formulated by Thomas Bird, who used television and audiovisual systems that connected the emergency department at Massachusetts General Hospital to the Boston Logan Airport medical station, allowing him to examine patients from a distant location.[1] Given the urgency of the COVID-19 pandemic, telehealth was swiftly implemented in the United States and shifted from an optional to an essential modality of care. This was important to both maintain continuity of care, especially for those with chronic illnesses, and to evaluate individuals presenting with illness or acute needs. This rapid transition was made out of necessity; however, the acceptability and quality of remotely provided care are understudied.

Use of telemedicine in obstetrics

In obstetrics, telemedicine has been used to provide prenatal and postpartum care, genetic counseling, chronic disease management, and mental healthcare during pregnancy.[2] One of the primary benefits of telemedicine is convenience.[3] A telemedicine visit can save the patient's time and resources required to travel to an in-person appointment and wait to see a provider.[3] This may be especially beneficial for pregnant or postpartum individuals facing barriers to frequent in-person visits, such as employment, child care, or transportation challenges. In addition, patients in rural or remote settings may have a greater opportunity to interact and consult with specialized physicians, such as maternal—fetal medicine providers or other subspecialists, who may not be available locally.[4] These opportunities have the ability to connect patients and their providers (both obstetrical and nonobstetrical) who are in maternity care deserts with resources and expertise that otherwise may not be readily available. For the obstetrical provider and the health system, telemedicine visits may allow improved resource utilization of clinic and hospital space by enabling flexibility in scheduling and in prioritizing in-person access for patients with acute needs.

Conversely, the benefits of telemedicine in obstetrics are juxtaposed with the various downsides of lack of physical appointments and accessible technology. For some pregnancies, especially those deemed at elevated risk of adverse maternal or fetal outcomes, physical assessments and closer in-person monitoring may be necessary.[5] In addition, not having adequate remote patient monitoring systems and technologies may be a barrier to achieving quality care, specifically for lower-

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income patients and smaller facilities.[6] For example, buying a blood pressure cuff for home blood pressure monitoring may not be financially feasible for some patients.[6] One of the greatest obstacles to implementing telemedicine in obstetrics is dependable broadband connection between patients and providers.[4] Given that lower-income, rural, and underfunded communities may face significant barriers to achieving these needed conditions, equity, or lack thereof, is a major challenge in widespread implementation of telemedicine.

Definitions of health equity

To understand how telehealth may either combat or further amplify inequities in obstetrical care and outcomes, it is first important to have an established definition of health equity. The Centers for Disease Control and Prevention defines health equity as "the goal that every person is equally able to live a healthy life regardless of their background or circumstance" and as achieved "when each person has the chance to reach his or her full health potential, without facing obstacles from social position or other socially determined circumstances."[7] To ensure health equity, resources may need to be directed toward groups or communities at greatest risk of adverse outcomes, thereby acknowledging the unjust historic practices, structural racism, and social constructs that have led to the wide disparities in care, experience, and outcomes present today.

Evidence of inequitable access, acceptability, and satisfaction with telemedicine

Although the benefits of telemedicine are important to many patients receiving care, there are large barriers to achieving equity for certain communities. The most apparent is the "digital divide" that results from lack of necessary technology in certain groups of people or specific communities, such as rural areas.[8] This includes the lack of broadband internet access, technology literacy, and availability of appropriate devices for virtual visits.[6] For example, in one study focusing on maternal−fetal

medicine, 51% of providers reported that patient access to internet plans was the main barrier in telehealth care delivery.[9] In addition to patients' inability to access up-to-date technology, certain health facilities and practices may also have barriers to offering the full range of these services (ie, inability to obtain web cameras or software platforms for video visits, making phone visits the only option).[10] The challenges associated with lack of broadband infrastructure are so detrimental to telehealth that the American Medical Informatics Association has deemed broadband access as a social determinant of health given its close association with health outcomes.[8]

In addition to the "digital divide," there is evidence that inequities exist in offering telemedicine appointments. One retrospective cohort study examining clinical records of women who had previously received prenatal care demonstrated that Black patients were less likely to be offered patient portal access by practitioners because of a misconstrued bias on the part of providers.[11] In another study, maternity care practitioners were skeptical that patients would have the necessary technology for telemedicine, and thus did not consider offering telemedicine visits.[10] These findings highlight the role that providers and facilities may play in perpetuating disparities in access to telemedicine.

Even with adequate access, certain patients may have concerns about the acceptability of telemedicine as a means of healthcare.[12] One acceptability-related issue is patient satisfaction. One study noted that individuals reported feeling rushed in virtual care visits and that providers are less engaged, resulting from a lack of emphasis on "webside manner."[3] Others felt that virtual appointments were used not as a genuine mode of care, but rather to reduce costs and keep them out of the office.[10] Another concern expressed by patients is privacy. Through focus groups, one study found that Black patients and those from undocumented immigrant backgrounds cited higher rates of privacy concerns with personal

information and confidentiality with respect to telehealth visits.[13] Similarly, a phone survey study highlighted that 36% of Black patients were not interested in video visits as opposed to 20% of non-Black patients, which was attributed to the history of policing Black individuals in their homes and the fear of being recorded among undocumented immigrants.[10] In contrast, only 25% of providers noted patient privacy concerns as a barrier to telehealth, suggesting a disconnect between provider observations and some patients' experiences.[9] The last issue that has been raised regarding acceptability is trust. The physical absence of physicians was concerning for some individuals in Black and Latinx populations because they felt unable to adequately decipher if the physician was telling the truth or had the ability to make the right diagnosis without seeing them in person.[13]

Potential solutions (including evidence-based interventions)

1. Payment reform for telehealth services: without attention to factors that will improve availability, uptake, and experience, obstetrical disparities will increase with telemedicine. Medicaid, which is disproportionately used by low-income communities and those of color, finances up to 43% of births in the United States and up to 63% in certain states.[14] Thus, Medicaid coverage of telemedicine in all states is a necessity to ensure equitable access for all populations.[10] Before the COVID-19 pandemic, fewer than half of state Medicaid programs acknowledged a patient's home as an eligible site for telemedicine, and many programs required practitioners to be licensed in the state where the patient received care.[10] In addition, under the Coronavirus Aid, Relief, and Economic Security (CARES) Act, phone telehealth visits were covered by Medicaid at a lower rate, although for some communities, landlines are more reliable than using cellular or internet data for video visits.[6] However, to account for the

emergency regulations enacted because of the pandemic, some states' parity laws were modified to be more inclusive.[6] Now that the public health emergency is concluded, it is important that legislation created during the pandemic that expanded payment parity between video and telephone visits is protected and made into permanent state and federal law.[6]

2. Acknowledging, adapting to, and closing the digital divide: multiple factors contribute to patients' access to telemedicine services; however, access to a connectable device (eg, phone, computer) and access to internet (for video-based visits) are paramount. To address broadband access, research has found that providing financial resources to patients without internet increased their satisfaction and likelihood of uptake of telemedicine.[6] This supports the need to provide sustainable resources to improve internet and data plans for low-income and rural communities.[6] However, because universal device and internet access are unlikely, practices utilizing telehealth services should consider screening all patients for these 2 essential components. Coming regulatory and public payor mandates and incentivization of collection of social determinants of health present a unique opportunity to rethink traditional categories of unmet social need. Examples of screening questions could include: (1) "Do you have reliable access to a phone or device that connects to the internet? If so, which is your preferred mode for virtual visits?"; and (2) "If you have a device that connects to the internet, how often do you have reliable access to the internet? Does this connection support video?" If reliable access to a device and connection are not available, care models that can be adapted to resources available for each individual patient will help ensure that disparities do not widen as a result of the digital divide. In addition, programs such as the federal Affordable Connectivity Program, which

improves affordability to broadband for eligible families, should be increasingly leveraged but are presently underutilized, partly because of limited familiarity of healthcare providers and staff with such programs. Initiatives such as Link Health attempt to solve this gap.[15]

3. Patient-centered design: as we aim for patient-centeredness, it is important to address satisfaction inequities by interweaving collaborative care management into telehealth through creating culturally sensitive protocols and by collaborating to provide care for patients with limited access to providers of similar backgrounds.[16] For example, a study focusing on culturally sensitive and collaborative telepsychiatry-based treatment for Chinese Americans found that patient compliance and satisfaction with care increased when using such protocols.[16] This is evidence that centering participant design in patient management systems can play a role in improving health outcomes. Obtaining and reviewing regular patient-reported outcomes regarding their experiences with telehealth and preference for or disinclination toward telehealth services should serve as a quality metric for this type of care provision.

Areas for future research

Although there are data available that focus on how different populations respond to telemedicine, there is still a need to expand how cultural hesitancy might affect the perception of telehealth within historically marginalized communities, and how to use that understanding to create more culturally sensitive and trusted telemedicine initiatives. This is especially true among low-income, Black, Indigenous, and Latinx communities who often bear the burdens of miseducation and mistrust in healthcare. Leveraging community strengths and preferences using asset-based strategies will be imperative. Furthermore, tracking changes in patient perception before and after telemedicine visits would be of value and could

elucidate misconceptions and valid beliefs surrounding telemedicine and center patient voices.[13] Overall, there is a lack of evidence-based interventions for bridging the gap between the need and desire for quality telemedicine and the ability to achieve it.

Conclusion

The ability to expand access to care while also increasing convenience is a clear advantage of telehealth in obstetrics. However, when equity is not centered in telemedicine frameworks, the disparities observed in many obstetrical outcomes will continue to worsen. As this technology and care model becomes common practice, it is important to provide equal reimbursement for in-person and telehealth visits, center patient design and cultural competency in telemedicine programs, and improve broadband and technology access to ensure that the highest-quality care is delivered to all patients. ∎

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