



CUTTING EDGE CARE DELIVERY IN RESPONSE TO THE COVID-19 PANDEMIC

Telehealth, Telemedicine, and Related Technologic Platforms

Current Practice and Response to the COVID-19 Pandemic

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ABSTRACT

BACKGROUND: Providing health care at a distance has evolved over the past decades, resulting in a myriad of terms and styles of care delivery. Telehealth is defined as any health care service delivered at a distance. Nursing services have been delivered by a wide range of specialty nurses for many years using various technological formats. Clinical experience suggests that few WOC nurses had extensively adopted these technologies and principles into their practice as recently as 2019. However, the COVID-19 pandemic of 2020 has forced both administrators and clinicians to rapidly adapt or introduce telemedicine technologies to deliver specialty care including WOC nurse services.

CASES: Three WOC nurses were chosen to describe the use of telehealth technologies to illustrate opportunities for WOC nurses to integrate telehealth nursing into a health care setting. Two adapted telehealth technology into their practice before the pandemic, and one started telehealth practice as a means to provide care after the onset of the pandemic. Disadvantages and advantages are discussed to provide further information regarding WOC patient care using these technologies.

CONCLUSION: The pandemic crisis has accelerated the need for health care to reimagine the delivery of care to patients. Telehealth technologies and principles have emerged as essential for WOC nurses to deliver safe and effective care.

KEY WORDS: Artificial intelligence, Digital health, eHealth, mHealth, Remote monitoring, Telehealth, telemedicine.

INTRODUCTION

Wound, ostomy, and continence (WOC) nursing humbly traces its origin to nonlicensed and caring individuals delivering personal care to patients who had undergone ostomy surgery.¹ The WOC nursing profession evolved over the past 5 decades, expanding to a trispecialty WOC focus as well as foot and nail care. While not integrated into all care settings, some WOC nurses integrated telehealth technologies into their practice settings using medical record reviews and photographs or videos to provide expert WOC consultation.^{1a} The COVID-19 pandemic of 2020 has forced more administrators and clinicians to consider telehealth as an adjunct to patient care across the continuum. This article discusses telehealth, gives 3 scenarios of telehealth WOC nursing, and discusses advantages, barriers, and future implications of merging WOC telehealth nursing into current health care practices.

“Telehealth” is a broad term used to describe the delivery of a wide range of health services using information and telecommunication technology beyond the boundaries of traditional health care facilities (Glossary).^{2,3} The use of telehealth and telemedicine is often used interchangeably. However, telemedicine is emerging as a subset of telehealth, referring to direct provider-to-patient service, whereas “telehealth” is a larger umbrella term to describe any health care services delivered at a distance.^{3,4}

The concept of telehealth nursing has developed over the past years to describe nursing professionals caring for patients at a distance using technology.⁴ Telehealth nursing roles include performing assessments remotely, providing nursing services during a remote session, and acting as telepresenter (assisting patients to participate in a telehealth consultation with a health care provider physically located elsewhere).⁵

Additional terms related to the delivery of health using technology are mHealth, eHealth, e-consults, and digital health. MHealth refers to the use of mobile device applications, such as cell phones or tablets, to enhance health outcomes, improve health care services, and advance health research.⁶ A variety of mobile applications are available for both consumers and medical professionals. Consumers have access to applications that capture data without a provider or health care professional assistance, such as fitness or nutrition applications. Medical professionals use applications to enhance the delivery of patient care such as scheduling, bed monitors, or medication information applications. Consumers and providers can connect on the same application to collect data or monitor specific areas of health, such as blood glucose levels or oxygen levels.⁶ The term “eHealth” is an accepted neologism that lacks a clear definition; it generally refers to the use of electronic health records, patient administration systems, and data collection to further the health of individuals.⁸ As strategies and research develop to enhance medical data and connectivity, the term “digital health” has evolved to encompass a much broader scope of scientific concepts and Internet-focused applications for health. Digital health includes telehealth, mobile health, wearables, analytics, artificial intelligence, and genomics.⁹

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Glossary

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| Asynchronous | Also known as store and forward; the photographs or videos are uploaded to a location for the provider to access on his or her own schedule. |
| Artificial intelligence | The development of computer systems to perform tasks that would require human intelligence. Examples of these tasks are visual perception, speech recognition, decision making, and translation between languages. |
| Data analytics | Use of parameters (metrics) set by the organization to measure outcomes, guide decision making, and model the future. |
| Digital health | Scope of scientific concepts and Internet-focused applications for health. |
| eConsult | A method of asynchronous telehealth care linking provider to provider on the patient's electronic health record. |
| eHealth | Use of electronic health records, patient administration systems, and data collection to further the health of individuals. |
| Genomics | Study of an organism's genes (called the genome) to help understand both internal interactions of genes with each other and external interactions with the patient's environment. |
| mHealth | Use of mobile device applications such as cell phones or tablets to enhance health outcomes, improve health care services, and advance health research. |
| Peripherals | Devices used to collect patient information for remote monitoring, such as blood pressure cuffs, blood glucose monitors, or pulse oximetry units. |
| Remote monitoring | Devices in the patient's setting capture patient health data for ongoing evaluation by the provider. |
| Synchronous | Uses technology to provide a real-time visit between the provider and the patient. |
| Telehealth | Delivery of multiple health services using information and telecommunication technology beyond the boundaries of traditional health care facilities. |
| Telemedicine | Direct provider using telehealth technologies. |
| Telepresence | Techniques used to convey a sense of a calm, clear, and competent physical presence in a remote environment. |
| Telepresenter | Staff members who assist patients to participate in telehealth consultations with health care providers physically located elsewhere. |

Standardization of these terms is needed to improve our precision in determining the cost, quality, and access outcomes of telehealth practice.¹⁰

Formats used for telehealth include telephone calls, remote monitoring, photographs, and videos. Telephone calls were the first method connecting patients with nursing at a distance, and it remains an essential component of care in multiple settings.⁴ Remote monitoring uses electronic devices called peripherals to capture patient health data and symptoms for the provider to review the patient's health status and intervene early. Examples of peripherals are blood pressure cuffs, glucose monitors, or pulse oximetry devices.⁴ The use of remote monitors, digital photographs, and videos can be used syn-

chronously or asynchronously. Synchronous telehealth, also known as "real time," uses technology to assess and communicate between a provider and a patient. Asynchronous, also known as "store and forward," refers to transmission of data, photographs, or video to a secure Internet location for the health care professional to review at a later time.⁴ Electronic consults, also known as "e-consults," are a method of asynchronous telehealth care linking provider to provider on the patient's electronic health record. This interaction improves access to care by linking a specialist provider to the patient's primary care provider to create a plan of care without the need for a patient to visit the specialist.^{11,12} Advances and availability of technology in the 21st century have led to the rapid expansion of telehealth services via the Internet.

Telehealth nursing has grown in acute care, home care, long-term care, and outpatient care settings. This Clinical Challenges article highlights 3 examples of WOC telehealth nursing in home care, ambulatory care, and provider care delivered by a nurse practitioner. These examples illustrate methods of nursing in which certified WOC specialty nurses have embraced telehealth technology to function efficiently and effectively.

CASE 1: HOME CARE SETTING

I have delivered WOC telehealth nursing care in the home care setting since 2008. My home care agency territory spans 2 states and currently employs 5 WOC telehealth nurses. Our electronic medical record has software that uses digital photographs and assessment tools to provide store and forward, asynchronous, telehealth. A home care clinician performs the home care visit and uploads patient assessment and photographs into privacy-compliant patient documentation. The WOC nurse then performs a comprehensive review of patient medical data from all available information and completes a comprehensive evaluation with recommendations for a holistic treatment plan.

There are many advantages to this style of WOC telehealth nursing. The WOC specialist practices at the top of his or her nursing license and certification, meaning that the valuable time of the certified WOC nurse is dedicated to patient care and not completing tasks that someone with less training can perform. In contrast, the traditional WOC nursing practice in the home care setting requires the individual to spend the majority of their day in the car driving to patient homes, thus limiting the time dedicated to the patient assessment and delivery of our specialty services. Telehealth nursing allows the WOC nurse to provide expertise in many more cases per day. Clinicians can call the WOC nurse while visiting a patient's home if assistance is needed urgently. Our electronic medical record saves the history of patients throughout their lifetime, giving access to prior patient information and photographs for comparison. The WOC nurse has time to study the photographs and zoom in, allowing thorough visualization of wounds. I have observed that incorporating telehealth in home care has increased opportunities to collaborate in case conferences with the health care team. In addition, this type of practice allows more time to enhance the expertise of clinicians providing direct care in the home.

I have found that asynchronous telehealth also has limitations. For example, the WOC nurse is not able to establish the level of rapport with a patient that occurs during physical visits to the patient's home, palpate or smell the wound, or watch the patient with an ostomy perform a pouch change. In addition, I have found that some photographs lack adequate

resolution, are taken too close, or have a color that is not indicative of the real situation. These situations require additional dialogue with the clinician. The insight gained from past experiences while working directly with patients in acute care or home care helps immensely to collaborate with the virtual health care team. In addition, asynchronous telehealth WOC nursing requires long hours at a computer, which can cause eye strain, many hours of sitting, and working alone. I have found that the rapid and accurate typing skills and clear communication by telephone or e-mail are essential.

CASE 2: TELEHEALTH OSTOMY CLINIC

Gina Day, BSN, RN, CWON, started a business in August 2019 to provide virtual outpatient ostomy services nationwide via an online telehealth clinic. She and her WOC nurse colleague offer telehealth ostomy visits in 48 cities of the United States. The videoconference visit is performed over a secure platform in real time with a certified wound ostomy nurse. The patient books a session with Gina or her partner on their Web site. The WOC nurse and the patient are notified via secure e-mail that an appointment has been scheduled. The patient can use any mobile device that has a camera; no special equipment is required. The patient fills out a form to describe current and past medical history including the purpose of the video visit. The WOC nurse reviews the intake form and has an opportunity to ask the patient more questions through a secured e-mail or text from the portal before the visit begins. In Gina's practice, the telehealth technological platform she uses has capabilities to share the screen, draw pictures, and have interaction with the caregivers involved in the patient's care.

After the visit, the WOC nurse produces an individualized plan of care including patient and/or caregiver responsibilities following the visit. These responsibilities may include ordering sample products, discussing plans with a provider, or obtaining any supplies needed for care. This written plan allows the patient to focus on the tasks during the visit and not have to remember every detail. Gina or her colleague provide the patient with product numbers, supply name with description, and list of suggestions recommended during the visit, which includes an option for a follow-up visit. The patient is asked to fill out an evaluation survey after the visit to track outcomes. This WOC telehealth-based nurse service provides 24/7 virtual care and immediate solutions to patients across all geographic regions in the privacy of their own setting.

There are clear disadvantages to ostomy video telehealth, such as the inability to physically assess the patient. In addition, some patients lack knowledge or resources needed to use their computer or mobile device for a telehealth visit. Access to the Internet and the quality of Internet service also affect the quality of this service because of the need for a high-speed connection to stream video or higher-resolution photographic images. Other challenges include allotting the additional time needed to educate the patient about security when sharing sensitive and private health information. Relying on patients to provide verbal medical information and answering questions regarding self-care can present challenges in obtaining accurate health-related information. In addition, patients with impaired vision or hearing loss may be unable to use telehealth services. Out-of-pocket costs associated with these services may delay or prevent needed care. Fortunately, reimbursement guidelines have recently changed in response to the pandemic, increasing reimbursements related to telehealth visits.

This style of patient care provided by WOC telehealth nurses provides persons living with an ostomy an important alternative to in-person visits. Telehealth services may allow patients to receive care more promptly than scheduling a clinic visit that may require days or weeks for an opening. In addition, telehealth services provide sorely needed access to many patients who will not have access to a WOC nurse when visiting a primary care clinic, urgent care center, hospital emergency department, or a specialist surgeon's office. I believe that a telehealth ostomy care represents a unique and underserved niche for WOC nurses to provide efficient, evidence-based quality care.

CASE 3: APRN PROVIDER CARE IN AN AMBULATORY CARE SETTING

Sue Bruch, MSN, RN, ACNP-BC, CWOCN, CFCN, practices as a nurse practitioner in an outpatient care setting. She provides services to community-dwelling patients and to patients residing in long-term care and assisted living facilities. Since the pandemic, Sue has been challenged with rapidly adapting her practice from a traditional direct care model to a blended practice offering telehealth services. In Sue's case, telehealth visits are arranged by the office personnel and telehealth visits are completed through various face-to-face real-time video formats or photographs depending on the location of the patient and patient preference.

When Sue completes telehealth visits to patients residing in an assisted living or long-term care facility, employees are present during the visit to assist with Sue's history taking and examination. Facility-based staff communicate the vital signs and pertinent medical information at the start of the visit. During the visit, the staff will remove wound dressings and display the dressing to Sue or her colleagues so as to perform assessment. The staff are also guided through measuring the surface area of the wound and to wound bed when indicated. Upon completion of this remote examination, Sue or her colleagues will provide verbal orders for wound care. Challenges to this type of telehealth visits include lack of available and qualified staff to assist with the details of care.

The primary advantage of telehealth visits during the pandemic crisis is the ability to continue to provide the expertise of a certified WOC nurse practitioner. The staff typically do not accompany the nurse practitioner when patients are seen in person, so the use of telehealth ensures the facility staff are involved in care of the wound and aware of the outcomes of the telehealth visit. These visits also provide an opportunity to provide just-in-time education specific to wound care. All wound measurements and photographs obtained during these visits are attached to the patient's medical record.

Disadvantages of telehealth visits to patients residing in long-term or assisted living facilities include reliance on the staff to assist with the visit and lower-quality videos and photographs due to limited resources in many long-term or assisted living care facilities. In addition, many procedures, such as serial conservative sharp debridement, require direct contact with the patient.

Telehealth WOC nursing services also benefit patients in the community setting who cannot easily be transported to her clinic. Such transportation is often difficult to coordinate, time-consuming, expensive, variably reliable, and physically demanding for patients with one or more chronic comorbid conditions.

Despite the advantages of telehealth visits, they do not entirely replace the need for periodic face-to-face visits. Changes

in reimbursement policies have benefitted access to telehealth visits with providers across the United States, including advanced practice registered nurses with WOC certification. Nevertheless, the ability to offer these services across state lines remains a legal and clinical barrier.

DISCUSSION

The demand for telehealth has been on the rise primarily due to the increasing numbers of individuals suffering from chronic disease, the need to serve vulnerable populations, and bridging the gaps in fragmented health care systems.¹³ More than 75% of the US population older than 55 years has at least one chronic disease and nearly 50% of the US population has 2 chronic diseases.¹⁴ Many people with chronic conditions have difficulty keeping appointments to see a provider in person. High health care costs are largely attributed to the care coordination of patients with chronic conditions.¹⁴ Telehealth is also beneficial when filling the gap of care present with vulnerable populations.¹⁵ Vulnerable populations are at a higher risk of receiving disparate health care based on financial position, social characteristics, socioeconomic standing, or insurance status.¹⁶ Many ostomy patients are unable to follow up with a WOC nurse due to limited access to WOC services or insurmountable transportation issues.¹⁷

Telehealth can help health care professionals meet the needs of patients and reduce costs without forfeiting the overall quality of care.¹⁸ The 2020 pandemic has been a powerful catalyst to the expansion of telehealth care services to patients in need. Leaders in health care have indicated that the pandemic crisis has intensified innovation in telehealth and will likely cause reform of the current health care system.¹⁹ Patient satisfaction is typically high when using telehealth.^{18,20,21} Benefits are quicker access, decreased visit time, less travel, and overall satisfaction with the answers and treatment they needed. Access to health care via telehealth has facilitated early treatment in situations of potential delays for serious illnesses.¹⁸ Many patients have indicated they would switch to a provider who supports telehealth care if their current provider does not offer telehealth.²²

The future of telehealth WOC nursing is rich in telehealth-related opportunities.²³ Telehealth care should be an adjunct and complement to in-person care.²⁴ Although qualifications are not specifically created at this time, recommendations for the telehealth nurse include a high level of nursing knowledge and several years of experience in the practical application of evidence-based care.⁴ Competency in caring for medically complex patients should be established and the nurse should be at a proficient or expert level.²⁵ Key characteristics of the competent telehealth nurse would include expert clinical knowledge, clear interpersonal communication, considerate listening skills, keen critical thinking, and proficient computer skills.²⁵

Telehealth WOC nursing services may include direct assessment and evaluation, consultative care, triage assistance, support for the clinician with the patient, and just-in-time education for the patient or clinician. Video format requires unique communication methods known as “websites manner” to complete a professional telehealth visit (Box). Items in this list include basic gestures along with specific tips for mindful telepresence, which is a technique employed to convey a sense of calm, clear, and competent physical presence in a remote environment.^{23,26,27} Guidelines for WOC telehealth nursing care need to be developed to provide structure to practice and

BOX

Tips for Completing a Successful Telehealth Visit

- Dress professionally
- Lighting should light in front of the face, not from behind
- Background should be solid; light colors, neutral tones, or lighter shades of blue are best
- Limit background disturbances; ensure a private environment
- Position the camera height to angle slightly down, right at the hairline, toward the eyes
- Focus eyes on the camera, not an image on the screen
- Have the patient's information prepared for the visit
- Make sure that you can see and hear each other clearly; headphones may help
- Additional patient instruction may be needed to ensure a successful visit
- Stay seated, stay still, and stay focused (avoid tapping, fidgeting, or props)
- Avoid using your computer or cell phone for anything outside of the visit you are conducting
- Use virtual waiting room to protect patient privacy, and respect patient's time
- End every visit by allowing time for review of the information given to the patient during the visit and to answer questions
- Perform weekly equipment tests to confirm functioning properly

improve patient safety. Guidelines would include benefits, limitations, and the most effective way to provide WOC nursing care via telehealth.¹⁸

BARRIERS

Several barriers may be encountered when telehealth WOC nursing services are developed. These include privacy issues, licensing laws, and electronic record access. The technology must be compliant with privacy laws at all points of service.¹⁸ The lack of interstate licensing requires that the nurse providing the care must be licensed in the state where the patient resides.²⁸ Technological infrastructures may lack the ability for electronic medical record systems to communicate. Additional start-up costs along with software and technology purchases could lead to financial barriers. Theft of the expensive monitoring equipment is a financial concern as well.²⁹ Reimbursement for telehealth services continues to vary from state to state but historically was not compensated at a viable rate until new reimbursement guidelines were instituted during the pandemic crisis. Future fraud and abuse of the reimbursement for telehealth are a concern.³⁰ Another barrier is the skepticism from colleagues who do not support the telehealth style of nursing practice or perhaps have past failures taint their perception. There is a paucity of professional training programs to learn how to provide telehealth care.⁴ Although the telehealth research field has enough evidence for rudimentary standards and guidelines of care, expanded valid and reliable research is needed to build the evidence to prove clinical outcomes and improved health-related quality of life for patients.¹⁸

FUTURE CONSIDERATIONS

I envision additional development of advanced technologies to enhance WOC telehealth services such as virtual goggles to facilitate video visits, wearable devices to monitor ostomy output, smart cameras to measure wounds or identify bacteria, and robots to assist with a virtual video visits. Artificial

intelligence has the ability to search large amounts of data quickly. This capability enhances personalization of the virtual consultation, creating an efficient solution to logistical challenges of collecting and sorting patient data rapidly.³¹ Along with the case scenarios in this article, examples of the future of WOC telehealth nursing could include the use of telehealth in acute care to triage and prioritize patients or determine staff education needs. Future expansion of WOC telehealth services to home care agencies, physician clinics, outpatient centers, and long-term care is another possibility. The successful integration of telehealth into a current practice setting should include features such as user-friendly design to facilitate the use of the product and data analytics to measure outcomes to support the WOC telehealth position. Successful integration also relies on advocates and stakeholders from all departments, collaborative information technology teams, and strategic leadership to pave the path to success. While the expansion of WOC nursing would be virtual, it is important to be ever mindful that this is still a person-to-person caring interaction.³²

CONCLUSIONS

Telehealth nursing using synchronous and asynchronous photographic and video formats has grown from occasional to widespread use in response to the COVID-19 pandemic. The case scenarios in this article highlight successes and challenges of providing WOC nursing via telehealth in 3 settings. Additional innovation in technology, coupled with ongoing changes in reimbursement policies related to use of these technologies, will provide opportunities to reimagine health care delivery and expand WOC telehealth services into our rapidly evolving health care system.

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KEY POINTS

- ▶ Telehealth offers a wide range of prevention and treatment health services using information and telecommunication technology beyond the boundaries of traditional health care facilities.
- ▶ WOC nursing expertise is currently offered via asynchronous photographs and synchronous video visits, allowing the WOC nurse to prioritize patient care and follow-up with patients efficiently.
- ▶ Future technology developments will promote innovation and expansion of the capabilities of WOC telehealth nursing.

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