Empowering Midwifery Education

Introduction to Telehealth

I. Course Objectives
- Students will be able to verbalize what telehealth is
- Students will be able to verbalize the scope of telehealth
- Students will be able to verbalize the historical evolution of telehealth
- Students will be able to verbalize benefits and challenges of telehealth

II. Why is This Topic Important?
- Allows healthcare providers to evaluate, diagnose, inform, and treat patients without an in-person visit
- Helps ensure patients receive optimal and timely healthcare by connecting them to needed services through telecommunication, remote patient monitoring (RPM), store-and-forward technologies, and mobile health (mHealth
- Promotes healthcare access, improves care, and offers patients a level of convenience difficult to obtain with in-person care
- Aligns telehealth nursing with extensive health care environmental and technological transformation

III. What is Telehealth?
- Referred to as telemedicine or e-medicine
- Provision of healthcare via digital information and communication technologies.
- Delivery of treatment and health-related services via telecommunication technologies and electronic information
- Use of telecommunications technology to provide and exchange medical information and services
- Use of telecommunication technology (computers and mobile devices) to support virtual care, health education for patients, healthcare administration, and public health initiatives

IV. Scope of Telehealth
- The quality of services provided through telehealth must be equivalent to the quality of audiology or speech-language pathology services that are provided in person and must conform to all existing state, federal, and institutional professional standards, policies, and requirements for audiologists and speech-language pathologists.
- Technology used to provide telehealth, including but not limited to equipment, connectivity, software, hardware, and network compatibility, must be appropriate for the service being delivered and must address the unique needs of each patient. Audio and

video quality utilized in telehealth must be sufficient to deliver services that are equivalent to services that are provided in person. A person providing telehealth services is responsible for calibrating clinical instruments in accordance with standard operating procedures and the manufacturer's specifications.

- A person providing telehealth services shall comply with all state and federal laws, rules, and regulations governing the maintenance of patient records, including maintaining patient confidentiality and protecting sensitive patient data.
- A person providing telehealth services shall conduct an initial assessment of each patient's candidacy for telehealth, including the patient's behavioral, physical, and cognitive abilities to participate in services provided through telehealth. Telehealth may not be provided only through written correspondence.
- At a minimum, a person providing telehealth services shall provide a notice of telehealth services to each patient and, if applicable, the patient's guardian, caregiver, or multidisciplinary team. The notification must provide that a patient has the right to refuse telehealth services and has options for service delivery and must include instructions on filing and resolving complaints

V.   Historical Evolution of Telehealth
- Telehealth's emergence during the COVID-19 pandemic may seem like it happened overnight. The coronavirus has certainly been a catalyst for our industry's reliance on virtual care.
- However, telemedicine has been around for quite some time. What may appear to be a sudden surge has truthfully been a slow burn.
- The concept and practice of using telecommunications technology to remotely diagnose and treat patients has been around for decades
- **The Civil War and Telegraph Transmissions**
  - Communication across long physical distances was revolutionized with the invention of the electric telegraph in the 1840s.
  - The first major instance of telecommunications for medical purposes came about a decade later when 15,000 miles of telegraph cable were laid during the Civil War.
  - The telegraph made remote wartime communication possible. It was used to order medical supplies and transmit casualty reports
  - Tech was so integrated that telegraph wagons commonly idled right behind the frontline, sending and receiving information from the battlefield as needed.
- **The Telephone Revolution**
  - In 1876, Alexander Graham Bell was awarded a patent for his telephone, and the rest, as they say, is history. This was a monumental step in remote communication, one which medical professionals quickly adopted.
  - Articles from a late 19th-century medical journal report the use of the telephone to cut down on unnecessary office visits as early as 1879.
  - Telephone allowed doctors to consult with their peers as well, enriching the larger healthcare community
- **Radio Communication Emerges**
  - Radio communication saw its beginnings at the turn of the century, and was still a developing technology during the early 1900s

- One of the first telehealth efforts that incorporated radio communication came out of Australia in 1928. Reverend John Flynn founded the Aerial Medical Service (AMS), which used the telegraph, radio, and airplanes to deliver treatment to remote areas of the country
- Doctors consulted and diagnosed patients using a combination of telegraph and radio communication. Then, the service flew a qualified health professional to the patient to provide any necessary care
- The AMS received international attention and is considered to be the first organization to address limited geographical access to healthcare with telecommunications technology
- A few decades ago radio communication was commonplace all over the world. By the time of the Korean and Vietnam conflicts, the US military relied heavily on telemedicine via radio to dispatch medical teams and helicopters

- **Television Adds Visual Component to Telehealth**
  - The invention of the television made visual telecommunications a reality, which proved to be a valuable tool for early telemedicine practitioners
  - By the mid-1950s, the Nebraska Psychiatric Institute was using closed-circuit television to remotely monitor patients
  - By 1959, the institute was providing group therapy and long-term therapy, consultation-liaison psychiatry, and medical student training at Norfolk State Hospital.
  - In 1964, the two locations established their first interactive, two-way video link, negating the 112 miles between them
  - Then, three years later, the first comprehensive telemedicine system was installed to connect Boston's Logan Airport medical station to Massachusetts General Hospital
  - Besides facilitating remote medical treatment between the two locations, the operation also demonstrated that remote diagnoses could be made through interactive television
  - Researchers showed that X-rays, lab results, and medical records could be successfully transmitted as well

- **Space Travel and NASA Push Telehealth Forward**
  - Telemedicine got its first modern upgrade in the 1960s due to one central question: Could the human body function in outer space?
  - This was a true unknown before the first human astronaut made it to space. Medical experts were particularly concerned about blood circulation and respiration issues
  - To find out, the US and Soviets hooked animals up to medical monitoring systems and sent them into space. Biometric data was transmitted back to scientists on Earth via a telemetric link
  - A few years later, NASA established the Integrated Medical and Behavioral Laboratories and Measurement Systems (IMBLMS) program. It was meant to develop a system that could acquire, display, analyze, and record, "…a wide variety of medical, biochemical, microbiological, and behavioral, measurements and experiments designed to study in detail man's well-being and operational capability…"

- **Telehealth Gets an Injection of Federal Money**
  - In the late 1960s and early 1970s, the federal government provided funding for seven telemedicine research and development projects
  - They aimed to further explore how the technology could be used to overcome challenges to medical care of the time. The majority of them took place in rural areas, where access to healthcare was already an issue
  - One of these programs was an extension of NASA's IMBLMS program, called the Space Technology Applied to Rural Papago Advanced Health Care (STARPAHC). It leveraged the remote monitoring tech they developed for space travel to serve terrestrial, rural populations
  - The project was conducted on the Papago reservation in Arizona. It evaluated the practicality and efficacy of a large-scale telemedicine operation
  - STARPAHC demonstrated that telecommunications were a sound foundation for remote treatment. Furthermore, telemedicine proved to be a viable and effective alternative to traveling across great distances to receive medical attention
- **The Internet Transforms Telemedicine**
  - As we are all aware, the Internet changed everything.
  - The speed with which humans could communicate and transfer information was revolutionary. In the case of telemedicine, the internet was essentially the technological breakthrough it had been waiting for
  - Scientists and medical experts had more opportunities, and more dynamic tools, to conduct remote treatment. The internet unlocked a new frontier for telehealth, due to factors such as:
    - Digital tech made the efficient transmission of large quantities of data over long distances possible. As a result, telemedicine's speed and scope were forever enhanced
    - Digitization of information made sending, receiving, managing, and storing data much easier
    - The Internet's widespread adoption in all personal and professional settings led to substantial cost savings for digital technology needed to deliver telemedicine
  - Telemedicine has been consistently improved and refined over the last few decades, but powerful digital technology is still the foundation of our telehealth operations today

VI. Benefits and Challenges of Telehealth
- **Benefits of telehealth for providers**
  - **Improved access to medical care**
    - Call centers and nurse advice lines have brought the most immediate telehealth benefits and challenges into the spotlight, and in 2020, benefits have by far outweighed challenges
    - The ability to treat minor COVID symptoms while the patient is comfortable and safe at home is critical. Throughout the COVID-19 pandemic, many patients have been wary of facilities and avoid provider waiting rooms, so distanced diagnosis and prescription are a welcome relief.

- For years before the pandemic, healthcare providers have struggled to provide adequate care for patients who:
  - Need to be triaged
  - Need to be treated by specialists at distant locations
  - Live in rural areas
  - Cannot travel to your facility
- **Higher patient engagement rates**
  - Since consumers can get their shoes and dinner delivered with a tap, they expect the same from their healthcare providers. Online reviews, appointment booking, and digital reminders help patients engage in their care, relieving providers of mundane tasks that pull them away from patient care
  - It reduces the risk of exposure as well as the anxiety around in-person doctor's office visits. It also reduces wait times so providers can treat and engage more patients every day
- **Better patient outcomes**
  - One of the most exciting benefits of telehealth for providers is a significant improvement in outcomes. Chronic condition care presents the perfect pairing for telehealth
  - Challenges around monitoring diabetes, high blood pressure, heart disease, as well as musculoskeletal and behavioral health have been met with remote patient monitoring technology
  - But one of the most profound benefits of virtual care is its ability to protect patients who are at a higher risk for COVID complications
  - The logistical telehealth challenges some providers still cite seem less pressing when compared to the way it limits exposure to the virus
- **Lower hospital readmission and no-show rates**
  - Instead of making costly, unnecessary trips to an immediate care clinic or emergency room, patients with acute health issues can now get immediate care—without risking exposure to the virus
  - Since post-discharge and follow-up care can be done virtually, patients take and implement instructions and prescriptions at their own pace. The new format also gives them more opportunities to raise questions or concerns using devices they're comfortable with (this service presents telehealth benefits and challenges for patients who are technology-averse)
  - The patients who typically miss clinic appointments due to transportation issues, mobility challenges, or disabilities can now attend telehealth appointments from any accessible location or device. They, too, are more likely to follow through with instructions and prescriptions on their own terms. This level of engagement keeps patients healthier more vigilant, and more likely to seek intervention before their health conditions reach critical stages
- **Cost Cutting**
  - Cost cutting is one of the most well researched advantages of telehealth
  - When you adopt telehealth at your hospital or clinic, you'll lower your overhead and distribute resources more efficiently

- You'll also make your service hours more flexible, increasing motivation and productivity for clinicians while reducing stress for patients and clinicians
- According to a Health Finance News review of telehealth benefits and challenges, research has confirmed that health-tech platforms enable quicker and more efficient care in lower-cost settings. It helps providers cut costs by reducing the time and distance required for treatment. When patients don't skip visits, they're less likely to wait until they've developed critical issues, which are much more costly to treat.
- One of the less obvious telehealth benefits is the reduction of overused procedures like imaging. According to Diagnostic Imaging, electronic consultation between radiologists and referring physicians can reduce the need for unnecessary imaging exams.
- HIPAA-compliant telehealth platforms that integrate your EMR systems will also help you cut costs by streamlining workflows and sharing information between providers at your facility as well as those at specialty clinics

- **Provider telehealth challenges**
  - **Reimbursement**
    - One of the biggest challenges with telemedicine has been that Medicaid and Medicare did not reimburse for it at the same level as traditional on-site visits
    - During the pandemic, however, providers have enjoyed expanded reimbursement from the Center of Medicaid and Medicare Services. The future of this temporary change is uncertain
  - **Regulations**
    - Cumbersome restrictions and regulations are some of the most significant telehealth challenges
    - Despite the many telehealth benefits, providers were reluctant to offer it. As of March 1, 2020, however, The American Medical Association reported that during the COVID-19 public health emergency, Medicare would pay healthcare providers the same rate for telehealth services as it did for on-site visits—which applies to all healthcare services, not just COVID-19 care
    - For now, providers can reduce or waive cost-sharing for telehealth visits, e-visits, virtual check-ins, and remote patient monitoring
  - **Scalability**
    - The biggest telehealth challenges for healthcare providers are related to scalability
    - If healthcare organizations lack next-generation infrastructure, implementing, addressing, and scaling telehealth benefits becomes extremely difficult
    - Platforms like Welkin are designed to help various types and sizes of healthcare organizations scale efficiently and implement telehealth effectively—making healthcare less stressful and more enjoyable for patients and providers

VII.   Conclusion

- Telehealth had been redefining healthcare for years before COVID-19 sped up the adoption of this convenient, efficient, and effective care delivery model
- Providers and patients alike who still have reservations about using telehealth may not be informed about its vast workflow and outcome benefits
- The Scope presents new thinking about telehealth as an integral component of today's healthcare practice. Inspired by the vision, values, and traditions of the past,
- The development of modern telehealth began with the invention of telecommunication technology and infrastructure, including the telephone and telegraph. Early on, telehealth technology was used in military situations.
- As healthcare providers seek more efficient ways to provide care at less cost to the patient, telehealth's role has grown. The use of virtual healthcare grew during the pandemic. It is likely that telehealth use will continue to grow and be incorporated into the healthcare provision worldwide.
- Telehealth has been anointed as one of the safest and most effective ways to deliver remote health services.
- Around the world, healthcare providers big and small are using telehealth technology to connect with patients in a COVID-safe manner. Telehealth has become so useful and ubiquitous that industry pundits and their patients
- However, while telehealth is convenient and cost-effective for providers and patients alike, it is not applicable to all health settings, and it is important to note that there are benefits and challenges when it comes to using this form of technology.
- Telehealth will continue to incorporate technologies like artificial intelligence and machine learning to provide predictive healthcare analytics and mine emergent medical data. As telehealth technologies advance, there will be a need for regulatory oversight and reform to ensure patients are protected

VIII.   References

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