AMERICAN UNIVERSITY OF BEIRUT

DESIGNING A TELEHEALTH PROGRAM FOR A HOSPICE CARE CENTER IN LEBANON

by

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ABSTRACT
OF THE PROJECT OF

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Telehealth is a booming topic nowadays that support the delivery of health care, health education, and health information services via remote technologies. Telehealth use has highly increased during the coronavirus pandemic encompassing in-patient care services as well as community health services such as hospice home care.

This project proposes a telehealth program for a hospice care center in Lebanon to alleviates the nursing shortage burden and overcomes geographic distances in the delivery of hospice services.

The methodology used to design the program included a literature review to identify the guiding principles and best practices for designing a telehealth program. In addition, a need analysis and environmental analysis was done to have a clear picture about the nature and scope of services needed, and to estimate the cost and benefits of the program.

Accordingly, a comprehensive implementation plan was developed detailing the target population, the inclusion/exclusion criteria, the workflow design of tele-hospice services, the human and material resources needed, and the essential guiding tools such as a telehealth practice policy, a tele hospice consent form, and a telehealth visit guide for nurses.

The program steps presented in this project can serve as a high-level guide to those who are planning to initiate a cost-efficient tele-hospice program.

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ABBREVIATION

Abbreviation	Meaning	Page
AMD	American Medical Development	16
APN	Advanced Practice Nurse	34
COVID 19	Coronavirus disease of 2019	12
ESAS	Edmonton Symptom Assessment System	28
HIPAA	Health Insurance Portability and Accountability	16
IT	Information Technology	14
MSN	Masters of Science in Nursing	4
NGO	Non-Governmental organization	43
PIG	Problem Intervention Goals	43
WHO	World Health Organization	10
WIFI	Wireless Fidelity	37
3G	Third generation	37
4G	Fourth generation	37

CHAPTER I

INTRODUCTION

Nurses play an important role in palliative care; they work in delivering care for the primary healthcare sector as well as the community. High quality palliative care is dependent on the availability of well-trained and certified palliative care nurses. However, the current worldwide shortage in nurses in different specialties including palliative care is a major impediment to the service (WHO, 2022). The shortage in nurses is estimated to reach 16% in the United States by 2024 including home palliative care and the related decrease in nursing hours for palliative care patients is estimated at 40-hour gap per week (Weaver et al, 2018)

This shortage of nursing in the home setting as palliative care is translated into a burden at the physical, emotional and psychological level for the home care providers of the terminally ill patients (Weaver et al, 2018).

Many home care agencies globally are looking for novel ways to account for the growing number of patients to meet their demands and deal with the present nursing shortage. SANAD is an independent non-governmental non-profit organization that provides home hospice services to terminally ill patients and their families in Lebanon. It is a nurse-led organization, and its services encompass medical, social and psychological aspects of care. The multi-disciplinary workforce at SANAD comprises a nursing team, a medical team, a fundraising team, a quality and research team, and a mental health team. The nursing team includes four full-time hospice nurses in Beirut Governorate and two full time hospice nurses in Beqaa Governorate with a nursing supervisor leading the team. All hospice nurses at

SANAD are trained extensively before working with the patients. Each hospice nurse receives a total number of 12-14 patients depending on the acuity of the patients and the turnover rate. The nurse follows up with the patients twice weekly unless the patient's condition is active and requires more interventions; accordingly, the nurse might visit four times a week or even daily.

The number of patients requesting SANAD hospice services is growing especially from outside Beirut, which rises the nurse-to-patient ratio from 1/12-14 to 1/18-20 in 2022. Due to the current economic crisis in Lebanon, SANAD is facing funding challenges affecting recruiting nurses to attend to the increase in demand as well as logistical challenges such as transportation expenses. This situation triggered the suggestion of a telehealth/long distance initiative to enable SANAD to increase the number of patients cared for, reduce the physical and psychological burden on nurses, as well as increase cost-efficiency.

Telehealth provides access to care as well as the capacity to export nursing care through the use of technology. It is a valuable instrument for overall healthcare improvement. Nurses can increase their productivity by lowering travel time to remote places and boosting their average daily caseload with telehealth technology. Although telehealth does not replace actual visits in some cases, yet it can help in reducing the time and frequency of actual visits and can prevent unnecessary hospitalizations (Becevic et al, 2020). By implementing this long-distance project, SANAD can increase the number of patients under its care which will increase the receival of funds and donations.

The purpose of this project is to propose a telehealth program for SANAD that will alleviate the nursing shortage burden and overcome geographic distances in the delivery of palliative and hospice services.

CHAPTER II

LITERATURE REVIEW

A. Telehealth Overview

Telehealth is providing healthcare services by enabling the healthcare provider to assess, diagnose, treat, consult, and educate patients while they are at their own setting and the care provider is at another distant site (Haleem et al, 2021). Telehealth has several applications including telemonitoring, video conferencing, tele visits, and tele consultations (Becevic et al, 2020). In early days, telehealth has been used in rural areas due to the shortage of physicians in many areas, however now telehealth is used in a variety of settings including large medical centers, ambulatory care, public health centers, chronic care centers, and patient homes. The services provided through telehealth encompass different specialties such as psychiatry, dermatology, cardiology, neurology and many others (Becevic et al, 2020).

COVID-19 pandemic has exponentially accelerated the use of technology and especially telehealth worldwide to facilitate patient care and decrease the exposure of patients during the pandemic (Guenther et al., 2021; Webb et al., 2021). In the United States, telehealth policies have been updated to facilitate the use of telehealth allowing physicians from different states to do virtual visits, expanding hospice and nursing facilities, and billing for non-enrolled physicians (Becevic et al, 2020). The pandemic has been a catalyst for the use of telehealth in general and specifically in home-based settings mainly home palliative and hospice care. According to a survey conducted by National Hospice and Palliative Care Organization in 2020, 92% of hospices provided more care using audio/visual technology in comparison to the previous year at the same time period (Edo Banach, electronic

communication, July 31, 2020). Another survey conducted during the COVID-19 pandemic by a National Association of Home Care and Hospice reported that people where highly satisfied by the usage of audiovisuals and were willing to switch to these services (Oliver et al, 2012).

B. Establishing Telehealth Services

To properly implement telehealth and achieve the desired outcomes, certain practice guidelines and practice policies shall be followed. According to California's Telehealth Resource Center (2014), planning a telehealth model includes seven steps. The initial step starts with a need analysis and environmental analysis to have a clear picture about the nature and scope of services needed. Such analysis will help in clarifying objectives that set a solid ground for the project. The second step is to define the service and technological needs. This can be done by putting goals with timeline, as well as planning the proper use of technology to facilitate the use of telehealth as well as its documentation. Step three is planning a business model by identifying the costs and the benefits of the project; a market demand review should be conducted to test the sustainability of such a project. A detailed implementation plan is a fourth step by which knowing the law is a key priority and setting the details of how to implement telehealth by discussing this with the team members, appointing a telehealth team leader, providing IT support, and most importantly setting policies for telehealth in the institution. A fifth step is the development of monitoring and evaluation plan for the project by ensuring goals are met and work is evaluated regularly to achieve the quality outcomes of the project. The sixth step is to start implementing the program, the seventh and final step is to monitor and continuously develop quality improvement plans (CTRC, 2014).

C. Types of Telehealth Services

Various technologies, including but not limited to telephones, video, and remote patient symptom-monitoring applications (including those that allow the use of biometric data gathering techniques) can be used to deliver telehealth services to people in need of hospice or palliative care (Webb et al., 2021). According to Bradford et al. (2013), the clinical needs in home telehealth services include clinical assessment, education, psychosocial support, communication, and information. Nursing services provided through virtual visits may include history taking of present illness and past medical history; asking the patient to check their own vital signs using their home equipment, as well as instructing the patient to palpate areas of the body or test range of motion. The tele-nurse may also review the test results; determine patient care needs, perform patient education, and provide information on medication administration and selfcare (NCQAC, 2021).

There are three distinct types of telehealth services which are synchronous, asynchronous, and remote monitoring. Synchronous is providing the care in real time by performing virtual visits, this allows the patient and health professional to communicate though live discussion to deliver medical expertise (Mechanic et al, 2021). The second type of telehealth service is the asynchronous technology which is the "store and forward" technology by which the clinician or patient collects data related to diagnostic tests, imaging, pathology and sends it to a specialist for diagnostic and treatment expertise (Mechanic et al, 2021). The last type is remote monitoring is when data is collected continuously via direct video monitoring or data collection and evaluated by the clinician (Mechanic et al, 2021).

D. Technology Guiding Principles

Certain aspects should be considered when planning a telehealth program. The technology should be checked to make sure it complies with protocols and industry standards, increases revenues, is simple for patients and healthcare workers to use, and is similar to other end users in terms of both technical and operational use (Bishop et al, 2015). It is important to address the issue of connectivity when planning a telehealth program at a palliative/hospice setting by deciding the location of the connectivity program that can be (Home/community, Outreach clinics, Emergency department/inpatient connections, long term care); as well as the type of connections (web-based applications, remote patient monitoring, store and forward). To implement telehealth there is a need for smart technology gadgets that has high quality of video streaming to enable delivery of care for the patient at the home setting (Haleem et al, 2021). Modern mobile applications can be used that link the patient data to a software and stores information. Other applications can be used by patients to buy certain drugs linked to the patient's file and electronic medical record. Certain mobile applications can be used to connect between a doctor and a patient with the hospital's internal infrastructure. Various technologies can help in monitoring a patient and recording vital signs and patient's status via video conferencing and an alarm system at home and connecting with the nurse responsible (Haleem et al, 2021).

According to AMD Telemedicine (2022), the key technology equipment and considerations needed when designing a telehealth program are communication platform software and hardware, technology devices with high-definition cameras, specialized equipment such as digital stethoscopes and vital signs monitors, bandwidth and internet connection, Information Technology (IT) support, and training the healthcare providers.

For the communication software, cloud hosting or onsite hosting can be used. Cloud hosting eliminates multiple implementation processes because all software and data are kept online and can be accessed by logging in from any computer or device. Cloud hosting adheres to HIPAA (Health Insurance Portability and Accountability) regulations and employ data encryption to safeguard the transmission of sensitive information. Cloud hosting has both free and paid versions. Onsite hosting means all software and data are kept on onsite servers. Strong IT infrastructure, replete with servers and hardware, is needed for this kind of hosting. Every piece of software must be downloaded to the computers on-site, which comes with additional licensing costs that can be rather high. Although the majority of telehealth software is compatible with normal computer hardware, you may wish to improve your speakers, microphones, and cameras to give a better experience for patients and healthcare professionals.

The internet connection bandwidth needs to be dependable and constant to ensure that real-time data is never interrupted or jeopardized. The telehealth program must be supported by IT, who must also keep an eye on the network and bandwidth requirements especially during peak hours when several internet connections with uploads and downloads are shared. Clinical telehealth programs require two different kinds of training to be successful over the long term: user training for doctors and nurses, and technical training and installation for the IT personnel. There are various choices for virtual training as opposed to in-person training. To ensure a smooth transition for the workforce, it could be required to do the training in-person, depending on the number of participants and the complexity of the workflow (AMD Telemedicine, 2022).

According to AMD telemedicine (2022), clinical telehealth programs require two different kinds of training: 1) user training for doctors, nurses, and other healthcare providers, and 2) technical training for the information technology personnel who will be supporting the program.

E. Tele-Nursing Guiding Principles:

Telehealth Nursing practices should be guided by principles to function properly within the scope of practice and legal considerations. The department of health in the Nursing Quality Assurance Commission in the United States Washington State listed ten principles to guide Telehealth Nursing Practices (NCQAC, 2021).

Principle 1:

Therapeutic Nurse-Patient Relationship: When providing care for a patient using telehealth, the nurse must follow the nursing code of conduct and maintain a professional and therapeutic relationship with the patient and sharing all her nursing knowledge for the benefit of the patient.

Principle 2:

Standards of Care: To provide care using telehealth nursing, the nurse must abide by the nursing process and use evidence-based practice when caring for the patient. The nurse who uses telehealth services must be competent and abide by the agency's policies and protocols.

Principle 3:

Nursing Judgement: As the title indicates, the nurse must use the clinical judgement to be able to use telehealth since in some cases telehealth can't be used and is not effective and the patient needs a face -to-face interaction.

Principle 4:

Direction, Supervision and Delegation: The nurse must follow the regulations regarding delegation of tasks of other credentialed personnel under the supervision of the nurse and adhere by legal requirements.

Principle 5:

Documentation: The quality of documentation for Nursing Telehealth visits should be the same of an in-person visits and this should be performed while considering rules, regulations, and quality assurance protocols.

Principle 6:

Roles and Responsibilities: Nurses must be responsible for their acts and make sure whether they have adequate knowledge and skills to meet the nursing needs.

Principle 7:

Consent, Confidentiality and Privacy: Nursing telehealth abides by the same rules and regulations of the bedside care nursing practice based on the federal laws of the states.

Principle 8:

Licensure Considerations: The nurse must be licensed in the state in which care is provided and to provide care to a patient in another state, the nurse must comply with rules and regulations of the state where care is provided.

Principle 9:

Professional Ethical and Liability Considerations: Telehealth visits are prone to more errors and risks than face-to-face interactions, so it is important to highlight and address ethical and liability issues.

Principle 10:

Competencies: Nurses providing telehealth services must be highly skillful and specialized in the area of practice, so training requirements must be met to provide nursing telehealth visits.

F. Telehealth Nursing competencies

According to the National Organization of Nurse practitioners the use of telehealth by nurses should be guided by certain competencies and nurses must be trained to reach these competencies. Nurses should first of all be able to identify when should telehealth be used and when it should not, as well as the professional etiquette while videoconferencing with a patient. The nurse or healthcare professional should have an understanding of privacy when using telehealth services, in addition to knowledge of proper documentation and billing. The nurse and healthcare provider must have competency in using the equipment required in telehealth, as well as proficiency in collecting patient information, and performing a complete physical exam (NONPF, 2021).

G. Telehealth Policies and Procedures

To establish a well-designed telehealth program, it must follow specific policies and procedures. A telehealth program must provide a detailed description of the service provided

as well as the inclusion and exclusion criteria for the patients. The telehealth program should follow a specific process and a clear care plan for the patients. Before proceeding with the telehealth visits, a patient should sign an informed consent. As any healthcare program, the telehealth program should indicate patient's rights. Privacy and confidentiality are essential components of the telehealth service; to ensure that the information shared between healthcare providers is circulated properly, care coordination and referral process should be implemented (Bowen et al, 2021).

H. Legal considerations

Like an in-person health visit, telehealth services need to address legal considerations such as liability and malpractice as they carry risks and legal issues and shall be considered in the risk management plan of the healthcare institutions (ASHRM, 2018). Risk management associated with the use of telehealth can fall under three categories: Credentialing, Standard of Care, and Documentation.

Risk managers should confirm the applicable credentialing requirements for telehealth practicing professionals at the originating and distant site and that healthcare professionals have the basic needs of credentialing requirements for the telehealth as per the law to be able to engage in the practice. Standards of care for telehealth which regulates the healthcare professional and patient relationship, electronic prescribing, and in-person follow-up. Documentation is a crucial aspect of telehealth risk management and legal considerations by which all patient encounters and interactions shall be documented in the health record which complies with health regulations. All activities related to patient care shall be documented

such as medication prescriptions, diagnostic tests, and education, so risk managers should work closely with health information management to ensure that data is properly documented and protected (ASHRM, 2018).

Legal considerations when using telehealth include obtaining a consent form and privacy protocols. Before using telehealth, the service provider should obtain the patient's consent form and explain thoroughly what the service provides and what is telehealth technology (AJN, 2016). The health information management department shall be aware of cybersecurity issues and work on protecting the privacy of the patient and institution from hackers (HRSA, 2021).

I. Telehealth Best Practices

The use of telehealth has surged in the previous years, especially in the pandemic and this necessitates the update of policies to ensure proper documentation, privacy policies and the maintenance of record (Bowen et al, 2021). Documentation best practices recommend that a patient signs a consent form for the use of telehealth and should be educated about it before signing. Visits type should be defined and documented whether audio only or audio/video visits as well as the length of the telehealth visit and location of patient and clinician in addition of identifying the participants and their names in the telehealth visits (Houser et al, 2022). Policies should be designed on retention of information and how to record telehealth visits and the way this information is secured and who has access for such information. Policies must include privacy and confidentiality while using telehealth for the patient according to laws where telehealth is practiced (Bowen et al, 2021).

CHAPTER III

METHODOLOGY

Based on the information collected in the literature review, the project will be divided into three phases. The first phase or pre-implementation phase and includes a situation analysis of the target population to identify the types of telehealth services needed. Accordingly, an implementation plan is developed detailing the program objective, inclusion/exclusion criteria, the budget, the workflow for a telehealth visit, preparing the technology, and training the healthcare providers and staff. The second phase is the implementation phase that includes equipment and software testing with mock telehealth patients, then piloting the project before going live. The third phase is the post-implementation phase and includes setting the evaluation criteria to address adequacy of training, implementation, equipment, technology, and program outcomes. In addition to setting a follow-up and monitoring schedule of telehealth patient encounters to identify differences between standards and actual practice.

This paper will focus on the pre-implementation phase because of the time constrain. The pre-implementation phase ends with an implementation plan with a detailed explanation of the program establishment based on the recommendations of the literature, SANAD context, and the target population health needs.

A. Environmental Analysis

SANAD has offices in Beirut and Bekaa areas. The Bekaa office services cover middle and west of Bekaa. The team consists of two nurses and one physician in addition to an

executive assistant. Bekaa services cover an average of 35 to 40 patients depending on the load and acuity; each nurse receives around 18 to 20 patients, and the nurse-to-patient ratio is 1 to 20. The Bekaa physician oversees all the patients, so the physician patient ratio currently is 1 to 40. The Beirut's central office of SANAD is in Mathaf area and provide services for 70 patients living 8 kilometers far from the central office. The demand for our services in Beirut is growing to include patients living up to 23 kilometers away from the central office. Accordingly, the proposed telehealth program will target those patients and not patients living in any other areas that are more distant than 23 kilometers from the Beirut's central office. This is because the team will do an initial physical visit and it is not possible to travel a longer distance due to the current shortage of staff and increased fuel price.

B. Hospice Services Need Analysis

The current SANAD population is divided into two categories: Cancer end-of-life patients with metastatic cancer stage 4, who are not responding to treatment, or who were not eligible for treatment from the beginning due to advanced disease status. Non-Cancer end-of-life patients include geriatrics with multiple chronic comorbidities, advanced cases of heart failure patients, multiple sclerosis patients, and other chronic end-of-life conditions that require palliative/hospice care. Accordingly, the current SANAD admission criteria require that the patient be a metastatic cancer patient with a life expectancy of six months or less, or a non-cancer chronic patient with a life expectancy of six months and less and have a chronic condition like multiple sclerosis or heart failure. The primary doctor must give permission for the patient to be admitted under our care and consider the patient to be a hospice patient.

Usually, patients are referred to SANAD by their primary physician or by a relative, another patient, or a patient network. When the patient or family calls SANAD to request care, SANAD's nurses will give a thorough description of the service offered. SANAD services are free of charge, and provide equal care to all patients regardless of their gender and social status. There is no formal consent form that the family or patient signs when admitted under SANAD's care, only a verbal consent for agreement to care. But patients joining the telehealth program will be asked to sign a written consent form.

The number of visits per patient depends on the acuity level of the patient. If the patient has no symptoms at all, his acuity level is one; if he has mild symptoms, his acuity is two; if the patient has active symptoms as pain, dyspnea, fatigue, low appetite and many more symptoms related to the disease, he is acuity three; if he has multiple symptoms and is unstable, he is considered as acuity four. Patients with acuity one or two are visited once per week and those with acuity three or four, are visited twice or more, and if needed, they might be instructed to transfer to the hospital which is applicable also to patients in the last phase of the end-of-life period.

Usually, the hospice services duration is three to six months; however, the palliative care services may last up to 2 years. They function 24/7 and provide symptom management at home so the patient is at comfort and dies in dignity and peace. The initial assessment is done by the nurse and the second visit is with the physician; during the first visit, the nurse performs a complete physical assessment, manages the medications, and adjusts the doses to make the patient symptoms free. The assessment is not only physical and medical but also psychological; all nurses are trained to perform psychosocial support and if symptoms persist,

the nurse can refer the patient and or family member to a psychologist to do the proper interventions; briefly SANAD performs holistic care at the home setting.

CHAPTER IV

RESULTS: PROGRAM IMPLEMENTATION PLAN

Based on the results of the literature recommendations, SANAD's context, and population health needs, the proposed telehealth program will be as follows:

A. Program objectives:

The major goal is to deliver hospice care across geographic distances using technologies that will alleviate the nurses' workload and increase access to SANAD's services in a cost-effective and cost-efficient approach. The main objectives of proposing a telehealth program for SANAD is to alleviate the high workload of nurses in a cost-effective manner, and to increase hospice care services over long distances.

B. Inclusion and exclusion criteria

To provide the patient and their families with the best quality of care, telehealth must have inclusion and exclusion criteria to identify who are the best-fit candidates.

Inclusion criteria:

1. Patients who are long-distance patients (at least for now 23 kilometers away)
2. Patients who can communicate verbally
3. Patient/family members who do not show any cognitive challenges
4. Patients/families who are capable to use technology guided tools
5. Patients who are stable and do not show imminent symptoms that can be managed via videoconferencing

Exclusion criteria:

1. Patients who have a very high level of distress or clinical depression
2. Patients who themselves and their home care givers are unable to use the technology
3. Patients who are imminently dying (Last two weeks of life)
4. Patients who are assessed and show risk for substance abuse or any type of abuse at the home setting
5. Patient/family that shows a history of non-compliance behaviors with the clinical staff

Table 1- Process Map for SANAD's Workflow: A comparison between current and after telehealth.

<table>
<tr><th colspan="2">Pre-Visit</th><th></th><th colspan="2">First Visit</th><th></th><th colspan="2">Follow-up</th></tr>
<tr><td>Current process</td><td>Telehealth</td><td></td><td>Current process</td><td>Telehealth</td><td></td><td>Current process</td><td>Telehealth</td></tr>
<tr><td colspan="2">The nurse asks the patient for results of scans, biopsy, and laboratory tests.</td><td></td><td colspan="2">The nurse visits the patient's home</td><td></td><td colspan="2">The nurse follow's up over the phone to check on signs and symptom management</td></tr>
<tr><td colspan="2">The nurse validates that the patient's case is a palliative/hospice case based on diagnostic tests</td><td></td><td colspan="2">The nurse collects history and performs her assessment and physical exam</td><td></td><td>The nurse does the second home visit with SANAD's physician</td><td>The nurse performs a telehealth visit with SANAD's physician.</td></tr>
<tr><td>The nurse makes sure the patient falls under SANAD's admission criteria</td><td>The nurse makes sure the patient falls under SANAD's admission criteria & telehealth inclusion criteria</td><td></td><td>The nurse informs the patient about everything relating to the care</td><td>The nurse makes sure the patient has gadget with connection and if not, the nurse provides a tablet with an internet card.</td><td></td><td>The nurse follows up regularly and visits the patient based on the need</td><td>The nurse follows up regularly and based on need via telehealth.</td></tr>
</table>

The nurse explains about the health services at SANAD and how will visits occur	The nurse explains about the telehealth services workflow and policies			The nurse teaches the patient how to perform the virtual visits, performs a mock virtual visit with the patient, and explains the plan of care		If an emergency occurs the nurse visits the patient within an hour	If an emergency occurs the nurse visits short-distant patient within an hour. long-distant patient will be referred to the hospital.
The nurse takes a preliminary verbal consent form			The nurse takes the patient's/care provider verbal consent for the homecare visits	The nurse takes the patient's/care provider written consent for the telehealth visits			
The nurse asks for patient's home location and schedules the first visit			The nurse schedules the next home visit with the patient	The nurse schedules the next telehealth visit with the patient			

C. Hospice Services Workflow

1- Pre-Visit

The access to SANAD's health services begins with a referral from the primary physician or patient's network. Patient or family will call SANAD to ask for care and communicate with one of SANAD's nurses. The nurse explains briefly over the phone about SANAD's services and asks the patient for results of scans, biopsy, and diagnostic tests to validate that the patient is a palliative/hospice case. The nurse fills an electronic checklist including SANAD's admission criteria and telehealth inclusion criteria. If all criteria are fulfilled, the nurse explains about the telehealth services workflow and policies

and takes a preliminary verbal consent from the patient or family. Once a preliminary approval is obtained, the nurse asks for patient's home location and schedules the first visit.

SANAD's telehealth virtual visits will follow the same routine and can extend from 30 to 45 minutes no more; short-distance patients having symptoms not controlled via telehealth must be visited by the nurse and evaluated whether they need to be transferred to the hospital or not; however, long-distance patients with uncontrolled symptoms cannot be visited by the nurse and must be advised to transfer to the hospital as an emergency. This will be circulated to the patients when enrolling as a long- distance patient and the family will be informed that SANAD does not cover emergencies (physical visits) for long distance patients as it does for regular patients.

2- First Visit

The first visit is a regular home visit during which the nurse will collect history and performs her assessment and physical exam, makes sure the patient has gadget with connection and if not, the nurse provides a tablet with an internet card. After that, the nurse instructs the patient how to perform the virtual visits. The nurse takes the patient's/care provider written consent for the telehealth visits and sets a date and time for the virtual visit that is convenient for the patient and the clinician. The nurse will explain that both the patient and clinician need to sit in a quiet environment free of distractions and have the patient medical record open and available to use when needed. The background and scene should be clear so the patient can see the clinician clearly.

The nurse will perform a mock visit with the patient to validate his or her understanding of the process and validate that the patient or family member who is communicating via telehealth is familiar with the videoconferencing platform. After that the nurse will ask the patient and caregiver if they have any question or concern. At the end of the first visit, the nurse will ask the patient to read and sign a consent form (Appendix A). Table 1 shows the difference between the current hospice visit and the proposed tele-hospice visit workflow.

3- Virtual Visit

A hospice nurse responsibility includes collaborating with medical staff and caregivers to develop a plan of care, visiting the patient frequently to assess their status and offering comfort and support as needed, helping in administering medications, alleviating sudden symptoms of the disease's end stage, notifying the physician in case of emergencies, maintaining accurate records of patient status, and supporting the grieving family members by adopting end of life care guidelines.

The proposed telehealth program has the potential to cover all above-mentioned aspects of care and to provide patients with the same quality of care as in-person visits.

Since telehealth is an alternate mode of regular home-based health visit, the health care provider should follow same/similar steps to the in-person visit with slight adjustments (Appendix B).

- Salute the patient and family members participating in the telehealth visit
- Break the ice with the patient and/or family member
- Assess the patient's symptoms based on the ESAS assessment criteria used in palliative and hospice care and implemented at SANAD.

- Ask thorough questions about clinical signs (physiologic and psychologic) to cover all possible symptoms and the clinician must cover all aspects of the physical assessment guided by the medical health record form.
- Ask the patient/family member to assess vital signs if they know how to and if the equipment is available at home (Blood pressure, temperature, oxygen saturation and heart rate).
- If assessing bed sores, lesions, or rash; ask the patient/family member to send photos of the affected body part to assess properly.
- Ask the patient/family member to use the camera and focus on the specific body part assessed (example: edema in the lower extremities, focus the camera on the lower extremities and ask to press to check if it's pitting edema or not).
- Check the current medications the patient is taking and review the medication record with the patient/family members
- Educate the patient/family member about new introduced medications and explain about the side effects as well as the indication to take the medication and the route, frequency, and time.
- Assess psychological symptoms for the patient and/or family member and perform psychosocial support and refer to the psychologist when symptoms persist or when there is a need.
- Listen and answer all the questions of the patient and family member
- Inform the patient and family member that you will have follow up sessions and agree on a convenient date and time.

- Ask the patient/family member to contact the nurse if any emergency occurs and not to wait for your next visit to report what is happening.

4- Documentation

It is mandatory to document the telehealth visit in the patient medical record, the nurse or any other clinician must document his/her assessment, findings, medications adjusted, psychosocial support provided as any other regular in-person visit. The nurse must document that the visit type is telehealth and the date and time of the visit and people participating in the visit. Any visit not documented is considered not done.

Patient assessment is usually performed using the Edmonton Symptom Assessment Scale (ESAS) that includes questions about the patient symptoms that may be scored ranging from zero to ten, zero being free of symptoms and ten maximum symptoms. The ESAS scale has 10 categories that are (Pain, Shortness of breath, Depression, Constipation, Wellbeing, Nausea, Drowsiness, Anxiety, Tiredness, Lack of appetite). The healthcare provider (nurse or nurse and physician) asks the home care giver to take vital signs and then review the patients' medications and based on the ESAS modifies the medications and put a plan for the next visit and evaluate accordingly. The same process can be easily performed during a virtual visit, especially that each patient admitted under SANAD's care has a medical file that is electronically shared on SANAD's drive and accessible to healthcare team members (Nurses, Physicians and Psychologist). The file has sections that addresses everything related to patient information and aspects of care. It includes general information sheet, initial assessment sheet, nurse record form, physician record form, psychologist record form, family meeting sheet, medications sheet, opioid

risk assessment sheet, abbey pain scale sheet, hospitalization record, and finally the discharge disposition of the patient.

The healthcare provider documents each and every act performed for the patient whether direct patient care (Nursing or Medical management) or psychological assessment and interventions and the file should be updated on daily or weekly basis for every patient as the internal policy indicates. Documentation requirements are stated in the telehealth practice policy that was developed to guide telehealth practices (Appendix C)

D. Technology

The proper integration of telehealth depends on the platform used for communication and the connectivity and ease of use. SANAD will use zoom videoconferencing platform for communicating with patients. Zoom is easy to use and due to the pandemic, most of the patient's families were using zoom for work or education or connecting with loved ones. Patients and families who are not familiar with zoom will be educated on how to use it. Zoom has the option of recording the telehealth visit with the patient and it can be downloaded on smart phones, tablets and PC's. Patients who do not have a technology guided tool to use in the telehealth visit will be provided by SANAD a tablet with an internet card that will be recharged by SANAD as well to use for telehealth visits.

SANAD's nurses and clinical staff will use the PC's available at SANAD offices that has zoom installed and will directly connect to the patients' medical files when performing the visit. The nurse should open the medical file before starting the visit and ensure there is proper internet connect and directly document the information collected in the visit in the medical file.

The medical record used at SANAD shows the date and time of documentation as well as the nurse or clinician documenting. All information saved on the google sheet in the medical file will be save automatically in the drive. The nurse or clinician has the option to perform offline documentation in case there was a connectivity problem.

E. Training Healthcare Providers

A capacity building session will be conducted with SANAD team prior to the pilot of the telehealth service. The session will explain the telehealth principles and guidelines, the inclusion/exclusion criteria, the consent form, the videoconferencing tool, and the documentation and follow-up processes.

The training must demonstrate the effectiveness of audio/videoconferencing in establishing genuine presence. Techniques that take advantage of the medium for non-verbal communication are easily taught as minor adaptations of what is already well known to skilled palliative care professionals. Examples include matching one's image size to the patient's; awareness of body language within the frame; maintaining eye contact; controlling when you move in or out from the camera/patient; controlling the voice tone; controlling the flow of the communication.

The training will provide hospice and palliative care professionals with new awareness of and attention to background, position, lighting, distracting background sounds, and the maintenance and focus on active listening. Participants will be asked to keep in mind when conducting video visits to always dress appropriately and do not multitask, to create a professional or neutral background, and to speak slowly and clearly, as audio/video can lag. Moreover, staff will be trained to assess the visible home environment. They should ask to

be shown where and how medications are organized, or to scan the room(s) for safety issues and other relevant elements of the home.

F. Training Patients

SANAD will be providing iPads with internet connection and will train the patients and their families on the use and advantages of telehealth. In addition, it is important to provide them with instructions in order to benefit from the remote encounter and this includes:

- Explaining to the patient/family that this encounter is a health appointment and not a regular phone/video call
- Asking the patient to find an adequate place and timing for a quiet encounter
- Asking the patient to prepare all his/her questions in advance
- Asking the patient to communicate all his/her physical and psychological signs and symptoms.

Training about instructions will be conducted by the nurse in charge of the patient. SANAD'S nurse in charge will educate the patient and the family about telehealth and its importance as well as the objectives of the telehealth program. The nurse will assure the patient and family that using the telehealth service does not mean that the patient will not be visited in case of emergency situation that cannot be managed by telehealth for regular support patients; however, long distance patients will be guided for proper medical attention in case of their emergency cannot be managed by the telehealth service provided. SANAD's palliative care nurses will maintain rapport with the patient and the family members especially the primary care providers to build trust; this is why it is necessary to visit the patient at least once before the start of telehealth support.

G. Budget

The telehealth program budget depends on the expected number of patients who will be enrolled in the program, the commuting cost saved, the technology equipment and devices needed, and the training cost.

Currently, there are 70 to 80 patients enrolled with SANAD in Beirut area, and those patients are cared for by four nurses, one psychologist, and two physicians. Based on our knowledge of SANAD's population, it is estimated that 30 patients out of the currently enrolled patients will fit the telehealth inclusion criteria.

The commuting cost per patient is calculated by multiplying the average number of visits per patient per week by the transportation cost per visit. Nurse and physician visit the patient together in the same car and the psychologist visits alone. Fuel needed to visit a patient is calculated to be $10 per visit. The average patient needs three visits per week (two nursing visits and one psychologist visit); thus, the commuting cost per patient per week is $30. Accordingly, if 30 patients are enrolled in the telehealth program, weekly $900 commuting cost will be saved.

Since zoom videoconferencing platform will be used for communicating with patients, the only technology cost will be related to the communication devices and internet cards that SANAD will be purchasing for patients who cannot afford to buy ones. The needs assessment showed that SANAD need to buy 10 tablets and provides monthly internet cards for ten patients. Each tablet costs $150, this is an initial cost paid once which accounts for $1500. The internet cards will be recharged monthly and each card costs monthly10$, which accounts for 100$ per month. No specialized devices will be purchased since the tablets include high-

definitions cameras and every patient will have a caregiver at home to assist in sending photos and in taking and reporting the vital signs.

The training need is expected to be minimal with no cost since the staff at SANAD are familiar with zoom videoconferencing and no sophisticated technology will be used at this stage. If training will be needed later on, it will be conducted by SANAD's APN and it will be free of costs. Currently SANAD does not have an in-house IT department; however, an external IT support is available whenever they need it.

As shown in Table 2, the first month net saving is $1100 and starting the second month, the savings will be $3500 monthly. Accordingly, the total savings per year are expected to be $1100 + ($3500 x 11) = $39,600

Table 2-Telehealth Program Budget

	Needed number	Cost per item	Total 1st month	Total 2nd month and on
Fuel cost Savings	90 visits*	$10 per visits	$3600**	$3600**
One-time cost	10 tablets	$150	($1500)	
Monthly cost	10 internet cards	$10	($100)	($100)
Net saving per month			$1100	$3500

*****_3visits/week x 30 patients=90 visits_
** 90visits x $10 x 4 weeks=$3600

CHAPTER V

DISCUSSION

The main objectives of proposing a telehealth program for SANAD is to alleviate the high workload of nurses in a cost-effective manner, and to increase hospice care services over long distances. The proposed program plan is expected to achieve those objectives as follows.

The current nurse and physician patient ratios at SANAD are very high and nurses are burned out and not able to provide adequate time for documentation. The telehealth program will alleviate the nurses' workload by decreasing the visit time to half. The regular visit takes around 90 minutes to 120 minutes (One hour visit and around 30 minutes commute). depending on the location of the patient. Some visits can take more time, but these are not frequent. The telehealth visit will take around 45mins, half the time of a regular visit. Saving the commuting time will decrease the load of the healthcare team and help nurses better focus on patient care needs, proper documentation, and follow-up with patient without being rushed out by transportation logistics and time constraints.

As shown in Table 2, the net savings for the first month are $1100, and they increase to $3500 per month after that. As a result, $39,600 in annual savings are anticipated. The money saved will gradually enables SANAD to recruit more nurses and thus increase the number of served patients (regular and long-distance support). Saving the commuting time will lessen the load of the healthcare team, and the patient and clinician will communicate more frequently, which help patients feel more supported and their symptoms well controlled. A study by Cameron et al. (2021) revealed that the use of tele hospice helped in managing the patients' symptoms better than regular in-person visits, and that the presence of support all the

time has decreased the caregivers' anxiety as well. Another study by Oliver et al. has shown that telehealth has improved access to hospice care especially in the Coronavirus pandemic; the same authors stated that tele hospice was shown to be cost-effective (Cameron et al, 2021).

A. Program Strengths

The strength of the proposed program resides in being cost-efficient and in its design that conforms with the guiding principles of telehealth nursing practice. This is demonstrated in the plan of the program. It has clear inclusion exclusion criteria to help nurses properly judge when it is appropriate to use telehealth and when it is not safe to use telehealth. It addressed the need for proper training and guiding tools for proper video conferencing to help clinicians create a therapeutic relationship with the patient and be able to evaluate, interpret, and study patient data from distant telehealth sites and ascertain its course of action. Third, a telehealth practice guideline/policy was developed (Appendix C) delineating the documentation standards that must be followed, the rules concerning consent, confidentiality, and privacy, as are all other types of nursing care. The program steps presented in this project can serve as a high-level guide to those who are planning to initiate a cost-efficient telehealth program.

B. Implementation Challenges

Although the telehealth program has many benefits and strengths, it has as well some implementation challenges mainly with regard to internet connectivity issues in Lebanon, non-

compliance of some care givers, electricity crisis in Lebanon, and inability to identify properly the symptoms in some cases.

1. ***Connectivity issues in Lebanon:***

Lebanon is facing a big economic crisis since around three years and this economic collapse has been reflected on all sectors and the telecommunication and internet connectivity has been affected, the WIFI connection at the homes and offices is most of the times poor and there is no connectivity at all in some unprivileged areas, the 3G and 4G services are as well poor in many areas. Internet connection is directly related to the fuel and due to the high expenses of the fuel; some municipalities are stopping the connectivity from the sources. This crisis in the internet connection which relates to the national situation is reflected on the patient's care when performing telehealth visits which relies on connectivity and without a proper internet connection the visit cannot be performed optimally, so will suggest to shift to phone call when this happens.

2. ***Non-compliance of some care givers***

Some care givers are not compliant to the care provided and this has many causes which can be personality related or burnout related or other factors and this might affect the flow of work and compliance with ordered treatment, especially that the nurse is not available at home physically to check and count the medications if suspicious that there is non-compliance. To mitigate this challenge, all new patients will be informed that noncompliance might lead to their expulsion from the telehealth program.

3. Electricity crisis in Lebanon

The electricity crisis in Lebanon is an old crisis since we were not even born however in the past two years and after the economic crisis have started, the electricity crisis has increased and in all Lebanese districts the electric power is provided for an hour or maximum two per 24 hours. Though all Lebanese areas have private electric generators however the high cost of fuel is also limiting the number of hours electricity is provided by generators and in most areas the total hours is 6, so the Lebanese are provided with electricity between 6 to 8 hours per 24 and this affects internet connection, the ability to turn on oxygen electrical generators and the activities needed for the daily living and therefore this is negatively reflected on the telehealth service provided, so will suggest to shift to phone call when this happens.

4. Inability to identify properly the symptoms in some cases

End of life patients present many variable symptoms and some symptoms that sometimes can be masked. One of the last hours of life symptoms is death ratel, the ratel is mainly fluids and secretions in the lungs when the patient starts the dying phase, and this can be masked since also some patients have crackles related to pulmonary edema, the nurse sometimes cannot identify the case without auscultation via stethoscope and presence near the patient. Another example can be deterioration in the level of consciousness which is a sign of the last hours or days of life, or can be infection related that can lead to deterioration in consciousness and the nurse in such cases can’t identify the symptoms properly in the telehealth practice. To overcome this challenge, we listed imminent patients under the

exclusion criteria of the telehealth program. Such patients (in their last two weeks of life) will be visited and cared for in person.

CHAPTER VI

CONCLUSION

The ongoing pandemic and the dire economic conditions in many countries, mostly in Lebanon will lead many home health service providers to seek telehealth support. There is neither staffing nor funding that can cover 24/7 professional care to most hospice patients. We have an opportunity today with the expand of technology and telehealth services to improve palliative and hospice services.

Though telehealth benefits in many aspects are explored in the literature, however for tele hospice, evidence needs to be strengthened given the small number of hospices available and the small number of researches in that area. Hospice is an emerging field in medicine; further studies are needed to explore patients' clinical outcomes based on tele hospice visits.

APPENDIX

Appendix A. Consent Form

SANAD Hospice Lebanon

Tele-Hospice Consent Form

By signing this form, I understand and agree the following:

Telehealth/Telemedicine/Telenursing involves the use of electronic communication to enable health care providers at different locations to share individual medical information for the purpose of improving patient care. The providers may include primary care practitioner, specialists, registered nurses, psychologists or other medical care providers in addition to family members, caregivers or any other legal representative or guardians may join and participate in the telehealth service, I agree to share my personal information with healthcare professionals and family members or other legal representatives or guardians. The information may be used for follow-up.

Telehealth requires transmission via tele-communication device of health information that includes reports, assessments, interventions, videos, pictures, text messages, audio form of data.

The law protects the confidentiality of the health information, and this applies to telehealth. Information provided via telehealth will not be given to anyone without my consent for any purpose.

By agreeing to use telehealth service, I am consenting to (SANAD Hospice Lebanon) sharing my health information to healthcare providers and parties who participate directly or indirectly with my care. I understand, agree, and expressly consent to (SANAD Hospice Lebanon) using, storing and disseminating information to healthcare providers and parties who directly participate in my care.

I understand that the internet's infrastructure may cause broadcast problems (poor picture, poor connection, audio interference) that might prevent effective interactions between the patient and the healthcare provider.

I hereby release and hold harmless (SANAD Hospice Lebanon] and all members of my care team from any loss of data or information due to technical failures associated with the telehealth/telemedicine service.

I understand that I will be given information about test(s), treatments(s) and procedures(s), as applicable, including the benefits, risks, possible problems or complications, and alternate choices for my medical care through the telehealth visit.
I have the right to withhold or withdraw consent to the use of telehealth service at any time and revert back to traditional in-person visit services if I am a regular distance patient. I understand that if I withdraw my consent for telehealth/telemedicine, it will not affect any future services or care benefits to which I am entitled.

I hereby consent to the use of telehealth in the provision of care and the above terms and conditions.

By signing below, I certify that I am the legal representative of the participant or that I am the patient and am 18 years of age or older, or otherwise legally authorized to consent. I have carefully read and understand the above statements. I have had all my questions answered. I understand that this informed consent will become a part of my medical record.

Signature of Patient or Patient's Legal Representative Date

Appendix B Tele-Hospice Visit Guide

At the beginning of the visit
• Break the ice with the patient and/or family member • Determine who is in the room with the patient. You can ask a family member to step out of the room if needed. • Outline the session to let the patient know what to expect. • Discuss what to do if the patient loses connectivity. Get their phone number; a phone call can be a good option if the patient can't access the internet
During the visit
• Maintain the same standard of care as an in-person visit. • Assess the patient's symptoms using the ESAS assessment tool at SANAD. • Ask thorough questions about clinical signs (physiologic and psychologic) to cover all possible symptoms guided by the medical health record form. • Ask the patient/family member to assess vital signs with the equipment available at home (Blood pressure, temperature, oxygen saturation and heart rate). • Ask the patient/family member to use the camera and focus on the specific body part assessed (example: edema in the lower extremities, focus the camera on the lower extremities and ask to press to check if it's pitting edema or not). • Check the current medications the patient is taking and review the medication record with the patient/family members • Educate the patient/family member about new introduced medications (if any) and explain about the side effects as well as the indication to take the medication and the route, frequency, and time. • Assess psychological symptoms for the patient and/or family member and perform psychosocial support and refer to the psychologist when symptoms persist or when there is a need. • Do end of life discussion and advanced care planning
At the end of the visit

• Provide a plan for the patient
• Listen and answer all the questions of the patient and family member
• Inform the patient and family member that you will have follow up sessions and agree on a convenient date and time.
• Ask the patient/family member to contact you if any emergency occurs and not to wait for your next visit to report what is happening.
• Document on the e-file:
  ○ The date and time of tele-visit and people participating in the visit.
  ○ The assessment, findings, medications adjusted, psychosocial support provided, etc. as with any other regular in-person visit.

Appendix C Telehealth Practice Policy

Department: Quality and Research	Policy Description: Telehealth Practice Policy
Page: 1 of 1	Replaces Policy Dated: July-22-2022
Effective Date: September 2022	Reference Number:
To be Approved by: Mrs. Lubna Ezzidine	

Definition: Telehealth, sometimes referred to as telemedicine, is the use of electronic information and telecommunications technologies to extend care when the clinician and the patient are not in the same place at the same time.
Purpose: Telehealth provides clinicians, patients, and caregivers with timely access to specialists via real-time audio-video communication.
Policy: Clinicians, patients, and caregivers in need of hospice patient support, as determined by the hospice care provider can use telehealth for treatment planning, care coordination, education, and end of life care.
Evaluation and Treatment of the Patient: Treatment and consultation recommendations made in an online setting, including issuing a prescription via electronic means, will be held to the same standards of appropriate practice as those in traditional (encounter in person) settings.
Documentation: The visit must be documented in the patient's medical record when using telehealth. Documentation of telehealth visits must follow SANAD's practice of documentation. All Information collected shall be documented precisely. Nurses must document visits in the same day of the visits and must document new admissions within one week. Documentation should not include abbreviations not approved by international medical abbreviations. The clinician who performs the visit shall document the information and document date, time and initials. Any incidents or issues occurring with the patient shall be documented after reporting it and detailed description shall be provided. Notes shall be documented based on the PIG sequence, which is PROBLEM, INTERVENTION, GOALS.
Standard of Care: Standards and scope of telemedicine should be consisted with in-person services. The same standard of care must be applied to both telehealth and in-person services. Standards of care related to nursing and medical care shall be followed. The same scope of practice provided in in-person visits shall be provided in telehealth and clinicians are responsible for the telehealth car provided.

Consent: Informed consent should be obtained from the patient or designee before beginning the use of Telehealth. The patient or designee shall be educated about the service provided and SANAD's scope of practice before signing the consent form. The person signing the consent should be mentally stable and legalized to sign it. During this process, providers should inform their patients regarding what to expect during the telehealth encounter.
Billing: Inform patient that all SANAD's services are free of charge, and they will not be billed for telehealth visits. The patient or care provider shall be informed that SANAD is a local NGO that provides equal care to all patients in need disregarding gender, politics, religion, financial and social status. The patient or care provider should be informed that the health care team does not accept any kind of gifts or money.
Privacy: Healthcare professionals providing telehealth services shall ensure privacy so provider discussion cannot be overheard by others outside of the room where the service is provided. If other people are in either the patient of the professional's room, both the professional and patient shall be made aware of the other person and agree to their presence. Patient's information can only be provided to nurses, doctors, and psychologists and family care givers and shall not be shared to any other team member. Provide telehealth visits only using safe applications that are security protected and following HIPAA guidelines for using telehealth.
Licensure and Credentialing: Health Professionals providing telemedicine services must be licensed in the country (Lebanon) where the patient receives services. Professionals shall conduct care consistent with the jurisdictional regulatory, licensing, credentialing, and privileging, malpractice and insurance laws and rules for their profession in both the jurisdiction (site) in which they are practicing as well as the jurisdiction (site) where the patient is receiving care and shall ensure compliance as required by appropriate regulatory and accrediting agencies. The nurse conducting the telehealth visit shall have a practice license issued by the Lebanese ministry of public health as well as the order of nurses practice license. Nurses who do not have the License and work permit are not allowed to work and conduct in-patient or telehealth visits. Physicians who do not present a license to work in Lebanon cannot practice with patients whether in-person visits or
Prescribing: The practitioner must act in accordance with applicable country's law; is issued for a legitimate medical purpose by a practitioner acting in the usual course of his/her professional practice and the telehealth communication is conducted using an audio-visual, real-time, two-way interactive communication system.

Technology: Modes of communication used by healthcare providers to interact with consulting site will comply with the originating site and consulting site's HIPAA regulations and allow for verification of the individuals transmitting and receiving information.

Nurse-patient relationship: Nurse-Patient relationship is "clearly established" once the consulting site nurse agrees to follow up with the patient, and the patient agrees to be followed up, whether or not an in-person encounter has occurred between the nurse (or any other appropriately supervised health care practitioner) and patient. A valid patient-nurse relationship must be established prior to providing telehealth services.

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