

Information Technology and Telecommunications in Nursing Services Analysis

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Foundations of Telehealth Nursing

Telehealthcare and nursing refer to the utilization of information technology and telecommunications in the provision of nursing services thus delivery of healthcare to remote areas and over distances. Telehealth nursing is also known as telenursing, which is a branch of telehealth care. Telehealth is a broader reference to telemedicine, which is defined as the application of medical information and data transmitted and shared electronically with the aim of ensuring improved health conditions. Telehealthcare uses clinical information systems, which are computer networks. These systems collect, store, manipulate, and present clinical data and information that are significant for the provision of healthcare services.

Telehealth covers remote healthcare, but it does not necessarily include clinical services. Telemedicine and telehealth are terms that can be used interchangeably at many times. They both involve the electronic sharing of pictures and video conferencing, as well as the remote exchange of significant signs and other patient information. Telehealth, unlike telemedicine, also incorporates promotive, preventive, caring and healing aspects, which include both non-clinical and clinical services for holistic use (Fong, Li & Fong, 2013).

Clinical Profile and Family Impact of Renal Failure

One of our patients was diagnosed with kidney (renal) failure. This condition is characterized by a waste build-up in the blood as well as excess fluids in the body. Typically, the patient experienced breath shortness, weakness, swelling, lethargy and confusion. The inability of the kidney to get rid of potassium from the bloodstream can result in abnormal heartbeats and can cause eventual death. At its initial stages, the patient had observed no signs or symptoms. We explained to him that the disease could have been caused by a variety of issues, and the treatments underlying this condition marked the initial steps in rectifying the kidney abnormality. While some kidney failure causatives could be curable and successfully restore the kidney to its standard functions, there are some stages at which the problem could progress, thus making it difficult to reverse the situation.

This condition affected the patient's family and caregivers. One of the impacts was a stigma. This was a result of the societal perception that the patient cannot improve his health, let alone healing. The

shame had caused stress among the family members, taking into account that the patient was their sole breadwinner. Consequently, the family suffered financial constraints. After exhausting their savings and family reserves, the family members had to look for alternative means of raising money to cater for the hospital expenses. This included soliciting money from friends and relatives as well as obtaining loans from banks. Such moves were difficult to take into account the financial independence the family had been enjoying earlier.

Hemodialysis Treatment and Clinical Management

After careful diagnosis and evaluation of the patient, hemodialysis was recommended. This is an option where the patients who require acute dialysis obtain renal replacement therapy. This method is, however, also applicable to many patients as a maintenance therapy due to its ability to offer excellent and rapid removal of solutes (Eren & Webster, 2016).

The neurologist assigned to this case was responsible for any therapeutic decisions made regarding the patient and also a range of parameters that were necessary for the dialysis treatment. He was to advise the patient on the frequency of the therapies to attend every week, the duration of each treatment, and the rates of blood and dialysis solution flow. Additionally, the specialist decided on the appropriate dialyzer to be used.

One of the most captivating concerns of this case was the fact that the components of the dialysis solution could be adjusted at times regarding its potassium, sodium and bicarbonate levels. I also learnt that the larger the body size of the patient, the more dialysis would be required. Under normal conditions, the patients were subject to three to four hours of treatment, but the duration could extend up to five hours for larger patients. The therapy was held for a week thrice. However, I learnt that larger patients were prescribed to attend four sessions every week, a case also applicable to patients who had problems with fluid overloads in their body systems.

Home Hemodialysis and Remote Patient Monitoring

Consequently, there is the launch of a new program that encompasses short daily home dialysis, often conducted from home. These therapies take one and a half hours and go up to a maximum of four hours and are administered five to seven times a week. Most patients have shown great interest in this program because it is conducted from home. A substantial number of patients have demonstrated significant benefits in nocturnal dialysis (Eren & Webster, 2016). This form of therapy typically takes eight to ten hours per night and is administered for a span of three to six nights each week. In the case of our patient, we opted for intensive hemodialysis that was to be conducted at home (El-Miedany, 2017). It is notable that technological advancements in healthcare possess great potential to improve the quality of healthcare delivery. One of the most efficient progress is remote

patient management and monitoring, where the information regarding the patient, such as significant signs and symptoms, are observed from home monitoring tools and devices and transmitted to health centres. This has led to early and easier identification of disease worsening for patients who have diabetes or heart failure, hence reducing re-hospitalization (Charness, Demiris & Krupinski, 2012).

Nurses can evaluate the suitability, effectiveness, and quality of a system by accessing the feedback given by the patients using the tool as well as their families. They can also obtain the health status of a community and determine whether there is an improvement recorded (De, 2017). The quality of the tool can be evaluated through the accuracy of the results obtained using it. The device can be rendered useful in cases where it relies on accurate information regarding the patient's disease as well as the duration used to record the results (Serwe, Hersch & Pancheri, 2017).

One of the advanced tools used in telehealth includes Home Haemodialysis (HHD), which is recommended for patients suffering from final-stage renal failure. The device has been embraced due to improved patient results and outcomes as well as lower expenses incurred. Ongoing support and proper practices are ensured when patients receive dialysis at home (Suzuki, 2013). However, the tool is resource intensive, and the limited nursing resources restrict patients' visitation over a wide geographical area. There is also a newly developed tool known as the Home Haemodialysis Remote Monitoring System (HHD-RMS). It is made up of a mobile device application as well as a web portal for remotely monitoring the dialysis equipment of patients with the aim of supporting patients (Charness, Demiris & Krupinski, 2012). The preliminary results are recorded in an audit, monitoring and assessing the tool's ability to offer sufficient data to facilitate a shift in dialysis prescriptions as well as its impacts on efficient delivery of care (Charness, Demiris & Krupinski, 2012).

Nursing and Patient Competencies in Telehealth

Haemodialysis is an essential aspect of the medical field. This diagnosis method has been enhanced through the adoption and use of telehealthcare services. One of the telehealth tools is the 'My Home Hemo' app, which is connected to a mobile phone. It is used to monitor patients on hemodialysis remotely. Both nurses and patients need to be equipped with knowledge and know-how on using the app (Telehealth Nursing Practice Administration and Practice standards, n.d.). Nurses should learn effective communication, where they can explain details to a patient. They should also be charismatic in the sense that they communicate and are appealing to their patients. They should develop interpersonal skills that will help them handle patients confidently and efficiently. Nurses should learn how to use the app and mobile devices. It should be core, and they should be able to read and comprehend the data readings and information relied on the app and make comprehensive and accurate conclusions and prescriptions or recommendations (Charness, Demiris & Krupinski, 2012).

Patients, on the other hand, should be trained on how to use the tools, how to set them and how to read the information or data shown by the app. They should be taught effective communication to facilitate the proper connection between them and the providers. The tool is typically used by nurses

to conduct hemodialysis on patients at home. They use mobile phones to monitor the app and observe any changes (Fitzpatrick and Ea, 2012). The device is used to read and record data such as blood pressure, body weight before and after dialysis, rates of blood flow, volumes of ultra-filtration, arterial and venous pressures, and session times and durations. It can indicate abnormal parameters in the above data. Upon monitoring, a nurse can see any abnormal parameters, thus making the necessary prescriptions and recommendations for the patients. They usually reach the patients and their families through phone calls since the app is mobile-connected in emergency scenarios (CLINICAL VIDEOCONFERENCING IN TELEHEALTH, 2016).

Outcomes of Telehealth Implementation

With the ever-advancing technologies, our health facility has implemented the use of telehealth programs, websites, tools, and systems. This has led to improved health status in a community since diagnosis and treatment can be done at early stages of detection. It has also helped in reducing certain expenses, such as travel costs to seek appropriate healthcare or costs incurred in treating already-developed diseases. Doctors, clinicians, and nurses have also been impacted in the sense that they can attend to more patients at a go and within a short period. Some of them are required to study and get the necessary skills in using telehealth tools and equipment.

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