

Home dialysis with video communication



Summary

The Dialysis Unit at the University Hospital of North Norway (UNN) implemented home dialysis in 2011. This service uses video conferences to bridge the distance between specialists and patients in patients' homes. The UNN has had experience of providing teledialysis services to six remote satellite dialysis units without nephrologists in North Norway. Since 2002, the service has been expanded into patients' homes. The main target groups are adult peritoneal (PD) and haemodialysis (HHD) patients.

Main effects of the solution

Generally speaking, the positive effects of the home dialysis service are

- Enables equal access to dialysis treatment in rural areas.
- Connects competencies between personnel at regional hospitals and remote primary care personnel.
- Empowers patients to manage their condition at home and maintain quality of life.
- Reduces the need for patient travel and provides more frequent and continuous treatment.
- Reduces specialists' travel time, thereby freeing up resources.
- Reduces the cost of patient transportation.

Effects for patients

Peritoneal dialysis (PD) patient

1. VC can be used to control the set up from the dialysis machine.
2. Help in the event of an alarm and troubleshooting.
3. Help if an infection is suspected (assessment of fluid colour).
4. Guidance in the event of catheter problems.
5. Assessment of general conditions, fluid balance, depression, etc.

Haemodialysis (HHD) patient

1. Increases confidence and security when healthcare personnel are accessible during the treatment.
2. VC can be used to control the setup of the dialysis machine before the treatment starts.
3. Guidance during cannulation or connection of a dialysis catheter.
4. Guidance in the event of an alarm.
5. Guidance regarding medical questions, for example, change in blood pressure (ultrafiltration, water intake).
6. Increases patients' confidence and sense of security regarding own assessment. Empowerment and competence may increase.

Effects for healthcare staff

- Time and cost savings for the health service.
- Regular VC meetings also serve to counter professional isolation among remote primary care nurses and allow decisions regarding patient care to be shared.
- Primary care nurses feel a greater sense of security when receiving guidance, education and training from the hospital via VC.
- Knowledge transfer from the hospital to primary care.
- The hospital staff feel a greater sense of security regarding the guidance they offer as they see the patient and gain an adequate overview of the situation.
- Major difference perceived by the primary care nurses between telephone and VC communication. VC provides a sense of proximity and higher relevance regarding the information being exchanged than via the phone.

Users

The users are patients with kidney failure who need to be treated regularly with dialysis in two possible ways: peritoneal dialysis (PD) and haemodialysis (HHD).

Elaboration

Needs and challenges

The rationale for remote VC links for renal services is to bridge the geographical gap, connecting competencies between personnel at regional hospitals and remote primary care personnel, reducing costs and, most of all, providing health care as close to the patient as possible, thereby empowering patients to manage their condition at home and maintain their quality of life.

Home dialysis is considered by the Dialysis Unit at UNN to be a means of improving the patients' quality of life, giving them more control of their lives, less travel, spending less time at the hospital, normalizing their daily life and feeling healthier. Home dialysis is also considered to be a means of addressing cost reduction requirements as dialysis at the hospital is a very costly alternative.

Solution and function

The solution comprises an iPad with a VC installed both at the patient's home, the home care nursing facility and the hospital.

The patient performs PD in their own home. The treatment can be performed in two ways:

1. By manual exchange by hand, continuous ambulatory peritoneal dialysis (CAPD). This is the most common method. The patient fills his/her abdomen with a dialysis solution and then drains the fluid. Gravity moves the fluid in and out of the abdomen through the tube. The patient may need 3–5 exchanges per day.

2. By automated peritoneal dialysis (APD) via machine. A machine called a cycler performs the exchanges at night while the patient is sleeping. The treatment lasts from 7–10 hours.

With haemodialysis (HHD) the patient connects and disconnects to the HD machine themselves and largely takes over the function of the HD nurse. This treatment requires a lot of involvement on the part of the patient and a prerequisite is an investment of resources for training and installation of equipment in the patient's home.

Implementation

The patient receives assistance from health personnel at the hospital or from the primary care nurse. The solution is used for home visits, controls, follow up and treatment. It is important to establish procedures for communication and interaction between the patient, the primary care service and the dialysis unit at the hospital. Training in the use of VC both at home and at the hospital is a further prerequisite.

Follow-up/monitoring

When you have completed the treatment, you will end contact with your therapist. The therapist will call you in for a final face-to-face conversation where you together summarize the work done. You will have access to all your text and assignments in the program for 6 months.

Further information

Studies performed and documentation

A previous preliminary study was conducted in order to assess the needs of kidney failure patients for home telemedicine solutions (see below). One of the conclusions was that there is actually a need to test an appropriate organisational solution for video conferences (VC) between home dialysis patients and hospitals.

Articles and reports

Arild E, Rumpsfeld M, Sjaaeng EE., "Teledialysis – experiences from North Norway" (NST Report, August 2007)

Arild E. Innomed 2009. Rapport. Forprosjekt . Kartlegge behov for nye telemedisinske løsninger hjem til nyresviktpasienter.

Choosing to live with home dialysis – patients' experiences and potential for telemedicine support: a qualitative study, Ellen Rygh, Eli Arild, Elin Johnsen and Markus Rumpsfeld BMC Nephrology 2012, 13:13. [Download article \(open access\) »](#)

Nye telemedisinske tjenester til hjemmedialysepasienter – NyTTeHjem (NST report, March 2012)

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