Utilizing a New Model of Care to Improve Patient Experience on Hemodialysis
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BACKGROUND
• Model of care ideology initiated in 2014, with the utilization of a home design hemodialysis machine (Nx) for in-hospital based patients.
• Due to constrained infrastructure, Nx was chosen as a trial machine for hospital off-unit dialysis.
• This led to the development of an in-hospital based unit using Nx.
• The Scarborough & Rouge Hospital (SRH) became the first hospital in Canada to use Nx for in-centre hemodialysis.
• In January 2017, the unit expanded to accommodate 14 patients over 3 shifts.

OBJECTIVE
• To develop a model of care which helps to improve patient experience on hemodialysis.
• To decrease the rate of hospitalization and emergency room visits.
• To provide insight on the benefits and challenges of this experience.

THE CREATION OF A NEW HEMODIALYSIS UNIT
• In March 2015, a new hospital in-centre unit consisting of Nx machines was established.
• 8 patients who experienced different symptoms such as restless leg syndrome (RLS), fluid removal challenges, leading to frequent hypotension on conventional hemodialysis were chosen.
• 4 out of the 8 patients were assigned on a 3 hours treatment for 5x/week as they are congestive heart failure patients.

DATA COLLECTION
• 15 sets of 6-week blood work was collected from each of the 8 patients and analyzed over a 2 year duration.
• KT/V was calculated to determine clearance of each treatment.
• The number of emergency room visits and hospitalizations were compiled before and after they started on Nx.

OUTCOMES
• Of the 4 patients on 5x/week dialysis, 3 showed greater than 74% reduction in emergency room visits.
• All patients on 5x/week dialysis showed greater than 80% reduction in hospitalization.
• Of the 4 patients on 3x/week dialysis, 3 showed greater than 50% reduction in emergency room visits.
• Of the 4 patients on 3x/week dialysis, all 4 showed greater than 50% reduction in hospitalization.
• Blood pressures remained stable throughout treatments for 6 of 8 patients.

ADVANTAGES
• 7 of the 8 patients on Nx have shown an overall reduction in emergency room visits, as well as hospitalizations.
• Patients diagnosed with congestive heart failure have shown decreased respiratory distress while receiving 5x/week Nx treatment.
• Due to built-in DI system with each Nx machine, limited resources were used to invest for install and constructing main water system.
• Because of a 24-hour exchange system, no biomedical personnel is required on-site for machine maintenance.
• Patients report decreased symptoms of RLS while on Nx compared to conventional hemodialysis.
• Nx became one of the choices of dialysis machines for SRH Home Hemodialysis as limited construction at patient home is needed for set up.

LIMITATIONS
• Sample size of patients was limited due to the quantity of machines available.
• The cartridge comes with only one type of dialyzer. Limited dialyzer size to suit individual patient needs.
• Choice of dialysate combination is limited compared to conventional dialysate. Some of them have higher lactate combination, which can be an issue for patients with liver issues.
• No access ports for blood work. We would need to open a closed system for blood specimen.
• Does not come with Heparin pump. Need additional IV pump to administer continuous Heparin during treatment.
• DI Pak (filter) consumption depends on the quality of water. Average life of each Pak is 3-5 weeks at SRH.