

Utilizing a New Model of Care to Improve Patient Experience on Hemodialysis

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The Scarborough and Rouge Hospital - In Center Hemodialysis unit

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.

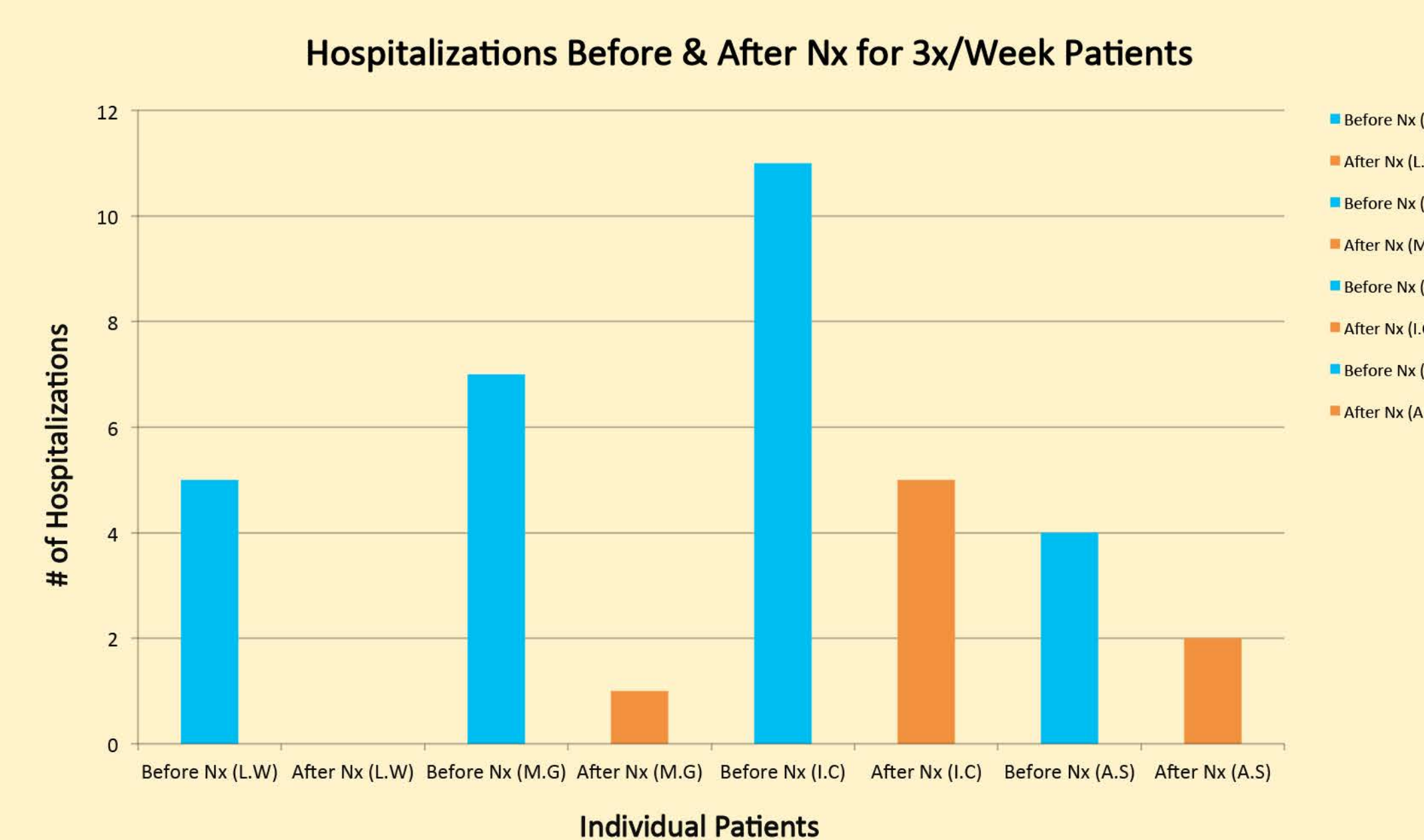
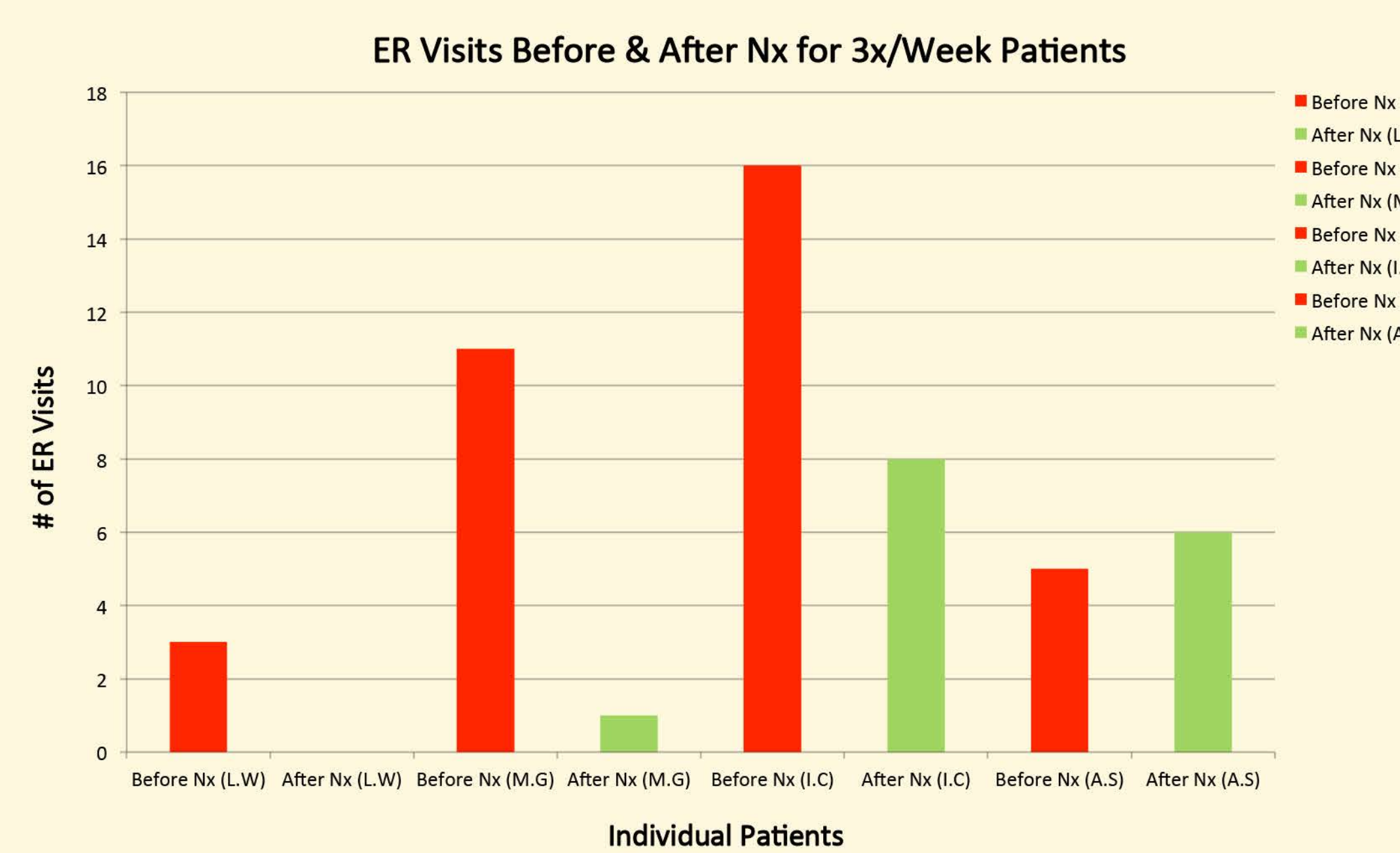
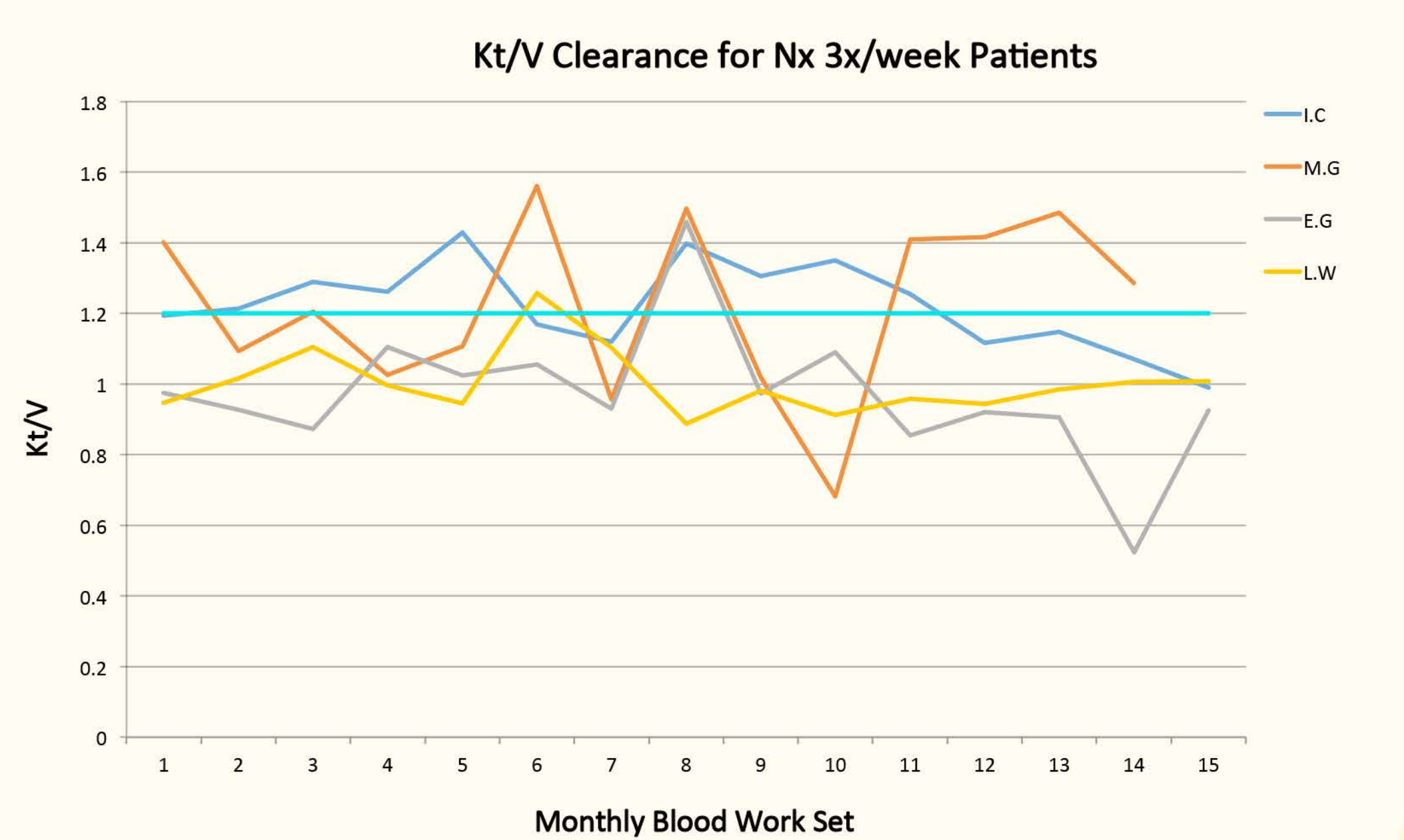
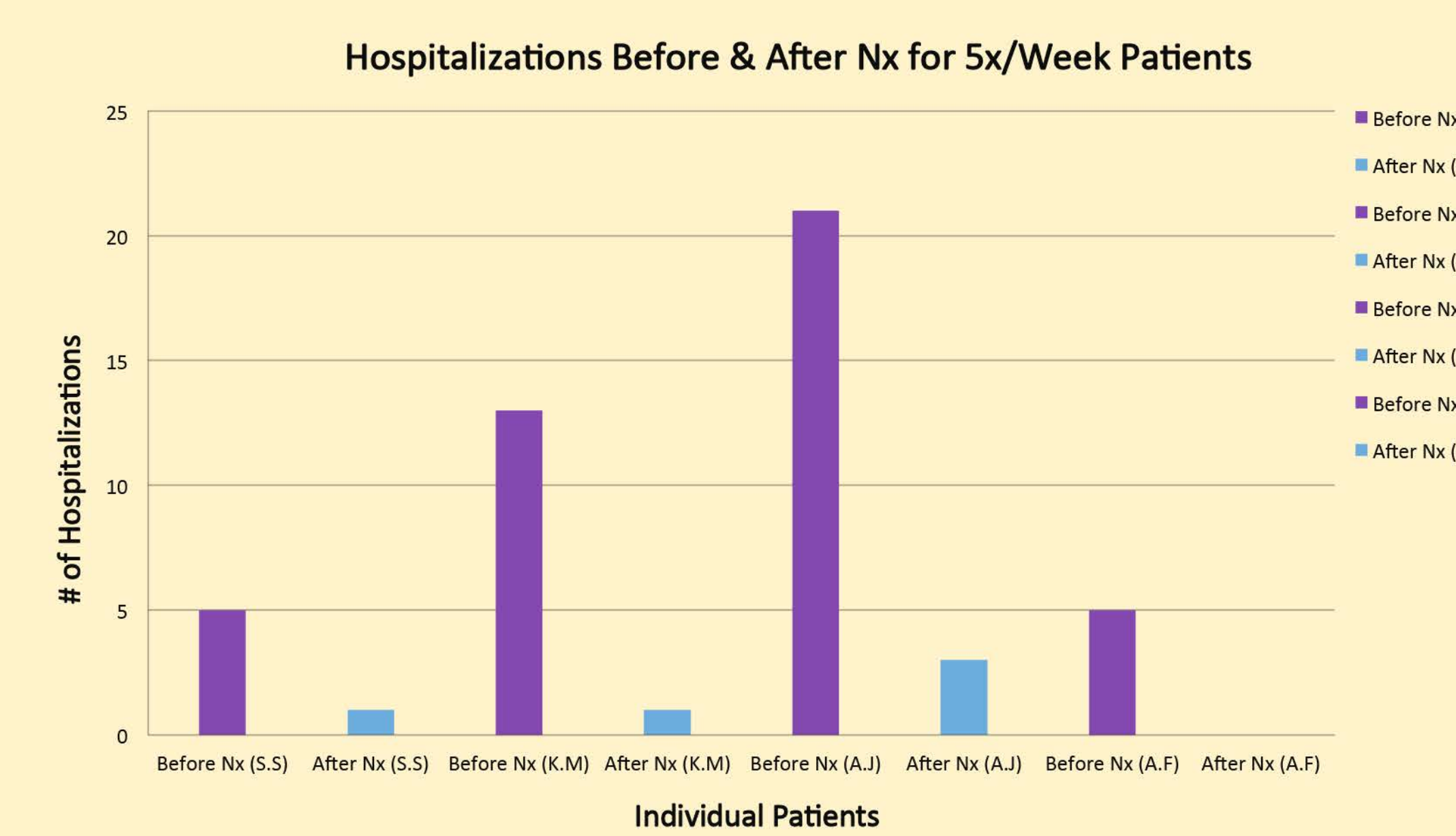
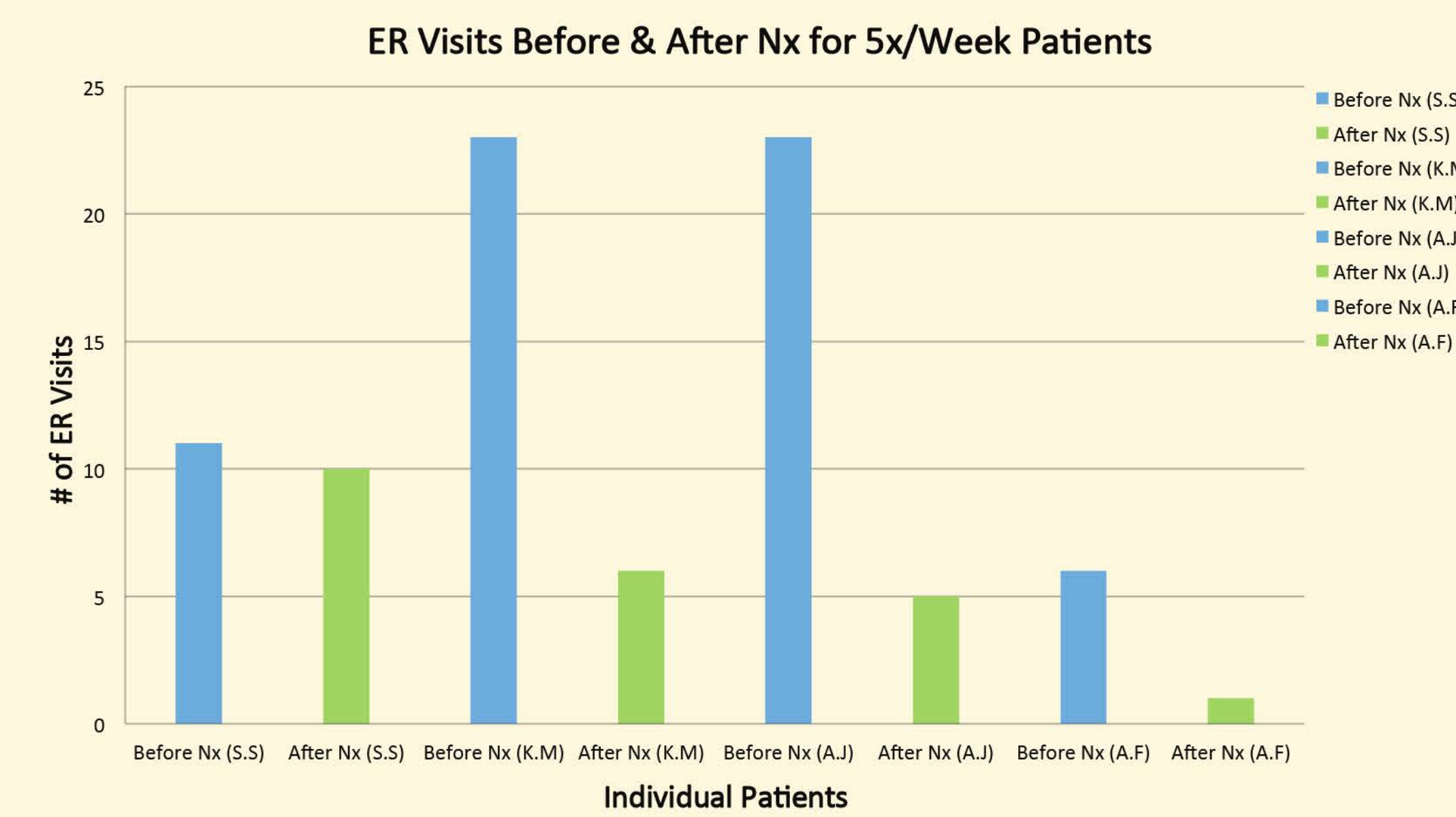
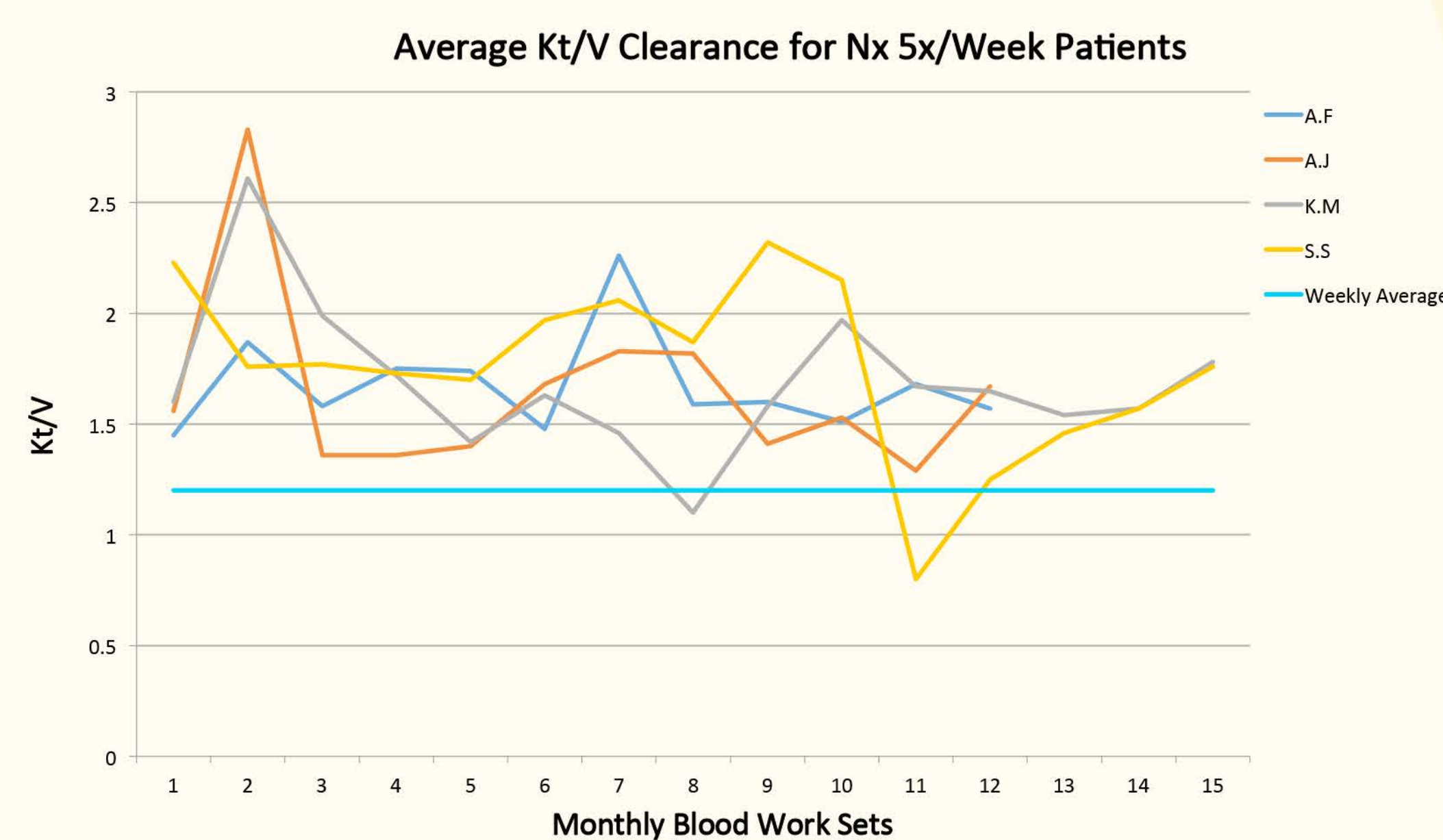
THE CREATION OF A NEW HEMODIALYSIS UNIT

- 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.