

# Patients Require Short Training Time for Hemodialysis at Home in the European Experience Using NxStage® System One™

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**INTRODUCTION AND AIMS:** The NxStage System One (NSO) was launched in its first European market in 2009. This novel machine, which delivers hemodialysis with an optimised dialysate flow, was specifically designed for the home environment and has facilitated the adoption of home hemodialysis (HHD). The simplicity and ease of use of the NSO, which is small and portable and requires minimal modifications to the home, may reduce barriers to patients who wish to dialyse at home. We describe here the duration and quantity of HHD training and the incidence of therapy cessation after transitioning to the home setting.

**METHODS:** This study involved retrospective data collection among 127 patients in 7 centers across 4 European countries (UK, France, Italy, and Spain).

**RESULTS:** Mean age was 49.6 years (SD, 13.5) and 66% were male. Mean BMI was 26.4 (range, 13-51), mean Charlson Comorbidity Score was 3.6 (range, 0-11), and leading primary renal diagnoses were glomerulonephritis (30.7%), diabetes (9.4%), and polycystic kidney disease (8.7%). Access type was distributed as 76.4% fistula, 20.5%

catheter, and 3.1% graft; and 74% with a fistula used the buttonhole technique. The mean training time for all patients was 16.9 sessions (10th and 90th percentiles, 7 and 30, respectively) to dialyse independently at home, significantly shorter than training on a conventional machine, which required an average of 27.7 sessions (range, 11-59) in the FHN Nocturnal Trial (Pipkin et al, CJASN, 5:1614-1620). Training failure rates have been very low, with few patients returning to in-centre hemodialysis within the first month. In the subset of patients with >6 months on therapy (N = 104), with initiation dates between November 2009 and April 2015, retention was 87% after 1 year on therapy, 66% after 2 years, and 48% after 3 years. Among 31 cases of therapy cessation, there were 17 transplants; 8 returns to in-centre dialysis, due to medical or psychosocial reasons; and 6 deaths.

**CONCLUSION:** In this European cohort, the NSO has enabled rapid training of patients and excellent patient retention. This facilitates growth of HHD programmes, improving access not only to home dialysis, but also the benefits of more frequent HD.

