U-Drain is a fixed drainage mechanism for patients on night-time Automated Peritoneal Dialysis (APD). It is installed the patient’s home and allows direct discharge of PD effluent into the household drainage system without the need for drainage bags at the bedside, saving on handling of 10+ litres of fluid and disposables. Following use the U-Drain connector is flushed and cleaned by the patient or carer using supplied products.

Supported by the local Academic Health Sciences Network, 15 patients had U-Drain installed in their homes. Patient and staff questionnaires, patient characteristics and dialysis related complications are reported for up to 6 months (64 patient months)..

**Data collection**

Questionnaire was completed on paper and anonymously entered into Survey Monkey (San Mateo, CA) questionnaire software for analysis: 14 themes including installation, tolerability, advantages and disadvantages and issues arising. The Peritoneal Dialysis Dependency Score, a validated measurement of global patient performance was undertaken regularly.

**Patient characteristics**

15 patients were recruited, 7 female, aged 57 (34-84) years. Predominant causes of kidney failure were diabetes (6), glomerulonephritis (3) and hypertension (3). There was variation in weight 71 (48-101) kg and body mass index (BMI) 26 (20-39) kg/m2. 4 patients were active on the kidney transplant waiting list. 3 episodes of staphylococcus peritonitis (1 per 21 patient months).

**Patient reported outcome measures**

The patient questionnaire was completed by 13/15 participants.

100% were very satisfied with the installation, 73% very happy with the look and position 23% happy.

Distances reported to the bathroom or toilet where fluid was usually disposed of ranged from the adjacent room to 17m.

A family member 55%, carer 10%, healthcare assistant 10% and patient themselves 25% would normally carry the full drainage bags for disposal. Patients reported their difficulties in lifting full drain bags without assistance.

90% of patients felt the system saved them time in clearing the machine after dialysis ranging from 5-15 minutes, similarly 90% noted a reduction in set-up time. It was noted that cleaning the U-Drain outlet did offset some of the time gained in clearing up.

80% noted a reduction in storage space required for consumables and 100% noted a reduction in non-recyclable waste requiring disposal.

Flushing after use was extremely easy for 55%, easy for 35% and slightly difficult for 10%.

Overall 80% felt the system had been extremely beneficial to them, 20% beneficial.

Important feedback was given on potential improvements, particularly in the clean/flush procedure. This has been fed-back to the suppliers.

100% of patients would recommend U-Drain to another person on dialysis: “makes life a lot easier”, “definitely beneficial”, “much more convenient than using large drain bags”, “it saved a lot of time and you don’t struggle with heavy drain bags”.

**Green dividend**

During the period of this review 3700 drainage bags were saved from use, reducing the weight of non-disposable plastic sent for landfill by approximately 650kg.

**Staff questionnaire outcomes**

9 staff members participated 45% registered nurses, 55% healthcare assistants providing Assisted APD and normally disposing of the full drain bags, setting up and priming the dialysis machine.

Staff perception of patient benefit was 85% very satisfied and 15% satisfied with U-Drain, noting benefit in set up including elderly patients and those with arthritis. 85% felt their role was much easier with the system, 15% easier, with quicker consultations, less mess and fluid exposure in disposal. Areas for improvement again centred round the flush/cleaning procedure.

100% noted a time saving in their role from 5-20 minutes per visit and all found benefit in not carrying the full drainage bags around a patient’s house.

100% felt they could recommend the system to other patients.

**Conclusion**

Patients and staff involved with this pilot project feel it has been very successful. It is widely recognised that patients undertaking their dialysis at home can suffer fatigue in delivering the treatment usually daily. The increasingly frail and elderly population and those with significant multi-morbidities can be put off, or indeed fail home therapy because of the prospect of large bags of waste fluid accumulating by the bedside at night and the need to dispose of them in the morning. In a representative population of peritoneal dialysis patients, the U-Drain system was universally popular and had immediate benefits to patient and carer wellbeing.

The system was well thought of by staff members and no medical complications have been observed related to the system. It was noteworthy that 100% of patient and staff respondents would recommend the system to other patients.