ANNUAL THERAPY COST OF DIALYSIS IN THE UNITED KINGDOM WITH THE QUANTA SC+ PERSONAL HAEMODIALYSIS SYSTEM

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Background

- SC+ is a small, simple-to-use and versatile haemodialysis (HD) system that has recently been made available in the United Kingdom* for home and facility-based use.
- SC+ provides high-flux, bicarbonate-buffered dialysis using widely available off-the-shelf consumables, with dialysate flow rates up to 500 mL/min.
- Several rounds of human factors testing have shown the system to be safe and easy to use by both patients and healthcare professionals[1].
- With rates of kidney failure increasing worldwide, health systems must find ways to offer cost-effective renal replacement therapies.
- Research has shown that patients receiving conventional, 3x weekly dialysis experience an increase in hospital and emergency department visits following the 2-day "interdialytic gap" over the weekend[2], an effect that may be mitigated by patients administering their own treatment (e.g. every other day/3.5x weekly, short daily, or nocturnal HD).
- This study aims to describe the costs of using SC+ for 3x weekly treatment regimens when performed as self-care in-centre (SCIC) and for 3x and 3.5x weekly treatment regimens at home (HHD).

Hypothesis

- The total cost of using SC+ will be lower than those of dialysis provided in-centre using traditional machines, both for HHD and SCIC.

Method

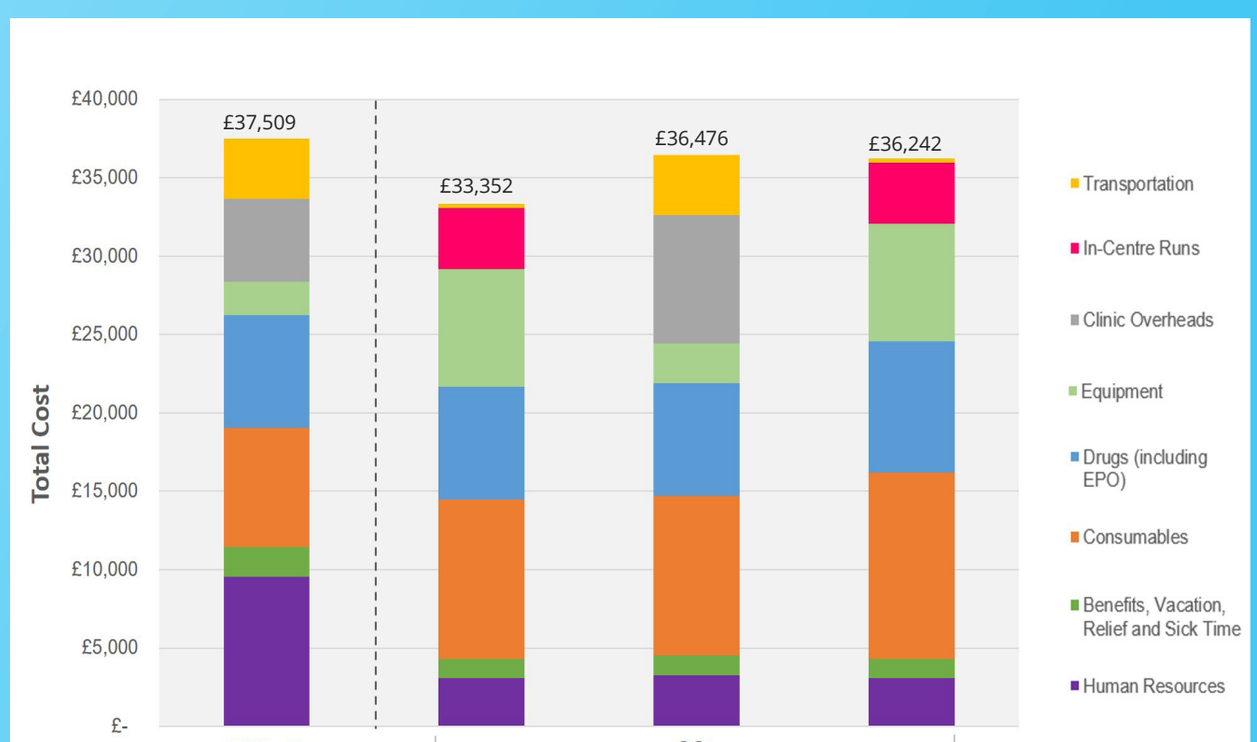
- Cost minimisation analysis.
- Perspective of the National Health Service England (NHS).
- All costs presented in 2019 GBP, with historical cost estimates inflated using the Consumer Price Index of Health for the UK. No discounting of future costs was required.
- Total annual cost of maintenance dialysis for 3x weekly and 3.5x weekly HD was described for SC+ for dialysis provided in the patient's home and as SCIC.
- Cost estimates for NHS human resources and consumables were provided by interviews with the NHS.
- Other cost estimates were sourced from available literature, and included dialysis-specific drugs, in-centre relief comparison costs[3], and dialysis-related transportation[4].
- Additional savings related to reduced emergency department visits and hospitalisations associated with more frequent dialysis prescriptions were assessed in a scenario analysis.

Discussion

- This analysis demonstrates that SC+ offers a cost per treatment of approximately £200–£230 for HHD or SCIC, with additional potential savings of £5,842 per patient per year associated with avoided emergency department visits and hospitalisations for the 3.5x weekly prescription.
- In comparison, conventional in-centre dialysis with full nursing support costs approximately £355 per treatment[3].
- HHD has been consistently shown in various settings to offer equivalent or improved quality of life in comparison to traditional in-centre HD.
- HHD enables more frequent dialysis prescriptions without a need to increase human resources, infrastructure, or transport requirements.
- The health payer perspective of this study is a limitation, and other societal or patient-borne costs may need to be assessed in the decision-making process (eg utilities and transport) and there is heterogeneity between providers as to which, or how much, of these extra expenses are covered.

Results

- The annual cost of maintenance HD for a 3x weekly regimen performed at home with SC+ costs £33,352, increasing to £36,242 for a 3.5x weekly regimen. SCIC was slightly more expensive, totalling £36,476 for 3x weekly.
- The primary cost drivers were consumables, human resources and equipment. The incremental costs associated with SCIC were slightly higher human resource expenses and transport to and from dialysis; however, these were offset by the ability to amortise the equipment expense of the machine over a larger number of patients.
- In the scenario analysis where 3.5x weekly dialysis removes the additional emergency department visits and hospitalisations associated with the 2-day interdialytic gap, we estimate annual further savings of £5,842 (£3,666 associated with hospital stays, and £2,176 associated with excess emergency department visits) per patient, per year.



Conclusion

- This cost minimisation analysis demonstrates that HD performed either in the patient's home or as SCIC with the SC+ Haemodialysis System is associated with a lower cost per treatment than conventional HD provided in hospital for both 3x and 3.5x weekly regimens.
- The impact on cost-effectiveness of switching from 3x weekly to more frequent regimens (every other day/3.5x weekly, short daily or nocturnal HD) should be explored in more detailed economic models.

*SC+ is not yet cleared for sale in the USA.

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