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| <b>Title</b>     | <b>An Evaluation of the Costs, Effectiveness and Quality of Renal Replacement Therapy Provision in Renal Satellite Units in England and Wales</b>  |
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| <b>Reference</b> | Health Technol Assess 2005;9(24). July 2005. <a href="http://www.ncchta.org/execsumm/summ924.htm">www.ncchta.org/execsumm/summ924.htm</a>  |

## Aim

To survey the structure, processes, and organization of renal satellite units (RSUs) in England and Wales (*Phase 1*), and to compare the effectiveness, acceptability, accessibility, and economic impact of chronic hemodialysis performed in main renal units (MRUs) compared to RSUs (*Phase 2*).

## Conclusions and results

Renal replacement therapy (RRT) has grown significantly in recent decades. Patients now being treated are older with more comorbidity. Given a shortage of kidneys for transplantation, the expansion of RRT has largely been in hospital hemodialysis, increasingly delivered in RSUs. Generally, these are nurse-run units providing only chronic hemodialysis. They are linked to MRUs (with nephrologists, inpatient services, and interventional facilities), but are more accessible for patients. Data on the effectiveness and cost of RSUs and on patients' experience are limited.

*Phase 1:* 74/80 (93%) of RSUs responded. The data showed, eg: 2600 patients were being treated, 42% were over 65 years of age, and 12% were diabetic; most RSUs were on acute hospital sites; unit size varied substantially with a median of 8 hemodialysis (HD) stations (range 3–31); a quarter of the RSUs were privately owned; and most had no daily medical input. Positive aspects included: improved accessibility, better environment for chronic HD patients, and expanding RRT capacity. Concerns included: the level of medical cover, use of nonacute hospital sites, and potential isolation of nurses.

*Phase 2:* 82% of eligible patients participated, 394 patients in the 12 RSUs and 342 in the parent MRUs. The response rates were similar. Mean age in the RSU group was 63 years, 18% were diabetic, 33% were 'high risk', and 34% depended on assistance. The MRU group had similar comorbidity scores and dependency, but a lower mean age (57). There were no significant differences in processes of hemodialysis or clinical outcomes, but a

few parameters were statistically significantly different – notably the proportion achieving Renal Association Standards for adequacy of dialysis was higher in the RSU patients. The proportion of patients previously hospitalized was less in the RSU patients, but total and mean length of stay were comparable.

RSUs are an effective alternative to MRUs for many HD patients. They improve geographic access and are generally more acceptable to patients. There does not seem to be an adverse impact of care in the RSUs, but comparative long-term prospective data are lacking. The cost-effectiveness of RSUs compared to MRUs is uncertain.

## Recommendations

Satellite development could be successfully expanded. No single model can be recommended, but key factors include local geography, catchment population, and type of patients to be treated. Appropriate RSU policies are needed to address medical emergencies, patient transfers, management protocols for common clinical problems, and communication links with the MRU.

## Methods

See Executive Summary link above.

## Further research/reviews required

1. Cost-effectiveness of RSUs
2. Patient safety: comparison of adverse events with longer duration and larger numbers to identify severe events
3. Characteristics and size of the HD population judged to be unsuitable for RSU care
4. Carer perspectives: possible differences between RSUs and MRUs
5. Nursing perspectives: attitudes of nursing staff given the increased responsibility and autonomy of senior staff in RSUs.