

Centralising acute stroke services has saved more than 400 lives since 2010

August 7 2013



New research from UCLPartners, and funded by the NHS in London, has shown that centralising acute stroke services in particular London hospitals has led to significant reductions in both mortality and costs.

Before 2010, [stroke](#) services in London were provided in 30 acute hospitals across the region. After July 2010, a new multiple hub-and-spoke model for [acute stroke](#) care was implemented across the whole of London, with continuous [specialist care](#) for patients during the first 72 hours following a stroke provided at eight hyper-acute stroke units

(HASUs).

Each HASU was to provide hyper-acute [stroke care](#) in the first 72 hours for all suspected stroke patients and, in addition, a larger number of acute stroke units with enhanced specialist care and multi-therapy rehabilitation for those patients requiring ongoing in-patient care beyond 72 hours.

For the first time, this study revealed differences in clinical outcomes and costs between the new and old models. The researchers found that the predicted [survival rates](#) at 90 days were 81.5% before the new model was implemented, and 88.7% after. After adjusting for the reduction in [stroke mortality](#) that had occurred elsewhere in the UK, it was calculated that there was a relative reduction in deaths of 12% after the new system was implemented. This means that over 400 lives in London were saved since 2010. If this were mapped across the country, potentially over 2,100 lives could be saved each year.

The study, published in the journal *PLOS ONE*, was undertaken by [health economists](#) from UCL, Rachael Hunter and Stephen Morris, Charlie Davie from UCLPartners, and researchers from UCLPartners, Guy's and St Thomas' NHS Foundation Trust, the London Ambulance Service, the North Central London Cardiovascular and Stroke Network, and Massachusetts General Hospital.

The new model required some upfront financial investments and increased costs per patient in the first 72 hours due to the more intensive, specialist care provided to patients, but the total average 90 day cost per patient was £811 lower in the new system. This was mostly due to a reduction in the average length of hospital stay.

Currently, around 7,000 new [stroke patients](#) are treated each year in London. Using the results of the model, this equals a total cost saving of

£5.6million per year at 90 days.

Stroke audit data have shown that mortality from stroke dropped across the whole of England from 2008-2011, and the reduction has been disproportionately greater in London following the introduction of the new centralised model for specialist care. The study also demonstrated a marked increase in thrombolysis rates (administration of vital clot-busting drugs) from 5% to 12% following the reconfiguration.

"Our study shows that a system directing patients to high quality stroke units in the first 72 hours following stroke saves lives and money. The centralised model worked well in London because of the high density population and the hospital distribution that permitted ambulance travel times to remain within viable limits," says Dr Davie, UCLPartners Director of Neuroscience. "Our study could be used to support the implementation of similar models in other large populations, and further research is ongoing to examine whether the London model is viable in other geographical and clinical settings."

Provided by University College London

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