This study provided an up to date cost benefit analysis of post-acute rehabilitation in more than 200 individuals, and also examined social, functional and behavioural outcomes following neurobehavioural rehabilitation.

Research findings
The study sought to identify whether neurobehavioural rehabilitation would translate into reduced costs in caring for individuals post-discharge. Two hundred individuals at BIRT centres across the UK over a period of 27 months took part. Validated outcome measures, concerning increased independence, psychological and emotional adjustment to brain injury and participation, were used to collect data at admission, at discharge and 6 months after discharge. An improvement on all measures of social outcome was observed at discharge which was maintained or showed further gains at 6 months follow up.

How were the calculations made?
The cost benefit of rehabilitation was examined by calculating the difference between the yearly costs of personal care required at admission (A) and the yearly costs of care required at follow-up (B). The cost of rehabilitation (C) was deducted from this result. The estimates also accounted for life expectancy and inflation. The study found a 68% reduction in direct care costs for individuals who were admitted to a specialist centre within one year post-injury.

Overall, it was found that cost savings could range between £0.19 - £1.13 million per individual lifetime, depending on the time between brain injury and admission to rehabilitation, the level of inflation discounted and the notional life expectancy of the group.

Bigger picture implications
It is likely that savings in direct costs of care will add to savings in societal costs, as individuals who become more independent require less direct supervision, which in turn enables informal carers to return to work. This can then result in an overall reduction of costs associated with loss of productivity.

The study also examined how changes in policies associated with the current economic climate have influenced the characteristics of the populations who are now admitted into post-acute rehabilitation. In comparison to studies published in the last 13 years, evidence was found of a decrease in lengths of stay in rehabilitation, as well as a decrease in time from injury to admission to post-acute rehabilitation. There was also evidence that those admitted over the last six years showed greater rehabilitation needs at the time of admission to post-acute rehabilitation than those admitted in the past.

Cost savings in practical terms
The graphic below firstly shows the cost of care before rehabilitation in BIRT services. It also displays the daily costs of care after discharge from admission to BIRT and the respective price reduction. The total savings, over an estimated lifetime of 36 years, are shown in the piggy bank for each example.

For more information please visit www.birt.co.uk/valueformoney

www.birt.co.uk BIRT- the charity leading brain injury rehabilitation across the UK

Points of interest
- Current funding policies have an impact on the characteristics of the populations that are admitted to post-acute rehabilitation
- Post acute neurobehavioural rehabilitation can have a positive impact on the lives of individuals with brain injury
- Costs associated with neurobehavioural rehabilitation are off-set by significant savings in the longer term.
- Neurobehavioural rehabilitation contributes to achieving greater independence

Compared to previous studies, this research found
- A decrease in the length of stay in rehabilitation services, which is consistent with the constraints imposed by the current economic climate
- A decrease from time since injury to admission to BIRT services - individuals are being admitted to rehabilitation services sooner
- An increase in complexity (i.e. rehabilitation needs) of those admitted
- An increase in the number of people living in the community without support from admission to follow up 6 months later.

www.birt.co.uk BIRT- the charity leading brain injury rehabilitation across the UK
Methodology

The study used a retrospective design of outcome data collected from all individuals admitted to BIRT’s residential rehabilitation centres as they progressed through the service. The rehabilitation programme offered at these centres is based on a neuropsychological assessment of an individual’s strengths and weaknesses. These are taken into account in the design of person-centred rehabilitation. The management of behaviour that challenges is underpinned by principles of behavioural psychology. Goal setting is used and compensatory strategies developed with the individual. The programme is run by a psychology-led interdisciplinary team that follows a holistic approach. The overall goal is to enable the person to return to a life as independent and participatory as possible.

The final sample included 274 individuals, all over 18 years of age, with a non-progressive brain injury of various aetiologies. They were all post-acute or medically stable, and had primarily cognitive problems and/or challenging behaviour and required specialist and/or lifelong support.

The selected outcome measures reflected the aims of the rehabilitation programme (i.e. to increase independence, participation and the psychological and emotional adjustment to brain injury). The measures also have strong psychometric properties and are widely accepted and used in acquired brain injury rehabilitation settings.

The authors only considered direct care costs, which were calculated on the basis of current hourly rates of care for support staff. Hours of care were estimated using Supervision Rating Scale scores obtained at admission, discharge and 6 months follow up. Rehabilitation costs were based on the weekly rate for placement at the rehabilitation centres and the length of stay for each individual. Cost savings were defined as the difference in support costs before rehabilitation and at follow up once the cost of rehabilitation was deducted. Lifetime cost savings were calculated using a hypothetical life expectancy for the group and discounted to present value according to standard procedures.