on the practical implications of disinvestment initiatives and identify any incentives/disincentives for future developments.

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Background Acute traumatic brain injury (TBI) is a major cause of death, disability and cost. For critically-ill adult TBI patients who present outside a neuroscience centre, and do not require neurosurgery, there is little evidence on whether early transfer to a neuroscience centre is worthwhile. NICE guidelines list the issue as a key research topic. We aimed to assess the relative cost-effectiveness of 'early transfer' (within 18 hours of hospital presentation) versus 'no or late transfer' (after 24 hours) for these patients.

Methods The Risk Adjustment In Neurocritical care (RAIN) Study validated risk prediction models following TBI. The RAIN Study recruited admissions following acute TBI to 67 adult critical care units during 2009–11. Detailed information was collected on baseline prognostic factors, the time of transfer to neuroscience centres, and mortality. Resource use data were recorded for six months, and combined with unit costs to report total hospital and community health service costs. At the six month follow-up, data were collected on health-related quality of life (HRQoL), by the EQ–5D–3L. The lifetime cost-effectiveness analysis extrapolated from six month endpoints, informed by the literature. We report lifetime incremental cost per QALY of 'early' versus 'no or late transfer', overall and for subgroups (age <=70, vs >70; mild/moderate, vs severe TBI; major extracranial injury, vs none). To adjust for baseline differences we used the previously validated risk prediction models in regression analyses. In sensitivity analyses we considered alternative approaches for extrapolating from the six month endpoints and undertaking risk adjustment.

Results There were 584 patients in the 'early' and 263 in the 'no or late transfer' group. After risk adjustment, early transfer was associated, at six months, with lower mortality (odds ratio 0.52, 95% CI 0.34 to 0.80), higher HRQoL for survivors (mean gain 0.13, 0.032 to 0.225), but positive incremental costs (£15,000, £11,123 to £18,880). The lifetime cost per QALY for 'early transfer' was £11,000. For patients older than 70, 'early transfer' was associated with higher mortality, and was unlikely to be cost-effective (probability 0.15 at £20,000 per QALY). For other subgroups, the corresponding probabilities that 'early transfer' is cost-effective were between 0.7 and 1.

Conclusion For critically-ill patients with acute TBI aged 70 or less, early transfer to a neuroscience centre appears cost-effective. While this finding is robust to alternative methodological assumptions and choice of risk prediction model, further research is required to investigate the potential impact of unobserved confounding.

Thursday, 13 September 2012

Parallel Session B

Diet and Obesity

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Background Lower socioeconomic position (SEP) is a risk factor for obesity in children and adolescents in high-income countries. Since diet and physical activity are the main drivers of obesity, the socioeconomic differential in obesity is likely to arise through SEP differences in one or both of these.

Methods We explored SEP differences in trajectories of fat mass, energy intake and physical activity (PA) across childhood and early adolescence, using maternal education as a measure of SEP, in the Avon Longitudinal Study of Parents and Children. Fat mass was measured by DXA scans at mean ages 10, 12, 14, 15 years. Energy intake was assessed using food frequency questionnaires (FFQs) at 3, 4.5, 7, 8.5 years and 3-day diet diaries at 3.5, 5, 7.5, 10, 13 years. PA was assessed by accelerometers worn for 7 days at 12, 14, 16 years, used to calculate mean total counts per minute (CPM) and mean minutes of moderate to vigorous PA (MVPA). Energy intake (adjusted for FFQ vs diary), % fat mass, CPM and MVPA were all modelled using linear spline multilevel models.

Results 5739 individuals had data on maternal education and at least one measure for each of fat mass, energy intake and PA. The sons of women educated to degree level (highest maternal education category) had consistently lower % fat mass across childhood and early adolescence, but differences between the 3 lower SEP categories only began to emerge from age 14. In females there was a stepwise increase in percent fat mass for each decreasing category of maternal education, and the SEP gradient remained largely stable between 10 and 15 years. The SEP patterning in trajectories of energy intake and PA (CPM and MVPA) did not resemble the SEP patterning in trajectories of fat mass. For energy intake, no SEP differences were observed. For PA in males, there was little SEP patterning in MVPA, but for CPM there were higher levels of activity in lower maternal education groups, i.e. the reverse of the fat mass gradient. For females, CPM and MVPA were both higher in the highest maternal education category, but contrary to the fat mass trajectories, differences between the lower three SEP categories were not consistent.

Conclusion Socioeconomic differences in trajectories of energy intake and PA do not resemble the patterns observed for fat mass. Potential explanations for this finding, including measurement error, will be discussed.

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Background Excess bodyweight is associated with negative effects on longevity, disability-free life-years, quality-of-life, and productivity. High prevalence of obesity and over-weight is often related to socioeconomic status, educational attainment, and ethnic group. The combination of rising obesity prevalence and increased spending on obese people has been estimated to account for 27% of the growth in US health-care expenditure between 1987 and 2001.

Methods The Behavioral Risk Factor Surveillance System (BRFSS) is the world's largest, telephone health survey system, collecting cross-sectional data on health conditions and risk factors in all states of the US yearly since 1984. Telephone interviews provide a cheap alternative to physical examinations and are often used as a way to increase the number of participants in observational studies. Data for 3,814,344 adults from BRFSS were used to investigate trends of obesity levels in each US state. Over the period 1999–2010, the