MS than in controls in studies in which polymerase chain reaction in cerebrospinal fluid was performed or intrathecal Cpn antibody synthesis was measured. It was found that inappropriate matching of cases and controls by gender was able to explain up to 59.7% of the variability in results across studies.

The authors conclude that although there appears to be a positive association between Cpn infection and MS, the current data are insufficient to establish a causal relationship in either direction.

Original article Bagos PG *et al.* (2005) *Chlamydia pneumoniae* infection and the risk of multiple sclerosis: a meta-analysis. *Mult Scler* [doi: 10.1191/1352458506ms1291oa]

Metabolic condition of brain tissue after ischemic stroke identifies the penumbra

After acute ischemic stroke, accurate identification of the penumbra is critical to ensure that potentially dangerous thrombolytic treatment is directed only at salvageable tissue. Current MRI methods such as perfusion–diffusion mismatch can lead to an overestimation of the final lesion volume, and a recent study in Germany investigated whether measurement of the metabolic condition of brain tissue using blood-oxygen-level-dependent (BOLD) MRI could improve penumbra identification.

Geisler and colleagues assessed levels of deoxyhemoglobin in the cerebral capillaries and veins of 32 patients (mean age 65 years) with middle cerebral artery acute ischemic stroke, by quantifying the oxygen extraction fraction on T2'-based BOLD MRI within 6 h of symptom onset. The researchers anticipated that the real penumbra would show a signal loss, reflecting increased levels of deoxyhemoglobin. Follow-up was performed on days 1 and 5–8 post-stroke.

Compared with unaffected control regions of the contralateral hemisphere, a marked decrease was seen in the mean T2' signal intensity in both the presumed ischemic core (–15.7%) and in the adjacent region that later progressed to infarction (and represents the essential penumbra; –10.5%).

The authors note that the ischemic core, in addition to infarcted brain tissue, might contain severely ischemic tissue that could be saved by timely recanalization. They propose that BOLD imaging in cases of acute stroke would provide an improved estimation of the real penumbra, and suggest that future studies should be conducted to confirm this approach's clinical value.

Original article Geisler BS *et al.* (2006) Blood oxygen level-dependent MRI allows metabolic description of tissue at risk in acute stroke patients. *Stroke* **37:** 1778–1784

Disparities in stroke incidence and risk factors among elderly people in the US

Although low socioeconomic status has been linked with an elevated risk of stroke in European countries, it is unclear how biomedical, psychosocial and physical functioning risk factors influence this association among elderly people in the US. Avendano *et al.* have used 12-year follow-up data from 2,812 men and women aged 65 years or older in the New Haven cohort of the Established Populations for the Epidemiologic Studies of the Elderly (EPESE) study, to investigate the effect of socioeconomic status on the incidence of first nonfatal or fatal stroke in an aging US population.

Among participants aged 65–74 years, those with the lowest levels of education or income were two times more likely to develop incident stroke than individuals with a high socioeconomic status. Adjustment for race, diabetes, depression, social networks and physical functioning reduced the hazard ratios considerably, indicating that these risk factors influence the observed disparities in stroke incidence. Interestingly, a reverse pattern was observed beyond the age of 75 years, with the highest stroke incidence among individuals with the highest socioeconomic status. A possible explanation is that people with a low socioeconomic status die earlier in life than those with a high socioeconomic status, leading to 'selective survival' in old age.

The authors conclude that to reduce the increased burden of stroke among disadvantaged groups in aging populations, improving the management of diabetes and depression, as well as maintaining social networks and physical functioning, will be important.

Original article Avendano M *et al.* (2006) Socioeconomic status and stroke incidence in the US elderly: the role of risk factors in the EPESE study. *Stroke* **37:** 1368–1373