overestimation of the effect of a shorter inter-pregnancy interval. However, if male gender was indeed on the causal pathway between inter-pregnancy interval and schizophrenia, this would not, of itself, lead to a biased estimate of association between inter-pregnancy interval and schizophrenia. Furthermore, if male gender was indeed on the causal pathway, then adjusting for gender should lead to an attenuation of the association between inter-pregnancy interval and schizophrenia; however, adjusting for gender made no difference to our results,[1] indicating that gender is unlikely to be an adequate explanation as a mechanism for the association with shorter inter-pregnancy interval.

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Care clusters and mental health Payment by Results

In their piece on mental health Payment by Results,[1] Macdonald & Elphick note 'a lack of reassurance that costs per case within a cluster will be similar enough to support a viable tariff calculation'. This may underestimate the difficulties with the proposed new payment mechanism, which may have effects wider than disruption of nascent routine outcome measurement systems.

The UK has come relatively late to the process of payment reform for mental health services, but despite this it has followed an approach unlike that in other countries. The fundamental principle behind the care cluster approach seems to be the presumption that individuals with similar needs for care, as notionally defined by clusters of scores on the Health of the Nation Outcome Scales (HoNOS), will receive similar care and therefore incur similar costs. Importantly, costs themselves did not enter into the original process of defining care clusters.[2]

The approach pioneered by Fetter at Yale[3] in developing the original Medicare prospective payment system in the 1980s was to combine consultation with clinicians and statistical analysis of clinical, administrative and cost data using variance reduction so that case-mix groupings are both expected to produce similar 'clinical responses' and also do in fact demonstrate acceptable homogeneity of costs. This approach was also followed by Australia and New Zealand,[4,5] when they attempted to develop payment systems based on HoNOS. Achieving homogeneous costs within groups is crucial because it minimises the random risk to providers (the risk that appropriately incurred costs and therefore revenue differ randomly from those reimbursed). A typical cut-off for acceptable cost homogeneity is for each case-mix group to have a coefficient of variation of one or less (mean divided by standard deviation). It is also essential to make sure that factors relevant in resource use which may be more or less prevalent among different providers are also represented; otherwise there may be an element of systematic risk, with certain providers being systematically underpaid and others systematically overpaid. Even when this more standard approach is followed, it may not be successful, especially in mental health, where cost variation is high. Infamously, the original Medicare prospective payment system was never implemented in specialist mental health units in the face of evidence that resource homogeneity was too low and that the system would systematically disadvantage those units, and has now been abandoned in favour of an across the board per diem payment system for psychiatric in-patients.[6] Neither the Australian nor New Zealand systems were ever implemented.

In the light of the foregoing comments, it is perhaps not surprising that the Department of Health's own pilot studies from 2006 demonstrate both that resource homogeneity of care clusters is unacceptably low, with only 1 of 13 clusters having a coefficient of variation of less than one, and also that far better homogeneity could have been achieved, especially for in-patients, had the standard variance-reduction approach been followed.[7] At present, it seems to me that the lowest risk approach to reforming payment for mental health services is to adopt a basic system of activity-based funding, and use the data collected in this way, along with clinical and administrative data, as part of a slow and careful process of reform. Certainly, payment for mental health services in the UK is ripe for reform, as variations in resource use between providers are far wider than could be accounted for by any difference in case-mix.[8] But this may not be the best way of approaching it.

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7 Health and Social Care Information Centre Casemix Service. *Mental Health Casemix Classification Development: End Stage Report*. Health and Social Care Information Centre, 2006.

8 Audit Commission. *Maximising Resources in Adult Mental Health*. Audit Commission, 2010.

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The key to doing routine mental health outcomes well[1] is to make them relevant, meaningful and available to practitioners, service users and managers. The Health of the Nation Outcome Scales (HoNOS) is now a front-runner for a general outcome measure since it is required for Payment by Results, a new contracting system for mental healthcare in the UK. Only one HoNOS rating is currently required in order to allocate patients to Payment by Results care clusters, so managers have little incentive to take the extra step and mandate more than one HoNOS rating to assess the effectiveness of interventions. The simplest way to introduce outcome measurement with HoNOS would be to mandate at least two ratings, one at the outset of an intervention and one