Reviewer's report

Title: Rate of first recorded diagnosis of autism and other pervasive developmental disorders in United Kingdom general practice, 1988 to 2001

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Reviewer: Anthony Staines

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I have been asked to comment on one specific point – the use of indirectly standardised incidence ratios to analyse changes in the occurrence of autism over time.

Professor Newschaffer has pointed out (quite correctly) that there may be a bias when comparing SMR's with each other. This has been known for many years, and was first (I think) pointed by by Yule in the 1930s.

There is a very comprehensive discussion of the issues here in Breslow & Day (1987). To quote them “The major weakness of the SMR is that ratios of SMRs for two comparison groups may not adequately represent the ensemble of the ratios of their component age or stratum-specific rate (Yule 1934).” This is due to the fact that ratios of SMRs, produce a comparison which is weighted by the expected number of events in each stratum. If there is a marked difference in the distribution of the variables for which the SMR is adjusted (here age and sex) between years, then the comparison is biassed. If there is not such a difference, the comparison is not biassed.

In this paper SMR's are used to adjust for changes in the age and sex distribution of the GPRD database population over time. There is implicit evidence in Table 1 that these distribution did not change much – the crude incidence rates and the SMRs tell essentially the same story. Table 3 repeats the data from Table 1. In Table 4 the crude rates and the SIRs are also very similar in ranking.

In this situation it is unlikely that there is any real bias introduced by the authors’ choice of SMRs rather than directly standardised rates to compare changes over time.

I would recommend that the paper be published with the current analysis.