Reviewer's report

Title: Anticoagulant Use for the Prevention of Stroke in Patients with Atrial Fibrillation: Findings from a Multi-Payer Analysis

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Reviewer: Wayne Sunman

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Major Revisions

It would be reassuring if the authors could state that they had unconditional access to the databases (apart from patient confidentiality) with no censorship of the results or manuscript by the health databases. Both CHADS2 and CHADS VASC are described in the methods as ways of determining risk. It should be stated which of them is actually used in Table 2.

Discretionary Revisions

This paper has established that the software developed can analyse anticoagulant use in a variety of US health insurance databases. The authors envisage that their software could be used to monitor compliance of physicians and their patients with the quality standards proposed by American and European guidelines. I would have liked some comment from the various health insurers on their findings. If I understand it correctly, patients were selected if they had 2 year of data of which a year was after their diagnosis of AF. I wonder if some form of patient selection could be taking place as those excluded for not having sufficient data might have died and transferred to another plan if sicker: so even those with higher risk scores would be in point of fact be lower risk patients by virtue of staying on the database longer. Could they comment?

One way of addressing this is by creating a table of predicted annual risk of stroke by risk score using CHADS2 or CHADS-Vasc vs actual risk derived from the data.

I find Fig 1 confusing. It might be clearer if the proportion in the risk categories is split by database (ie showing a series of small CHADS2 bar charts by company then on the line below a similar series of bar charts for the individual companies, this time using CHADS VASC.

Table 2 shows some surprising results. There is dramatic variability in rates of anticoagulation by risk and by database. There is a very small, progressive increase in anticoagulation rates by risk, suggesting overtreatment of low risk patients especially those under 65 (eg 93% of MarketScanCommercial low risk patients under 65yrs) as well as undertreatment of moderate and high risk patients.

In methods I wanted a clear statement of which patients constituted someone
treated with anticoagulants. Was it anyone who was prescribed an anticoagulant at all during the study period?

I was also slightly confused what happened to the MPR if there was an overlap of multiple medications (presumably different anticoagulants). Perhaps that sentence could be re-worded.

Did the authors consider carrying out some form of health economic analysis by database assuming for example that the proportion of medium and high risk patients anticoagulated was increased to nearer 88%?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.