Reviewer’s report

Title: Hypertension education and adherence in South Africa: a cost-effectiveness analysis of community health workers

Version: 1

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Reviewer: Adolfo AR Rubinstein

Reviewer’s report:

The authors aimed to determine whether training and task-shifting CHWs to raise hypertension awareness and control rates as well as improving adherence to high BP medications is a cost-effective intervention compared to usual care at the primary care setting in South Africa. To calculate the incremental cost-effectiveness ratio (ICER), they used a previously developed Markov model with age-varying probabilities of CVD events to assess the benefits, risks, and costs of a program to increase hypertension adherence for individuals aged 25-74. The model was populated with some local data as well as data taken from the GBD projec, clinical trials and other sources. Their analyses showed that this intervention would lead to cost-effective prevention of cardiovascular diseases at about $320/DALY averted and that these results are robust against broad changes in key parameter estimates through sensitivity analyses. The methodology used is correct and the conclusions are supported by the the results.

Minor Discretionary Revision:

The authors rightly highlighted as one of the major limitations of this manuscript, the dearth of data on the effectiveness of task-shifting to CHW to improve care management of chronic conditions in primary care. In this regard, any intervention should demonstrate first and foremost clinical effectiveness before cost-effectiveness is calculated (not including here interventions that could be cost-effective just because they are much less costly although less effective than the alternative). In fact, they could just retrieved 2 papers to include effectiveness data into the model: a clinical trial of CHW in an inner-city population in the US and a before-after study to assess an intervention program to lower BP in Taiwan. Neither of these 2 countries probably resemble the health care system in South Africa or other developing countries, for which these results should be taken with caution. Moreover, the results of the quasi-experimental study in Taiwan could be flawed just by design.

The authors may consider including another important paper of task shifting to CHW for hypertension control in underserved communities in Karachi, Pakistan (Jafar TH, Hatcher J, Poulter N, Islam M, et al. Community-based interventions to promote blood pressure control in a developing country: A cluster randomized trial. Ann Intern Med.2009; 151: 593-601). Interestingly, this 2X2 factorial RCT did not showed a larger improvement of the CHW educational intervention alone as compared to no intervention or GP training alone (all reduced SBP by 4-8
mmHg of SBP). The only effective intervention was the combination of both GP
and CHW training which reduced SBP by 10.8 (8.9–12.8).
Nevertheless, this intervention because of its low cost is, according to the
authors, still cost-effective at very low reductions of BP (in the range of 2mmHg).
In this regard, the health benefits accrued by CHW at the community setting, for
the management of chronic conditions that usually cluster in the same
individuals, largely exceed the health benefits for the management of just one
condition. This fact could also underestimate the cost-effectiveness of this
intervention.

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'