Reviewer’s report

Title: Decision support systems for incurable non-small cell lung cancer: a systematic review

Version: 1 Date: 29 Jul 2017

Reviewer: Jeremy Warner

Reviewer's report:

This is a resubmission of "Decision support systems for incurable non-small cell lung cancer: a systematic review" although this is my first time reviewing the manuscript. The authors have sought to identify decision support systems that support clinical decisions in the setting of incurable NSCLC, a uniformly fatal condition. In this setting, the balance of efficacy and toxicity is especially important. Although I have multiple suggestions, I consider them all to be relatively minor and I'm of the opinion that this is a nicely done manuscript.

Comments:

The criterion of user friendliness "Is the DSS easy and fast to use" is quite vague and subjective.

Although they are not DSS per se, ASCO, ESMO and others have developed value frameworks that do try to account for toxicity and cost-effectiveness. It would be helpful to mention these and cite one or more recent articles on the subject, such as Becker et al. DOI: 10.1200/JOP.2016.020339 Journal of Oncology Practice 13, no. 7 (July 2017) e653-e665.

Availability of data and materials: please consider making your PubMed search terms available so that others may be able to replicate your search in the future.

Minor points:

The methods are well described and consistent with the PRISMA framework, which is now included in the supplement. However, the authors do not state explicitly within the manuscript that they used the PRISMA checklist.

Introduction: please make clear that the incurable NSCLC population includes patients with recurrent metastatic disease, not just patients initially diagnosed as stage IIIB or IV. It is common practice to refer to patients with recurrent metastatic disease as being stage IV, but this is not technically correct.
"Oncodriver genes": this phrase is a bit unfamiliar, and also technically the currently available therapies all target proteins, not genes (e.g., EGFR, ALK fusion proteins).

An English-language requirement is not stated in Box 1, but one of the excluded studies is excluded because it is not in English language. This exclusion should be explicit.

The abbreviations e.g. and i.e. should be followed by commas, or not. Both formats are seen in this manuscript, please change for consistency.

Page 9, line 15: "treated with a TKI treatment" should be "treated with EGFR-TKIs"

Stereotactic radiosurgery and stereotactic radiotherapy are equivalent. Page 9, line 25-26 can be simplified.

Page 11, line 53: please consider citing our work "CUSTOM-SEQ" here or in the following paragraph, which was in fact validated with mutation-specific lung cancer survival. Warner et al. J Am Med Inform Assoc. 2016 Jul; 23(4): 692-700.

Page 12, lines 10-11: this is an example list so should be e.g., not i.e. Also, EML4/ALK should not be in this list as there is certainly sufficient evidence to treat this mutation. See our article Meador et al. Clin Cancer Res. 2014 May 1; 20(9): 2264-2275 for additional overview on this topic.

Table 2: I would be surprised if these DSS all used KPS, since ECOG PS is much more commonly used in the clinical care of NSCLC patients. Please double-check this.

Figure 1: instead of saying "too old clinical data (N=16)" I would be explicit and say "clinical data collected before 2000 (N=16)"

Figure 2: instead of "smoking" say "tobacco use"

Figure 2: skin rash is probably only relevant for persons taking EGFR-TKIs. I'm not sure how best to note this, but something to consider.

Figure 2: CYFRA 21-1: I'm not familiar with this biomarker and it isn't elsewhere defined.

Please include in the abbreviations list.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.
Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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