Author's response to reviews

Title: A theoretical decision model to help inform advance directive discussions for patients with COPD.

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Author's response to reviews: see over
Dear Editor,

I want to again thank you for the opportunity to address the peer reviewers comments and concerns. I have listed the changes as per the reviewer’s recommendation both within the manuscript as ‘tracked changes’ and below in a before/after format.

Thank you again for your time and consideration.

Sincerely,

Negin Hajizadeh
Referee # 2
“The authors have done a good job responding to most of the reviewer comments. However the paper still needs minor revision. The title and abstract need to be modified to reflect the fact that they have built a purely theoretical model. They have not elicited patient preferences directly, nor have they elicited utility values from actual patients. Therefore it has to be clear in the title and abstract that actual COPD patients were not studied- and that their model needs to be validated in the future by applying it to actual COPD patients who are facing this decision.”

Major compulsory revisions:
1) Please reword the title- "A theoretical decision model to help inform advance directive discussions for patients with COPD"
   - this has been done

2) Please reword the abstract to include statements such as: "our theoretical model follows hypothetical patients with COPD"

BEFORE
Abstract
Background
Advance directives (AD) may promote preference-concordant care yet are absent in many patients with Chronic Obstructive Pulmonary Disease (COPD). In order to begin to inform AD discussions between clinicians and COPD patients, we constructed a decision tree to estimate the impact of alternative AD decisions on both quality and quantity of life (quality adjusted life years, QALYs).

Methods
Two aspects of the AD were considered, Do Not Intubate (DNI; i.e., no invasive mechanical ventilation) and Full Code (i.e., may use invasive mechanical ventilation). Model parameters were based on published estimates. We considered the effect of patient-specific preferences (about long-term institutionalization and complications from invasive mechanical ventilation) on the recommended AD. We stratified underlying COPD severity into mild, moderate and severe COPD.

Results
Our model recommends endorsing the Full Code advance directive for patients who do not have strong preferences against having a potential complication from intubation (ETT complications) or being discharged to a long-term ECF. However, our model recommends endorsing the DNI advance directive for patients who do have strong preferences against having potential complications of intubation and are willing to tradeoff substantial amounts of time alive to avoid ETT complications or permanent institutionalization. Our model also recommends endorsing the DNI advance directive for patients who have a higher probability of having complications from invasive ventilation (ETT).

Conclusions
Our model suggests that AD decisions are sensitive to patient preferences about long-term institutionalization and potential complications of therapy, particularly in patients with severe COPD. Future work will incorporate this model into a clinical decision support that can elicit patient preferences.
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Two aspects of the AD were considered, Do Not Intubate (DNI; i.e., no invasive mechanical ventilation) and Full Code (i.e., may use invasive mechanical ventilation). Model parameters were based on published estimates. Our model follows hypothetical patients with COPD to evaluate the effect of underlying COPD severity and of hypothetical patient-specific preferences (about long-term institutionalization and complications from invasive mechanical ventilation) on the recommended AD.

Our theoretical model recommends endorsing the Full Code advance directive for patients who do not have strong preferences against having a potential complication from intubation (ETT complications) or being discharged to a long-term ECF. However, our model recommends endorsing the DNI advance directive for patients who do have strong preferences against having potential complications of intubation and are willing to tradeoff substantial amounts of time alive to avoid ETT complications or permanent institutionalization. Our theoretical model also recommends endorsing the DNI advance directive for patients who have a higher probability of having complications from invasive ventilation (ETT).

Our model suggests that AD decisions are sensitive to patient preferences about long-term institutionalization and potential complications of therapy, particularly in patients with severe COPD. Future work will elicit actual patient preferences about complications of invasive mechanical ventilation, and incorporate our model into a clinical decision support to be used for actual COPD patients facing AD decisions.

3) Please reword the abstract to make it clear that utilities and preferences were not elicited directly from COPD patients.

   Please see the revision to Abstract above.

4) Please reword the conclusion of the paper and of the abstract to state that this theoretical model needs to be validated by assessing patient preferences directly and by applying the model to actual COPD patients who are facing this decision.

   Please see revision to Abstract above. In addition the Conclusion has been modified:
Conclusions
In summary, our model estimates both the survival from alternate advance directives as well as the resulting quality of life based on individual patient preferences. We believe that making our model available to clinicians in the form of a decision aid will better inform AD shared decision making and is one step towards increasing preference-congruent care at the end of life.

AFTER

Conclusions
In summary, our model estimates both the survival from alternate advance directives as well as the resulting quality of life based on hypothetical individual patient preferences. We believe that making our model available to clinicians in the form of a decision aid, coupled with actual patient preference elicitation, will better inform AD shared decision making and is one step towards increasing preference-congruent care at the end of life.

Referee # 1
“The authors have tried to improve their previous paper. Some parts have been improved. In my opinion it remains a manuscript difficult to read and follow. I think authors cannot further improve their paper.”

Revisions have been made as per the direction of Referee #2 which hopefully improve the readability of the paper. I would be pleased to consider any additional revisions requested by the editors in order to improve the clarity of the paper.