Supplemental Material

Appendix A – Standardized review scoring schema

Score range	Interpretation
≤ 50	The reviewer seems not to have read the paper, or the reviewer engages in unhelpful *ad hominem* attacks, etc. **Very few reviews expected in this range.**
51 - 60	A brief review that registers a decisions, but provides little justification and is generally not helpful in rendering a decision.
61 - 70	Comments provided but these are generally tangential, and don't necessarily provide insights into the soundness of the methods or interpretation of results.
71 - 80	Helpful comments that help the Associate Editor in arriving at a decisions. Feedback provided on the presentation itself, including the writing and/or figures. **Most decent reviews will fall in this range.**
81 - 90	A great review that provides a synopsis of the work, a critique of the methods, an opinion about how the authors have interpreted the results, and comments about the work within the larger context of the field as it currently stands. Provides concrete and actionable advice to authors to guide revisions, should these be invited. Also includes detailed minor comments regarding language, formatting, figures, and the completeness of references.
91 - 100	A truly outstanding review that has all the hallmarks of an "81 - 90" review in addition to careful vetting of the data, re-running methods independently, catching something relevant and important that was missed by others, or some other noteworthy contribution. **Very few reviews expected in this range.**

Appendix B – Sample size

Based on recent data from the journal's Editorial Manager system (January-June 2023), an average of 60 reviewer invitations are sent out each week. These same data show a baseline ROC of 54%. The following table estimates sample sizes and minimum detectable effects (with an alpha of 0.05 and power of 0.80) under four different scenarios involving referee behavior. The scenarios depend on the share of invitations in the treatment weeks that are accepted and completed. The higher this conversion rate, the fewer treatment weeks can be supported.

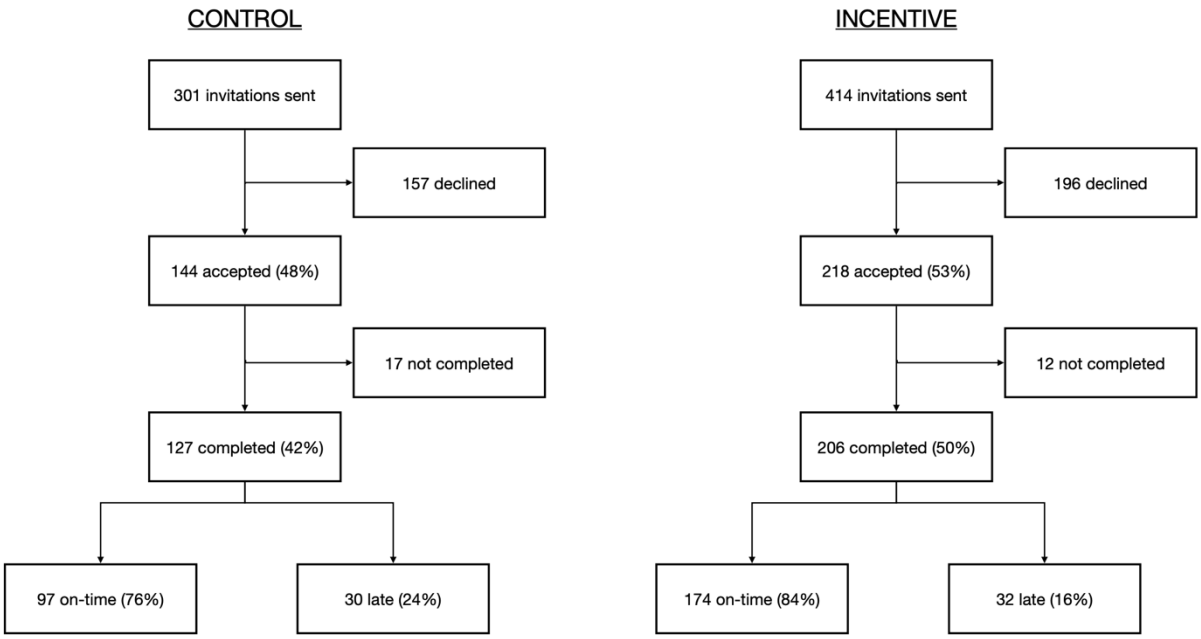
ROC in treatment arm	Number of treatment (experiment) weeks	Expected core sample size	Estimated Minimum Detectable Effect	
			Invite-to-report ROC	Invite-to-"on time" ROC
up to 90%	5 (10)	600	65.2% (Δ =11.2%)	54.8% (Δ = 11.4%)
up to 75%	6 (12)	720	64.3% (Δ =10.3%)	53.8% (Δ = 10.4%)
up to 64%	7 (14)	840	63.5% (Δ =9.5%)	53.1% (Δ = 9.7%)
up to 56%	8 (16)	960	62.9% (Δ =8.9%)	52.4% (Δ = 9.0%)

If the incentive payments result in a conversion rate of 90%, then we can afford to run five weeks of treatment with 60 invitations sent per week. The experiment would be sufficiently powered to detect an 11.2 point change in invite-to-report ROC, and a 11.4 point change in invite-to-"on time" report ROC. For the primary ROC outcome, the analysis is overpowered compared to what is needed to detect the observed 36 point change (going from an estimated 54% in the control group to 90% in the treatment group).

Power calculations to determine the minimum detectable effect follow, with *N* denoting the per-group sample size (expected value depends on the scenario), *k* denoting the ratio of treatment sample to control sample (1 in our analysis), p_c denoting the conversion rate within the control group (expected value of 0.434 for on time conversion and 0.54 for invite-to-report conversion), Δ denoting the detectable change in the conversion rate, $p_t \equiv \Delta + p_c$ denoting the conversion rate in the treatment group that corresponds to the minimum detectable effect, and $\bar{p}$ denoting the average value of p_t and p_c. The sample size calculation for a given level of alpha and power is:

$$N = \left(z_{1-\frac{\alpha}{2}} \sqrt{\overline{p}(1-\overline{p}) + \frac{\overline{p}(1-\overline{p})}{k}} + z_{\beta} \sqrt{p_c(1-p_c) + \frac{p_t(1-p_t)}{k}} \right)^2 \frac{1}{\Delta^2}$$

$$\mathrm{N} = \left(z_{1-\frac{\alpha}{2}} * \sqrt{\bar{p}\,(1-\bar{p}) + \bar{p}\frac{(1-\bar{p})}{k}} + z_{\beta} * \sqrt{p_c(1-p_c) + \frac{p_t(1-p_t)}{k}} \right)^2 /\Delta^2$$



Supplemental Figure – CONSORT diagrams showing the flow of peer review invitations through the study, in both the control and incentive arms.

%TODAYS_DATE%

Re: %MSNUM%, entitled "%ARTICLE_TITLE%"

Dear %TITLE% %LAST_NAME%,

I am writing in hopes that you may be able to review the above-referenced manuscript, which has been submitted for consideration for publication in %JOURNALFULLTITLE%. The manuscript's abstract is provided below.

If you should choose to accept this assignment, you will be given 14 days to complete it. This invitation will be OPEN for SEVEN days ONLY; one reminder will be sent in THREE days. In order to provide timely consideration for the submitting author, you will be UNINVITED if you do not respond to this invitation in this time period.

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Thank you for considering our invitation to review a submission to Critical Care Medicine. We recognize the substantial commitment that you make in support of our journal and we send our thanks for your volunteerism in support of quality science.

These notes are intended to help organize your thoughts as you write your review. These notes are neither descriptive nor prescriptive. Rather, they should serve simply as guidance to help both authors and editors understand and act on your comments.

There are five elements that consistently appear in the most helpful comments to authors.

They are:

1. A brief (1-2 sentences is nearly always sufficient) description of the study and what it showed.

2. A brief comment on the originality of the work, including, if appropriate, mention of the most relevant prior work.

3. A discussion of the importance or significance of the work, including a statement of how it adds, enhances or contradicts current beliefs and a statement of the work's potential impact on scientific and/or clinical practice- in other words, who will the work impact, and how?

On the one hand, work that is technically satisfactory, but merely descriptive or confirmatory in nature, probably warrants publication, but might not be appropriate for CCM.

On the other hand, work that has some methodological weaknesses, yet is highly innovative or prompts questions regarding some aspect of established dogma, might warrant publication in CCM, especially if the piece is accompanied by an editorial that ensures that readers are aware of the paper's limitations.

4. A discussion (not just an enumeration!) of the strengths and weaknesses of the work, including consideration of three major questions:

a. Are the methods appropriate to the questions posed? This includes sample size considerations, technical aspects and statistics.

b. Are the conclusions supported by the data?

c. Are the data sufficient and sufficiently analyzed to support both the authors' conclusions as well as their generalizations?

5. A comment on the presentation of the work, including constructive comments for improvement. This may include need for additional data, changes in the length of the presentation, need for statistical review, need to resolve contradictions between text and figures etc.

Feel free to construct a template based on these elements if it helps you organize your review writing.

As you proofread your comments to authors and your comments to the editors prior to submission, it can be helpful to consider the following.

* Reviews are inherently critical. It is important to critique the work, not the authors themselves.

* Reviewers are human. It's easy to confuse your thoughts with the authors' words. Make sure your comments reference authors' assertions.

* Separate fact from opinion. Include the latter in your confidential comments to the editor, not in your remarks to the authors. Still, make sure your opinion is supported by fact.

* Authors are human. Read your comments to authors as if you were receiving it. Saying something positive, even if the best you can say is that "the authors have selected an important area for study", makes even the harshest critique more palatable.

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Finally, make sure your recommendation to the editor and your comments to editor, (e.g., Reject with opportunity to revise), is consistent with your beliefs and your comments to the authors. If the work can never reach quality/ significance for publication in CCM, so indicate in your recommendation as "Reject".

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