Reviewer's report

Title: Toward cost-effective staffing mixes for VA substance use disorder treatment programs

Version: 2 Date: 25 August 2015

Reviewer: Maria E Torres

Reviewer's report:

I would like to thank the Editor for asking me to review this manuscript. As I mentioned to the Editor, I am not a cost effectiveness researcher. Rather, my interests focus on the behavioral healthcare workforce and the training and education of workers. Given my area of expertise, my comments will focus on the researchers approach to the study, assumptions made by the researchers in their analysis, and on the implications of their recommendations.

This manuscript provides important insights into existing variations in staffing levels at VA substance abuse treatment programs by type of program and force us to consider how staff member skills are being utilized and if staff members are performing tasks that maximize their education and training. This is an essential question for all substance abuse treatment programs as they seek to perform at their highest efficiency from a cost, as well as a consumer outcomes perspective.

Further, within the discussion and limitations section of the manuscript I appreciated the authors’ recognition of ongoing changes within the VA healthcare system that they were not able to capture using these data. The strength of this manuscript is that it is able to model new ways for thinking about staffing levels especially given the expanded use of multidisciplinary teams and the call for more coordinated care for individuals seeking treatment.

COMMENTS:

Major Compulsory Revisions

1. On page 5 the authors note that this study aims to demonstrate how cost-effective staffing mixes for each type of program can be defined empirically instead of intuitively deriving “staffing solutions” for treatment programs. A similar statement in the conclusion notes that staffing in SUDTPs has been an intuitive process. Despite observing variation in staffing levels across similar programs, it is unclear what aspect of the staffing process the authors feel is “intuitive”. Further clarification and a citation supporting these statements is warranted.

2. When describing their optimization model the authors note that (1) equation 3 specifies that a proportion for each staff should be in the range of those observed in treatment programs and (2) equation 4 specifies that the ratio of trainees to supervisors should fall within the observed range ensuring that we do not recommend too many trainees per supervisor. However, in their final
recommendations there are huge increases in the number of paid trainees, aides and technicians, and clerical staff and drastic reductions in individuals that would likely serve as supervisors for trainees (Psychiatrists, Resident MDs, Nurse Practitioners, Psychologists, and social workers). This seems counter to the author’s prior statements and warrants further discussion.

3. This research raises important questions regarding the goal of treatment and how best to use the resources available. The authors emphasis on reducing time in treatment, which would allow more individuals access, glosses over the gains of the individuals seeking care. Based on their analysis individuals “completing” treatment met certain outcomes, yet these outcomes are not mentioned in the context of the research findings and should be noted.

Somewhat related to the comments above regarding a focus on outcomes, it would be important for the authors to mention in their discussion section that substance abuse treatment is a complex chronic condition that may require individuals seeking care to cycle through multiple times or to engage with different sectors of care for different periods of time over their lifetime. This recognition has important implications for staffing patterns. Additionally, the authors need to recognize that many individuals seeking care, particularly within a military context, may suffer from other chronic health conditions or mental health disorders. This too has significant implications for staffing patterns.

4. The authors do not touch upon the staffing requirements or licensure/accreditation requirement for programs that provide substance abuse treatment. This is an important consideration and was missing from the discussion section.

Minor Essential Revisions:

5. The influence diagrams for inpatient and residential and standard outpatient all have a box or bar in the arc from treatment intensity to treatment length or patient status after treatment. Yet there is no explanation given regarding its meaning.

6. The table highlighting the actual and suggested optimal staffing mix for VA substance abuse treatment programs was informative but difficult to assess the level of change recommended. It would have been nice to see a stacked bar diagram showing the change from actual to suggested staffing levels or some other visual to illustrate the recommended staffing mix changes more clearly (see example below).

7. Descriptive statistics regarding the sample and how these programs varied were not presented and would have helped inform the reader.

Discretionary Revisions:

8. I applaud the authors for casting a wide net and looking at 12 different types of staff members in their analysis. However in the supplemental information it would have been nice to know more about the different types of providers selected and their roles. This would have better facilitated our ability to understand how staff
member’s roles overlap, as well as the efficiency of the authors’ recommendations and the implications of changing staffing patterns based on these findings.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests