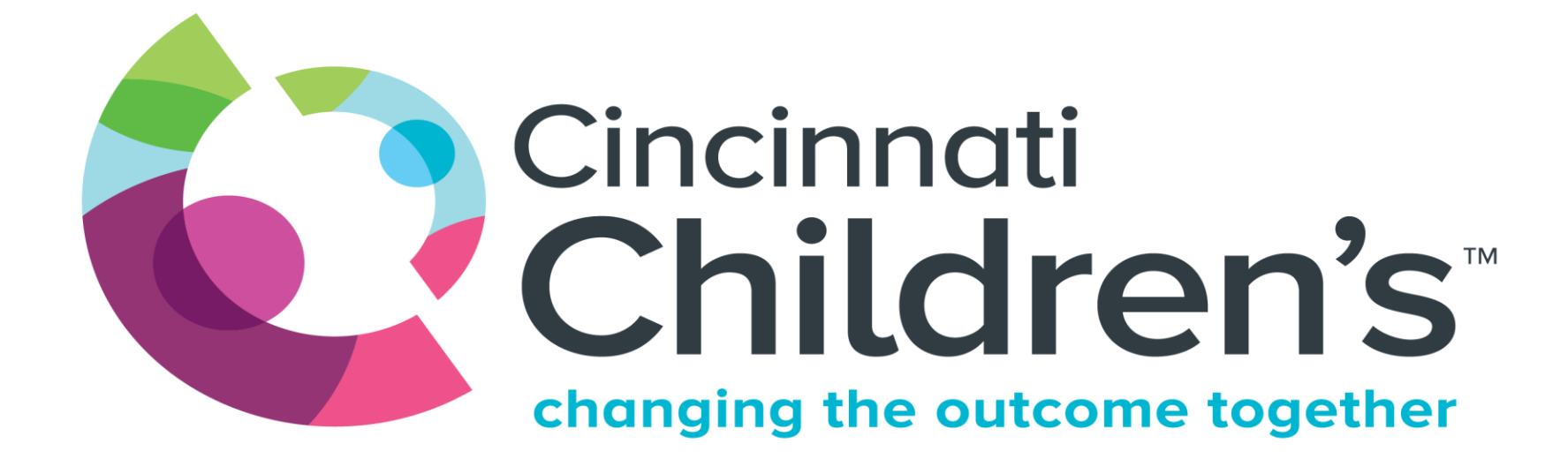


# Monitoring for Bias in Subjective Evaluations of Professional Behaviors of Pediatric Anesthesiology Fellows

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## Introduction

- Professionalism forms the core of a good physician and encompasses excellence, humanism, altruism, and accountability.
- Professionalism is one of the six core competencies established by the ACGME and ABA and is divided into three milestones scaled from levels 1 to 5 (Figure 1).
- These three sub-competencies are measured regularly via faculty evaluations.
- Accurate evaluations allow us to identify shortcomings and tailor our focus on our trainees.
- However, evaluations are subjective and susceptible to bias.
- By comparing subjective evaluations to objective measures, we can detect discrepancies which may be evidence of bias in subjective evaluations.
- By being aware of bias, we can confidently use both subjective and objective data to evaluate our trainees and provide effective training and guidance.

## Methods

- The aim of our study was to compare subjective and objective measures of professionalism and evaluate for presence of bias.
- Data was collected over one-year period for ten pediatric anesthesiology fellows at Cincinnati Children's.
- Subjective data included sections of faculty evaluations focused on the three professionalism sub-competencies, designated as PROF-1, PROF-2, and PROF-3.
- Objective data included observable and measurable professional behavior such as timely submission of case logs and duty hours and attendance of fellow lectures and grand rounds.
- 7 objective behaviors were determined by the program director and measured on a scorecard. The scorecard was evaluated monthly and each behavior was assigned as completed, warning, or violation.
- Non-proportional ordinal logistic regression examined the association between the subjective evaluation scores with the objective scorecard variables.

## Results

- There were total of 924 monthly scorecard outcomes. 94% were completed, 4% were warning, and 2% were violation.
- Non-proportional ordinal logistic regression results show that quarterly subjective evaluation measures and objective scorecard results were positively correlated.
- When PROF-1 subjective evaluation score increased by 1, the odds of scorecard being completed was 4.7 times higher with 95% confidence interval (1.7, 12.6) vs odds of scorecard being warning or violation (Figure 2)
- PROF-2 and the combined average of PROF-1 through PROF-3 had similar results but PROF-3 alone did not have a statistically significant relationship.

## Discussion

- For PROF-1, PROF-2, and the combined average of subjective faculty evaluations, favorable evaluations were positively correlated with the objective measure of having higher odds of scorecard being completed rather than warning or violation.
- This positive correlation suggests that bias might not be present in our subjective evaluations and reinforce our objective measures of professionalism.
- We must be cautious and acknowledge that the lack of positive correlation may not automatically mean the presence of bias.
- For example, PROF-3 did not have statistically significant positive correlation and that may have been due to it addressing "responsibility to maintain personal emotional, physical, and mental health" which has less common theme than our objective scorecard measures.
- Understanding this data allows us to monitor for bias which would allow for correction of the bias and accurate subjective evaluation.

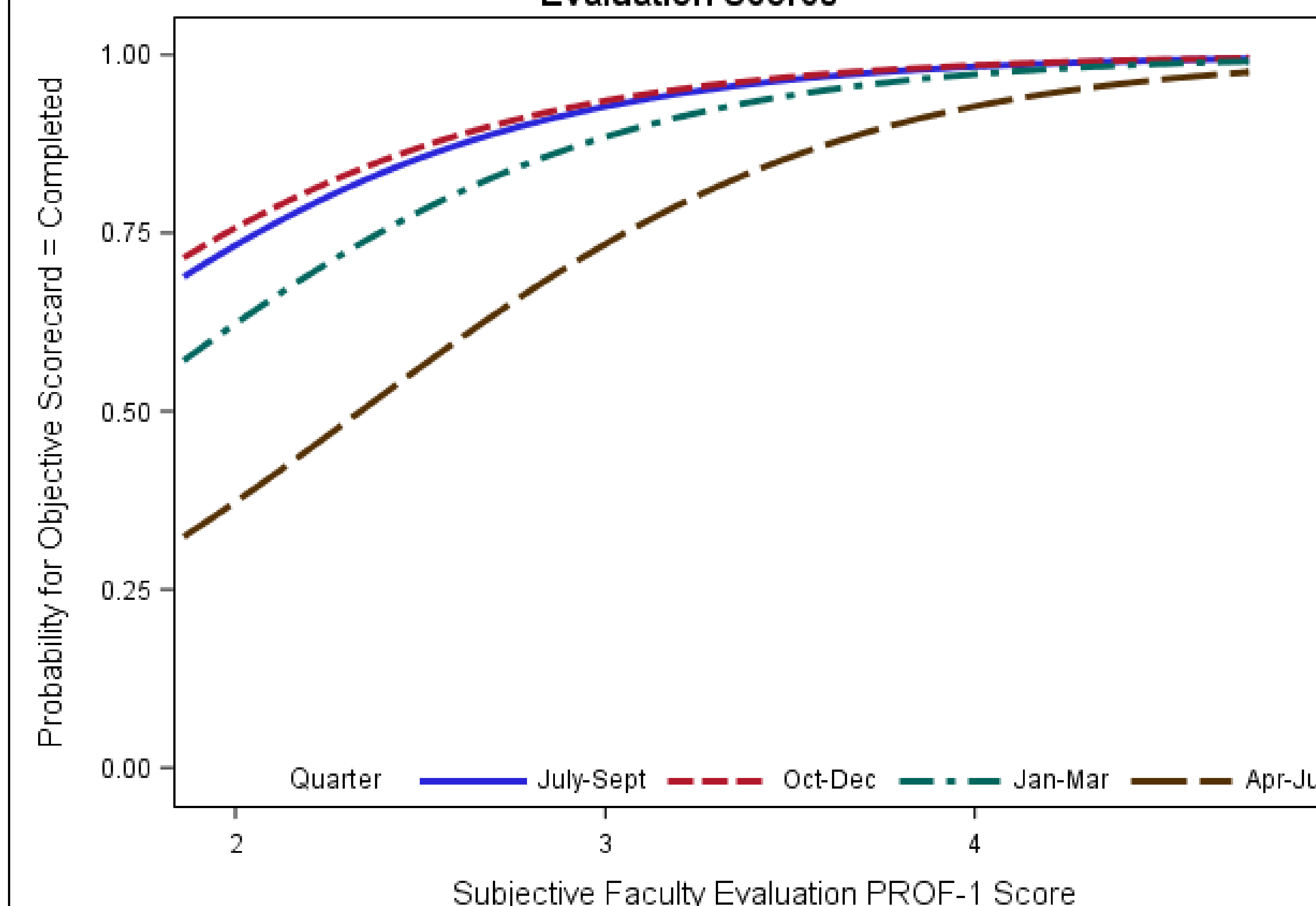
## References

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### Figure 1: ACGME/ABA Pediatric Anesthesiology Milestone Project – Professionalism Sub-Competencies

PROF-1	Commitment to Institution, Department, and Colleagues
PROF-2	Receiving and Giving of Feedback
PROF-3	Responsibility to Maintain Personal Emotional, Physical, and Mental Health

Figure 2 Predicted Probability of Completed Scorecards vs. Subjective Faculty Evaluation Scores



## Conclusion

- Professionalism is a virtue of moral excellence and an important element of graduate medical education.
- Bias in subjective evaluation is always a possibility and requires systematic methods to detect bias.
- Without detecting bias, we will be unable to ensure accurate subjective evaluations, tailored training, and success in our trainees.