

Tiered Board Prep Program Improves In-training Exam Scores

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Statement of Problem

Prior to the development of our board prep program, the in-training exam (ITE) scores of residents in the Carilion Clinic-VTC Family Medicine program had been trending downward with increasing numbers of residents scoring below the national mean for their year of training. This trend was accompanied by a sub-optimal 5-year rolling American Board of Family Medicine (ABFM) board pass rate. In our Program Evaluation Committee (PEC) discussion, residents and faculty identified having higher average ITE scores as a priority area.

A review of the literature shows that ITE scores accurately predict performance on the certifying examinations across several specialties. Per the ABFM, with no intervention, residents typically increase their ITE score by approximately 50 points between PGY1 and PGY2 and by approximately 30 points between PGY2 and PGY3. With this in mind, we sought to improve our residents' ITE scores and their preparation for the ABFM certification exam by developing a structured board preparation program.

Methods

This study was deemed exempt by the Carilion Clinic Institutional Review Board.

INTERVENTION:

This program was started in July 2015 and is ongoing.

Residents are placed into one of three tiers based on their ITE scores.

TIER 1:

Residents who scored at or above the mean are exempt from the board prep program.

TIER 2:

Residents who scored up to 35 points below the mean are required to:

- A. Complete 30 board questions per week from either AAFP or ABFM resources
- B. Initiate monthly meeting with their faculty coach to:
 1. Report the number of questions completed and the source of the questions
 2. Review questions completed: Why were incorrect answers wrong?
Why were correct answers right?
 3. Identify patterns of relative strengths and weaknesses
 4. Complete a few sample questions together

TIER 3:

Residents who scored 36-70 points below the mean are required to do TIER 2 steps A and B, plus:

- C. Review one reference article or guideline pertaining to a topic area determined to be a weakness based on their ITE or pertaining to a patient they saw in their practice
- D. At meeting with their faculty coach, discuss why the articles were chosen and what the resident learned.

TIER 4:

Residents who scored more than 70 points below the mean are required to do the steps A through D in Tiers 2 and 3, plus:

- E. Meet with the Resident Progress Committee

The Resident Progress Committee assists the resident with:

- formulating a study plan
- identifying the resident's most productive time for studying
- reviewing the study resources that the resident is using to assure they are the best resources and studying the appropriate amount of material
- scheduling time for residents to take a practice ITE at intervals prior to their next standardized test

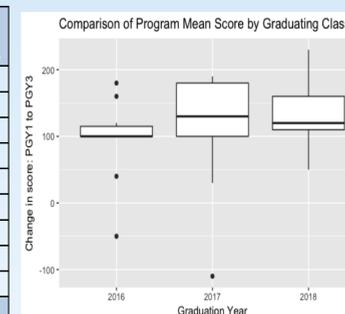
Results

Data was obtained for 28 residents: 10 prior to the program and 9 each from the first two years after beginning the program. Of note, 2 residents (one each in the 2017 and 2018 classes), left the program due to non-testing-related reasons.

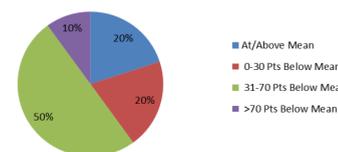
Prior to the program all residents except for one had a positive change in their ITE scores between PGY1 and PGY3 in the years after the intervention.

Comparison of Mean ITE Score Changes Across Three Cohorts

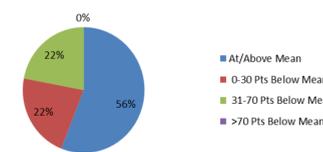
No Intervention: Class of 2016				One Year of Intervention: Class of 2017				Two Years of Intervention: Class of 2018			
	PGY1 exam score	PGY3 exam score	+/- Change		PGY1 exam score	PGY3 exam score	+/- Change		PGY1 exam score	PGY3 exam score	+/- Change
Resident 1	330	510	180	Resident 1	270	450	180	Resident 1	480	560	80
Resident 2	380	330	-50	Resident 2	390	280	-110	Resident 2	310	540	230
Resident 3	370	410	40	Resident 3	370	490	120	Resident 3	300	500	200
Resident 4	320	440	120	Resident 4	320	470	150	Resident 4	360	480	120
Resident 5	310	410	100	Resident 5	320	500	180	Resident 5	360	470	110
Resident 6	410	510	100	Resident 6	310	440	130	Resident 6	350	400	50
Resident 7	290	450	160	Resident 7	390	580	190	Resident 7	330	490	160
Resident 8	310	410	100	Resident 8	380	410	30	Resident 8	300	430	130
Resident 9	300	400	100	Resident 9	320	420	100	Resident 9	420	530	110
Resident 10	320	420	100								
Average +/- Change per class			95	Average +/- Change per class			108	Average +/- Change per class			132



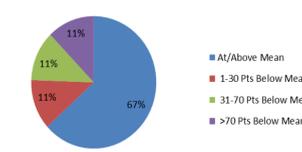
PGY3 In-training Exam Scores
2016 Grads (No Intervention)



PGY3 In-training Exam Scores
2017 Graduates - One Year of
Intervention



PGY3 In-training Exam Scores
2018 Graduates - Two Years of
Intervention



Informal Resident Feedback (quotes from residents)

- Though it's more work, I appreciate the structure and accountability and I'm seeing the benefit.
- Even though I'm not in the program anymore, I'm still doing my questions! (Though maybe not as often)
- Spending more time on each question to make sure I understand why an answer is right or wrong has helped me more than answering tons and tons of questions quickly
- Can I schedule a practice in-training exam?

Considerations

Limitations

- Residents were able to "test out" of the board prep program if their next ITE score was equal to or better than the national mean for their year of training so the same residents were not necessarily in the program for both years.

- The baseline scores of interns for each year are not the same.

- We are constantly seeking to make program improvements in our broader curriculum, so improvements in scores cannot be definitively attributed to the board prep program.

- Monthly meetings between residents and their faculty coaches are difficult to schedule and to keep track of, and meetings waned over the course of the year.

Future Directions

- We intend to continue this board prep program in its current format.

- We plan to hire an Educational Coordinator who will be in charge of tracking the residents who are in the program, to facilitate the meetings with faculty coaches, and to assure they are meeting the board prep program requirements.

Conclusions

- Residents in our board prep program improved their scores more dramatically than those who had performed poorly but did not have access to the program (prior to intervention).

- As a residency program, the average score of all residents combined showed a greater increase in the two years after the board prep program was implemented.

- Residents in the program verbalized appreciation for structure, resources, accountability, and support.

- Residents display more engagement in the board preparation process and in their individual ITE score performance, and also in the program's overall performance.

Literature:

O'Neill TR, Li Z, Peabody MR, Lybarger M, Royal K, Puffer JC. The Predictive Validity of the ABFM's In-Training Examination. Fam Med 2015;47(5):349-356.

Althouse LA, McGuinness GA. The in-training examination: an analysis of its predictive value on performance on the general pediatrics certification examination. J Pediatr. 2008 Sep;153(3):425-8.

Grossman RS, Fincher RM, Layne RD, Seelig CB, Berkowitz LR, Levine MA. Validity of the in-training examination for predicting American Board of Internal Medicine certifying examination scores. J Gen Intern Med 1992 Jan-Feb;7(1):63-7.