Cardiovascular Point-of-Care Ultrasonography and Resident Learning

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# Methods

The cohorts were divided by class years, from recent graduates of the program to current PGY3, PGY2, and PGY1. The data was acquired from 06/2018 to 08/2019. The population sampled was 225 residents (including recent grads).

The response rates per group is shown. The surveys were sent from June 2018 to August 2018.

|  |  |  |
| --- | --- | --- |
| Cohort | n | Response (%) |
| GRAD | 56 | 67.857 |
| PGY3 | 57 | 28.07 |
| PGY2 | 56 | 33.929 |
| PGY1 | 56 | 33.929 |

## Quiz breakdown

The quiz was broken down into several sections. There were 5 targeted areas for the survey.

* Cardiovascular view identification
* Cardiovascular structure identification
* Cardiovascular function assessment (e.g. ejection fraction)
* Vascular structure identification (e.g. IVC, aorta)
* Vascular function assessment (e.g. collapsibility of IVC)

The responses are in the form of a percent by each cohort, so within cohort comparisons can be assessed.

## Overconfidence

Residents also labeled their confidence in their answer choices. Four categories were devised representing POCUS knowledge and confidence in decision-making.

|  |  |  |
| --- | --- | --- |
|  | Confident | Not Confident |
| Correct | Understanding | Underconfident |
| Incorrect | Overconfident | Knowledge Gap |

# Results

## Baseline characteristics

There were a total of 89 participants in the study, including PGY1 (n=19), PGY2 (n=19), PGY3 (n=16), and recent graduates (n=38). There was >80% self-reported interest in POCUS, with over >60% expressing interest in a procedural career, and <30% having prior experience in POCUS. Further breakdown by cohort is seen in **Table 1**.

## Point-of-care ultrasonography knowledge

The mean percent score (SD) on the questionnaire was 65.206 (12.429). By cohort, the PGY1 class scored 56.1 (11.8), the PGY2 class scored 62.4 (11.5), the PGY3 class scored 73.0 (10.6), and the recent graduates scored 67.8 (11.1). The questions were further broken down by type, as seen in **Figure XXX**\_.

There was a difference in scores after completion of the curriculum (p = 0.002), as seen in **Figure XXX**.

## Confidence levels

Overall, participants reported being confident on 0.701% (0.458) questions. When compared with their individual answer choices, 15.157% demonstrated a *Knowledge Gap*, 16.239% demonstrated *Overconfidence*, 14.758% demonstrated *Underconfidence*, and 53.846% demonstrated *Understanding*. This is further delineated in **Table 2**, including by presence of the curriculum. Of note, although there was an increase in *Understanding* from 32.725% to 67.275 after the curriculum, there was also an increase in *Overconfidence* from 39.313% to 60.687%. The distrubtion of confidence by question type is seen in **Figure XXX**.

## Regression Analysis

Curriculum was found to be significant in affecting congruence between confidence and competence (p = 0). Completion of curriculum had an OR = 2.416 (95% confidence interval (CI) = 1.738, 3.359) of demonstrating *Understanding* over other categories (e.g. *Overconfidence*). In an additional model adjusted for cohort, there was a significant negative interaction between curriculum and cohort year (p = 0.018).

# Tables

## Table 1

## Table 2

# Figures

## Figure XXX

## Figure XXX

## Figure XXX

## Figure XXX

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