ORIGINAL RESEARCH

Impact of Pre-Admission Grade Point Averages on Anesthesiologist Assistant Student Performance at Emory University School of Medicine

Katherine S Monroe, William Bundy, Yulanda Greene, Gregory Jarvis, Jennifer Stever,
Gaurav P Patel [ORCID]

Department of Anesthesiology, Emory University School of Medicine, Atlanta, GA, USA

Correspondence: Gaurav P Patel, Emory University, 57 Executive Park South, Suite 300, Atlanta, GA, 30329, USA, Email gppatel@emory.edu

Purpose: The Anesthesiologist Assistant career is gaining significant popularity in the health professions in the United States. Given that this medical occupation is relatively young, there is limited information regarding student success in this demanding graduate-level program. Assessing if pre-admission metrics influence how students perform during the curriculum is essential to recruiting the appropriate candidates. Grade point averages have been shown to correlate with student success in medical education programs for both medical students and physician assistant students, but there is currently no information regarding anesthesiologist assistant students.

Methods: Pre-matriculation science and cumulative grade point averages were accessed in a deidentified manner for Emory University Anesthesiologist Assistant Students, and 2-tailed Pearson coefficients were calculated to see if there was a correlation with performance during the science/didactic curriculum of our program and with the clinical curriculum of the program.

Results: The 2-tailed Pearson coefficients showed a moderately strong positive correlation between pre-admission science and cumulative grade point averages and performance during the science curriculum of the Emory program ($r=0.522$). Data also suggested a moderate correlation with grade point averages at graduation from our program ($r=0.484$). Similar results were found with cumulative grade point averages as well.

Conclusion: Given the limited information, we have regarding pre-admission metrics and performance in an Anesthesiologist Assistant program, our study shows that pre-admission science scores and grades in general in undergraduate studies does in fact mimic the information found from studies of other health profession students. Further studies are needed to elucidate how to choose the most appropriate candidates for admission to anesthesiologist assistant programs.

Keywords: admission metrics, certified anesthesiologist assistant, anesthesia care team, student success

Introduction

The Anesthesiologist Assistant (AA) profession has increased in popularity since its inception in the 1960s, when only two AA program existed.[1] At this time, there are 20 existing programs in the United States,[1] and more will likely be developed as the demand for anesthesia care increases and more states allow AA practice.

AA programs have demanding pre-clinical and clinical curricula which prepare students to practice in the anesthesia care team model. The curriculum for AA programs in the USA is rigorous and comprehensive, designed to equip students with the knowledge and skills required for this advanced healthcare role. Typically spanning 24 to 28 months, the curriculum includes a blend of classroom instruction, laboratory work, and clinical training. Core subjects encompass anatomy, physiology, pharmacology, and physics associated with anesthesia care, with a strong emphasis on anesthesia principles and techniques. Students receive hands-on training in simulated environments and real-world clinical settings, where they learn to administer anesthesia, monitor patients, and manage complications under the supervision of licensed anesthesiologists. The program also covers advanced topics such as patient assessment, critical care medicine, and

emergency procedures, ensuring graduates are well prepared to support anesthesiologists in a variety of surgical and medical contexts.[1,2] In contrast, other countries often have different pathways for training anesthesia providers. For instance, in Canada and the UK, the role similar to AAs is usually filled by anesthesia technologists or nurse anesthetists, whose training can vary significantly in length and content.

In comparison to other health profession programs in the USA, the AA profession is relatively young; as such, there is no published information regarding ways to predict student performance during their AA education. AA programs need both quantitative and qualitative data to ensure that the appropriate candidates are being admitted.

While there is significant research showing that quantitative metrics such as undergraduate grade point averages (GPA) may predict success in US medical school (both allopathic and osteopathic programs)[3–5] and in Physician Assistant (PA) programs,[5–7] there is no literature in the AA domain. The aim of this study is to retrospectively analyze the association between both pre-matriculation science and pre-matriculation cumulative grade point averages and GPAs in the first semester of the Emory AA program. A secondary analysis of these variables and its correlation to cumulative end-of-program GPA was also completed.

Methods

The Emory University Institutional Review Board has deemed this study exempt from review. Pre-admission GPAs, both science and cumulative, were accessed for the last three admitted cohorts. These were then linked to first semester AA program GPAs. The Emory AA program first semester is comprised of the basic sciences associated with anesthesia care, and no clinical grades are associated with this GPA. A secondary retrieval of cumulative end-of-program GPAs were also accessed and linked to pre-matriculation metrics. End-of-program GPAs incorporate clinical grades that have been earned by the student into the academic grades. This was assessed for the last two graduating cohorts. Hence, both the pre-clinical and clinical curricula are considered.

The 2-tailed Pearson product correlation coefficients were calculated to assess for correlations between four possible associations: between pre-matriculation science GPA and first semester AA program GPA; between pre-matriculation cumulative GPA and first semester GPA; between pre-matriculation science GPA and GPA at AA program graduation; and between pre-matriculation cumulative GPA and GPA at AA program graduation. Statistical significance was noted at $P \leq 0.05$.

Results

Students admitted for the last 3 years were included for correlations associated with the first semester AA program GPAs (n=114). Students who graduated in the last two cohorts were included in correlations associated with the end-of-program GPAs (n=76). Table 1 outlines the results and correlations of the 2-tailed Pearson coefficients associated with these metrics.

The correlation analysis showed that pre-matriculation science GPA had a moderately strong, statistically significant positive correlation with first semester GPA at the Emory AA Program ($r=0.522$, $P<0.001$) and also a moderate (though slightly less), yet statistically significant positive correlation with GPA at AA graduation ($r=0.484$, $P<0.001$). Cumulative GPAs prior to admission also had a moderate positive correlation with first semester GPA ($r=0.497$, $P<0.001$) and

Table 1 2-Tailed Pearson Product Correlations for Pre-Admission Science and Cumulative Grade Point Averages and Performance in the Anesthesiologist Assistant Program

		Pre-Admit Science GPA	**Pre-Admit Cumulative GPA**
Mean (Std Dev)		3.49 (0.37)	3.57 (0.32)
First Semester AA GPA	n=114	$r=0.522$	$r=0.497$
Graduation AA GPA	n=76	$r=0.484$	$r=0.454$

Abbreviations: AA, Anesthesiologist Assistant; GPA, Grade Point Average.

moderate positive correlation with GPA at AA graduation (r=0.454, P=0.01). Both of these were also deemed statistically significant.

Discussion and Conclusions

AA education is a rigorous master's degree program.[1] With the recent increased interest for AAs nationally, along with significant growth of the profession,[1] it is essential that AA admissions committees are able to gauge student success in their programs.

Several studies have shown that pre-entry GPAs are essential markers of successful completion of requirements for medical school and for PA school.[3–8] Stratton et al, furthermore, have noted that lower undergraduate GPAs led to greater academic issues in the medical school.[9] AA education follows a similar structure as medical school – basic sciences are taught first and then the clinical sciences are integrated as the student progresses. Given the importance of the foundational sciences, it is important that AA students excel in this arena.

There is no research on AA pre-matriculation quantitative metrics such as GPA. Similar to the above studies, our study specifically at Emory notes a moderately strong positive correlation between pre-admission science GPA and performance during the first semester of our program. As students move forward in our curriculum and as the clinical curriculum is added on, there is still a moderate correlation, though it starts to level off. This likely implies that pre-admission GPAs may not necessarily predict as much success in clinical rotations as it does for the pre-clinical curriculum. With this information, AA programs can know with some certainty that stronger GPAs may imply stronger performance during the entirety of the AA curriculum, but it may not always predict success in clinical performance. Programs can work to tailor their admissions criteria to possibly rely more routinely on these GPAs to admit students who will have a greater chance of academic success.

There are limitations to our study. Primarily, it is a single-center study with a small sample size and may not relate to other AA programs and their curricula. Furthermore, the impact of having clinical rotations on top of the need to take examinations is not fully delineated. However, this does open the door to further studies in AA student admissions and programmatic performance – both of which are exceedingly important as newer AA programs are established across the United States.

Disclosure

The authors report no conflicts of interest in this work.

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