

Supporting medical students through time and space – creation of a longitudinal academic support system

Meredith Niess¹, Kelly Smith², Erin Bakal³, Animesh Jain⁴, Gita Fleischman⁵, Kunal Patel⁶, and Christina Shenvi⁷

¹MD, MPH, Assistant Professor, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, United States

²MD, Associate Professor, Department of Family Medicine, University of North Carolina School of Medicine, Chapel Hill, United States

³MS, EdD, Medical Education Department, WakeMed Hospital, Raleigh, United States

⁴MD, MPAEd, Associate Professor, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, United States

⁵MD, Otolaryngology Department, WakeMed Hospital, Raleigh, United States

⁶MD, Assistant Professor, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, United States

⁷MD, PhD, MBA, Associate Professor, Department of Emergency Medicine, University of North Carolina School of Medicine, Chapel Hill, United States

Abstract

Introduction: Academic support for medical students is rapidly evolving due to expanding medical student needs and a shifting medical education environment. This article describes a holistic longitudinal academic support program created to meet these challenges in a large multi-campus medical school. **Program Organization and Implementation:** Academic support through the Office of Academic Excellence (OAE) is primarily provided by 11 physician academic coaches, three Foundation Phase Academic Coaches (FPACs) and eight Clinical Phase Academic Coaches (CPACs) to provide education and guidance via class meetings, intensive one-on-one coaching, specialized programs and asynchronous resources. This is aimed at supporting resilience and study skill development, preparation for United States Medical Licensing Examination (USMLE) Step 1 and 2, and clinical and NBME subject exam success. Robust team communication

internally, across other student resources, and across multiple regional campuses provides tailored, seamless support for medical students and ensures comparable experiences across campuses. **Results:** Since the founding, the group has grown in size and scope of interactions with students. The OAE has 3 FPACs plus at least one CPAC at each campus, conducting approximately 1,250 annual student meetings. Since the OAE's inception, fewer students fail Step 1, and a trend towards improved Step 1 scores was noted. The OAE advocated for and created programs providing question banks and practice tests to students throughout medical school, and uses the scores to provide evidence-based proactive academic support. **Discussion:** Program success is attributable to continuous communication and coordination processes, robust support from Medical School administration, and agile, evidence-based, individualized student support.

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Email: Christina Shenvi (cshenvi@med.unc.edu)

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Introduction

The Office of Academic Excellence (OAE) represents a large multi-campus institution's response to the changing landscape of Undergraduate Medical Education (UME) over the past decade. During this time increased

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identification of student mental health challenges, including but not limited to neurodivergence and ADHD,¹ raised demand for counselling and psychological resources.² A greater focus on admission of students from diverse racial, socioeconomic, first generation, and broad

geographic backgrounds broadens the nature of matriculating students' preparation and experiences, and increases the social and academic support that students may need. To keep pace, many medical school academic support programs have expanded and become more rigorous, with more holistic approaches gaining favor.

Medical education simultaneously experienced structural and environmental changes, including major national assessment changes, dynamic institutional curricula, and increased online resource availability. The United States Medical Licensing Examination (USMLE) Step 1 change to Pass/Fail was followed by a dramatic national rise in Step 1 failure rates. The higher failure rate highlights the need for preclinical support and test preparation as well as support through the psychological stress associated with failure.³ Further, there is national movement away from traditional evaluation to competency-based assessment⁴ and the associated change in support needs is not yet understood.

Historically academic support in medical schools focused on remediation, a reactive-deficit approach,⁵ though this has its shortcomings.⁶⁻⁸ Increasingly, medical schools aim to increase proactive-deficit approaches by identifying students at risk of failure earlier. Further, a proactive developmental approach targeted to all learners and grounded in education and developmental theory can provide durable skills to a professional and lifelong learner.⁵ To address the needs of current learners, all three approaches are needed. The popularization of the growth mindset framework and the science of successful learning offer frameworks for implementing all three approaches in this evolving education environment.⁹⁻¹¹

At the convergence of these trends resides an ideal of student support based in developmental and learning theory. Here we describe a system aspiring towards that ideal, created at one large (approximately 200 students/class) Southeastern, multi-campus medical school seeking to provide tailored support to students through all stages of medical school in a comprehensive and seamless manner.

Program Organization and Implementation

The OAE was created as a collaborative, integrated team providing support across medical school years and campuses spanning six cities.

Team Composition

The OAE is a team of physicians, educators, and administrators who provide focused support from the 1.5 preclinical years through the 2.5 years clinical years. The core OAE team consists of 3 Foundation Phase Academic Coaches (FPAC), 9 Clinical Phase Academic Coaches (CPAC), a coordinator, and one medical education learning specialist, who is a PhD educator.

Beyond extensive teaching experience, the formal training of OAE team members varies, and often includes higher degrees in education or formal training in coaching. New members are provided "core reading" books related to learning principles and mindset along with online access to OAE's shared education and coaching resources. The group also holds an annual retreat to identify strategic goals, needs, barriers, and trends or changes over the years, as well as providing faculty development.

Individual Student Intake and Engagement

The core work of the OAE is the individual coaching sessions, identifying students in three ways across phases: student-initiated requests, faculty referral, or proactive contact by an Academic Coach (Coach). This last category yields the most connections. Engagement is voluntary with a few exceptions noted in Table 1, though most students willingly engage.

Though the overarching philosophy and structure of support are similar across phases, there are some key differences as noted in Table 1. The trigger for outreach is catered to the evaluation methods and schedule of the student's academic phase. The preclinical curriculum involves frequent lower stakes testing, compared to high stakes NBME "shelf" exams and clinical evaluations after each rotation. For the Clinical Phase students, the OAE provides a complimentary practice NBME exam voucher 2-3 weeks prior to the exam, with scores automatically reported to the CPACs for review and subsequent individual outreach.

After a discussion of current goals, challenges, study approaches, habits, and resources used, the initial coaching session yields a shared goal and action plan for improvement. Areas addressed are broad ranging, but may include effective study strategies such as retrieval practice for memorization or resource prioritization; skills with broader applicability such as time management, finding motivation, or psychological recovery after

Table 1: Parallel Elements of OAE in Foundation Phase versus Clinical Phase

	Foundation Phase (FP)	Clinical Phase (CP)
Number of Coaches	3	8
	Central Campus	Geographically distributed
Trigger for individual Coach outreach	-Score in lowest 10% of class in biweekly testing -Fail a biweekly block test	-NBME practice shelf score 20%ile -Fail NBME shelf -Flag for concern in clinical evaluation -Low numeric score on clinical evaluation
Situations mandating student involvement with OAE	Required by Student Progress Committee to remain in good academic standing.	-Required by Student Progress Committee to remain in good academic standing. -Student requesting delay in taking NBME exam
Special programs	-USMLE Step 1 Preparation Support -Remediation support failed FP courses during summer break -Peer Tutoring Program Management	-XTAP -Peer Tutoring Program Management
Common referrals and resources used	-Peer tutors -Referral to counseling -Assigned advisor -Accessibility Resources and Service*	-Peer tutors -Simulation Center for feedback -Low stakes clinical work with CPAC -Referral to counseling -Assigned advisor -Accessibility Resources and Service*

*To pursue evaluation or request accommodation for testing

failure. Throughout these topics, the team aims to use evidence-based practices of successful learning to guide the students, as well as coaching towards a growth mindset,¹¹ appreciative inquiry,¹² acceptance commitment approaches,¹³ and mental contrasting with implementation intentions, among other approaches.¹⁴ Subsequent coaching sessions follow up on initial goals and create an iterative improvement plan while providing accountability. In the clinical phases, coaching may also include history-taking, physical exam, oral presentations, medical write ups, teamwork, and professionalism. In addition to one-on-one sessions, CPACs can coach and observe students with immediate low stakes feedback by having a student join them in a clinical setting or scheduling standardized patients with the simulation center. Students transition out of regular meetings with their coach when they have made adequate changes in their approach and are performing well, or if the student opts to no longer meet.

Full Class Engagement

At its inception, OAE primarily focused on individual interventions, but with its growth, the team increasingly aims to provide evidence-based

tools for study and growth to the entire student body, informed by developmental and learning theory. Introduction to successful learning practices begins prior to matriculation with the OAE providing a copy of *Make it Stick: The Science of Successful Learning* as required reading,⁹ with OAE-led small group orientation discussions emphasizing the most applicable principles of the book. This proactive approach continues with monthly class-wide presentations reinforcing effective learning practices and high-quality resource use. CPACs continue this practice via virtual class meetings during the clinical years. The OAE also maintains a website of learning resources available to all students.

Special Programs

In addition to individual and class-based outreach, the team created and delivers multiple special curricula or support programs. These include a robust program to support preparation for USMLE Step 1, a large peer tutoring program, a transition program for students with a gap in training, and remediation support for students who have failed preclinical blocks.

The most intensive support for Foundation Phase students occurs during the dedicated USMLE Step 1 study period. During this 7-week period, students first take the Comprehensive Basic Science Exam (CBSE) administered by the institution and are encouraged to take additional Comprehensive Basic Science Self Assessments (CBSSAs) and submit the scores to the OAE. The OAE continuously monitors scores to determine readiness for Step 1. During the dedicated study period, the FPAC team meets individually with nearly half the class at least once, hosts office hours, provides a website with resources, and meets weekly with Student Affairs leadership to coordinate student support. Students who are not ready to pass Step 1 based on CBSSA scores can defer the start of clerkship year for four additional months to prepare and pass Step 1.

The OAE team also offers students with academic needs 1:1 weekly tutoring by an upper-class student to provide support, encouragement, content review, as well as test taking strategies. The OAE selected, trains, and supports 60-70 tutors annually. This tutor program has been studied and noted to be highly successful and impactful for students.¹⁰

The CPAC team provides support during the transition to clinical work after any extended gap in training, commonly due to completing an additional advanced degree program or requiring extended time to prepare for the USMLE Step 1 exam. Biannually, preceding the transition into clinical rotations, the CPACs offer a three-day, intense clinical skills review course called Extra Practice for Transition to Application Phase (xTAP). The xTAP course refreshes the students in skills often lost during time away from clinical work, aiming for greater success on the wards.¹⁶ Following xTAP, the CPACs provide ongoing support throughout clinical rotations to maintain and develop skills.

Communication and Coordination

As one part of a holistic student support system, OAE requires regular communication with leadership of the curriculum, counselling services, Student Affairs, and the advisors who provide longitudinal mentorship to students. While the OAE focuses on academic support, many students bring up complex family, personal, or financial situations that inhibit their ability to study; mental health concerns, or neurodivergence as challenges to success. The coaches connect students with additional support services including mental health counsellors, the Accessibility Resources and

Service office to pursue testing accommodations, their assigned advisor for support through challenging times, or the Dean of Student Affairs if the student might benefit from a personal or medical leave.

To ensure comparability of support and policy implementation across six geographically separated campuses, plus to capitalize on the unique resources each campus provides, OAE maintains robust and collegial communication amongst team members. In addition to the core OAE team, team meetings also include the Assistant Dean for Student Affairs and student support representatives from distributed campuses. In these twice monthly meetings, the group discusses trends, policies, and new initiatives, while crowdsourcing approaches for individual student scenarios and supporting onboarding of new members. A "handoff" meeting is also held after completion of Step 1, in which FPACs pass on information relevant to holistic student support, including areas that may benefit from early CPAC coaching.

Results

Over the last five years, the OAE has grown to extend support across all six sites and all four years of the curriculum. The OAE created a robust curriculum for teaching study- and test-taking skills, and developed into a well-recognized and important part of the School of Medicine.

The OAE advocated for additional support for students, such as the provision of USMLERx and UWorld question banks during their first and second-years respectively, payment for an extension of UWorld subscriptions for students with extended study time, and the NBME practice voucher distribution program during the clerkship year. The question bank efforts plus OAE support resulted in fewer step 1 failures and improved overall student Step 1 scores within the first few years of OAE creation (prior to the exam's pass/fail change). The NBME voucher distribution program enabled data-driven proactive deficit-based outreach, encouraged structured preparation for subject exams, and addressed learning equity concerns by shifting the financial burden of exam preparation off individual students. The first year of this program students used 90% (845/942) of free vouchers provided by OAE.

Table 2 outlines the estimates of time spent by Coaches in their OAE roles.

Table 2: Summary of services provided by the three FPACs and eight CPACs. The values represent estimates provided during a 12-month period.

Support Service	Number	Description
Hours spent in email or other electronic communication	3070	Electronic communication with students, other faculty, and staff related to student support activities.
1:1 tutor: student meetings	4100	OAE-facilitated program: Review questions and provide study advice
1:1 Coach: student meetings	1250	Individualized coaching
Other work	1125	Hours spent tracking and reviewing scores, writing reports on student meetings, preparing presentations, and other offline work.
Hours of meetings of the OAE	40	Meetings with all OAE members with Student Affairs leaders to coordinate support, share practices, and develop ideas; includes an annual strategic-planning retreat
Meetings of CPACs with other entities	60	Coaches hold active roles in committees to coordinate with Student Affairs, advisors, curriculum leaders
Hours in transition to clinical year training sessions with students	72	CPAC training for students on success in the clinical years and xTAP for students with gaps in their clinical experiences
Class-wide meetings	18	Presentations and Q&A sessions on study and test-taking skills, and logistics of Step 2 timing and policies.
Small-group meetings	43	Sessions or office hours on study skills or test preparation (more common with FPACs)
Tutor training and development	12	Sessions on how to provide academic support; listen to concerns, questions, or issues tutors bring forward

Discussion

The OAE model represents one way to successfully organize and deliver student academic support in a large, multi-campus institution. Communication is key to OAE success, both *within* the geographically spread group, and beyond OAE, to students and via close connections with Student Affairs, counselling services, curriculum leaders, and advisors. The OAE director participates in monthly meetings of the Education committee (the governing body of campus UME) and multiple curriculum committees to stay abreast of changes, and provide input from the student support perspective.

The basic structure and mission of the OAE remains consistent over time, but through continuous quality improvement many of the structures and processes described here developed, resulting in growth in size and scope of academic support the OAE offers.

A structure of this size and intensity requires significant financial support from the institution and a group of dedicated educators with expertise in learning and test-taking. It also requires strong, agile leadership to adapt with the evolving environment of student needs, exam changes, and a growing focus on burnout reduction.

Medical schools without existing student support structures can begin with a needs assessment to determine the students' greatest needs, including general learning skills, time management, test-taking skills, neurodivergent learning support, and psychological support to create a program tailored to their environment. As the landscape of medical education changes, models of student support will need to continue to change and respond, and likely grow.

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