



# Benefits of a Physician-Scientist-Tailored Curriculum at a Medical Student-Run Free Clinic

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## Abstract

We designed a curriculum to help sustain pre-clinical knowledge for MD/PhD trainees in their graduate training phase while securing regular providers for our student-run free clinic. MD/PhD involvement increased from 1.91 to 2.45 students-per-clinic-day following implementation, and participants affirmed increased preparedness and comfort entering medical school clinical clerkships.

**Keywords** Physician-scientist · Curriculum design · Student-run free clinic · MD/PhD

Following two years of pre-clinical curriculum, MD/PhD dual-degree trainees experience limited structured clinical exposure during graduate training (~3–5 years) prior to resuming the final two years of clinical training. This inherently disjointed curriculum contributes to poor self-perceptions of clinical capabilities relative to medical school colleagues [1, 2].

Student-run free clinics offer interactive platforms for students to hone clinical skills [3]. The East Harlem Health Outreach Partnership (EHHOP) is a medical student-run, attending-supervised, free clinic at the Icahn School of Medicine at Mount Sinai. The clinic's mission is to provide health care to uninsured East Harlem residents and enhance knowledge, skills, and behaviors of trainee providers. EHHOP operates weekly and relies on continued recruitment of students to serve as primary care providers. As most qualifying students (those who have completed their second year of medical school) are often occupied with clinical clerkship obligations, MD/PhD trainees in the graduate school phase offer an invaluable pool of reliable providers with more accommodating schedules.

The EHHOP Physician-Scientist Track was established in 2014 to capitalize on this opportunity to augment clinic volunteer participation while increasing MD/PhD students' comfort and preparedness for medical school clinical clerkships

through hands-on exposure in a clinic setting. The curriculum is adapted annually based on the expressed needs of current students and is spearheaded by a senior MD/PhD student. Students must volunteer  $\geq 4$  times annually and attend monthly student-led didactic sessions facilitated by faculty or residents. These didactics review physiology, pathophysiology, history-taking, and physical exam skills learned in the first two years of medical school, and incorporate discussion of high-yield medical management through multiple choice examination questions in preparation for third-year shelf exams—a known area of difficulty for MD/PhD students [3].

Nineteen (out of 63 eligible students) who participated in the course for  $\geq 1$  year between 2014 and 2017 answered a survey to gauge program effectiveness (25 students participated since 2014, but 6 have since graduated). Each student participated for  $1.92 \pm 0.68$  (mean  $\pm$  SD) years; 12–14 were enrolled annually. Since the program began, 28.6% of participating students in clinic were MD/PhDs (~2.16/7.56 clinicians per clinic day). Students volunteered for an average 3.16 clinic days per year (range 1–8;  $\geq 2$  patients seen per day). Participants (7/19) also served in other EHHOP teaching, research, and leadership roles in the future. A summary of survey responses is presented in Table 1.

To our knowledge, this is the only MD/PhD-specific clinical program conducted in the context of a student-run clinic. This spaced, longitudinal volunteering, combined with didactic sessions, sufficiently helped students feel more prepared and comfortable entering their clinical years without being cumbersome alongside their research responsibilities. Notably, MD/PhD participation spiked on weekends

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**Table 1** Surveys requested information regarding year of training, length of program participation, feelings of clerkship preparedness and comfort in response to program participation, the impact of the program

on physician networking opportunities during PhD years, and the program's effects on participation in the student-run free clinic. \*8 students had already participated in EHHOP prior to the program's creation.

Survey question	% of respondents (n/total)
Preparedness for clinical clerkships	89.5% were more prepared (17/19)
Comfort entering clinical clerkships	94.7% were more comfortable (18/19)
Opportunity to network with clinicians during PhD	47.4% reported increased opportunities (9/19)
EHHOP participation	21.1% would not have participated in EHHOP without the program (4/11)*

coincident with clerkship shelf exams preoccupying their medical school colleagues, showcasing the implications of this recruitment strategy for sustainable clinic function. Finally, the resulting increase in MD/PhD interest and participation in additional clinic roles provided important institutional memory for an endeavor where a majority of student volunteers turnover annually. In conclusion, our curriculum affords mutual long-term benefits for both MD/PhD trainees and the student-run free clinic.

### Compliance with Ethical Standards

**Ethical Approval/Informed Consent** This study was determined to be exempt by the IRB at the Mount Sinai Hospital in New York, NY, as it was an assessment of an ongoing educational curriculum.

**Conflict of Interest** The authors declare that they have no conflict of interest.

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