

I. Specific educational aims: Our project aims to develop, implement, and evaluate a technical skills experiential learning workshop that we will be hosting at community colleges across the Bay Area, and assess its impact on students' health career self-efficacy. We will also conduct qualitative research to understand students' attitudes and beliefs regarding various careers within healthcare, and elucidate the unique barriers they face, in order to inform future community college to medicine pipeline initiatives.

II. Project rationale: Lack of equitable racial, ethnic and socioeconomic representation in medicine, and its downstream negative impact on health outcomes, has been well documented.¹ Dermatology is one of the least diverse specialties within medicine.² Improving the pipeline of URM students to medical school has been identified as a major goal towards addressing this gap.²

The social cognitive career theory of education (SCT) represents a promising guiding framework for developing career outreach initiatives, especially for tactile hands-on careers.³ A key premise of SCT is that task performance can modulate one's career self-efficacy: In short, it suggests that learning and performing a small task pertinent to a specific career increases one's belief that he/she can be successful in that said career. This has been successfully implemented in a variety of career outreach projects, ranging from agriculture to medicine.^{4,5} Within medicine specifically, this has been applied to outreach initiatives aimed at students at four-year universities.⁶ To our knowledge, there have been no publications about conducting this type of outreach initiative in the community college setting

Community colleges educate some of the most diverse student bodies in the United States. However, relative to their university counterparts, they are often under resourced, and their students frequently lack access to formative professional development opportunities that can steer freshman and sophomore towards pursuing careers in healthcare. Building collaborative relationships with local community colleges and understanding the unique obstacles preventing community college students from pursuing careers in healthcare is critical to achieving equity in opportunities to advance in health careers. It holds incredible promise in the mission to amend Medicine's lack of diversity. We hope our project can serve as a blueprint for other academic universities aiming to improve the pipeline to medicine for underrepresented minorities.

III. Approach: By using the social cognitive theory of education as a guiding framework and working in close collaboration with expert faculty mentors from both the school of medicine and graduate school of education, we will develop a theoretically grounded, evidence based workshop via an iterative process, aiming to incorporate faculty feedback while also centering the voices and needs of our community college partners. Specifically, we are collaborating with Dr. Preetha Menon from Stanford's Center to Support Excellence in Teaching. Additionally, we will seek guidance from our community college partners by actively reaching out to their career counselors and maintaining an open line of communication throughout the year, while also incorporating the lessons we learn from the community students we serve at each workshop.

The workshop's activities will aim to replicate tasks performed in a full clinical encounter: it will start with a brief lesson on identifying clinical features of malignant skin lesions, followed by hands-on one-on-one guided activities where students learn step by step how to perform a punch biopsy on a skin model, such as an orange, close a biopsy site with a simple interrupted suture on a suturing pad, and secure the suture via an instrument tie. Similar skills were taught to us during our preclinical curriculum and helped us develop a sense of confidence in our ability to pursue technical specialties within medicine.

Prior to the workshop, students will fill out a survey with Likert Scales in order to assess their knowledge of medical careers (medical assistant, nursing, physician assistant, physician, etc.), as well as their level of interest in, and perceived likelihood of pursuing, each of these careers. We will also assess their career self-efficacy: their belief in having the ability and skills necessary to succeed at these careers. A post-workshop survey with Likert Scales will help assess the impact of the workshop on students'

TMA 2023-2024 Innovation Grants Program Application (Bou-Khalil & Youn)
Faculty Mentor: Dawn H. Siegel, MD. Clinical Professor of Dermatology

career self-efficacy. Additionally, we will seek volunteers for longer small-group interviews to assess what barriers community college students face in pursuing these careers and their thoughts and feedback on the workshop.

At the end of each workshop, we will host a 45 minute Q&A session to give students the opportunity to ask questions about medical school, medical school admissions, health careers, and more with two Stanford MD/MS students who have significant experience with MD admissions.

IV. Timeline and plan for implementation:

Prior to October 1, 2023: We are in the process of submitting an IRB and have reached out to community colleges.

October 1, 2023 - March 15, 2024: Conduct hands-on experiential learning workshops. Collect quantitative data via pre- and post-surveys (n=150), and qualitative data via optional post-workshop small group interviews (n=30).

March 16, 2024 - July 30, 2024: Analyze both quantitative and qualitative data, present research findings at conferences, and submit a manuscript for publication.

V. Anticipated work product: At the end of this grant period, we will have created and evaluated the impact of a workshop at the community college level that would be able to increase the pipeline of minority and underserved students into medicine. As there is no data at the community college level for these workshops, our project will help determine the efficacy of these programs. Once the utility of our program has been established, we are confident that these workshops will continue long after the end of the grant cycle, as outreach programs like this are the focus of our faculty mentor and there are several first-year medical students who would continue our work.

VI. Evaluation plan: We have created pre/post surveys with Likert scales to assess student's knowledge of medical careers and their belief that they can succeed in said careers. Additionally, we will be conducting interviews to gather qualitative data on student experiences and the barriers that they face in pursuing these careers. Both this qualitative and quantitative data will be used to assess the success of our project, which would be defined as not only improved student knowledge of healthcare careers, but also the belief that they can succeed within these fields and how likely they are to pursue them.

VII. Dissemination of results: We plan to present the results of our study to the Stanford community through presentations at both the Community Health Symposium and Medical Student Research Symposium. Outside of Stanford, we are aiming to present our research at the American Academy of Dermatology Annual Meeting and publish our results in academic journals for broader dissemination.

Appendix

1. Gomez LE, Bernet P. Diversity improves performance and outcomes. *J Natl Med Assoc.* 2019;111(4):383-392. doi:10.1016/J.JNMA.2019.01.006
2. Pandya AG, Alexis AF, Berger TG, Wintroub BU. Increasing racial and ethnic diversity in dermatology: A call to action. *J Am Acad Dermatol.* 2016;74(3):584-587. doi:10.1016/j.jaad.2015.10.044
3. Betz NE. Career self-efficacy: Exemplary recent research and emerging directions. *J Career Assess.* 2007;15(4):403-422. doi:10.1177/1069072707305759
4. Frazee L, Wingenbach G, Rutherford T, Wolfskill L. Effects of a Recruitment Workshop on Selected Urban High School Students' Self-efficacy and Attitudes toward Agriculture as a Subject, College Major, and Career. *J Agric Educ.* 2011;52(4):123-135. doi:10.5032/JAE.2011.04123
5. Luzzo DA, Hasper P, Albert KA, Bibby MA, Martinelli EA. Effects of self-efficacy-enhancing interventions on the math/science self-efficacy and career interests, goals, and actions of career undecided college students. *J Couns Psychol.* 1999;46(2):233-243. doi:10.1037/0022-0167.46.2.233
6. Onyekaba G, Adekun A, Taylor SC, Ogunleye T. Assessing the impact of an intervention to increase minority representation in dermatology. *Int J Women's Dermatology.* 2021;7(2):199. doi:10.1016/J.IJWD.2021.01.024