

By: Sara Guevara-Plunkett

1. Project Title & Summary.

Title: Bridging STEM: A Community College Pipeline for Latino Students in Early Clinical Exposure to STEM Careers

Proposal: Design and pilot a structured, 1-year clinical and educational project for 30 STEM-focused Latino students in Los Angeles Community Colleges interested in STEM careers. The aim is to assess how early, hands-on exposure to Los Angeles Street Medicine clinics, individuals experiencing homelessness, and early patient care influences students' confidence in STEM and clinical skills, strengthens their intent to pursue STEM pathways, and supports their progression toward STEM bachelor's degrees and healthcare careers.

2. Statement of Need / Problem Description.

Community colleges play an important role in higher education, where they are often the first, and sometimes only, step for many students from under-resourced backgrounds. In 2025, about 8.6 million students attended these schools, making up 40% of all undergraduates in the country.¹ 57% of these students come from household incomes below 200% of the federal poverty level,² with Black and Latino students overrepresented within this population. In 2023, 42% of students enrolled in public two-year colleges were Black or Latino, compared to 30% of students enrolled in public four-year colleges and universities.³ For Latino students overall, roughly 37% are enrolled in community college. This makes these institutions the most common entry point into higher education.³

Latino students also show a particularly strong interest in science, technology, engineering, and math (STEM). A 2023 survey of U.S. high school students found that Latino students are highly interested in STEM, expressing similar levels of interest (86% and 89%, respectively) and aspirations for STEM careers (47% and 50%) as students from overrepresented groups. Yet, Latinos continue to be underrepresented in STEM occupations. The survey also found that Latino students are more likely to plan to attend community college than overrepresented groups (26% vs. 14%).⁴ These findings emphasize how important community colleges are for supporting Latino students who want to pursue STEM pathways.

Even with access to community college and strong interest in STEM, completing a bachelor's degree remains a challenge for Latino students. Among all students who start at a community college, only 31 out of 100 transfer to a four-year school, and just 15 individuals complete a bachelor's degree.⁵ The numbers are even lower for Latino students. Only 13% of Latino students who begin at a community college will both transfer to a four-year institution and complete a bachelor's degree within six years. This rate falls below the national average for all transfer students (~16%).⁶ These numbers demonstrate that even though community colleges provide access, many Latino students face barriers to long-term academic achievement.

Latino students face additional challenges that can make it hard to succeed in STEM. Many have fewer opportunities to take STEM courses in high school, less access to technology or advanced resources outside of school, financial struggles, lack of encouragement, discrimination, and fewer role models.⁷ These barriers limit their ability to pursue STEM pathways.

¹ Community College Research Center, *An Introduction to Community Colleges and Their Students*, Teachers College, Columbia University, 2025.

² Congressional Research Service, *The Postsecondary Undergraduate Population: Student Income and Demographics*, by Joselynn H. Fountain.

³ John Fink, *Undergraduate Enrollment Trends by Sector*, Community College Research Center.

⁴ Next Gen Insights and Gallup, *Voices of Gen Z: Perspectives on STEM Education and Careers*.

⁵ National Student Clearinghouse Research Center, *Tracking Transfer*.

⁶ Tatiana Velasco et al., *Tracking Transfer: Community College and Four-Year Institutional Effectiveness in Broadening Bachelor's Degree Attainment*, Community College Research Center.

⁷ Pew Research Center, *Blacks in STEM Jobs Are Especially Concerned About Diversity and Discrimination in the Workplace*

These challenges are often amplified for students who start at community colleges. Compared with students at four-year universities, they often have limited access to shadowing, clinical exposure, mentorship, and research opportunities. Financial constraints, distance from clinical sites, and limited institutional partnerships make it even harder. Many community colleges do not offer formal pre-health advising, partnerships with clinics, physician and/or pre-health shadowing programs, or mentorship.⁸ Students usually cannot access these opportunities until after transferring. This gives them only about 1.5-2 years to gain experiences that four-year students often accumulate over four years.⁹ Some community college students also experience stigma related to their enrollment. A 2019 study by Melissa Laird found that students who start at community colleges or transfer to four-year universities often encounter situations where classmates or faculty suggest they are less capable, received an inferior education, or are social outcasts (deemed poor, old, or off-putting) because of their transfer status.¹⁰

Despite these barriers, research shows that early exposure to clinical experiences and structured STEM pipeline programs can make a significant difference. Such programs can increase confidence, persistence, and actual progress into STEM majors and careers, with structured programs more than doubling graduation odds for participants.¹¹ A 2021 Pew Research Center study found that nine out of ten Latino college-educated STEM workers said that at least one positive experience in their schooling, such as mentorship or encouragement, helped them stay motivated to earn their degree.¹²

There is a clear need for early clinical exposure programs for Latino community college students interested in STEM and healthcare. Most existing pipeline programs focus on middle school, high school, or four-year university students, which leaves this group underserved.¹³ A local pipeline program in Los Angeles, where many Latino young adults live, could help students gain confidence, build skills, and succeed in STEM and healthcare careers.

3. Target Audience / Community Served.

The project is targeted for 30 Latino STEM-focused students, ages 18 to 24 (the average community college demographic), from community colleges in Los Angeles, California. The students will partake in their clinical exposure alongside medical students and medical residents or attendings at a Los Angeles Street Medicine Clinic during their already established clinic shifts. Through supervised street medicine outreach, students gain hands-on exposure to patient care, connect with a vulnerable demographic, and develop confidence in interacting with underserved populations.

The location was chosen as follows: The top three largest states with Latino populations are California, Texas, and Florida, which account for 55.7% of the Latino population.¹⁴ As of 2024, about half of all young adults in California within the above targeted demographic are Latino. This statistic is double the national rate.¹⁵ In Los Angeles County, about half the population is Latino, making it one of the most Latino-majority regions in the country.¹⁶

⁸ Education for Health, *Education for Health Journal Article No. 191*.

⁹ Emma C. Goodwin et al., *Addressing the Need to Facilitate Undergraduate Research Experiences for Community College Transfer Students in Science*, *Journal of Microbiology & Biology Education*.

¹⁰ Melissa Laird, *Community College Stigmatization: Perceptions of Vertical Transfer Students at the University Level*, University of Texas at Arlington.

¹¹ Laura K. Krecko and Sarah Jung, *Impacts of a Clinical Research Program for High School Students from Groups Historically Excluded from Science and Medicine*, *Health Equity*.

¹² Pew Research Center, *Hispanic Americans' Trust in and Engagement With Science*.

¹³ Tucker Stevenson Farrar, *Pipeline Programs Optimizing Underrepresented Minority Matriculation to Medical Schools*, California State University, Sacramento.

¹⁴ Eboni M. Zamani-Gallaher et al., *STEM Completion at Hispanic-Serving Community Colleges*, Office of Community College Research and Leadership (ERIC ED601015).

¹⁵ EdSource, *Report: Latinos Make Up Over Half of Californians Under 24*:Public Policy Institute of California

¹⁶ Los Angeles Almanac, *Hispanics/Latinos in Los Angeles County — By the Numbers.*(laalmanac.com)

The type of clinic was chosen as follows: Street medicine exists to care for people who are excluded from traditional systems. By integrating community college students who are often left out of traditional academic pathways, face financial insecurity, and must navigate complex systems on their own, the mirroring of communities aligns directly with the core purpose of street medicine. This is especially true for Street Medicine in Los Angeles, where volunteers serve individuals experiencing homelessness who are largely Latino and/or Spanish speaking.¹⁷ Many Latino community college students come from financially insecure backgrounds and can connect with this population, further providing purpose, empathy, and engagement to their efforts on their street medicine shifts.¹⁸

Students can connect at a deep and personal level with this particular clinical exposure, making it culturally and geographically relevant to the communities they serve.

4. Proposed Program.

This one-year program pairs 30 Latino STEM-focused community college students with medical students from a Los Angeles Street Medicine clinic during their regular two-hour clinic shifts. Each shift includes two medical students, two college students, and a resident or attending for supervision. The college students join as volunteers, with liability coverage through the clinic, and work closely with the program supervisor to complete all required tasks.

Before joining shifts, students complete a month-long orientation with two virtual webinars per week and an in-person clinical day. They learn trauma-informed communication, social determinants of health with a special focus on the LA unhoused community, professionalism, basic vital signs, wound care, patient history taking, HIPAA compliance, triage, infection control, and emergency response. Students take weekly quizzes on the virtual and in-person material. Each student must pass both to continue. If the student does not pass, they will be required to work with that week's instructor to address gaps in knowledge and will have the opportunity to retake the quiz(s). BLS/CPR certification is required and will be funded via outside funding secured before the program start date.

After orientation, students complete two to three clinical shifts per month. During shifts, medical students provide wound care while explaining their approach out loud. College students observe, assist by distributing supplies, engage with patients, and gradually take on basic clinical tasks like taking patient histories and suggesting next steps under supervision. Each shift concludes with a 30-minute debrief and structured feedback to support learning and professional growth.

5. Evaluation & Impact

The overall idea of this program is to create opportunities that are often inaccessible for Latino community college students in their academic and career journeys toward higher education and STEM careers/exploration.

The hope is that the early clinical exposure will increase students' confidence in STEM and clinical skills, provide them with hands-on exposure to healthcare, and strengthen their commitment to STEM majors and careers. Students will also gain insights into the ethical and social aspects of patient care and feel more prepared to navigate academic and professional pathways. Long-term, I would love to see students persist in STEM courses, progress toward STEM majors, and take steps toward graduation and transfer.

The program success will be measured through pre- and post-program surveys, reflections, tracking enrollment in subsequent STEM courses at the students' respective colleges (via asking each student to submit their unofficial transcript each semester), major declaration at their college and if transferring, clinical participation, mentorship engagement, and early indicators of graduation like credit accumulation and STEM course completion. Alumni post-surveys will be sent out in 1-2 years after program completion to gauge STEM interest and transfer success.

¹⁷ Medium, *LAHSA Takes Action to Address Latino Homelessness*

¹⁸ UnidosUS, *UnidosUS Higher Education Survey Uncovers Severe Food Insecurity Among Latino College Students, Mental Health Crisis Compounds Academic Struggles.*