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The Healthcare Improvement and Innovation in Quality (THINQ) Collaborative: A Novel Quality Improvement Training Program for Undergraduate and Postgraduate Students

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Abstract

The Healthcare Improvement and Innovation in Quality (THINQ) Collaborative is a uniquely designed program that engages undergraduate and postgraduate students to participate in improving health care and addressing important clinical problems. In 9 years, over 120 THINQ Fellows have been trained in quality improvement (QI) frameworks and methodologies focusing on research skills, social justice, leadership development, and problem-solving. Program evaluation has included surveying current and former THINQ Fellows about their experiences with the program and its subsequent impact on their careers. THINQ's research and outreach initiatives have contributed to improvements in workflows and clinical care on topics such as interdisciplinary team communication, discharge and care transition, sepsis management, and physician burnout. The THINQ Program has equipped future health care leaders to engage with and address QI issues in clinical practice. The structures, processes, and outcomes discussed here can guide other institutions in creating similar QI programs.

Keywords

academic medical centers, universities, quality improvement, patient safety, leadership

Introduction

Quality improvement (QI) provides a process to address large-scale inequities and systematically improve health care operations. The goal of QI is to ensure that a designed intervention is efficient and successful in achieving the Quadruple Aim, enhancing the experience of care, improving the health of populations, reducing cost, and creating a healthy work environment for providers.¹ QI can be valuable for health care providers to engage in “leading and

delivering change, from improving individual patient care to transforming services across complex health and care systems.”² Performing QI can be a rewarding learning opportunity, allowing clinicians to enhance health care operations and grow as leaders. To foster the next generation of health care leaders, the authors established a novel QI organization within an academic health system for students and postgraduates passionate about improving health care to work within interprofessional teams to solve real-world clinical problems.

Since 2014, the Healthcare Improvement and Innovation in Quality (THINQ) Collaborative has trained over 120 students in QI frameworks and methodologies. Members receive training on health care operations, cybersecurity, and patient safety and confidentiality, and programming includes workshops and research projects on Lean methodology and health care operations.³ Through working on a QI initiative, students are exposed to different disciplines, collaborate with individuals with diverse backgrounds and fields, and gain an understanding of the numerous elements that shape the current health system. The program emphasizes teamwork, research, and innovation. Nine years after its founding and 5 years since

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the prior report,³ the breadth and depth of the group's contribution and impact has greatly increased. For example, there have been numerous developments in projects and their results, and new platforms have been created to bring awareness to important health care issues. This paper describes the structures, processes, and outcomes of the THINQ Collaborative, providing a roadmap for other QI-focused organizations to incorporate similar efforts.

Program Structures and Processes

Setting

The THINQ Collaborative was founded within the Department of Medicine (DoM) at the University of California, Los Angeles (UCLA). UCLA has more than 30,000 undergraduate students and a top-ranking medical school. Nearly a third of undergraduates earning a degree are the first generation in their families to graduate from a 4-year college or university. The main medical center of UCLA Health is located on the university campus in a metropolitan city. The health system's mission is to provide state-of-the-art patient care, generate research discoveries leading to new treatments and diagnoses, and train future generations of health care professionals. The UCLA DoM quality program provides faculty and administrative support for the THINQ Collaborative and aligns all projects with the department's vision and mission.

Training

The THINQ Collaborative comprises approximately 30 current undergraduate and postgraduate students from various majors, backgrounds, and professional goals each academic year. Ten to 15 new members are selected each year based on space availability, and they are considered "Interns" for the first 3 months of their training, which happens every year during the summer. New members must be current UCLA students (undergraduate or recent graduates) and are selected through a written application and interview process before formal credentialing through the health center's volunteer office. As there is a mix of students at various levels in their education, we strive to create a curriculum in the internship that is appropriate for all levels. Evaluations from previous cohorts and faculty leadership help optimize the program each year.

New members complete a 12-week summer internship that introduces them to the basic principles of QI and fosters essential research skills (ie, PubMed searching, integrative reviews, and presentations) in

place of the single Lean methodology workshop previously used for training.³ Once the summer internship is completed, THINQ Interns become THINQ Fellows and embark on a research fellowship that applies the skills learned to clinical research and outreach projects. They are also placed in 1 of 4 committees for the academic year, and each committee is assigned to lead 2 general meetings per year. The committees include: (1) Journal Club for students to become familiar with reading and analyzing academic literature, (2) Social Justice to understand factors beyond medicine that impact patients, (3) Leadership Development to prepare them to create and lead QI projects, and (4) THINQ Tanks that host internal competitions modeled after the show *Shark Tank* where students pitch their solutions on improving health care specific issues, to practice specific and efficient problem-solving. THINQ remains the only undergraduate organization dedicated to QI, a topic of health care usually introduced at the graduate level.

Research Initiatives

THINQ Fellows gain hands-on experience in clinical research that directly impacts ambulatory and inpatient processes and outcomes. Projects align with the priorities of the UCLA DoM quality program and the health system. Projects can vary in duration (from 1 month to several years), level and type of work involved (data analysis, study design, literature reviews), and overall goal (presentation, intervention implementation, publication), providing students with a variety of experiences to choose from. For example, to optimize teamwork and communication in the hospital, THINQ research from 2019 to 2023 focused on interdisciplinary bedside rounding. THINQ Fellows surveyed medicine residents and nurses to gain their perspectives on interdisciplinary rounding and areas of improvement and conducted an observational study of over 1000 patient encounters during internal medicine morning rounds to characterize structures and behaviors that promote effective communication.⁴ THINQ Fellows have also been involved in critical projects concerning other aspects of clinical care, such as investigating the efficacy of medical scribes in mitigating physician burnout and establishing Sepsis Patient and Family Advisory Councils (PFACs) to improve sepsis management.

Outreach Initiatives

A strong focus has been placed on impacting the university campus and beyond, and these efforts have become a crucial component of THINQ's mission.

Fundraisings occur annually to benefit important communities that align with the mission and vision of the organization. THINQ Fellows assist with community service and education by participating in initiatives such as colorectal cancer prevention. They also actively contribute to the *THINQ About It* blog, which provides them with the opportunity to explore health care from a writing perspective while educating the public on important issues in health care across 3 domains: (1) Intersectionality and Social Justice that examines the intersectionality of health and society, (2) Procedural Issues that discusses issues with procedure and treatment in medicine, and (3) Internal Issues that examines how health care and the medical environment impact quality of care. In 2023, the blog garnered over 5700 views and 3300 reads.

The Pre-Health Guidebook, updated by THINQ, is an accessible collection of all university prehealth organizations and their missions to allow students to find activities that best fit their interests. The interdisciplinary experience is also fostered through collaborations with other student organizations on campus and guest speakers from the medical, research, technology, and business sectors. The annual Case Competition, a more long-term form of the THINQ Tank activity, also serves as a way for students in and

out of THINQ to gain insight into QI and network with physicians and staff members from the health system.

Leadership and Sustainability

As a primarily student-run organization, the THINQ Executive Board consists of THINQ Fellows who have completed at least 1 year with the program and are responsible for the leadership and management of THINQ activities (Figure 1). Current Board positions include executive director, associate director, director of logistics, research and shadowing coordinators (2 positions), director of marketing, and director of finance. Additionally, project leads, selected by the Board after an application process, each direct an individual research or outreach project. Faculty advisors within the UCLA DoM quality team assist with research development and provide overarching guidance to the Board.

Recruitment for the Summer Internship begins every academic year in March and is primarily managed by the associate director, allowing them to shape their vision for THINQ within the new cohort itself. At the end of the academic year, the associate director is promoted to executive director, and the remaining

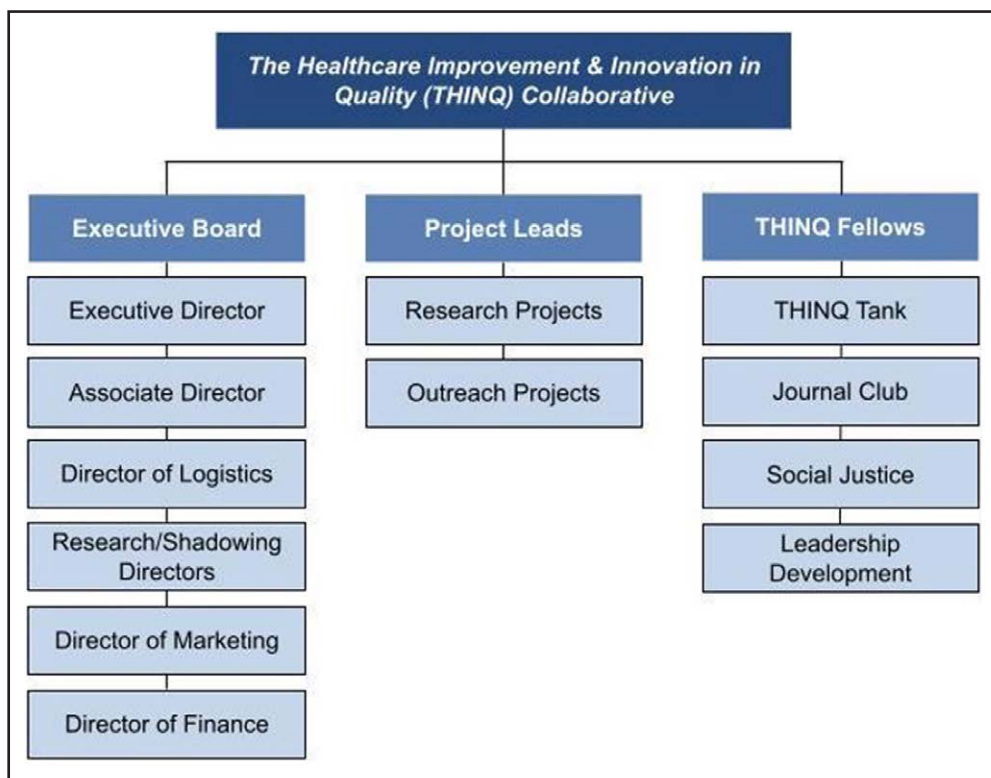


Figure 1. Leadership structure of THINQ. An overview of THINQ’s leadership structure and responsibility distribution between the executive board, project leads, and THINQ fellows. Abbreviation: THINQ, The Healthcare Improvement and Innovation in Quality.

Board positions are filled again through an application and interview process. Incoming Board members and project leads are trained extensively by their outgoing counterparts, ensuring a seamless transition from year to year.

Shifting priorities for the program is one challenge faced by the Executive Board changes every year. Every new Executive Board has its own ideas and approach for developing THINQ, which could lead to inconsistency and interruptions in projects and shifts in policies and initiatives. However, making the associate director-executive director role a 2-year position ensures some level of continuity in ideas and initiatives while allowing for more sufficient time for training.

Leadership responsibilities are allocated between Board members to provide strategic oversight and ensure team collaboration. The executive director is responsible for providing leadership and direction to the club organization and overseeing the logistics, cohort, and program curriculum. They also serve as the liaison between THINQ and faculty advisors within UCLA DoM. The associate director assists the executive director with their duties and oversees external platforms such as the THINQ Program admissions cycle and Case Competition. The director of logistics manages the internal platforms, including cohort socials and the mentorship program. Research and shadowing coordinators organize research projects and work with the chief residents of the UCLA DoM to coordinate shadowing opportunities. The director of finance manages the yearly budget, and funding sources include programming funds from the UCLA Undergraduate Students Association Council, UCLA DoM, and fundraisers. Fundings, including grants and programming fees from UCLA Undergraduate Students Association Council and DoM, are used for research publications, conference fees, outreach events, and internal programming for THINQ Fellows. Money raised from fundraising is primarily used for nonprofit donations, with a portion allocated to use for social activities and merchandise. THINQ Fellows themselves are not compensated and work on a volunteer basis. THINQ's Director of Marketing manages active pages on Instagram, Facebook, and LinkedIn and uses the platforms to update the audience on what the THINQ fellowship is conducting throughout the academic year, as well as any additional recruitment updates. Social media has become increasingly important in showcasing programming and encouraging other students to get involved.

THINQ maintains a strong presence within the prehealth community of the larger undergraduate campus by regularly collaborating with other student-

led prehealth organizations through seminars and workshops. Within the organization, students enjoy quarterly socials and opportunities to build community with each other in an informal setting. By inviting students from a variety of backgrounds, THINQ is able to encourage a more comprehensive understanding of the diverse experiences found in health care. In addition, having a blend of undergraduate and postgraduate students in the program and on various research projects promotes learning and opportunities for engagement through collaboration and discussion of individual experiences. While there may be differences in approaches, experiences, and exposures to QI, providing formal structures and processes to promote a collaborative environment between the students has been instrumental in advancing the goals of THINQ.

Program Evaluation

Regular evaluation of research outcomes and member satisfaction is integral to the quality, productivity, and sustainability of the THINQ Program. Research and outreach project performances are evaluated weekly or biweekly by the research and shadowing coordinators for adequate progression, giving project leads the opportunity to troubleshoot any issues. Formal evaluation of the curriculum and leadership by THINQ Interns and Fellows occurs at the midpoint (6-week mark), the end of the Summer Internship, and every quarter throughout the academic year. For the THINQ Interns, the formal evaluation usually consists of the executive and associate director examining the intern's attendance record, overall participation, and behavior during each benchmark to ensure all interns are engaged with THINQ activities. For the THINQ Fellows, surveys are sent out at least once during the academic year to learn about their experiences and ideas for program improvement. Feedback has been integrated into the curriculum and organization by focusing on areas for improvement. Examples of feedback integration include improving cohort bonding, increasing training on research methodology, and networking with health professionals. The executive and associate director oversees feedback survey administration and subsequent implementation of any organizational changes. THINQ Fellows are also encouraged to pitch ideas and areas of improvement to the executive board at general meetings or via Slack, and this method of informal feedback has led to the creation of projects such as Patient Feedback, Pre-Health Guidebook, and Intersectionality.

Program Impact and Evaluation Results

To gain insight into the impact of THINQ participation on member's career trajectories, a survey was administered to current and former THINQ Fellows who had completed at least 1 year of Fellowship from April 21, 2014 to May 23, 2023. Data from each participant were recorded through a one-time survey delivered via email using Google Forms. The form surveyed participants' demographics, educational background, and THINQ experience before asking them to reflect on THINQ's impact on their current and prospective careers via open-ended and Likert-scale questions. Due to the QI nature of the project, institutional review board approval was not required.

Impact on Clinical Care

THINQ Fellows have been involved with inpatient and outpatient improvement efforts and contributed to process and system improvements throughout the health system. THINQ research has produced tangible results that have shaped hospital policy and emphasized administrative practices and operations that shape patient care for the broader health care community. Publications have included *Physician Behaviors Associated With Increased Physician and Nurse Communication During Bedside Interdisciplinary Rounds*;⁴ *Using Decisional Conflict to Evaluate Patient Engagement During Hospital Discharge*;⁵ *Leveraging Lean Principles in Creating a Comprehensive Quality Program*;⁶ and *the Impact of an Enhanced Transition Process on Patient Readiness for Discharge*.⁷

Using data from the physician–nurse communication study, THINQ Fellows created multiple poster and podium presentations discussing how various factors impact interdisciplinary discussions at morning rounds. The posters have been presented at the National Collegiate Research Conference at Harvard University (2021) and the UCLA DoM's Research Day (2022). Additionally, multiple manuscripts on physician–nurse communication are in different stages of publication (published, under review, in preparation) and focus on the nursing perspective, medical team perspective, and factors that promote or obstruct effective physician–nurse communication.

Results from a survey administered to nursing staff as part of the Discharge and Care Transitions project were incorporated into an abstract titled “Educating Patients at Discharge: Perceived

Responsibilities Among Nurses and Residents at an Academic Medical Center” that was presented at the Society of General Internal Medicine Annual Meeting (2023). The research group has submitted a manuscript (in review) on common challenges nurses face at discharge, such as (1) lack of communication between inpatient and outpatient providers, (2) changes in the medication list not being clearly communicated, (3) patients not being adequately prepared for discharge, (4) the disconnect between provider-information giving and patient understanding, and (5) the primary team physician not effectively communicating discharge planning and evidence-based interventions that can be used to tackle each of these challenges.

Another research group conducted a scoping review on the role of intersectionality (ie, social identities) in physician–nurse relations. The study assessed how social identities such as age, gender, race/ethnicity, specialty, and other factors impact communication between health care staff. They presented their process and results at the UCLA DoM's Research Day (2022) and the UCLA Nursing Science and Innovation Conference (2023). Findings from the study show that younger age, female gender, certain specialties, and ethnic background were factors that impacted nurse and physician interactions. In addition, years of experience, spoken language, and work culture were additional variables that influenced physician–nurse relations. The group is currently finalizing a manuscript for submission.

The first-ever Sepsis PFAC was launched in the health system in April 2022. The research group for the Sepsis PFAC project presented a poster at UCLA DoM's Research Day (2022) describing the steps in setting up the PFAC in the health system. The group is currently working on patient and clinician recruitment by contacting various providers responsible for sepsis care to assist in recruiting patients most affected by sepsis. The goal of the project is to create a space of collaboration between hospital administrators and patients to create real change in sepsis care through various platforms (ie, education, research, and media).

Impact on Members

Of 109 individuals contacted, 35 completed the survey (response rate of 32%). Respondents graduated from the university between 2014 and 2022. They joined THINQ as part of the summer internship cohorts from 2014 to 2022 and spent a mean number of 2.0 years as THINQ Fellows (standard deviation =

0.94). As Fellows, 77.14% of respondents participated in project groups, 57.14% were part of poster presentations or authored abstracts and/or publications, and 42.86% served on the THINQ Board. Demographic information of the survey respondents is further summarized in Table 1.

Table 1. Demographics, THINQ Involvement, and Career Trajectories of Survey Respondents

Gender	
Cisgender female	74.29%
Cisgender male	20.00%
Transgender male	2.86%
Prefer not to answer	2.86%
Age	
Minimum	20
Maximum	29
Mean	23.94
Standard deviation	2.36
Ethnicity/race (all that apply)	
Asian	65.71%
Black or African American	11.43%
White or Caucasian	11.43%
Native Hawaiian or other Pacific Islander	2.86%
Hispanic/Latino	17.14%
Current highest educational degree	
High school	14.29%
Bachelor's degree	65.71%
Masters or professional degree	20.00%
THINQ involvement	
Executive board	42.86%
Project(s)	77.14%
Posters, abstracts, publications	57.14%
Shadowing	68.57%
None of the above	8.57%
First destinations, first employment/educational ventures after graduation	
Health care employment (eg, clinical research coordinator, medical scribe, medical residency)	22.86%
Health care education (eg, medical school, nursing school)	20.00%
Research employment (eg, research associate/assistant, laboratory technician)	28.57%
Miscellaneous education (eg, graduate school, postbaccalaureate program)	11.43%
Miscellaneous employment	5.71%
Gap year/no response	11.43%
Current destinations, employment/educational ventures, if different from above	
Health care employment (eg, EMT, medical scribe, medical residency)	28.57%
Health care education (eg, medical school)	25.71%
Research employment (eg, research associate/assistant, laboratory technician)	8.57%
Miscellaneous education (eg, graduate school, postbaccalaureate program)	2.86%
Miscellaneous employment	11.43%
No change/no response	22.86%
Interest/involvement in quality improvement as part of education/career	
Currently involved	14.29%
Strongly interested	28.57%
Somewhat interested	54.29%
Somewhat disinterested	2.86%

Respondents had the option to select multiple race/ethnicity descriptors, as applicable. "First destinations" refer to education or employment ventures undertaken immediately after the completion of their undergraduate degree, excluding unpaid gap years. "Current destinations" refer to current education or employment ventures if different from their previously mentioned first destinations.

Abbreviation: EMT, emergency medical technician; THINQ, The Healthcare Improvement and Innovation in Quality.

After graduation, popular education and employment ventures for the respondents included employment in health care (ie, medical assistant, medical scribe), graduate or professional school, and paid research positions (ie, research associate/assistant, laboratory technician). Most respondents (77.14%) have experienced a career or education change since graduation, and at least 54.29% of respondents are pursuing careers in the health care industry, either through professional training or in paid positions.

Respondents showed a broad range of learnings from THINQ (Table 2). For example, several noted that their involvement in THINQ was their first exposure to QI, and they learned how it "can be applied to improve patient outcomes and health care delivery." Many appreciated the opportunity to learn about and brainstorm solutions to tackling health disparities through THINQ Tanks and Case Competition. THINQ also provided invaluable experience in conducting and presenting research, as well as avenues to develop leadership project planning, critical thinking, and problem-solving skills. Journal Club discussions, shadowing, and other activities helped encourage THINQ Fellows to think about health care from an interdisciplinary lens, ensuring that the perspective of every member of a care team is acknowledged and incorporated into solutions and plans.

After gaining early exposure to the field of QI, many respondents were pursuing careers that allowed them to continue this work, 14.29% of respondents were involved in QI in some way, while an additional 28.57% were strongly interested in working in the field as part of their education or career. Through THINQ, Fellows gained valuable clinical exposure and learned about various health care careers they may not have previously considered. The health care issues discussed in meetings and projects they worked on inspired them to work in areas such as research, social justice, and public health. When asked to describe their THINQ experience in 5 words, the most common were "fun," "collaborative," "educational," "inspiring," and "unique" (Figure 2).

As part of the program evaluation and QI process, feedback was garnered from the THINQ Fellows about areas of opportunity for growth of the program. The major themes from the feedback included improvements in shadowing access, research and presentation options, and leadership development and networking events. Specific steps have been taken to address the issues raised in the survey, and these potential avenues for growth are outlined in Table 3.

Table 2. Takeaways From THINQ and Influence on Career Goals

	Most important gains/learnings from THINQ experience	Influence on career goals
Fundamentals of QI	<ol style="list-style-type: none"> 1. What is quality improvement, and how it can be incorporated in different ways in medicine. 2. QI can come from a variety of scales, whether it be in a brainstorming way or taking these ideas into action. 3. QI is a valuable tool to make health care in the United States better for patients, their families, and for physicians to work efficiently. 4. A deeper understanding of QI methodologies and how they can be applied to improve patient outcomes and health care delivery. 	Furthered interest in QI and desire to be involved as a physician.
Formulating solutions	<ol style="list-style-type: none"> 1. Practice in thinking of practical applications from background research discussed in journal club via THINQ Tanks. 2. How to curate well-thought-out solutions to medical issues that providers face and to health disparities faced by patients. 	
Interdisciplinary/ team-based work in medicine	<ol style="list-style-type: none"> 1. Intricacies of working in a health system. 2. Health care structures and dynamics from beyond the physician's perspective. 3. How necessary team-based effort is to enact meaningful change within medicine. 4. Importance of cooperation and open-mindedness in forming a health care team. 5. Collaborating with others to develop solutions to problems that are too difficult for 1 or 2 people to combat. 6. Quality care can be achieved as long as the values of teamwork, empathy, diversity, and inclusion are upheld. 	Exposure to several careers other than physicians that are vital to providing quality health care to patients.
Research	<ol style="list-style-type: none"> 1. Process of putting together research abstracts and papers. 2. How to conduct literature reviews. 3. Insight into conducting QI projects. 4. Opportunity to read journals together. 5. Academic medicine exposure. 	Interest in participating in QI research throughout my career; previously only knew about clinical/translational research.
Social justice	<ol style="list-style-type: none"> 1. Exposure to the social issues in health care. 2. The roots of many of the issues plaguing the health care system and how disparities arise based on a number of factors. 3. How different parts of medicine look from different groups, and how to best optimize that for all. 	<ol style="list-style-type: none"> 1. Affirmed desire to apply a social justice mindset in a medical career. 2. Inspiration and desire to contribute to public health in the future.
Learning environment and professional development	<ol style="list-style-type: none"> 1. A supportive and encouraging environment to learn and explore the medical field and opportunities. 2. Push to think critically about the health care continuum. 3. Shadowing hours, exposure to medicine. 4. Socialization, bonding with other like-minded individuals. 5. Challenge to continue self-improvement. 6. Networking and building relationships with organizations and doctors. 7. Skills: leadership, project planning, time management, problem-solving, critical thinking. 	<ol style="list-style-type: none"> 1. Encouragement to pursue medicine and QI. 2. Clinical hours via shadowing. 3. Broadened horizons to consider new career paths. 4. Understand the realities of a medical career. 5. Shadowing helped me realize I didn't want to pursue medicine in the long run; was able to have this realization unbiased from family opinions + friends + outside influences, etc.

Responses to the questions "What would you say were the most important things you learned or gained from THINQ?" and "Did your time with THINQ influence your personal/career goals?" organized into 6 categories encompassing THINQ's mission. Some responses have been edited or paraphrased for length and clarity. THINQ Tanks are internal competitions modeled after the show *Shark Tank*, where students pitch their solutions to improving health care specific issues. Abbreviations: QI, quality improvement; THINQ, The Healthcare Improvement and Innovation in Quality.

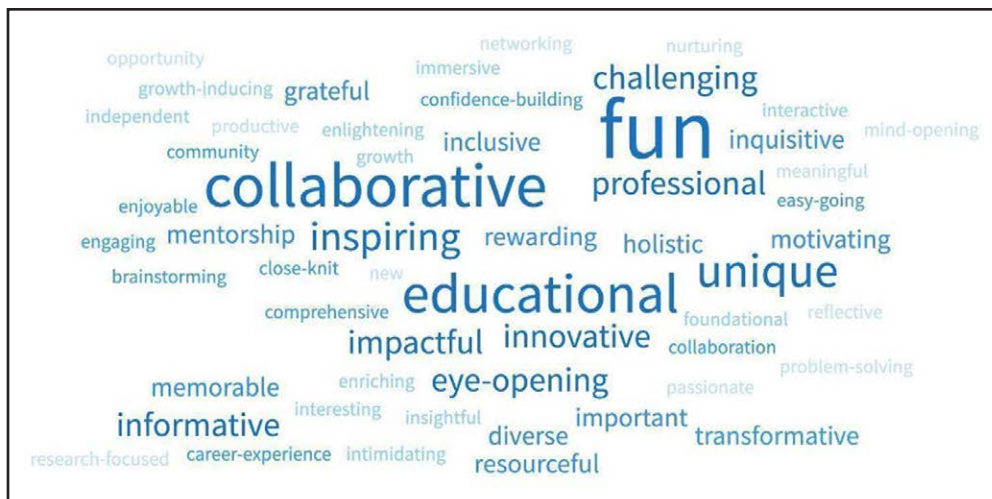


Figure 2. Word cloud displaying adjectives used to describe THINQ. Abbreviation: THINQ, The Healthcare Improvement and Innovation in Quality.

Table 3. Areas for Improvement Identified by the Graduates of the Program

Topic	Feedback	Current steps taken to address concerns
Shadowing	<ol style="list-style-type: none"> 1. Shadowing on a more frequent basis than 1 shift per quarter. 2. Streamlined method to help shadowers locate the medical team; attendings rarely responded to emails. 3. More subspecialty exposure. 	<ol style="list-style-type: none"> 1. As pandemic restrictions eased, the shift offerings increased. 2. Shadowers now contact the senior resident on the medical team prior to their shift to ensure they can easily locate the team. 3. Prior to 2020, shadowing shifts were offered daily in the inpatient internal medicine department. THINQ program has since expanded to the geriatrics and outpatient internal medicine clinics.
Research and projects	<ol style="list-style-type: none"> 1. More frequent meetings or updates on projects to the general cohort. 2. Having members propose and execute new projects they can independently run with the help of the THINQ Board and other members. 3. More opportunities for all members to participate in projects. 4. More opportunities to present at conferences. 	<ol style="list-style-type: none"> 1. A section has been added to monthly general meetings for project leads to present updates on their work and take questions from the cohort. 2. After presenting at the department's quality retreat in December (2022), the executive board has been able to network and find more projects for fellows to be involved in. 3. Research coordinators designated to find and put together groups for conference presentations.
Career development	<ol style="list-style-type: none"> 1. Structured leadership committee presentations based on what the cohort wants to learn, improve, or practice. 2. More speakers from different health care fields talk about their career paths and journey. 3. Establishing a better alumni network. 	<p>A database of alumni has been organized to help find frequent guest speakers and mentors for fellows.</p>

Responses to the question "In your opinion, what are areas for improvement in the THINQ program?" are organized into 3 main themes. For feedback provided by former fellows that has since been addressed, an explanation of steps taken has been provided in the third column. Some responses have been edited or paraphrased for length and clarity.

Abbreviation: THINQ, The Healthcare Improvement and Innovation in Quality.

Discussion

THINQ is a QI organization that aims to improve health care delivery and outcomes. It is a novel program in which undergraduate and postgraduate students have the opportunity to work toward this mission through clinical research, shadowing, and other engagements within the broader community. Since its founding in 2014, THINQ has greatly expanded its research and advocacy endeavors to strongly contribute to the enhancement of current health care delivery. From discovering barriers to interdisciplinary team rounding to establishing a collaborative partnership between patients and health care providers on sepsis prevention and management, the work within THINQ has helped improve care practices and contributed to system enhancements. The success and research conducted within these initiatives have been disseminated locally, regionally, and nationally.

Survey results reveal the impact such an organization can have on students' personal and professional development. For example, students said that one of the most important gains was understanding the nature of QI and how it fits into patient outcomes and health care workflow. The application of QI frameworks and methodologies in analyzing and improving current issues within health care was instrumental in teaching members the value of team-based approaches in enhancing patient care, safety, and health systems. Shadowing was also a prominent experience that respondents cited as critical to

understanding the day-to-day conditions that a career in medicine entails. Members also gained essential skills in research, such as data analysis, scientific writing, and literature review. Nearly 53% of former and current members are still involved in health care, showing how THINQ members are motivated to continue serving within that field in the future. The interdisciplinary nature of THINQ has created an environment where students can engage in effective teamwork and learn how to be better advocates in transforming health care delivery on a systemic level.

Limitations and Points of Consideration

The THINQ Program is located within an academic health center with a large university campus and might be difficult to replicate. However, the authors have described various components in detail, hoping that some can still be transferable to other medical centers and health systems interested in training the next generation of health care leaders in QI. One of the reasons for the program's success is its official incorporation into the quality program of the UCLA DoM, allowing access to faculty and staff members conducting real-world improvement work. Therefore, strong leadership, faculty, and staff support are necessary for the sustainability and scalability of the program.

For the program evaluation, the survey was not administered to THINQ Interns who did not complete a THINQ Fellowship year, nor could the authors administer surveys to all the THINQ

Fellows due to a lack of current records and contact information. Thus, the survey response rate was lower than expected, and the small sample size could undermine the survey responses. The authors did not double-check the survey responses and assumed all entered data for the survey were correct. Some discrepancies were noted in the answers, such as someone indicating they joined THINQ in 2012 before the program started. However, the minor discrepancies did not affect the overall results.

Conclusion

Educating and training students on QI frameworks and methodologies provide the next generation of health care leaders with a better understanding of the importance of quality and safety within medicine. The education and training structures, processes, and outcomes presented here can provide a foundation for other institutions to build similar programs to champion QI for undergraduate and postgraduate students.

Conflicts of Interest

The authors have no conflicts of interest to disclose.

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