



Medical students, residents and fellows making an impact

Submissions to the 2022 AMA Accelerating Change in Medical Education
Health Systems Science Student, Resident and Fellow Impact Challenge



Foreword

In 2013, with the aim of promoting medical schools designed for the future, the American Medical Association launched the “Accelerating Change in Medical Education” initiative. Having closely monitored the progress of the initiative over the past nine years, we are proud of the positive impact the initiative has had on the medical education continuum, the health system, and most importantly, patients.

Today, a total of 37 schools are in the AMA Accelerating Change in Medical Education Consortium. These schools are educating nearly 24,000 students who will one day care for more than 41 million patients annually. Our efforts have also spread to residents. In 2019, we launched the AMA “Reimagining Residency” initiative, which includes 11 teams of educators working in graduate medical education.

One of the most notable innovations to emerge from our work is the need for medical students to learn health systems science as the third pillar of medical education along with the other two pillars—basic and clinical sciences. Health systems science is a foundational platform and framework for the study and understanding of how care is delivered, how health professionals work together to deliver that care and how the health system can improve patient care and health care delivery.

We held the first Accelerating Change in Medical Education Health Systems Science Student Impact Competition in 2018 to determine if the medical students from our consortium schools were improving health outcomes, practice sustainability and the lives of patients and physicians before they even graduated from medical school. The entries we received far exceeded our expectations and tackled some of the most intractable problems faced in medical education and by health systems.

In 2020, we expanded the competition to medical students in non-consortium schools and to residents and fellows. We also focused on projects addressing the then emerging COVID-19 pandemic and highlighted the extraordinary role learners played in the pandemic response.

In 2021, the COVID-19 pandemic evolved from an emergent threat consuming nearly all of our health care resources to a sustained challenge. As such, some of the equally impressive entries addressed COVID-19 while many others took on health care challenges that either never went away during the pandemic or were worsened by the situation. In 2022, COVID-19 continued to challenge the health system but has become one challenge among many. This year’s entries reflect that and address an increasingly diverse list of issues affecting patients, physicians, and the health system.

We are very excited that, not only did the AMA “Accelerating Change in Medical Education” initiative make a difference in medical education, it made a difference in the lives of medical students, residents and fellows. These learners, in turn, equipped with health systems science skills are making a difference in the lives of patients, physicians and their communities during one of the most compelling medical crises of the century and beyond.



Sanjay V. Desai, MD

Group vice president, Medical Education
AMA

Preface

“Tell us how you’ve made an impact on health systems.”

In 2018, we launched the Accelerating Change in Medical Education Health Systems Science Student Impact Competition with that prompt. The competition was open to all medical students at member schools of the AMA Accelerating Change in Medical Education Consortium. In 2020, we expanded the competition to all U.S.-based medical students, residents, and fellows and focused on projects related to the COVID-19 pandemic. This year, as in 2021, we are open to all U.S.-based medical students, residents and fellows, but the projects focus on any aspect of health systems science.

Each year, we have asked for students, residents and fellows to think impactful, think innovative and think inspirational.

Eligible projects address one of the health systems science domains, such as leadership, patient safety, quality improvement or population health.

We are never disappointed, and this year is no exception. Actually, we are astounded by the impact learners have on the lives of patients around the world, their fellow learners and the health system. The submissions are evidence of the anecdotes that educators have long been sharing about how learners make a huge difference in their health systems.

We have awarded the most impressive submission the first-place prize of \$3,000, the second-place winner \$2,000 and the third-place winner \$1,000. Three honorable mentions receive \$500 each. Winners were selected because of their project’s measurable impact on the health system, the scope of the impact and the learner’s personal contribution to the project, but the decisions were not easy. All the entries are of such high caliber.

In this book, you will find the abstracts for the submissions. We hope you will be as impressed as we are.



Maya M. Hammoud, MD, MBA

Senior adviser

AMA “Accelerating Change in Medical Education” initiative

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Winning abstracts



First place

Southside Free Clinic Initiative

Project lead

Theodore Lang, University of Chicago Pritzker School of Medicine

Teammates

David Fenton, Amani Allen, Chibueze Agwu and Kofi Acheampong

Faculty mentors

Wei Wei Lee MD, Associate Dean of Students, University of Chicago Pritzker School of Medicine

Jim Woodruff MD, Dean of Students, University of Chicago Pritzker School of Medicine

Project location

University of Chicago Pritzker School of Medicine

Abstract

The University of Chicago Pritzker School of Medicine (PSOM) has a longstanding mission to address health care disparities and engage with the surrounding neighborhoods. This is evident through the current five student-run free clinics at which PSOM medical students have the opportunity to volunteer. However, none of these free clinics directly serve the Black adult population within the Southside of Chicago, a medically underserved area with health professional shortages. Not only are PSOM's neighboring communities composed of predominantly Black individuals, the inequities in health care access and services at-large disproportionately affect this same subgroup. The Southside Free Clinic (SSFC) is an initiative to develop a student-run clinic offering free-of-charge primary care medical services to the Black adult population in the Southside of Chicago. Under the supervision of licensed University of Chicago Medicine (UCM) physicians, SSFC will provide preventive care and disease management services while meeting the unique health needs of the community.

Project addressed/problem discovered

The need for physicians to work as community leaders has never been more significant as the COVID-19 pandemic continues to spotlight health inequities that disproportionately burden underserved communities. This is especially true on the Southside of Chicago, home to stark disparities in access to medical care, prognoses, and patient outcomes in its Black adult population. The Southside Free Clinic (SSFC) is an initiative started by students in the Pritzker School of Medicine's (PSOM) Student National

Medical Association (SNMA) chapter, which aims to address these inequities in partnership with the PSOM, University of Chicago Medicine (UCM), and the nonprofit organization Project H.O.O.D. (Helping Others Achieve Destiny). The SSFC is located in the New Beginnings Church, which borders the Woodlawn and Englewood neighborhoods. The ideology of the SSFC was born out of the recognition of health systems science and its importance, particularly in relation to the social determinants of health aspect of this model. We conducted a community needs assessment and determined that our community needed greater access to equitable care, especially to primary care, chronic disease management and mental health. Through an expanded scope of service and robust referral network, we hope to build community trust within the larger health care system, increase its accessibility, and improve the health care disparities in Southside Chicago. Our goal with the SSFC clinic is to address gaps in care within the Woodlawn, Englewood and surrounding communities and to empower PSOM medical students to work toward improving community health.

Approach

Our approach rests on the domains of "change agency, management and advocacy" as well as "leadership". In building the foundation of this student-run initiative, we have also had the opportunity to engage with the "teaming" and "ethics and legal" domains to substantiate future care provided to patients.

SSFC will provide PSOM medical students with an excellent opportunity to develop tangible leadership skills. Evidence

shows that such free-clinic experiences, led by students, draw them into clinical, research, and education leadership careers addressing health inequities. In our model, a student executive board will be responsible for administratively running the clinic, working with community partners and organizations to develop long-term community-centered initiatives for the clinic, and ensuring adequate supplies and staffing. Student volunteers will conduct patient interviews, gather vitals, and administer appropriate vaccinations and screenings under the guidance of UCM physicians. They will also participate in establishing longitudinal care through federally qualified health centers, where patients receive services on sliding scales. Through such opportunities, student participants will build and fortify valuable leadership skills.

Another key goal centers around providing medical students the opportunity to engage in “hands-on” advocacy. Through the process of building SSFC, developing community partnerships, and establishing our community needs, the executive board heard directly from community voices on topics centered around issues of dental care, gun violence, trauma, wellness, mental health and more. While the clinic is focused on providing medical care, SSFC challenges upcoming board members to serve the community as advocates, leaning more into addressing social determinants of health for our patient population. With the networks of community partnerships and institutional support of the PSOM, students will have the agency to improve health outcomes and augment institutional health system improvement. Our executive board has been working to integrate quarterly health insurance workshops, social work services through the University of Chicago Crown School of Social Work, and dental services through University of Illinois at Chicago College of Dentistry.

Altogether, the SSFC will fill in current gaps in care for the Black adult population on the Southside of Chicago while training the next generation of physician-community leaders.

Outcomes

Sustainability has been core to the founding framework of the SSFC. To ensure sustainability and positive long-term outcomes we have focused on three major aspects of clinic operation: long-term funding, physician support and University of Chicago Pritzker School of Medicine approval.

Since the establishment of this student-led initiative in the winter of 2021, the clinic has been awarded over \$50,000

through various grants including the University of Chicago Women’s Board and the University’s Student Engagement Fund. This funding will financially sustain the clinic for over the next five years and expand the clinic’s depth of resources and services. To address physician burnout and capacity constraints, we created a faculty advisory board that is currently composed of eight UCM physicians. Roles of the faculty advisory board include meeting with the executive board on a quarterly basis, volunteering two to three times a year, helping with the recruitment of other physician volunteers, and providing clinic services and operations consultations. The current SSFC volunteer workforce guarantees at least 30 clinic days in the upcoming 2022-2023 academic year. Lastly, we have received approval and support from the University of Chicago Pritzker School of Medicine, which has allowed us to bring this idea to full fruition.

Through our sustainable approach and interdisciplinary partnership involving Project H.O.O.D, Pritzker School of Medicine, and UCM, we aim to accomplish three overarching goals once the clinic opens in the fall of 2022:

1. improve health outcomes and ameliorate medical mistrust within the communities bordering UCM
2. implement a robust referral network to provide longitudinal care for our patients
3. develop culturally competent medical students and future physician-leaders.

Long-term outcomes from this initiative will foster a better understanding of the health care needs of the Southside community and identify any remaining gaps in health care services provided at the clinic. This will ultimately strengthen the development of SSFC and other student-run free clinics to address social determinants of health, guide patient care, and provide invaluable medical services to some of Chicago’s most vulnerable communities.

Personal impact

The clinic is a stepping stone to integrating community health and health equity into my future practice of medicine. The process of starting the clinic has helped me cultivate the logistical and leadership skill set required to build a team, navigate interpersonal relationships, and collaborate with members from various organizations and disciplines. I also had to improve my communication skills, ability to empathize and achieve conflict resolution. Ultimately, the skills I have acquired will contribute to me becoming a physician who

actively listens, encourages transparency, and mobilizes the health care team around the shared goal of providing high-quality care to each patient. Furthermore, the clinic has helped me better understand how to conduct a community needs assessment, but more importantly, how to center community voices in the process of addressing health needs. Through the partnership with Project H.O.O.D., I was able to listen to members of the community and see how health is viewed from the perspective of those impacted by inequities and systemic disinvestment. As a future physician, my approach to health is thus not only informed by clinical teaching but by community voices that motivate me to contextualize health within a larger arena of socio-political and economic driving factors. Inevitably, my work as a physician will involve a commitment to combating health inequities and seeking to establish meaningful, sustainable opportunities for communities.

Second place

The “B-Team” (Buprenorphine Team)

Project lead

Nicholaus Christian, Dell Medical School at the University of Texas at Austin

Teammates

Rich Bottner, PA-C; Victoria Valencia, MPH; Amber Dunbar, PhD, MS-III; Isha Deshpande, P-I; Elise Carper, APRN; Kirsten Roberts, PharmD; Ken Giorgi, RN; Evan Solice, MDiv; Rachel Holliman, LMSW; Blair Walker, MD and Clarissa Johnston, MD

Faculty mentor

Christopher Moriates, MD, Assistant Dean for Healthcare Value/Associate Chair for Quality, Safety, and Value, Dell Medical School at the University of Texas at Austin

Project location

Dell Medical School at the University of Texas at Austin

Abstract

Despite evidence that medications for opioid use disorder (OUD) reduce mortality and improve engagement in outpatient addiction treatment, these life-saving medications are underutilized in the hospital setting. As an internal medicine resident concerned by this unmet need, I helped create the B-Team (Buprenorphine-Team), a hospitalist-led interprofessional program created to identify hospitalized patients with OUD, initiate buprenorphine in the inpatient setting, and provide bridge prescription and access to outpatient treatment programs at discharge. The program had a tremendous impact on patients, staff, and the hospital system at large. Success of the B-Team led to our group receiving funding to support adoption of this model at other hospitals in Texas. The B-Team is now regarded as a national model for how to expand treatment for hospitalized patients with OUD.

Project addressed/problem discovered

Studies estimate that nearly 10% of patients hospitalized on medical or surgical wards have comorbid opioid-related diagnoses. Many of these patients are admitted for complications of drug use, such as skin and soft tissue infections or endocarditis. Despite this, the standard of care at most institutions is to treat the superficial reason for admission without addressing the underlying cause: opioid use disorder. Given that medications for OUD are the gold standard treatment for these patients, we applied health systems science principles and reimagined what a

process could look like if buprenorphine was started during hospitalization—a “reachable moment” for many patients. I created a continuous improvement project with the aim of screening patients admitted to our hospital with OUD for buprenorphine induction, starting buprenorphine in the hospital for eligible patients, and ensuring linkage with an outpatient addiction clinic at discharge.

Approach

We started by understanding the health care structure and processes through mapping a potential health care process that could refer patients with OUD to be screened by hospitalist providers for the initiation of buprenorphine, the start of this treatment, and the connection of a patient to an outpatient clinic for treatment continuation at discharge. The local health policy environment necessitated that we engage multiple stakeholders prior to implementing this process. This included health economic considerations such as: working with the hospital pharmacy to ensure that sufficient quantities of buprenorphine would be stocked, coordinating with the largest local payer for underinsured patients to ensure buprenorphine would be covered at time of discharge, and teaming with an outpatient addiction clinic that could accommodate appointments with patients within weeks of discharge. The process even included a visit from an outpatient licensed counselor while the patient was still hospitalized to help plan for social determinants of health that might impact a patient’s ability to follow-up after discharge. We assembled an interprofessional team that met regularly

to develop health care improvement processes that would be iteratively adapted to achieve our first-year SMART goal of screening 200 patients for OUD, initiating 75 patients on buprenorphine (or 30% of patients screened), and having 75% of patients follow-up at an outpatient maintenance clinic within one week of discharge. After the B-Team was launched we quickly learned that this work was not only tremendously impactful for patients, but nurses and providers started to see patients with OUD as people with incredible life stories who are capable and worthy of receiving health care. This inspired future iterations of our work, including advocacy to reduce stigma among hospital staff toward people who use drugs and broadening the work at large to include education and dissemination of work outside of our hospital walls. The project required applied leadership and change agency.

Outcomes

During the first two years of the program, the B-Team screened 260 patients for possible buprenorphine therapy. Buprenorphine was started for 132 patients in the inpatient setting. 110 (83%) of these patients were bridged to an outpatient program. Of these patients, 65 (59%) were seen at their first outpatient appointment, 42 (38%) attended at least one subsequent appointment one to three months after discharge from the hospital, 29 (26%) attended at least one subsequent appointment between three and six months after discharge, and 24 (22%) attended at least one subsequent appointment after six months.

The work was awarded a Texas Targeted Opioid Response (TTOR) grant operated by the Texas Health and Human Services Commission (HHSC) in 2019, which would support

the formation of SHOUT Texas. In 2020 and 2021, SHOUT Texas began expanding statewide by developing and launching robust educational content and recruiting for spoke-sites in Temple (Baylor Scott & White Health), Dallas-Ft. Worth (JPS Health Network), San Antonio (University Health), and Dallas (Baylor University Medical Center). In 2021, SHOUT Texas sites screened 586 patients for OUD and initiated buprenorphine therapy for 265 of those patients at three hospitals within Texas. In 2022, SHOUT Texas sites screened 710 patients for OUD and initiated buprenorphine therapy for 365 of those patients, resulting in projected annual rates of >2,800 patients screened and >1,000 patients initiated on buprenorphine this year.

Personal impact

This work demonstrated to me how rewarding it is to care for patients with addictions—both on the patient-clinician level and systems-level. It is challenging to navigate broken systems of care for this population, and there is still so much work to be done in improving access to medications for OUD. This project affirmed my commitment to this mission, inspiring me to complete a fellowship in addiction medicine at the Yale Program in Addiction Medicine. It also inspired me to continue my addiction medicine fellowship in pursuit of more experience designing and developing community-driven research among populations with substance use and develop the skills to lead research projects and advocate for patients at the national level.

Third place

Beyond Postpartum Hypertension: Improving Access to Care and Community Resources via Telehealth

Project lead

Oriana Fermin, University of Central Florida

Teammate

Bee Ben Khallouq, Winnie Palmer Hospital for Women & Babies

Faculty mentor

Lori Boardman, MD, Chief of Quality Operations at Winnie Palmer hospital Women & Babies

Project location

Winnie Palmer Hospital for Women & Babies

Abstract

Introduction: Care in the postpartum period is often fragmented, resulting in a significant risk for adverse events for women with hypertensive disorders of pregnancy (HDP). The 2020 COVID-19 pandemic has increased telehealth services for remote blood pressure monitoring and presents an opportunity to screen for social determinants of health.

Objective: To examine the efficacy of telehealth-consolidated referral services as a tool to address health disparities and blood pressure monitoring in the postpartum period.

Methods: This is an ongoing telehealth postpartum hypertension quality improvement program with a multidisciplinary team at a large volume community hospital. The program consisted of two 20-minute visits during the first seven days after discharge and was conducted by licensed practical nurses (LPN).

Results: Black mothers utilized referrals at a significantly higher rate than our Non-Hispanic white and Hispanic mothers. Patients below the 15% poverty level also used referral services at a significantly higher rate than those above the 15% poverty level.

Conclusion: Referral services had a diverse demographic reach, especially among structurally marginalized groups. This demonstrates that a postpartum telehealth program is an effective alternative to address social determinants of health and health inequities.

Project addressed/problem discovered

Hypertension in pregnancy accounts for 13% of all maternal deaths in developed countries and 14% of all maternal deaths worldwide. For mothers, severe hypertension in pregnancy can result in placental abruption, hypertensive encephalopathy, stroke, pulmonary edema and acute renal failure. For the neonate, it can lead to prematurity, intrauterine growth restriction, and in some cases, fetal death.

In women suffering from hypertensive disorders of pregnancy (HDP), the postpartum period starts with an initial decrease in blood pressure after delivery, then there is a rise in blood pressure that peaks between postpartum days three to six. Most maternal morbidity and mortality occur in the postpartum period as a result of less detection. In 2013, the American College of Obstetricians and Gynecologists task force recommended that women with HDP have their blood pressure monitored 72 hours postpartum and again seven to ten days postpartum. Adherence to these guidelines is difficult, especially while taking care of a newborn. Importantly, we know that social determinants of health impact marginalized populations; the most significant health inequities are documented in Black maternal outcomes.

Despite this, there is more emphasis on antepartum surveillance and significantly less emphasis on postpartum surveillance. Prior studies show that only 52% of women with a recent diagnosis of severe preeclampsia attend their postpartum visit. Consequently, HDP represents the bulk of obstetrical readmission rates.

There is a gap in our care for postpartum women with HDP. This project focuses not only on postpartum follow-up guidelines but also the social determinants that negatively impact maternal health and well-being.

Approach

This is an ongoing quality improvement project at a single tertiary community hospital (Orlando Health's Winnie Palmer Hospital for Women & Babies) launched in September 2020. The program was used to monitor and manage hypertension and address other significant clinical and social factors that impact health care access and utilization. All postpartum women with a history of hypertensive disorders of pregnancy (HDP) were approached by a team of trained, licensed practical nurses (LPNs) for project enrollment. Translation services were offered, with Spanish, Creole, and Portuguese being the most popular. Participants needed access to a device that could support Microsoft Teams (a web-based platform within the institution with secure infrastructure) or access to a telephone.

Patients were recruited prior to hospital discharge, given an appropriately sized blood pressure cuff, and instructed in its use. A blood pressure logbook was also provided. They were educated on key warning signs to watch out for and when to contact their provider or come to the hospital. The program consisted of two 20-minute telehealth (virtual or phone) visits in the week following discharge (administered by LPNs) where patients discussed blood pressure values, presence or absence of any warning signs, compliance and appropriate supply of antihypertensive medications, and support at home.

Screening for depression and anxiety was done at each virtual visit, along with screening for social determinants of health (e.g., food or housing insecurity, issues with transportation, mental health problems, transportation needs, employment, health insurance, and community resources). Appropriate referral services were offered to patients in need.

In addition, the platform allowed for cesarean section incision checks and early identification of cellulitis or wound separation. Furthermore, questions regarding breastfeeding allowed for the detection and management of early mastitis in the ambulatory setting, and breastfeeding support was offered to patients in need.

Blood pressure was measured on postpartum day two or three and again on postpartum day five or six. The team of LPNs followed a preestablished telehealth clinical algorithm with specific indications regarding escalation of care and

initiation of antihypertensive medications. Information regarding the delivery visit, telehealth visit, and post-discharge information was collected through detailed chart abstraction of electronic health records.

Outcomes

Data for this project was collected from May 2021 to December 2021 and entered into an Excel database. We had 2,204 patients register for program enrollment, and 1,264 participated in the program. Participation counted if the mother attended at least one virtual visit in the postpartum period. Of these 1,264, 452 (36%) self-identified as white, 364 (29%) self-identified as Black, and 380 (30%) self-identified as Hispanic. Four hundred and thirty-four (34%) had Medicaid for their health insurance. Three hundred and eighty-five (31%) lived below the 15% poverty line, and 94 (7%) lived 25% below the poverty line. Of the 1,264, 363 (28%) had severe hypertensive disorders of pregnancy such as preeclampsia with severe features, chronic hypertension with superimposed preeclampsia with severe features, eclampsia, or HELLP (hemolysis, elevated liver enzymes, low platelets) syndrome. Non-Hispanic Black women, compared to non-Hispanic white women, were more likely to have severe hypertensive disease (35.6% vs. 13.3%). We had a total of 244 referral services, with the most popular being lactation consultation (51%), community resources (10.2%), food insecurity (10%), and financial assistance (7%). All analyses were performed using SPSS χ^2 or Fisher's exact test was used for categorical variables. Statistical significance was determined by a p-value of less than 0.05.

When we compared referral use by race and ethnicity, we saw that Non-Hispanic Black women and Hispanic women were more likely to use any of the available referrals (20.8% and 15.8% vs. 13.5%). Similarly, Non-Hispanic Black women and Hispanic women were more likely to use multiple referrals (3.6% and 3.2% vs. 1.1%). Both of these findings were statistically significant. Additionally, we compared referral use by geographical location, and those living below the 15% poverty line were more likely to use any referral (20.0% vs. 14.8%) and multiple referrals (4.2% vs. 1.7%). In conclusion, Black mothers and those living below the 15% poverty level were significantly more likely to utilize referrals compared to their respective comparison groups. This means referral services had a diverse demographic reach, particularly among structurally marginalized groups. A telehealth program may be an effective addition to addressing social determinants of health and health inequities.

Personal impact

Unique to this program is its focus on the patient's experience. Women would log into their visits and say they felt listened to and taken care of. Leaving the hospital with a newborn and a new diagnosis is overwhelming, especially when one is educated on the dangers of this diagnosis in the postpartum period. This program encourages women to actively participate in their health while allowing them to ask questions from the comfort of their own homes.

I devoted myself to this project for a year and a half and was deeply involved in its design, execution and evaluation. Regardless of the positive outcomes a statistical test could generate, I was proud of its lasting impact on the community. I think doctors are positioned to develop creative solutions to alleviate the health inequities affecting mothers. At our institution, Black mothers are also disproportionately affected by adverse maternal outcomes. The leadership at this institution thought it was valuable to address this and funded this program. It helped me see tangible ways we can help improve access and the type of institution I would enjoy working at. I feel empowered to pursue the field of obstetrics and gynecology and continue to find ways to reduce the inequities that affect pregnant women.

Honorable mention

Optimizing High-Value Care for Preoperative Visits, a Quality Improvement Project

Project lead

Benjamin Gifford, HonorHealth

Teammate

Sanah, Ali, MD

Faculty mentors

Dana Sall, MD, Internal Medicine Program Director, HonorHealth

Rustan Sharer, MD, Associate Program Director of Internal Medicine, HonorHealth

Project location

HonorHealth

Abstract

Preoperative evaluation is an opportunity to risk stratify patients prior to elective surgery. Yet, primary care physicians (PCPs) struggle to understand their role during such visits, often ordering excessive tests that do not impact peri-operative care. In our network, HonorHealth's Peri-Operative Collaborative has created guidelines for high-value preoperative testing by incorporating national guidelines from Choosing Wisely® and the American College of Surgeons' National Surgical Quality Improvement Program (ACS NSQIP). We created a SmartSet (a clinical decision support tool) in our electronic health record to incorporate these guidelines and provide recommendations. Our project aims to implement evidence-based guidelines to optimize patients' risks for surgical complications and reduce costs associated with unnecessary testing.

Project addressed/problem discovered

Preoperative testing should be limited to moderate- and high-risk surgeries and is not recommended for low-risk surgeries by any medical association. Despite this, patients are often given a generic list of tests by their surgeon's office to complete during the preoperative visit as a prerequisite to surgery. Additionally, the onus of preoperative testing often falls on PCPs, despite the bundled billing with their surgical care. By catering to patient-specific risk factors and inherent surgical risk, we are able to practice patient-centered and personalized medicine.

The SmartSet incorporates the patient's diagnoses (from the problem list) and current symptoms (based on a screening questionnaire administered by medical assistants) to customize a list of recommended and NOT recommended orders, including labs (CBC, BMP, LFTs, PT/PTT, TSH), EKG, CXR, cardiology referral, and medication management (especially regarding anti-hypertensive, hypoglycemic, antiplatelet and anticoagulant medications). The guidance for which medications to hold are linked from the SmartSet to our patient instructions template. We also generate a summary letter to the surgeon, including potential for anesthesia complications.

We evaluated electronic orders for 8,557 preoperative visits over 17 months (February 2021 to July 2022) in primary care visits across the HonorHealth network. The SmartSet was made available in July 2021. Thus far, we have educated clinicians to use the SmartSet at 10 out of 29 practices.

Approach

After conducting a provider survey for needs assessment, we created a dynamic clinical decision support tool based on discrete patient data. This clinical informatics project in the quality domain required the expertise of our Epic analysts and physician builders. Implementation was achieved using change management principles and involvement of stakeholders, including private surgical offices. Additionally, we used usability design principles and user feedback interviews to optimize the SmartSet over multiple Plan-Do-Study-Act cycles and evaluated barriers to adoption.

Outcomes

When comparing preoperative encounters utilizing the SmartSet (1,461) vs. those not utilizing it (7,096), we found a 27% difference in the number of chest X-ray orders (34% vs. 7%). A total of 60% of preoperative visits included a completed order for chest X-ray. In our sample we found this to reflect cost savings of \$51,350-\$126,400 over our study period, based on average price of \$130-320 per chest X-ray.

While the roll out of the SmartSet across the medical group is still underway, anecdotally, this project was a major success for resident and faculty physicians in our residency clinic. At informal feedback discussions, residents shared that the SmartSet has demystified the preoperative visit, streamlined their approach, reduced time to complete the visit including the post visit activities such as composing the letter to the surgeon and lab result follow-up, and reinforced their decisions to not order non-indicated tests. In fact, prior to the SmartSet introduction, the standard preoperative visit length was one hour in our residency clinic. However, over the last several months, based on the resident and faculty input shared above, we have been able to reduce these visit lengths to 30 minutes. Thus, not only has the SmartSet introduction improved physician satisfaction and competence, but it has allowed us to increase access to care in our residency clinic.

Future studies will evaluate the rate of override of SmartSet recommendations as an indication of compliance with appropriate use criteria. We will also analyze ordering patterns for other frequently ordered tests. We will continue to implement SmartSet education to the rest of our primary care clinics and solicit feedback from end users via in-person sessions and a direct link for feedback in the SmartSet.

Personal impact

This project highlights the importance of understanding systems-based practice and participating in tactful communication with physicians and staff across our network and accountable care organization. Despite the hurdles and slow pace, being a change agent is empowering and a valuable tool which may counteract one's own burnout. The physicians using the SmartSet reported increased efficiency of preoperative visits along with a perceived decreased workload during the visit when using this tool. Personally, this has created a momentum of process change within the clinic and a sense of excitement to approaching future quality improvement projects. It is also gratifying to be part of the solution to enable colleagues' efficiency. We also learned statistical methods including process control charts, to assess special cause variation in observational studies. Cause and effect are difficult to determine when there is variation between physician styles, tolerance for liability, patient complexity, and other factors. Increased clinician use of structured data elements in the EHR, such as updated problem lists, will improve the accuracy of the SmartSet recommendations.

Honorable mention

PLAN for Health: A Medical Student-led Patient Navigation Initiative for Refugee Families in New Jersey

Project lead

Kelsey Thompson, Rutgers Robert Wood Johnson Medical School

Teammates

Divya Krishna, Jennifer Rha and Jerry So

Faculty mentor

Shilpa Pai, MD, Associate Professor of Pediatrics, Rutgers Robert Wood Johnson Medical School

Project location

Rutgers Robert Wood Johnson Medical School

Abstract

For newly arrived refugees, accessing health care and resources is complex due to the complicated United States health care system, language barriers, and trauma. To address this, the Patient Liaison and Navigation (PLAN) program was created by medical students at Rutgers Robert Wood Johnson Medical School (RWJMS) together with a local refugee resettlement agency, Interfaith Refugee & Immigrant Support & Empowerment (I-RISE). Participating newly arrived refugee families were assigned a PLAN team of two to three students based on language and cultural fluency. PLAN students helped families access health insurance, establish medical and dental care, schedule specialty care appointments, advocate for individualized education plans, and complete pre-appointment paperwork. Students also accompanied families to appointments. Each PLAN case is discussed monthly among students, case managers, and supervising physicians. Since starting, PLAN has helped eight families from five countries. PLAN's next steps include program expansion, formalizing data gathering for outcome measurement, and designing community health education workshops.

Project addressed/problem discovered

Adjusting to the United States health care system is an arduous task for anyone, let alone newly resettled refugees. Many families coming to the United States for the first time require help to understand their medical diagnoses and figure out the next steps of how to address them. This often requires finding physicians in their networks, scheduling initial consultation appointments, and accessing reliable

transportation and translation services for visits. Coordinating all of these can be difficult for newly arrived families who are also trying to acclimate to their new homes and communities.

Through PLAN, we addressed health care accessibility by implementing a program that connects newly arrived refugee families with a team of medical students, social workers, and physicians to help navigate the United States health care system.

Our community partner, I-RISE, identified clients who needed additional health care navigation resources across numerous social and medical needs. These included families that required assistance with housing, language classes, education, specialty medical appointments, mental health services, transportation, and supportive community integration—all important parts of the family's and individual's journeys toward self-sufficiency and independence in a new country.

We strove to not only identify barriers in these families' abilities to access health care services, but also actively assist them in overcoming these issues by serving as a liaison between them and their providers. Whether it be helping to set up appointments or to understand the extent of their diagnoses, we spent time learning about health systems science in order to optimize their care.

Approach

Our program truly works under "systems thinking" and requires engagement under many core domains both for participants and for the student leadership team. We focused on engaging

all participants in work that falls under the domain, “health care structure and process,” with heavy engagement from “population, public and social determinants of health” as we focused on creating an understanding of the complexities and opacities of the United States health care system and bridging the way its structural rigidity can cause delays in health care access and gaps in care. The refugee population faces more challenges than cultural and linguistic difficulties in accessing services. Logistically, care is also complicated on many levels. Financial barriers, practicalities of transportation or work schedules, and insurance challenges create multiple layers of complexity. Holding insurance can itself be a barrier as initially registering and receiving coverage is a complex and time-intensive process required to be conducted in English after which many providers may not accept the insurance, particularly for most of our clients on Medicaid. Successful navigation requires understanding all these challenges, engaging with community resources to find feasible and practical plans, and then responding to client feedback.

The leadership team that will be chosen from applicants each year will be additionally engaged in leadership and teaming as they work to assign and refine teams, help address problems, and serve as a resource for others. This means that each year both new teams and new leadership will be onboarded, with members from each year of medical students being able to participate. As part of the leadership team, responsibilities will include not only managing the client and navigator teams and serving as a resource, but also frequent check-ins with the community partner, including a yearly needs analysis. Another responsibility of the leadership team is the continued development of PLAN by recognizing and responding to community needs with our community partners. One way this will be accomplished is through the creation of more resources and services to be run through PLAN, reinforcing the work of structures and processes and population, public, and social determinants of health.

Outcomes

Our program has assisted eight clients, including four children, with getting subspecialty appointments, receiving IEPs (individualized education plans), and establishing primary and dental care. Connections between individual families have varied depending on individual needs. So far, we have seen our families be able to access the care they need in a timely manner, while getting a better understanding of their medical conditions. For instance, one family member had concerns of prostate cancer, but was unsure of how to establish a primary

care physician, obtain necessary imaging and special testing to ensure they would be able to be anesthetized for the MRI, and establish health insurance via Medicare to ensure affordable and necessary access to nursing home facilities. This was one success story we were able to partake in with a family that had just arrived from a country where they had not been able to access this care as there was no diagnosed problem. To obtain a more quantitative outcome, we also plan to enact a survey assessing our families’ experiences working with our teams. The goals will be to measure their experience with medical visits via subjective ratings on their perceived knowledge of medical insurance, health literacy, and ease in ability to find providers before and after using our services. We also hope to measure the client’s perceived confidence in obtaining health care when they feel they need it, managing their health condition(s), attending visits by themselves, filling out medical paperwork, and scheduling an appointment before and after working with our teams.

Personal impact

For medical students who have grown up in the United States and have not had as much personal experience with trying to navigate the complexities of our health care system, helping new individuals come in with no medical history and start to establish their care with providers and insurance companies was an eye-opening experience, to say the least. The number of hurdles some patients must go through to obtain and maintain their place on a waiting list for their specific conditions while another family struggles to establish primary care in a location that is accessible is outstanding. By not just seeing others go through, but actively participating in the frantic process of calling, being transferred, being put on hold, and being forgotten about when it comes to setting up medical appointments, we all experienced the frustration of trying to seek help in a system that makes it so difficult to be helped. It seemed impossible for someone to be able to get the help they needed, let alone someone who was in a strange, unfamiliar environment where they did not speak the native language. We gained an appreciation for the struggles and hurdles so many patients go through to access necessary health care. More importantly, we gained a drive to ensure that we do our best to provide all our future patients with the necessary resources and help to access the care that they need.

Honorable mention

Medical RENEWAL (Re-allocating Equipment is Necessary to Eliminate Waste and Amplify Leadership) Program

Project lead

Ewoma Ogbaudu, Mayo Clinic Alix School of Medicine

Teammates

Chikodi Ohaya (University of Arizona College of Medicine Phoenix)

Rohin Singh, Summer Ghaith, Jay Vasilev, Funmi Adeleye, Ahmad Shahin, Chris Poyorena and Beau Idler (all from Mayo Clinic Alix School of Medicine)

Faculty mentor

Amit Shah, MD, Associate Dean of Student Affairs, Assistant Professor, Division of Community Internal Medicine, Department of Internal Medicine, Mayo Clinic Alix School of Medicine

Project location

Mayo Clinic Alix School of Medicine – Arizona

Abstract

COVID-19 has disproportionately ravaged minoritized communities and exposed the tight-fisted grip of inequities on patient care. The ongoing pandemic has exacerbated gaps in access to medical equipment, as evidenced by clinics that serve marginalized communities and higher proportions of Medicaid patients reporting more severe shortages in personal protective equipment (PPE) compared to affluent hospitals. To address this, medical students at Mayo Clinic and the University of Arizona - Phoenix created the Medical RENEWAL (Re-allocating Equipment is Necessary to Eliminate Waste and Amplify Leadership) Program to collect and redistribute unused medical supplies. Medical students identified overstocked PPE at large hospitals through supply chain management. Students initiated biweekly collection from hospital systems in the Greater Phoenix Area while also soliciting supply requests, identifying concordance between requested and collected items, and organizing subsequent deliveries of supplies to safety net clinics. This program epitomizes the intersection of medical sustainability and community engagement by establishing a sustainable model for PPE reallocation.

Project addressed/problem discovered

The problem that the Medical RENEWAL Program addresses is multi-faceted. On one hand, it deals directly with the issue of non-hazardous and reusable medical waste created by

hospital institutions. On the other hand, it focuses on the health inequities that medically underserved populations—and the institutions that serve those in underserved communities—face when attempting to access medical treatment and lifesaving medical supplies. In regard to medical waste, health systems science exposed both the vast inefficiencies of the health care system and the role that hospitals play in contributing to climate change on a national and international scale. Moreover, this framework of thinking also lends itself to analysis of medical waste via the Six Sigma model and its financial impact on the health care system, which ultimately leads to reductions across the board in the value of care that patients receive. Health systems science also provides a framework to elucidate the implications of health inequities and social determinants of health on patient care. In particular, when institutions in impoverished or underserved areas are not given priority access to medical supplies, their patients are then inadequately protected. This also opens those health care workers to risk from infection, thus drastically impacting their physical and mental well-being while contributing to the already-depleted supply of health care workers in underserved communities.

Approach

The most pressing need that we hoped to address with this initiative was the lack of access to medical supply equipment that hampered the ability to provide care to underserved

populations. To this end, our organization looked into disparities in PPE access during the COVID-19 pandemic and found that institutions serving a large population of Medicaid patients faced medical supply shortages in comparison with institutions serving more affluent populations. Based on our findings, we prioritized supply distribution to safety net clinics as well as organizations serving refugees and other vulnerable patient groups in Arizona. Being involved in this phase of the project allowed our team members to understand the importance of advocacy as medical students and our ability to impact local and national health inequities. Additionally, our organization focused on improving efficiency and health care delivery by mitigating medical waste. By collecting surplus medical supplies from large hospitals in the Greater Phoenix Area, reallocating these to safety net clinics, and meeting with supply chain managers to identify and improve our strategies for collection, we were able to make improvements to the health care system through waste reduction.

Lastly, our organization was also chiefly concerned with the impact of medical supply waste on climate change and our ability to address this as change agents. The hospitals from which we collected medical supplies were already donating supplies to organizations serving medical needs abroad. Despite this, there remained a significant amount of medical supplies that would be diverted to a landfill without our organization's ability to reallocate this equipment. This directly relates to climate change and points to its impact as a global structural determinant of health, as identified by the AMA and over 70 medical organizations in the "U.S. Call to Action on Climate, Health, and Equity: A Policy Action Agenda." As climate change is a public health emergency that affects millions of Americans, particularly vulnerable populations, we all must do our part to mitigate its effects. and we hope that the Medical RENEWAL Program offers a framework for continued intervention in this area.

Outcomes

To date, the Medical RENEWAL Program has collected nearly 560,000 items of PPE which includes, but is not limited to, KN95 masks, protective goggles, alcohol-based sanitizer, and protective gowns. Of these, approximately 15,000 supplies have been delivered, the majority of which have been KN95 masks. Supply recipients include community clinics serving Black, Hispanic, and refugee populations; mobile health clinics providing care to Native Americans; and local churches with predominantly Black and Hispanic congregations. Barriers at the collection, storage, and distribution stages included a lack

of inventory of overstocked items, difficulty acquiring off-site storage for PPE, and a lack of resources to distribute items to clinics.

Our most immediate goal at this moment is to acquire a long-term storage site (rather than our current short-term site) at which we can house the numerous medical supplies that we have received. Additionally, we are also developing surveys for safety net clinics and organizations that we provide with medical supplies to assess their utilization of this equipment and address additional needs. Furthermore, we also aim to create educational training materials for hospital staff about medical supply waste. Lastly, our organization hopes to pursue policy initiatives with local political representatives to minimize hospital supply waste across our state.

In concordance with our focus on sustainability, it's also of paramount importance that we prioritize the sustainability of our organization and our efforts to impact marginalized communities. As such, our members are committed to developing the next generation of leaders in medical sustainability. To this end, we are developing a longitudinal curricular elective that educates medical students about the role of hospitals in climate change, equips them with the tools to analyze institutional quality deficits and their impacts on patient care, and provides them with opportunities to create novel quality improvement projects. As a component of our curriculum, we will also provide students with their own copies of *Grit* by Angela Duckworth and hold reflection sessions to facilitate emotional and professional growth.

Personal impact

As a first-generation immigrant and the first in my family to pursue a career in medicine, this project has had an immense impact on my understanding of the intersectionality of medicine and the ways in which physicians can drive change to address health inequities. Furthermore, this project has been a culmination of my previous efforts to achieve health equity. While completing my pre-medical studies at Columbia University, I created an entirely new course, titled "Marginalization in Medicine," to educate others on the social implications of race on health. This is now a yearly recurring course at Columbia that fulfills a requirement for the Medicine, Literature, and Society major. My work on the Medical RENEWAL Program has not only built on my experience with curriculum development and health equity, but it has also shown me how much I value academic medicine and the opportunity to positively impact the next generation of health care leaders. Through this initiative, I've

also developed more as a leader by learning how to delegate tasks effectively, work collaboratively with key stakeholders, and create and sustain a vision for my team. These traits are critically important to my character as a medical student and will only become more crucial in my career as a physician. Lastly, this initiative has inspired me to pursue a career in hospital leadership as a physician to drive sustainable practices and leverage medical sustainability to address health disparities and health care delivery.

Clinical informatics and health technology



Standardized Metric to Track Physician-Nurse Patient Centered Touch Bases

Project lead

Kyra Nicholson, MD, University of Chicago Pritzker School of Medicine

Teammates

Hunter Witmer, MD; Aviva Klein and William Marsack

Faculty mentor

Vineet Arora, MD, MAPP, Dean for Medical Education, University of Chicago Pritzker School of Medicine

Project location

University of Chicago Medical Center

Abstract

Residents and nurses created two projects to encourage physician nurse interaction.

The MD-in-the-Room Button allows physicians to touch base with nurses during rounds. The Managing Daily Improvement (MDI) Board measures how many touch-bases did NOT occur as a percentage relative to the patient population on a given floor. Only two floors were used to calculate MDI Board averages. Press Ganey's institutional measurement of collaboration, "staff working together," was used to measure correlations from data that was pulled between June 2021 and May 2022.

The MDI Board was negatively correlated, but not statistically significant with the MD-in-the-Room Button: MDI Board to MD-in-the-Room ($r = -0.203$, $p = .90$), MDI and Press Ganey ($r = -0.48$, $p = 0.90$), and MD-in-the-Room and Press Ganey ($r = 0.034$, $p = 0.932$).

Our hospital-wide implementation of this metric is ongoing. We will need more data to demonstrate the impact of the MDI board measurements.

Project addressed/problem discovered

Due to early rounding times, physicians and nurses often struggle to communicate clearly. Efficient patient care, however, requires early and effective communication to allow for timely execution of plans and patient discharges. Hence, the MD-in-Room Button was created such that nurses and physicians could quickly share key patient information and plans for the day. The button leverages a technology platform to improve face-to-face communication among teams.

The MDI Board Metric was developed to serve as a complement to the MD/APP-in-Room button by measuring

the number of touch-bases that did NOT occur. As culture has shifted around the frequency of touch-bases taking place, button pushing would decrease, leading one to erroneously believe that touch-bases were declining as well. Hence, this metric sought to show the frequency of touch-bases by means other than button pressing. We hoped these metrics would be tightly correlated, allowing us to have a complete picture of the communication culture between doctors and nurses.

Approach

Our hospital is equipped with touchscreen communication consoles in each room. When the buttons are pressed, it sends the nurse specific text messages such as "Food tray delivered." We created the MD-in-Room button to improve teaming in patient care by signaling to nursing when the team was at the bedside. By increasing face-to-face communication, we aimed to more efficiently provide treatment, decrease discharge delays, and demonstrate effective teamwork to patients. This project would align with the health system domain and teaming concept.

Outcomes

This project highlights our efficiency and collaboration in patient care. This project also emphasizes some of the challenges to interprofessional communication in the medical setting on a day-to-day basis. This project has proven to be beneficial in providing better communication between our nurses and doctors as well as our patients. We anticipate that this work will lead to better patient outcomes, shorter hospital stays, and an overall better patient experience at the University of Chicago Medicine. Our implementation of the MD-in-Room button and MDI metric is ongoing, but we are seeing promising results and will continue to encourage better communication between our physicians and nurses.

Personal impact

As a surgery resident, we frequently round very early in the morning to ensure that we see our patients before our morning surgeries and clinics. We typically move quickly, and patients are oftentimes just waking up and may provide limited information about how they are doing. Our nurses are typically taking care of three to four patients and may not be present at the time that we are in the patient's room. This project reinforced the importance of teamwork within the medical profession. It truly takes a team to implement optimal patient care. The MD-in-Room and MDI metric encourage residents to communicate with the nurses so that they are aware of the patient plans, the medical team is aware of any issues that occurred overnight, discharge plans are clearly communicated, patient concerns are addressed, and so much more. This work has reminded me of how valuable our nurses are and how truly invested they are in our patients. This project shows that just taking a few extra minutes to press the MD-in-Room button and to have face to face communication with the nurses allows for more efficient care because ideally everyone on the team, including the nurses, residents, attendings, and the patient, should be aware of what the plan is for the day. As I continue throughout my training, I will continue to use the MD-in-Room buttons and help encourage my co-residents to do the same. I will also take the time throughout the day to talk with the nurses to make sure that their concerns are addressed, the patient's concerns are addressed, and they are aware of any orders or changes being made. I believe this work is not only valuable at the University of Chicago, but it is a model that should be implemented at other institutions as well.

Vaccination for Patients on or Starting Immunosuppressive Therapy: Increasing Compliance Through Standardized Guidelines and Improved Access

Project lead

Jose Henao Cordero, University of Colorado School of Medicine

Faculty mentor

Elizabeth Matthews, MD, Assistant Professor of Medicine, University of Colorado School of Medicine

Project location

University of Colorado Hospital

Abstract

Around 10 million Americans are immunosuppressed due to medication. Unlike genetic or acquired causes of immunosuppression, for patients with iatrogenic immunosuppression, we often have the chance to optimize their immune systems with infectious screening/treatment and vaccinations to ensure they are as protected as possible. Our project aims to address this issue by improving compliance with recommended vaccinations to at least 80% of patients on and starting select immunosuppressive therapies. We are doing so by creating standardized guidelines for patients on or starting immunosuppressive therapy and disseminating these guidelines to all pertinent divisions. We are also developing an EHR workflow that will help clinicians readily determine which vaccines their patients are eligible for and place these orders, improving access to these vaccines for patients within our clinics (especially in the subspecialties most commonly using immunosuppressive medications). Additionally, we are collecting and analyzing patient data to determine if our interventions lead to improved compliance with vaccinations and lower rates of infectious complications.

Project addressed/problem discovered

In recent years new immunosuppressive therapies have increasingly become the standard of care for multiple medical conditions across numerous subspecialties. The evolution in this field has happened at a surprising speed, making it hard for physicians to get fully familiarized with the nuances associated with these medications. This is especially true in terms of vaccination, ranging from indications to efficacy of vaccines. While these medications are beneficial for many conditions, they may put patients at risk of infectious complications. Therefore, it is critical that these patients receive the recommended vaccinations based on their

specific risk factors (including the specific immunosuppressive pathway of the regimen they will be receiving).

While national immunization guidelines (through the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices) address the indications for each individual vaccine, there is no easily available consolidated guideline for clinicians to use with respect to immunosuppressive therapies. Adding to the challenge is the fact that there also is not an efficient mechanism for administering these vaccines in many clinics. This inspired our mission to improve vaccination compliance for all patients on or starting immunosuppressive therapies.

Currently, our practice relies on providers to consider which vaccines their patients should be receiving, make their own judgement about the timing of these medications with respect to starting or continuing immunosuppressive therapies, and then determine where patients should go to receive these vaccines. In practice, this means patients are receiving varying recommendations depending on the provider and their knowledge of vaccinations. By using national data, consensus statements and recommendations from governing bodies, we can provide clinicians with recommendations to lead to standardized recommendations for our patients. By creating order sets and improving access, we can provide patients with vaccinations in a time-sensitive manner, which will allow us to safely initiate or continue immunotherapy without unnecessary delays.

Approach

Our approach to achieve this objective is four-fold including.

1. Developing standardized local guidelines based on available scientific evidence for patients on or starting immunosuppressive therapy and disseminate these guidelines to all pertinent divisions.

2. Creating an Epic workflow that will help clinicians readily determine which vaccines their patients are eligible for and place these orders.
3. Enhancing access to these vaccines for patients within our clinics (especially in the subspecialties most commonly using immunosuppressive medications).
4. Collecting and analyzing patient data to determine if our interventions will lead to improved compliance with vaccinations and lower rates of infectious complications

Our project addresses the following Institute of Medicine quality domains:

Safety – receiving immunosuppressive therapies without adequate vaccinations puts patients at risk for vaccine-preventable illnesses

Timeliness – Improving access to vaccines will allow patients to receive them in a timely manner and prevent unnecessary delays in starting immunosuppressive therapies

Efficiency – Improving access to vaccines within our clinic will improve the efficiency of our system, so patients do not need to attend multiple appointments and see multiple providers to receive the necessary vaccines (currently many patients see their subspecialist, then their primary care physician or an outside pharmacy), some also see the infectious disease team – all of which could likely be accomplished with a single provider visit if the proper mechanisms were in place

Equity – As currently there are no standardized guidelines or access to vaccines, those with lower health literacy or barriers to navigating the health care system may be less likely to advocate or find the correct locations to receive the indicated vaccines

Effectiveness – We believe that creating an Epic order set will standardize the process of vaccinations and will increase the vaccination compliance rate among our patients

Patient-centered care – By standardizing the process and improving access, we hope that patients will receive clear guidance on which vaccines they should receive and will be able to receive them easily through our clinic without having to travel to multiple sites on multiple occasions

Outcomes

We have been collaborating with hospital administration and leadership from Colorado University School of Medicine to achieve our goals as this project has the potential to impact thousands of patients. The rheumatology clinic sees nearly 18,000 patients, with 70-80% of these patients being on or eligible for immunosuppression. The neuroimmunology clinic sees >5,000 patients per year, the vast majority of whom are on immunosuppression, and that's not to mention the number of other specialties also servicing thousands of patients. We have created institutional vaccination guidelines for the immunosuppressed and validated them among different specialties. We are also collaborating with hospital administration to ensure vaccine availability to the different clinics and working with EHR developers to create an easy standardized workflow to visualize vaccine recommendations specific to the patient and initiate orders for these while also collecting vaccination data and rates of infection to validate the intervention.

Personal impact

As a transplant infectious disease fellow this project has not only bolstered my curiosity and knowledge of vaccination in an immunosuppressed patient. It has also taught me how to utilize a multidisciplinary approach for primary prevention of infections to create change on a population basis while working through a complex health care system, integrating computer science, and considering cost/effective approaches to medicine.

Continuity of Care



Student-Led Home Visitation Program: A Unique Opportunity for Health Systems Science Education

Project lead

Meeti Mehta, University of Pittsburgh School of Medicine

Teammate

Aiyedun Uzamere

Faculty mentor

Thuy Bui, MD, Associate Professor of Medicine, University of Pittsburgh School of Medicine,

Project location

University of Pittsburgh School of Medicine

Abstract

Current U.S. health care system challenges require creative approaches to enhance systems sciences training within medical education. Once popular and later uncommon, home visits are now on the rise. Despite this development, few studies have been published on the educational value of such endeavors. Offering improved quality and access to care, the home visit model may also serve as an opportunity for medical student education. This study evaluates the unique method of educating students through a home visit program for the underserved. We highlight the student-led home visit program as an unconventional opportunity to teach students about health systems science (HSS). This study underscores student-led home visits as a potential ideal experiential learning method for preparing future physicians with a greater understanding of health care economics, resource allocation, interdisciplinary collaboration, patient advocacy, and delivery of quality care to confront an increasingly complex health care system.

Project addressed/problem discovered

Transforming the health care system to improve patient safety and quality of care while emphasizing collaborative partnerships among health professionals and the patients, families, and communities they serve remains a challenge. Recent Institute of Medicine reports have highlighted the inability of the current health care system to meet the needs of the U.S. public, with quality and cost remaining stressors impacting access to care for disadvantaged populations. Reports have identified deficiencies among newly trained physicians in health care delivery, financing, team-based care, population health, and patient safety, indicating the importance of health systems science (HSS) in medical education. It is imperative that medical education aligns

with the needs of the evolving health care system to provide students with opportunities to develop HSS proficiency.

There is growing literature on student participation in HSS through student-run free clinics. We propose another model for such HSS experiential learning: student-led home visits for the underserved. The Homewood Home Visit program, established in 2018 in the Homewood neighborhood of Pittsburgh, is a student-led initiative providing care coordination, longitudinal follow-up, social-needs screening, and food/produce delivery for high-risk patients after discharge. We have previously demonstrated the effectiveness of our home visitation program in providing access to needed resources/services while reducing 30-day readmission rates. However, we have yet to study this program from the students' perspective. The aim of this study is to evaluate the impact of the Homewood Home Visit program on students' understanding of HSS while learning to navigate an increasingly complex health care system.

Approach

Students and faculty recognized the need for care coordination among underserved patients at high risk for readmission and collaborated to develop a volunteer-based, student-led initiative to address the care gaps facing patients. The Homewood Home Visit program relies on student volunteers to bridge gaps in health care delivery, connect patients to resources, and identify barriers to access. Since the program's inception, we have recruited, organized, and trained over a hundred health professional students to provide at-home medical and social outreach. Students are recruited through advertisements from student organizations such as SNMA and LMSA and from direct efforts by student leaders. To uphold quality patient care, we place

a high priority on the training of our volunteers. We created a comprehensive volunteer training protocol providing information on our low-income and racially-ethnically diverse patient population, the student role, Epic documentation, social needs screening, and provision of resources/services. The training was developed to provide a framework for understanding the role of social determinants of health, population health, value-based care, and health care policy in patient outcomes. All students were required to attend training prior to interacting with patients at a home visit. More experienced students were empowered to serve as team leaders, with the added responsibility of coordinating their team, providing hands-on training/guidance to first-time volunteers, and advocating for patient needs through contact with the patients' primary care physician.

Pre-surveys will be administered to all volunteers, followed by post-surveys at the end of the academic year to assess students' perspectives after participation in the home visit program. Student surveys evaluate attitudes about HSS, confidence in serving as a patient care advocate, comfort in navigating local community resources and services, areas of personal/professional growth, and overall program feedback/recommendations.

Outcomes

This study is currently underway and will run until the end of 2022. Outcomes will be assessed by pre- and post-surveys administered to all students participating in the home visitation program. In the pre-survey, we will gather data on students' interest in HSS, understanding of social determinants of health, and prior experience with equitable health care scholarship or activities. The post-survey will assess the program's impact on student understanding of social determinants of health, health care structure and process, and other areas of HSS, as well as intentions to continue involvement with the program. This survey will also elicit feedback on student satisfaction with various aspects of the program to improve the future organization and coordination of the home visits.

Feedback from past student volunteers was overwhelmingly positive, citing improvements in communication skills, gratitude for contributing to patient care, and appreciation for the meaningful relationships formed with patients. As a result, the Homewood Home Visit program has become an official experiential site for students to complete their Clinical Experience with Underserved Populations course. In addition, the training orientation is now incorporated into the program's regular informational email sent to medical student volunteers before home visits.

Our goal is for involvement with the Homewood Home Visit program to improve students' confidence in navigating the complex health care system, social services, and community resources while stimulating interest and continued engagement in HSS. Ultimately, this study highlights student-led home visits as a unique and potential ideal experiential learning opportunity for preparing future physicians with a greater understanding of health care economics, resource allocation, interdisciplinary collaboration, patient advocacy, and monitoring and delivery of quality care to confront an increasingly complex U.S. health care system.

Personal impact

This initiative has taught me many lessons about becoming a physician engaged in systems change. As a leader of the Homewood Home Visit program, I have been exposed to early patient care experience with a first-hand understanding of barriers to health care access. During our monthly home visits, I have learned about patients' daily struggles with acute and chronic conditions and their traumatic experiences with the health care system as they sought treatment. Through this role, I have had direct exposure to the true impact of the social determinants of health as I have forged strong relationships with our community. This initiative has also taught me the importance of systems thinking and interdisciplinary partnerships for effective patient care. It has been an honor and privilege to care for patients and work with the community to fill significant gaps in care, all while reinforcing my drive to become a physician leader.

St. Vincent's Hospital to Home Program

Project lead

Abhijit Rao, University of Texas Medical Branch

Teammates

Jacob Moran, Grayson Jackson, Shellie Wolf, Martha Diaz, Julian Quiceno, Laurie Looper, Emmanuel Nyong and Sarah Siddiqui, University of Texas Medical Branch,

Faculty mentor

N. Miles Farr, Assistant Provost, Community Engagement and Education, University of Texas Medical Branch

Project location

University of Texas Medical Branch

Abstract

In medically underserved populations, social determinants of health (SDOH) play a significant role in outcomes, hospital readmissions, and quality of life. We developed a program, Hospital to Home (H2H), that empowers health professions students to address SDOH at the bedside and facilitate the hospital-primary care transition in partnership with St. Vincent's Clinic (SVC), a local free clinic. The H2H team facilitates hospital follow-ups at SVC and connects patients to resources that address social barriers, such as food insecurity and transportation. Thirty-one patients were seen during the pilot. Among those following up at SVC (n=13), 18% were readmitted within 30 days compared to 33% of those without follow-up. H2H has leveraged partnerships between hospital systems and community agencies to improve engagement with uninsured patients at high risk for poor outcomes. We anticipate student participants will explore systems thinking, mitigate health inequities, improve outcomes, and reduce readmissions in this patient population.

Project addressed/problem discovered

Social determinants of health (SDOH), an important pillar of health systems science, impact quality of life both in and out of hospitals. For uninsured and underinsured patients, SDOH can lead to disproportionately increased hospital readmissions and poorer health outcomes. Existential challenges such as homelessness or lack of transportation often precluded a person's ability to access adequate medical services and manage chronic illnesses.

The H2H project was inspired by the realization that uninsured patients in the hospital often had poorer outcomes due to lack of access to important resources, such as housing, food, and medications. Several of our team members work closely with patients at SVC, and we have seen a few of the

challenges that complicated their medical care, such as repeated admissions due to missed insulin doses or infections complicated by the lack of access to clean water upon discharge. We realized that to maximize impact, we needed to meet patients where they were and address SDOH to improve quality of life and keep these patients out of the hospital.

We used health systems science to underscore the importance of continuity of care for the medically underserved and identified where we could build bridges between the hospital system and community-based primary care. The health systems science approach encouraged us to integrate health care providers and social resources and focus on upstream mediators of health such as SDOH to develop processes that could improve care delivery.

Approach

Our project empowers health professions students to screen for social determinants of health (SDOH) challenges using EHR-based and nationally validated screening questionnaires and facilitating connections to resources that can address these needs. These questionnaires assess risk for financial strain, housing instability, transportation needs, and food insecurity and can be scored and reassessed at a future appointment to determine whether interventions have been successful. Resources offered consist of a variety of county-based and regional organizations and assistance programs. In addition, our project refers patients to St. Vincent's Clinic, a free clinic that provides a variety of primary care and specialty medical services to bridge the transition between inpatient and primary care. St. Vincent's Clinic not only offers health care services, but also coordinates case management and social work services through its affiliation with St. Vincent's House, a local nonprofit.

This approach interfaces with several themes within health systems science: clinical informatics and health technology, social determinants of health (population health), and health system improvement, in particular. Our use of EHR-based and nationally validated questionnaires for SDOH screening combines informatics and data collection with the objectives of improving population health outcomes and reducing health disparities. This approach also enables us to monitor patients over time with the aim of system-wide quality improvement, and health system leadership has taken a vested interest in the program's outcomes. Overall, H2H improves the coordination of the health system from the bedside to the community by integrating social resources and referrals within inpatient visits.

To maximize impact, our program leverages health professions students to connect patients with resources directly at the bedside. Students have the valuable opportunity to use systems-thinking approaches to identify barriers that affect transition of care from the hospital to primary care. Overall, this approach encourages students to think beyond the patient's stay at the hospital and consider the impact of social determinants on a person's life experience, allowing them to gain a more holistic understanding of health care and health systems.

Outcomes

The pilot phase of the H2H program visited a total of 31 patients in the hospital—predominantly those admitted for inpatient internal medicine. Of these 31 patients, 13 completed a follow-up visit with the free, student-run St. Vincent's Clinic (SVC). Compared to patients who did not follow up with the clinic, patients connected to SVC observed a 15% absolute reduction in all-cause, 30-day hospital readmission rates.

This preliminary reduction in hospital readmission rates demonstrates that by connecting patients to a medical home, the H2H program can help alleviate financial pressures and resource strain associated with hospital readmissions, as well as improve system-wide quality and health outcomes. H2H supplements discharge planning by inpatient care managers to ensure a complete and coordinated handoff to community-based care. As examples, we have been able to apply for assistance programs for insulin to help offset costs for diabetic patients and have referred unhoused patients to local shelters that provided housing free of charge.

In addition to improving transition of care, the H2H program leverages local resources to impact patients' quality of life

outside the hospital. Resources include those that address food insecurity (e.g., monthly food bank calendar), housing instability (e.g., emergency utility assistance), transportation (e.g., public transportation and paid rides to clinic appointments), financial strain (e.g., county-based charitable organizations), and medication affordability (e.g., Rx coupon cards and pharmacy subscription programs). As the program advances beyond the pilot phase and becomes a formal part of the medical student curriculum, we anticipate expanding these resource offerings.

Finally, health professions students have the opportunity to directly impact patients during this crucial transition by considering how community resources can improve patient quality of life. Feedback from students has been positive. Students have reported that the opportunity has challenged them to consider how factors outside the hospital can impact a patient's hospital course. Students have also been challenged to design creative interventions to meet patients where they are and deliver adequate and consistent care.

Personal impact

One of the most humbling aspects of medicine is not merely treating diseases but treating patients as human beings. While medical students generally acknowledge the principle of patient-centeredness, opportunities to personally engage with patients' stories are sometimes few and far between. This project has opened the door to learning more about patients' lives and livelihoods—about the impact that everyday circumstances have on health which cannot be fully appreciated through the rigid, provincial lens of biomedicine.

Patients in the H2H program have uncovered, through sharing their stories, striking challenges. Some have revealed difficulty paying utility bills and affording groceries or medications — if they have stable housing to begin with. Others have described challenges getting to and from daily activities due to unreliable transportation. Many of these patients lack support networks, such as family and friends, upon which to rely during their illness. Medical care can address their illness directly, but it does not speak to the social issues that (1) prohibit timely access to care and (2) potentially contribute to illness onset or exacerbation.

Through developing this program and visiting directly with patients, we have developed a deeper commitment to patient-centered care that addresses the whole person. We have learned that healing patients requires not only mastery of clinical knowledge, but also the systemic and social factors that can potentiate or restrict healthy lives.

Improving Patient Retention in a Community-Based Free Health Center

Project lead

Meeti Mehta, University of Pittsburgh School of Medicine

Teammates

Rachel Weger, Sydney Sharp and Chiazam Omenyi (all with the University of Pittsburgh School of Medicine)

Kristina Abernathy (Neighborhood Resilience Project)

Faculty mentor

Thuy Bui, MD, Associate Professor of Medicine, University of Pittsburgh School of Medicine

Project location

University of Pittsburgh School of Medicine

Abstract

Loss to follow-up (LTF) represents an understudied barrier to health care access, utilization, and continuity of care at free health centers. Understanding factors associated with patient LTF could inform quality improvement efforts for patient retention and identify interventions to bridge gaps in accessibility. However, studies of patient retention at community-based, volunteer-run free clinics are lacking. The aim of this study was to identify demographic and neighborhood factors associated with patient LTF at the Neighborhood Resilience Project (NRP) Free Health Center in the Hill District of Pittsburgh, PA, and design interventions to promote patient retention. This retrospective cohort study showed that residence in a neighborhood with moderate disadvantage was a protective factor against LTF. Additionally, non-Hispanic/Latino African Americans who speak English were at the lowest risk of LTF. We will implement patient retention interventions related to these findings for free clinic patients who may be more vulnerable to LTF.

Project addressed/problem discovered

Patients receiving care for acute and chronic diseases should be followed-up to evaluate for disease progression and discuss treatment options, if necessary. Patients who are LTF will not have such opportunities and thus, may have a greater risk of developing complications/sequelae. Furthermore, every missed appointment is a source of lost health care resource utilization, potentially straining the patient-physician relationship. Together, all these factors can ultimately decrease the value of care delivered. Therefore, understanding the factors associated with LTF will provide an opportunity to optimize modifiable factors to reduce LTF, increase patient retention, and ultimately increase the value of care for underserved patients. Thus, we evaluated the factors

associated with LTF and identified potential interventions to increase patient retention at the NRP Free Health Center.

Approach

We identified barriers to follow-up through collaborating with an interprofessional team of primary care physicians, care coordinators, patient advocates, and student volunteers. We conducted a retrospective cohort study of patient LTF at the Free Health Center from 2019-2021. Patients were grouped into cohorts based on reasons for LTF. Patient charts were abstracted for demographic and neighborhood details. Population estimates and socioeconomic data were obtained from the United States Census Bureau. Area Deprivation Index (ADI) was calculated as a measure of neighborhood-level disadvantage and standardized according to national ADI quartiles to provide context for patients' social determinants of health. Summary statistics were computed, and a binomial regression was used to compute relative risks (RR) with 95% confidence intervals (CI) and p-values. Significance was assessed at $\alpha=0.05$ level.

Once we determined the barriers to follow-up, our team collaborated to create systems-based interventions within the domains of "health care structure and process" and "clinical informatics and health technology" to address these challenges and promote patient retention.

Outcomes

Our retrospective analysis revealed a total of 1,644 patients who were LTF, with 93 no-shows/cancellations. The median age of the sample was 45 years (interquartile range (37-53)). In this group, 1,105 patients (67%) were female, and 1,532 (93%) were non-white. The most common reasons for LTF included scheduling error ($n=271$, 16%), rescheduling ($n=172$, 10%),

no-show/cancellation (n=93, 6%), and provider unavailability (n=72, 4%). Residence in neighborhoods of moderate disadvantage (ADI 51-75) was associated with a 40% reduced risk of no-show/cancellation (RR 0.59, CI 0.40-0.87, p=0.003) compared to other neighborhoods. Finally, African American race, non-Hispanic/Latino ethnicity, and English primary language were all associated with a reduced risk of no-show/cancellation (RR 0.85, CI 0.72-1.00, p=0.03; RR 0.84, CI 0.72-0.98, p=0.006; RR 0.92, CI 0.85-1.01, p=0.015, respectively).

This study is among the first to utilize ADI to evaluate predictors of patient retention in a community-based free clinic. We found that residence in a neighborhood with moderate disadvantage is a protective factor against LTF. Furthermore, non-Hispanic/Latino African Americans who speak English are at the lowest risk of LTF. The most common barriers to follow-up attendance included forgetting the appointment, being unaware of the appointment, scheduling conflict, transportation difficulty, and financial burden.

In response to these findings, we developed interventions for primary care follow-up based on patient social determinants of health, proximity to the Free Health Center, and transportation abilities. We designed a standardized procedure for patient scheduling and will implement

an appointment reminder system integrated with the health center patient portal to improve communication. Additional interventions we hope to implement include a transportation service for patients with limited access to care. Our understanding of factors associated with LTF allowed for the creation of strategies to increase patient retention and the value of care for underserved patients. Future studies are needed to evaluate the effectiveness of such interventions in reducing patient LTF.

Personal impact

This project has provided an opportunity to understand the systems-level support necessary for patients to attend a scheduled follow-up appointment in a way that increases the likelihood of patient retention. I have also learned about the process of standardizing procedures to improve the value of health care for underserved patients. This project has made me realize the impact of social determinants of health on the ability of our health care system to provide high-quality care to patients of low socioeconomic status. I have learned that such barriers to access care must be addressed in collaboration with local community partners to provide sustainable support to underserved patients.

Health equity



Gap Analysis of a Low-Resource Clinic in Sub-Saharan Africa

Project lead

Joseph Iskander, Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo

Teammate

Fidele Dhan, South Sudan Villages Clinic

Faculty mentor

Kenneth Snyder, MD, PhD, University at Buffalo Neurosurgery

Project location

Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo and Koiyom clinic in South Sudan

Abstract

Addressing global health equity in a sustainable and non-colonial manner has poised many challenges to the health care field. Over the past decade, there has been a shift away from the traditional approach to global medicine to one that empowers the communities in low-income countries with the tools necessary to identify and address their own needs. This project proposes one way in which a gap analysis, designed on a foundation of health systems science principles, can be used to improve health care delivery in a low-resource setting. The gap analysis procedure, consisting of an in-depth staff survey, clinic operations observation, and patient testimonials, is currently being executed in the Koiyom Clinic located in South Sudan. Findings from this gap analysis will be used to summarize the barriers to health care delivery in the Koiyom community and design an action plan alongside stakeholders to address these issues.

Project addressed/problem discovered

This project utilizes the principles of health systems science (HSS) to perform a gap analysis at the Koiyom Clinic in rural South Sudan. The Koiyom clinic, founded in 2018, serves a vast community spanning a 100-mile radius. During its first three years, the clinic provided care to over 30,000 patients with a wide variety of presentations. The services provided at the clinic range from prenatal care and routine immunizations to trauma and urgent care. Despite the multitude of services offered at the clinic, the staff struggles with consistently delivering high quality health care to patients due to limitations in infrastructure, access to reliable and sustainable medical technology and supplies, and barriers to staff training. There is currently little data available that can be used to assess the structures, processes, and outcomes across the continuum of patient care at the clinic. As a result, a gap analysis of the current operating state at the

clinic was requested by clinic stakeholders, including staff and administrators, with the hopes of identifying both urgent and non-urgent gaps in patient care.

Approach

In order to effectively and responsibly identify the various barriers to health care delivery at the Koiyom clinic, an in-depth survey has been designed with input from the clinic founder and physician experts in the field of global medicine. Additionally, guidance from the World Health Organization's *Needs Assessment for Medical Devices* manual and literature on the current state of health care in rural Sub-Saharan Africa was used in designing the survey. It was created to investigate elements of the Donobedian Model with an emphasis on the structure component of the model. Consequently, a large portion of the survey is aimed at identifying gaps in resource management/acquisition, staff training/workload, limitations in infrastructure, etc... Additionally, parts of the survey are aimed at investigating processes and outcomes at the clinic including door to discharge processes and staff and patient satisfaction. By designing the survey in this manner, the health care structures and processes can be better understood and then improved to better address the needs of the population served by the Koiyom Clinic.

During my trip to the Koiyom clinic (7/11/22 – 7/20/22), I will be executing the data collection portion of this project by interviewing the staff using the survey as a guide. All interviews will be conducted with the help of a translator from the community. Additionally, I will spend some time taking an inventory of the medical supplies and equipment available at the clinic and the preventive maintenance procedures that are in place. The staff's responses to the survey alongside patient testimonials and the detailed inventory will then be used to create a constrained list of the immediate and long-term needs of the clinic. This prioritized

list will then be used to create action plans consisting of projects that can be implemented over the ranges of 1-2, 2-5, and 5-10 years.

Outcomes

Unfortunately, the data collection phase of this project has not been completed at the time of submitting this abstract, as I am currently in South Sudan executing the tasks described above. Although, I have yet to summarize and report the current needs of the Koiyom Clinic, I have used this model consisting of a needs assessment followed by project identification and implementation in a previous project during my undergraduate education with partners at St. Paul's Hospital in Addis Ababa, Ethiopia. One of the gaps identified during this project involved the lack of reliable access to surgical lamps in the operating rooms. My team and I spent the following year working virtually alongside local engineers and technicians to design a surgical lamp prototype that could be manufactured using only materials available in Sub-Saharan Africa.

Although my previous work has yielded successful results, I believe my recent education in the field of HSS has provided me with the tools necessary to create a more wholistic and effective survey for the gap analysis in the Koiyom Clinic. Furthermore, my audit training, which was a part of my HSS elective, provided me with the skills necessary to confidently interview clinical staff and efficiently seek out important information in a respectful and constructive manner. The overall goals of this project include the successful gap analysis of the state of health care delivery at the Koiyom clinic and identification of several projects and action plans that will address the clinic's needs. Down the line, I hope to put together interdisciplinary teams composed of clinical and engineering students and professionals from both my local institution and international partners to create innovative solutions to the problems identified during this project.

Lastly, a major goal of this project is to use the staff's reactions to the survey to improve its quality and create a document/procedure that can be more widely applied in similar health care settings. I would also like to gauge interest from staff in the idea of training them on how to perform needs assessments and quality improvement audits. By bypassing the need to send someone abroad, we can decrease the costs associated with global health work while empowering the individuals directly involved in vulnerable health care settings with the resources necessary to innovate new and creative solutions to their most pressing needs.

Personal impact

During several global service trips that I participated in in the past, I worked closely with local and visiting physicians to care for the patients we saw in clinic. The one topic that has always confused me in this line of work, however, is sustainability. When looking back on the work that I did in the past and the work that many clinicians still do, I wonder how efficacious it is. Are we really pushing communities in low-income countries to better overall health? How can we do better? Why are relief trips still necessary for communities to stay healthy? These are the questions and opportunities that top my interest in global medicine.

As a future physician, I consider myself among those responsible for innovating more sustainable solutions to global health disparities. As a former engineering student, I became fascinated with utilizing the intersection between engineering and medicine to tackle issues in global health equity. My exposure to health systems science during my first year of medical school has provided me with the foundation to bridge my interests in global medicine and engineering. I believe this project and the ones that follow as a result of the gap analysis conducted at the Koiyom clinic will help me develop into the type of physician-innovator I want to become.

Food Is Medicine: Clinical-Community Partnership for Sustainable Change

Project lead

Marissa Kruk, Jacobs School of Medicine at Biomedical Sciences at the University at Buffalo

Teammate

Western New York Food is Medicine Coalition

Faculty mentor

Kenneth V. Snyder, MD, PhD, Associate Professor of Neurosurgery at SUNY Buffalo and Chief Physician Quality Officer at Kaleida Health

Project location

Jacobs School of Medicine and Biomedical Sciences at the University at Buffalo

Abstract

Food insecurity represents a critical problem throughout the Western New York region, as barriers to accessing affordable, nutritious food negatively impact health outcomes. Although local community organizations affiliated with the Food is Medicine Coalition have the bandwidth to meet immediate need, a process for connecting patients with these resources through the health system does not yet exist. Through the establishment of a Food is Medicine Club at the Jacobs School of Medicine and education of medical student volunteers, we aim to develop clinical-community partnerships to decrease food insecurity. With this replicable model, systemic change can be enacted while inspiring the next generation of physicians to take action.

Project addressed/problem discovered

According to the United States Department of Agriculture, more than 38 million Americans face food insecurity. Long term food insecurity has been associated with poor health outcomes and increased risk for chronic conditions like diabetes, obesity and cardiovascular disease. In Erie County, New York alone, more than 12% of residents lack access to necessary, nutritious foods. The Western New York area is filled with food deserts – geographic areas that have extremely limited options for obtaining affordable healthy food. This dire situation has only been exacerbated by the COVID-19 pandemic and the mass shooting at Top's Friendly Market on May 14, 2022. There are many community-based organizations in Western New York dedicated to providing fresh groceries, dietary education and environmental support to underserved areas. Local medical students and health care providers are taught about social determinants of health and how to identify patients who face systemic

barriers like lacking access to nutritious food. However, there is no concrete process in place to connect patients in need of healthy groceries and lifestyle modifications with the necessary resources. We proposed that health systems science could be applied to the issue of lack of access to nutritious food in order to enact sustainable change. By creating a replicable model of clinical-community partnerships and medical student involvement, we will combat food insecurity and improve health outcomes in Western New York.

Approach

This project uses systems thinking and medical student engagement to address food insecurity in the greater Buffalo area. Medical students serve as the link between community organizations and health care providers to improve health care structure and process. Our members are directly involved in brainstorming and implementing process improvements for identifying food insecurity, creating long-term follow-up plans for patients, and increasing accessibility of community resources. Above all, this project falls under the domain of "change agency, management and advocacy." Creating a process to increase patient access to Food is Medicine Coalition community organizations will address barriers related to "population, public and social determinants of health." We are developing a framework to establish clinical-community partnerships in Western New York that can eventually be replicated and applied to different areas across the nation. Furthermore, this project will equip students at the Jacobs School of Medicine with knowledge of health systems science and its utility in enacting sustainable change.

Outcomes

By establishing a Food is Medicine Coalition Club at the Jacobs School of Medicine, we have created a platform to educate future physicians about barriers to accessing food in the greater Buffalo area and engage them in improving the local health system's response. Our organization is dedicated to achieving both short and long-term change. Medical students are connected with volunteering opportunities through Food is Medicine Coalition organizations to help meet immediate need in the community, such as grocery deliveries with Queen City Couriers and culinary training sessions with Urban Fruits and Veggies. In addition, our members serve as research associates and advocates for creating long-term systemic change. For example, medical students will collect data for a current Food is Medicine Coalition research study aimed at providing healthy meals, patient-specific nutrition education, and environmental support to improve community health outcomes. Study participants are 100 Buffalo Niagara Medical Campus health care workers and 100 outpatients from an underserved geographic area identified as having a BMI >25, diagnosis of early to mid-stage chronic disease (hypertension, diabetes, cancer, depression), and/or mid to high self-reported stress levels. After receiving fresh meals, tailored nutritional education, cooking demonstrations, and mindfulness classes aimed at reducing stress and encouraging sustained lifestyle change, participants' learning competencies will be assessed. Medical students will assist in collecting data related to

participant's physical and mental health metrics, health habits, barriers to healthy behaviors, self-efficacy, quality of life, and health care utilization. In the future, we hope for medical students to design independent research projects, partner with the Erie County Department of Health, and advocate for change through the local, state, and national legislature.

Personal impact

As a Buffalo native, I have been passionate about battling food insecurity in the local community for many years. From a young age, I have volunteered at the St. Francis of Assisi Food Pantry in Tonawanda, New York. During the COVID-19 pandemic, my family and I established Good Neighbors Little Free Pantry to help meet immediate need for food and personal care products in our area. As a medical student, I have continued to pursue this passion through the creation of this project. These experiences have informed my philosophy for practice as a future physician—to care for the members of my community in a holistic sense and meet patients' needs within the context of their own individual circumstance. Furthermore, this project showed me that I can use my knowledge of health systems science to act as a co-agent of change. I will continue to combat systemic barriers as a future physician and hope to inspire others to take action through the Food is Medicine Coalition Club at the Jacobs School of Medicine.

A Deeper Dive into the Impact of the Allyship Forum Two Years after its Implementation at the University of Nevada, Reno, School of Medicine

Project lead

Sonia Figueroa, University of Nevada, Reno, School of Medicine

Teammates

Sarah Aamer, Lizeth Acosta, Taree Chadwick, Hailee Ciccotti, Rodney Fong, Leah Heydman, Irene Li, Jacob Marble, Jorge Monge, Kendahl Servino, Mathew Thomas, Jamie Abad, Lauren Bony, Maebob Enokenwa, Brooke Gantman, Melissa Higareda, Andrew Kim, Regina Kurapova, Sean Torres, Sergio Trejo and Shawn Thomas

Faculty mentor

Nicole Jacobs, PhD, Associate Dean of Diversity and Inclusion, University of Nevada, Reno, School of Medicine

Project location

University of Nevada, Reno, School of Medicine

Abstract

The Allyship Forum will allow medical students to demonstrate an understanding of, and responsiveness to, systemic inequities and implicit biases faced by minoritized groups within the health care system to provide equitable care for diverse populations.

The objective is to provide an opportunity and safe space for clinical students to learn about minoritized patient populations and their social determinants of health—to become a better ally and advocate for patients within these groups.

Project addressed/problem discovered

Medical educators and academic medical centers are responsible for creating physicians who are allies and advocates for their most vulnerable patients. In response to the health inequities experienced by individuals and groups who have been marginalized and discriminated against, the National Academies of Sciences and governing bodies have called for the preparation of health care professionals to address social determinants of health at the patient and community level. To achieve health equity, social determinants of health must be understood and addressed.

University of Nevada, Reno, School of Medicine's medical education program objectives currently lack identification of and training on allyship. In order to be aware of and address the social determinants of health and implicit biases faced by specific individuals or minoritized groups, it must be taught. The Allyship Forum will allow medical students to

demonstrate an understanding of, and responsiveness to, systemic inequities and implicit biases faced by minoritized groups within the health care system to provide equitable care for diverse populations.

Approach

The Allyship Forum is a six-part series with a specific focus on one diversity student interest group at each forum. Each presentation was led by one of the following: the Student National Medical Association (SNMA), the Asian Pacific American Medical Student Association (APAMSA), the Latino Medical Student Association (LMSA), the American Medical Women's Association (AMWA), the South Asian Medical Student Association (SAMSA), and the Medical Student Pride Alliance (MSPA).

The interactive, student-led Allyship Forum focused on a specific marginalized patient population and the teaching of social determinants of health and implicit biases that disproportionately affect the quality of health care they receive. Students who identify within these groups and have lived experiences led the discussions. In the six sessions that leaders of the University of Nevada, Reno, School of Medicine diversity and affinity groups hosted, they discussed the inequalities that Asian American and Pacific Islanders, Latinos, African Americans, South Asian, and LGBTQ+ community members, and women may face, and methods to ensure future health care providers are advocates and allies for these populations by providing equitable health care.

These optional co-curricular sessions have occurred during the spring of the last two years and are available to all University of Nevada, Reno, School of Medicine students and faculty.

The Allyship Forum exemplifies and demonstrates how domains such as teaming, leadership, and ethics and legal can improve health systems through teachings of population, public and social determinants of health, further strengthening relationships between physicians, patients, families and communities. Our diverse student population took initiative and joined forces to achieve a similar goal. Through our lived experiences, we were able to have meaningful and informative discussions while educating ourselves on the legal obligations of a physician in specific cases. Actively seeking trainings similar to this is the definition of an ally, and it will allow a deeper understanding of our patients' cultural and spiritual beliefs, building a rapport and establishing trust.

Outcomes

Our pre-survey demonstrated the diversity of students attending the Allyship Forum. In 2021, 69 participants completed the pre-survey. A total of 59.4% identified as female, 39.1% identified as male, and 1.4% identified as genderqueer. Of the participants, 47.8% identified as white, 34.8% identified as Hispanic, Latino or Spanish, 31.9% identified as Asian, 16.0% identified as African American and 7.2% identified as Native Hawaiian or other Pacific Islander. In 2022, 99 participants completed the pre-survey. A total of 38.4% of our participants identified as white, 19.2% identified as Hispanic, Latino or Spanish, 29.3% identified as Asian, 7.1% identified as African American, 7.1% identified as Middle Eastern or North African, 1% identified as American Indian or Alaska Native and 1% identified as Native Hawaiian or other Pacific Islander. Participants were able to choose more than one ethnicity/race.

An optional Likert-scaled pre-survey and post-survey was given to each participant prior to and on completion of each session. In 2021 and 2022, changes in responses on survey questions from pre to post intervention showed that there were statistically significant improvements in participants' attitudes about the importance of addressing social determinants of health (2021: pre: M=4.78, n=69, post: M=4.97, n=59; p-value=<0.0001; 2022: pre: M=4.71, n=82, post: M=4.90, n = 82; p-value=0.0086) and participants confidence in recognizing social determinants of health (2021: pre: M=3.61, n=69, post: M=4.61, n=59; p-value=0.0043; 2022:

pre: M=3.56, n=82, post: M=4.56, n=82; p-value=<0.0001) and implicit biases (2021: pre: M=3.72, n=69, post: M=4.64, n=59; p-value=<.0001; 2022: pre: M=3.73, n=82, post: M=4.57, n=82; p-value=<0.0001) that disproportionately affect specific marginalized patient populations and in their comfort in caring for patients who identify within these groups (2021: pre: M=3.87, n=69, post: M=4.80, n=59; p-value=<.0001; 2022: pre: M=3.71, n=82, post: M=4.60, n=82; p-value=<0.001).

The results not only demonstrate an overall increased understanding of the importance of addressing social determinants of health, but also an increased confidence in participants' ability to be recognize a barrier to care and address them through interventions and techniques discussed during the sessions. Educating ourselves on what those barriers may be is an effective way provide equitable care.

Personal impact

The personal growth and development I have experienced through the Allyship Forum is astounding. As the director of the Allyship Forum, it was intimidating to host sessions on topics that I was not an expert in, but the students I recruited had lived experiences in these communities and were able to discuss literature and supplement with personal anecdotes of similar situations they have experienced or witnessed. This reinforced the thinking that medicine is a team effort and not knowing something doesn't make you a bad student or physician. I was also a participant in these sessions, learning along with my peers about different cultures that I have never experienced before. This reinforced my desire to stay curious and never stop seeking opportunities for growth and improvement.

These sessions remind me that physicians are lifelong learners and that our learning isn't confined to medicine. Patient care is not only treating the disease but treating the patient. As I transition into my third year of medical school and am actively involved in patient care, I remember the training we had through the Allyship Forum. I discuss potential barriers to care and religious or cultural beliefs that may impact the care they wish to receive.

Overall, I believe the Allyship Forum strengthened my leadership skills, resilience and drive to continue hosting these sessions. I am grateful to be where I am and excited to see how far I'll go.

Utilizing a Social Determinants of Health (SDOH) Screening and Tool to Identify Address SDOH Needs at a Rural, Family Medicine Practice in Pender County, NC

Project lead

Natalie Browne, University of North Carolina at Chapel Hill School of Medicine

Faculty mentor

Mostafa Rezk, DO, Novant Health and Hampstead Family Medicine and Burgaw Medical Center

Project location

Hampstead Family Medicine and Burgaw Medical Center

Abstract

Hampstead Family Medicine and Burgaw Medical Center (HFMBMC) is a private, primary care practice in Pender County, North Carolina (NC). Pender County is one of the 80 rural counties in NC and is the largest county in the Cape Fear region. Knowing that rural communities face unique barriers in their ability to access health care, utilize community resources, and address their overall health, routinely screening patients for social determinants of health (SDOH) allows practices to better understand and address the unique needs their patients and the community faces. Before this project, HFMBMC had not considered nor established a process for screening patients for SDOH. By completing this project, the practice gained a better understanding of SDOH needs at their two clinics, established a standardized workflow for screening patients for SDOH, and created a community resource handout for patients who screen positive for SDOH.

Project addressed/problem discovered

Social Determinants of Health (SDOH) are the conditions under which people are born, grow, live, work and age. On average, there is a 15-year difference in life expectancy between the most advantaged and least advantaged individuals. These population-level health inequities result in \$309 billion in economic losses annually and disproportionately affect disadvantaged populations. Knowing that 60-70% of patients' overall health is due to non-medical determinants of health, the American Academy of Family Physicians recommends that primary care physicians screen patients for SDOH to improve their overall health.

At the start of this project, no patients at the HFMBMC were being screened for SDOH. Knowing that rural communities face unique barriers in their ability to access community resources and improve overall health, this was a priority

area the clinic had not yet addressed. After observing clinic activities and talking with clinic staff, it was clear that the lack of an established workflow for screening patients for SDOH was one of the root causes as to why this had not yet been addressed.

Additionally, it was important to contextualize this identified problem within the current system in which it functioned. Understaffing, competing priorities, unfamiliarity with community resources, and stigma associated with increased social needs were just some of the factors that contributed to the identified root cause. The use of fishbone, driver, and PICK diagrams were some of the tools used to identify barriers, prioritize interventions, and implement the project's Plan-Do-Study-Act (PDSA) cycles in an effort to address the identified problem.

Approach

This quality improvement (QI) project focused on the domain of "population, public and social determinants of health," with the goal of increasing screening for SDOH and counseling those patients who screen positive. The aim of this QI project was that within a two-month period the HFMBMC would screen 10% of its patient population 18 years and older for SDOH using the American Academy of Family Physicians short-form screening tool and make appropriate community referrals for patients who screen positive. This aim was accomplished using 3 PDSA cycles, with the first two cycles focusing on establishing baseline data for the two clinics' patient populations and the final PDSA cycle focusing on finalizing the SDOH screening workflow and creating a community resource document.

The first PDSA cycle occurred at the Hamstead, NC, clinic where all patients were screened for SDOH. Over this two-week period, the front desk staff handed screening forms

to patients at check-in, and forms were returned to me for documentation. During the second PDSA cycle, all patients at the Burgaw, NC, clinic were screened for SDOH. The screening forms were prepped by myself by placing forms on clipboards to serve as a reminder to front desk staff. The third and final PDSA cycle only screened patients scheduled for MAWVs or physicals. This was done to help streamline the workflow and reduce the burden on front desk staff. I prepped forms daily, using pink paper and pen to indicate which patients required SDOH screening. These forms were then distributed to front desk staff to give to patients at check-in. Additionally, I created a Pender County, NC, community resource flyer and placed flyers in exam rooms so they could be distributed to patients who screened positive for SDOH. Providers documented SDOH screening results in the patient's charts in the same manner they documented other screening form results. Through this QI project, the focus on improving SDOH screening not only enhanced the value of care provided to patients but also improved the health system in which the clinic operated.

Outcomes

The first PDSA cycle screened 24 patients for SDOH, accounting for 50% of the patients who were eligible for screening. Overall, most patients screened negative for SDOH. Of those who screened positive, issues involving personal safety were most common. One noted observation was that throughout this two-week PDSA cycle, the staff was inconsistent in distributing screening forms, with the staff performing better on days with fewer patient visits and with daily reminders about distributing screening forms.

The second PDSA cycle screened five patients for SDOH, accounting for only 9% of the patients who were eligible for screening. Similar to the first PDSA cycle, most patients at the Burgaw clinic screened negative for SDOH. Of those who screened positive, issues surrounding transportation were most common. The notable decrease in SDOH screening from the first to second PDSA cycle was likely due to the lack of daily reminders provided to the front desk staff, which resulted in worsening consistency in SDOH screening form distribution. After talking with staff members, it was noted that more visual cues would help in reminding the staff to distribute screening forms.

The third and final PDSA cycle screened 14 patients for SDOH, representing 90% of patients eligible to be screened. No patients screened positive for SDOH, which is likely due to the smaller number of patients being screened daily for SDOH. The use of visual aids and daily reminders provided improved consistency in the distribution of SDOH screening forms, and the creation of the Pender County Community Resource brochure provided education to providers and patients about local resources.

Overall, a total of 43 patients or 4% of patients were screened for SDOH. This project helped establish a standardized workflow for SDOH screening, create a new community resource brochure for patients, improve education about the importance of addressing SDOH, and increase knowledge about local community resources. Even though the lasting impact of routinely screening SDOH would take years to determine, the clinic now has a new tool to better assure the clinic is meeting patients where they are and prioritizing the patient's clinical and non-clinical needs.

Personal impact

As a future physician, my chief priority is providing the best care to patients. Although it is important to be knowledgeable about various aspects of the science of medicine, this is just one aspect of patient care. As this project demonstrated, a patient's non-medical needs are as important as their medical needs. As a future physician, I must keep this in mind if I want to provide high-quality, whole-person care. Additionally, this project demonstrated how performing continuous quality improvement can be impactful, even within a small clinic setting. This reinforced the importance of being knowledgeable and confident in my understanding of quality improvement since in most rural practices a dedicated QI team is rare to find. Finally, as a future health care leader, taking the initiative during this QI project further enhanced my communication and problem-solving skills. I believe continuously refining these skills will be beneficial no matter what specialty or location I intend to practice. Overall, the health care system is complex and contains various challenges that need to be addressed. However, as this project demonstrated, taking a systems approach helps break down these challenges into manageable parts, making them clearer to understand and easier to address.

Developing a Social Justice Curriculum: A Focus on Best Senior Care Practices

Project lead

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Teammates

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Faculty mentor

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Project location

University of California, San Diego

Abstract

Background: It is crucial for physicians to understand how to provide appropriate care for older patients, especially when these patients are marginalized by both age and other factors such as gender, immigration status, and income. Resident physicians have limited and varied amounts of geriatric and social justice training. To address this, we aim to develop, implement, and evaluate a social justice curriculum within University of California, San Diego's (UCSD's) Internal Medicine Residency, Primary Care Pathway, which includes the topic of senior care.

Methods: In designing the senior care social justice curriculum, literature reviews were conducted on PubMed articles to summarize important factors when providing care to older adults.

Results: Best practices for socially just senior care include reducing unnecessary medications and using age-inclusive language. Our goal is to promote positive change within the medical education system by creating a solid foundation for physicians when addressing social justice issues and providing senior care.

Project addressed/problem discovered

According to the World Health Organization (WHO), 1 in 6 people will be ages 60 or older by 2030. Additionally, the number of people ages 80 or older is expected to triple from 2020 to 2050, reaching 426 million. With this increase of older adults, there exist age-related biases and preconceptions, such as viewing older adults as "frail," "dependent," or a "burden." These negative views can contribute to ageist attitudes and discrimination that can be seen within the health system. As these associations perpetuate, physicians may steer away from the geriatrics field, which fails to contribute toward its impending demand.

Utilizing the intersectionality of population, public, and social determinants of health, we identified that social justice training, particularly with senior care, within medical education is needed. Many medical schools and residency programs have limited to no training on social justice issues. Conversely, it is important for health care providers to develop strong skills and adopt an anti-oppressive, intersectional perspective in order to work with patients that may have different backgrounds.

Our team incorporated senior care into our social justice curriculum to educate residents about the unique health care needs of the older population, intersections with other marginalized communities (e.g., individuals with HIV, refugees, unhoused individuals), and issues that could arise such as ageism and elder abuse. We hope this curriculum provides a meaningful experience and difference in residents' training to apply to their future practices while also emphasizing the urgency for nationwide attention to social justice in medical education.

Approach

We developed this social justice curriculum for the UCSD Internal Medicine Residency, Primary Care Pathway, which encompasses six topics: correctional health, senior care, environmental justice, trauma-informed care, homeless medicine, and refugee health. It is a two-year longitudinal curriculum in which each topic has didactic lectures paired with in-person visits with community partners. Throughout the academic years, we scheduled half-day sessions at each of the community sites.

For the senior care topic, literature reviews were conducted on PubMed articles to gather information about best practices for geriatrics, ageism in health care, and elder abuse screenings. Search terms included: "ageism" AND "elder care"

(n=32 results), “best practices geriatrics” (n=2,614 results), “screening for elder abuse” (n=932 results), and “family support” AND “elders” (n=2,812 results). Of these, 20 articles were selected to summarize major themes into a document that is provided to residents during the curriculum. Keeping these guidelines in mind, the residents will visit a San Diego nonprofit organization, Serving Seniors, to learn from health educators, conduct health screenings on older adults, and participate in a Q&A session to discuss further practices that can be applied toward their career. A survey will be conducted before and after the curriculum to assess for knowledge, attitudes, and skills related to senior care, course effectiveness, and satisfaction.

Our project addresses the “health system improvement” and “change agency, management and advocacy” domains of health systems science, with a focus on “population, public, and social determinants of health.” By implementing a social justice curriculum, we hope to improve the residents’ training and future patient encounters. Through discussing issues like elder abuse, ageism, and older adults experiencing homelessness, for example, residents will be better equipped, well-rounded, and self-assured when seeing diverse older patients who may be additionally marginalized by society. From the Serving Seniors visit, residents can gain perspectives of the older adults they interact with. This will provide a better foundation and influence how the physicians can manage and positively advocate for patients’ health. Our research strives to model a social justice curriculum that improves the medical education system.

Outcomes

The literature review results were compiled into a comprehensive document containing important findings and tips that physicians can refer to when providing care to diverse seniors. Some examples of these best geriatric practices are as follows:

1. Collaborate and create goals important to the patient
2. Avoid language that can be negative to older adults
3. Communicate with other health care professionals involved in a patient’s care to establish an interprofessional team
4. Create a customized exercise program that aligns with a patient’s abilities and interests
5. Assess fall risk when necessary, as risk increases with age, and provide recommendations to reduce falls

6. Reduce or eliminate unnecessary medications
7. Use language older patients can comprehend, address concerns, and allow time for questions
8. Educate caregivers and the public about elder abuse

Applying these guidelines into clinical practice for senior care can benefit patients’ experiences. These skills allow physicians to focus on the unique health care needs of older adults who are also marginalized by society with intersecting identities (e.g., older immigrant), communicate clearly and inoffensively, and truly understand how to advocate for their patients’ goals. By continually training physicians with these best geriatric practices, we are benefiting the health system as more physicians will be confident, collaborative, and compassionate toward senior care, which is necessary to ensure physicians are prepared to treat diverse older adults as the patient population increases.

The social justice curriculum is implemented in UCSD’s Internal Medicine Residency, Primary Care Pathway starting the 2022-2023 academic year. In this ongoing project, we will assess resident knowledge, attitudes, and skills, along with its effectiveness with pre- and post-curriculum surveys. Our goals for this project are to successfully implement this curriculum and obtain positive feedback. As the curriculum involves education and community-based interaction, we are optimistic that it will be well-received by the residents and positively impact their perspective on social justice issues that can be affecting patients’ lives. Moreover, we hope this project can inspire more medical education programs to incorporate a similar curriculum and provide comprehensive training to physicians that allows them to better educate themselves on social justice issues.

Personal impact

This project has given me the opportunity to learn and better understand the social justice issues our health care systems face. From researching senior care, elder abuse, and ageism in health care, I gained insight that I will carry into my future practice as a physician and tools to share and educate future colleagues about these topics. Whether it is using elder-friendly language, collaborating with the patient to create goals, or educating caregivers and the public about elder abuse, these clinical practices all sum up to generate a favorable experience for the patient while strengthening our health care system as a whole.

Our current medical education system has limited training on social justice and certain diversity, equity, and inclusion topics. It is important as health care providers to be educated on challenging issues that may arise with patients who experience trauma, inequality, or discrimination as our goal is to establish trust with our patients in order to advocate and provide the best care to them. It is inspiring to see our team take initiative and have programs such as UCSD implement this curriculum for their residents to provide a stronger foundation and skillset that physicians can utilize for their patients. I am grateful to be a part of this project as it allowed me to design and apply systems-level changes within medical education. I look forward to seeing the positive impact of this social justice curriculum, which motivates me to continue improving medical education as a physician and leader.

University of Pittsburgh School of Medicine Social Medicine Fellow Orientation Week Neighborhood Visit

Project lead

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Teammates

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Faculty mentor

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Project location

University of Pittsburgh School of Medicine

Abstract

Up to 90% of health outcomes are determined by social factors, making it essential for medical learners to understand and engage with their surrounding communities. While learning about neighborhood contexts of patients has been incorporated into some graduate medical education programs, initiatives that target early exposure of undergraduate medical learners to communities are more limited. The University of Pittsburgh School of Medicine's (UPSOM's) Social Medicine Fellow Program (SMFP) is a cohort of students committed to medical education, advocacy and service in accordance with Pittsburgh neighborhoods' needs and assets. Here we describe an SMFP designed orientation week neighborhood immersion event in which UPSOM's entire first year medical class interacts with social and structural determinants of health (SSDH) curricular content from the beginning of their medical education. Student small groups, accompanied by facilitators, will engage with multiple community-based organizations with the aim of exploring their specific neighborhood's history and present context while also interfacing with structural competency principles.

Project addressed/problem discovered

To effectively improve health outcomes and achieve health equity, our health systems and the collaborators within them must attend to SSDH. Still, despite the demonstrable impact of social, environmental and economic factors on health status, a recent study¹ reported that undergraduate medical education (UME) programs do not routinely emphasize SSDH education to the same magnitude as basic or clinical sciences. Furthermore, though an increased interest has been noted in SSDH in medical education, a scoping review of UME² highlighted a continued need for identifying

effective instructional tools. Consequently, our project seeks to create a framework in which students approach their medical education with SSDH principles in mind from the outset. Placed during orientation week, our neighborhood visit is designed to give students an introduction to SSDH, identifying community assets, respectfully partnering with community organizations, and highlighting the importance of advocating at the community level. Additionally, there is notable historic exploitation of marginalized communities located close to academic institutions, as not all collaborative work has been to mutual benefit. Our neighborhood collaboration strives to bridge this gap by utilizing community partners as guides to curricular content.

Approach

In the weeks leading up to our neighborhood visit, first-year medical students will engage with an SMFP developed primer on SSDH and respectful community engagement, a brief history of their assigned neighborhood, and a demographic overview of residents. They will also explore their community beforehand in a Google Maps virtual tour and identify the relative distance and concentration of shops, businesses, parks, organizations and other community infrastructure. The first-year medical class will depart from the main medical campus in small groups accompanied by small group and faculty facilitators and travel via public transit to five historically under-resourced communities with long-standing connections to the SMFP. To ensure accessibility, accommodations including school provided transport and shortened walking distances will be made so that all students can participate. Students will then proceed to scheduled appointments with multiple community-based organizations (CBOs), noting built environment, transportation access, and

walkability along the way. Our community collaborators both enhance and highlight assets and address needs in a variety of sectors spanning housing, food access, literacy efforts, social and community gathering places, youth development, and advocacy.

Subsequently students will reconvene for a facilitated debrief session on the day's events, reflect on assets-based philosophy in community partnerships, and introspect on their capacity for change agency. Students will then complete a feedback survey to help inform future SMFP content. From a core functional domain perspective, our project hopes to bolster curriculum with population, public, and social determinants of health principles. Additionally, this early experiential learning aims to hone medical learners' cultural humility skills. From a foundational domain perspective, the neighborhood visit intends to educate all UPSOM students on community organizations that can support their future patients after patients leave the clinical setting. By highlighting resources that bridge gaps between social determinants and health outcomes, our medical learners will be better prepared to advocate for their individual patients throughout their medical education.

Outcomes

As is written in the AMA Accelerating Change in Medical Education Consortium book, *Health Systems Science* (HSS), "the development of new types of physicians and health care professionals who are competent in all three medical sciences [basic, clinical, and health systems science] is required for both the patients for whom they will care and the health of society as a whole." To that end, one of our project's four primary goals is to integrate and emphasize HSS and SSDH concepts at the very start of the medical experience. By collecting student feedback throughout SMFP programming, we hope to get a sense of the effectiveness of our approach. It is also often easier to incorporate SSDH curricular components in the first two years of undergraduate medical education. Our second goal is to establish familiarity and context for some of the diverse populations medical students will care for during their education. By providing early exposure we hope to encourage students to pursue SSDH-related enrichment of their education as well as be better prepared for their clinical encounters. Our third goal is to introduce principles of social and structural competency, particularly that of cultural humility. These foundations will help us prime students for later curricular events surrounding refugee and immigrant health as well as introduce an assets-based perspective. By

understanding structures that result in health inequities, students will be better able to advocate for health systems reform, community mobilizing and policy change. Lastly, our fourth goal is to continue to foster relationships of mutual benefit with community partners, and further build trust between our academic institution and nearby neighborhoods.

Personal impact

The UPSOM Neighborhood Visit, being a true team effort, impacted the development of its five team members in a myriad of ways. One common thread among the group was that designing the neighborhood visit brought team members closer to their future patients' communities and the CBOs that serve them. It helped us appreciate each of our neighborhoods' unique set of values and resources and fully internalize asset mapping as a skill to recognize community strengths as well as needs. For one of us, witnessing what a valuable asset a community can be to a patient, inspired the desire to pursue family medicine as a highly engaged physician, known by the community. As a group it also reaffirmed that social medicine education should be a collaborative effort, actively seeking input from local community members rather than merely relying on our own perspectives. As the Medical Education Committee of the Social Medicine Fellows Program, this work allowed us to hone our skills as teachers, something we perceive to be crucial to our future careers. It was a deep dive into engaging in medical education and deliberating on the innovative, enjoyable, ethical, and effective ways one might enhance the educational experience of incoming medical students.

Sources

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Hypertension



Hypertension in Guatemala's Public Primary Care System: A Needs Assessment Using the Health System Building Blocks Framework

Project lead

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Project location

University of Colorado School of Medicine and School of Public Health

Abstract

Uncontrolled hypertension represents a substantial and growing burden in Guatemala and other low- and middle-income countries. As part of the formative phase of an implementation research study, we conducted a needs assessment to define short- and long-term needs and opportunities for hypertension services in Guatemala's primary and public health system. We used a mixed-methods and multi-level evaluation using the World Health Organization's health system building framework. We conducted semi-structured interviews with various stakeholders and focus groups with patients and front-line auxiliary nurses. We identified eight significant challenges and three opportunities for hypertension service delivery. This needs assessment used the building blocks framework and highlights contextual factors in Guatemala's public health system that will inform the implementation of a hypertension control trial. Understanding the significant challenges and opportunities will be vital to enable sustained implementation and scale-up of a hypertension control intervention.

Project addressed/problem discovered

Uncontrolled hypertension represents a substantial and growing health burden in Guatemala and many other low- and middle-income countries (LMICs). Hypertension is the leading preventable risk factor for cardiovascular disease, premature death and disability worldwide. A survey conducted in Guatemala showed the prevalence of hypertension in adults older than 40 years is 41%. In Latin America, hypertension is the most critical risk factor for coronary heart disease and stroke. Despite such a high prevalence, the proportion of patients who are aware, treated and controlled is low.

Many health systems, especially in LMICs, lack developed programs addressing non-communicable diseases (NCD). In general, health systems in LMICs prioritize infectious disease and maternal and child health over NCDs. However, with the changing demographics and epidemiological transitions, NCDs are becoming more prevalent in LMICs. This puts a double burden of disease on LMICs, which health care

systems in these areas are not equipped to address. There is recognition that health systems in LMICs need support to improve their capacity to deliver interventions focused on managing NCDs.

This project aimed to address the primary needs of the public health system in Guatemala with respect to hypertension prevention and management. This project addressed vital areas to be strengthened and provided recommendations and implications for preventing hypertension and other NCDs within Guatemala's health system. This needs assessment serves as a baseline assessment of the public health system concerning hypertension prevention, detection, and treatment within the public primary care system.

Approach

The primary approach for the needs assessment was using the World Health Organization's (WHO) health system building blocks framework. This framework helps define priority needs within different countries and health care systems. The six building blocks are service delivery, human resources, medications and technologies, health information systems, financing, governance, and leadership. This approach provides a way of viewing a health system in its entirety and addresses several health systems science domains.

We conducted a multi-level needs assessment from a "health care structure and process" domain. The Guatemalan health system is organized into three main levels of care. The first level is health posts that serve the local community; the second is health centers that serve municipal needs, and the third is hospitals that serve regions. These three levels are connected by referral networks. From a health system improvement standpoint, we interviewed various national, departmental, district, and community stakeholders to identify challenges they face that can be addressed or improved. Clinical informatics and health technology were accessed by visiting health posts and health centers to capture data about infrastructure, accessibility, human resources, reporting, medications and supplies. We focused on collecting data from urban and rural settings for a population, public and social determinants of health perspective. We also prioritized conducting focus groups with patients, family members and front-line providers to identify socioeconomic challenges in this domain. We also engaged participants within the Ministry of Health in Guatemala, including area directors and team members in chronic disease programs at the governmental level, to get a better understanding of essential health care policy and economic challenges.

All interviews and focus group qualitative data were transcribed for analysis. We used a combination of grounded theory and a framework analysis applying the health systems building blocks framework. The first coding cycle focused on the six main building blocks and the second on implications for the hypertension control intervention and short- and long-term needs. Quantitative data were collected on-site and entered into a web-based database by RED-Cap.

Outcomes

We conducted 83 total interviews and six focus group discussions. Seventeen interviews were conducted with key informants at the central level in Guatemala City. We conducted interviews with the Ministry of Health providers and staff at all three levels of the health care system: seven at the departmental level and 25 at the district level and health post level. Twelve community leaders and 19 patients and family members were interviewed. We conducted three focus group discussions with auxiliary nurses and three with patients.

Significant challenges identified by stakeholders were: an infrastructure gap, inequities in coverage between urban and rural areas, insufficient staffing, limited training in hypertension management, high staff turnover, lack of blood pressure monitors, limited and inconsistent supply of medications, lack of data capture and reporting practices, and a low level of dedicated funding from the public health system. Opportunities that were identified to strengthen the health system at the community level were: implementing a model of service delivery that is organized to combine community and clinic work to follow up patients with chronic conditions, an eagerness from health care providers to learn more, and an interest from patients to become more involved in managing their health.

This needs assessment has directly informed current studies and presents an overview of the needs of that health system. This project helped Guatemalan health officials design a sustainable infrastructure that will enable the scale-up of this intervention if proven effective and will be central to reducing existing health inequities in cardiovascular health care. This project provided essential insights that allowed our team to tailor the design of the hypertension control intervention approach and identify priority areas for ongoing and rapid analysis throughout the intervention. This project contributes to the WHO systems building blocks method and the field of implementation and systems science as it relates to

understanding how to capture and analyze multi-level health system contextual data for chronic disease service delivery programs in LMICs.

Personal impact

This project had a profound personal impact on the development of my identity as a physician. I was able to grow a deeper sense of duty not only to provide care for underserved and historically marginalized communities but also to address structural barriers that contribute to adverse health outcomes. This project gave me a solid foundation to advocate and understand what some patients may feel when managing their chronic conditions and how to initiate structural changes in health systems. Upon completing this project, I was able to amplify my focus on learning about serving communities in a global health setting and combating structural inequities in health.

When I think of my future role in medicine, I envision being a physician prepared to face a broad spectrum of clinical scenarios while attempting to address the social determinants of health using health systems science. This project has motivated me to use my clinical experiences to identify upstream causes that lead to inequities, an invigorating challenge I could enjoy doing for the rest of my career. I endeavor to be a positive force in advocating for individual patient needs and health systems changes for a healthier and more equitable world.

Quality Improvement: Patient Education for Management of Hypertension in Pregnancy

Project lead

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Teammates

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Faculty mentor

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Project location

Wright State University Boonshoft School of Medicine

Abstract

The aim of this project is to assess the effectiveness and efficiency of patient education tools for hypertension in pregnancy.

Pre-intervention education included discussing the symptoms and management of hypertension in pregnancy with patients. Pregnant women with hypertension completed an anonymous questionnaire including questions for objective (actual) knowledge and self-reported (perceived) knowledge about hypertension using the patient questionnaire. Providers were surveyed before and after introducing the tools. Two interactive education tools were introduced for the intervention.

Our results revealed that after the intervention, actual knowledge of hypertension in pregnancy increased slightly (1.7 ± 1.3 pre-intervention vs 2.2 ± 1.0 post-intervention ($p < 0.05$). Perceived knowledge remained similar pre and post intervention (4.2 ± 1.0 vs 4.5 ± 0.7). Providers also reported increased satisfaction using the new tools, increased patient comprehension, and confidence, all with p values < 0.001 . Providers also reported a significant decrease in time (minutes needed for education) with the new tools (17.8 ± 8.5 vs 7.8 ± 4.3 ; $p < .001$). After introducing the new tools, patients had higher actual knowledge scores, providers rated higher scores for patient knowledge, and providers reported needing less time for education.

Project addressed/problem discovered

Patient education is a key factor for managing health conditions such as hypertension in pregnancy; however, variability in patient health literacy presents a challenge for the provider-patient discussion and the types of educational materials used. The American College of Obstetricians and

Gynecologists recommends providers enhance patient education by using plain nonmedical language, taking time to speak slowly, reinforcing key issues in print that contains pictorial information, and requesting feedback to indicate understanding.

Current educational materials are limited to brochures and handouts that include lengthy, often technical, information about hypertensive conditions. Providing education about preeclampsia during prenatal care can improve outcomes for women with a hypertension in pregnancy diagnosis. However, the average readability of available preeclampsia materials exceeds the recommended 6th grade reading level for patients. A recent review of available patient education materials for preeclampsia revealed that most materials included risks for developing preeclampsia as well as signs and symptoms, but other content varied with fewer materials containing information about outcomes and complications. The majority of materials were rated as poor quality in terms of actionable information for patients.

We introduced two maternal hypertension education tools to address health illiteracy in our patient population. By adding these tools to the current provider-patient discussion, we aim to improve patients' knowledge of their condition and their confidence for managing their condition. Health literacy is impacted by a patient's education level and ability to read and comprehend information related to their health. Many patients at the facility where we conducted our research (a federally qualified health center) did not finish high school, received poor quality education, or could not complete their education due to life stressors. As a social determinant of health, education level cannot be understated, and can be a significant barrier to accessing health care and appropriately

managing one's conditions which directly influence health outcomes. Our research seeks to address the need for improved health literacy among our patient population, specifically surrounding hypertensive disorders of pregnancy, which is a leading cause of maternal morbidity and mortality in the United States.

Approach

This quality improvement project was conducted on the resident staff service at the Five Rivers Health Centers, Center for Women's Health – a federally qualified health center. Target participants were patients who received one of four diagnoses for hypertension at any point during their current pregnancy, i.e., preeclampsia, gestational hypertension, chronic hypertension, and superimposed preeclampsia. Patients could be currently pregnant or recently postpartum and were seen during routine OB visits. Prior to the intervention, standard of care education for hypertension in pregnancy included a discussion about signs and symptoms of preeclampsia, monitoring blood pressure, and when to notify the provider of worsening symptoms. The effectiveness of the current patient education method was rated by providers using the provider survey. The survey included questions on the providers' perception of patient understanding, patient confidence after education, and amount of time needed for providers to complete the education discussion. Patient knowledge was assessed using the patient questionnaire that included objective knowledge questions and perceived comprehension ratings. At the end of the visits, eligible patients were offered an anonymous patient questionnaire to complete. The education intervention included enhancing provider-patient discussions with two graphics-based, interactive education tools to address literacy and communication barriers that may commonly arise during regularly scheduled OB visits. One educational brochure, *A Guide to Managing your High Blood Pressure*, was developed for this project. This interactive brochure includes graphics and simple text to provide information about hypertension, how to manage symptoms, and a space to write current blood pressure, next steps, who to contact and when to contact someone. The last page encourages providers to discuss and document personalized visit information. This activity promotes clear dialogue and active learning. By providing a resource for patients to interact with and ask their own questions during education, we placed agency back in the hands of patients. Having patients learn actively using these tools, we created a patient-centered form of education. Providers were taught at all staff meetings

how to implement these tools and included teaching on Ask-Me-3 and Teach-Back methods. Patients were also provided a second tool, Signs and Symptoms of preeclampsia, developed for and distributed by the Preeclampsia Foundation. Trained providers performed patient education using the two new education tools during OB visits as part of the clinic's new standard of care. At the end of the visits, patients were offered the patient questionnaire to complete. Three months after the implementation of the new education method, providers completed the provider survey to give feedback on the effectiveness and efficiency of the new education method. Gaining provider feedback on this new method of education was vital to ensuring we had high quality care that was also efficient. Measuring providers' views on patient confidence and comprehension, as well as the time needed for education and their satisfaction with the tools, was also important in order to improve the efficacy of the care at a low cost to patients and the health care facility, thus increasing the value of care.

Outcomes

Forty-five women completed the patient questionnaire at baseline after receiving standard of care hypertension education. Another 45 women completed the patient questionnaire after receiving education using the new education tools. Sixteen providers provided baseline feedback on the provider survey. Ten of those providers also provided post-intervention feedback on the survey. After receiving the standard of care education, patients rated their perceived comprehension as somewhat high (4.2 out of 5) on all three questions. The three questions prompted patients to rate their understanding of, ability to manage, and their empowerment to manage their condition. After receiving patient education with the new education tools, patients perceived their comprehension as high for all questions (4.4-4.5 out of 5). The increase in perceived comprehension (0.3 points) after introducing the new education tools was not statistically significant ($p < .10$). Patients' objective knowledge scores at baseline were low (1.7 out of 5) when averaging scores across all three questions. The questions prompted patients to list health consequences of hypertension, ways to manage their condition, and symptoms of hypertension that need to be reported. After receiving patient education with the new education tools, patients scored significantly higher on two of the three objective knowledge questions. The overall objective knowledge score showed significant improvement (+0.5 point, $p < .05$) after use of the new education tools.

At baseline, providers reported that the standard of care hypertension education method needed improvement [2.6 on a scale of 0 (needs improvement) to 5 (excellent)]. After the introduction of the educational tools, providers rated the new patient education method significantly higher than baseline (4.1 on a scale of 0 to 5, $p < .001$). In addition, providers reported higher patient comprehension (+1.0 point) and patient confidence (+0.9 point) after implementation of the new education tools (both were $p < .001$). Providers reported greater efficiency with the new education method in that it took an average of 10 fewer minutes to deliver patient education with the new education tools (17.8 min vs. 7.8 min, $p < .001$).

The addition of the two new educational tools to patient hypertension education improved patient perceived comprehension and objective knowledge compared to baseline. Providers rated the new tools as an improvement to the provider-patient education discussion and that they perceived higher levels of patient comprehension and confidence for managing their condition. Providers also reported a decrease in the time needed for education. This study addresses a need identified in the literature for patient materials to be at an appropriate level of readability. Our results are similar to the literature demonstrating improved knowledge after using graphic-based education tools. We add to the literature by extending the focus of the education tools beyond preeclampsia to include the larger population of women with any diagnosis of hypertension in pregnancy. An added benefit was a provider reported reduction in the time needed for patient education, a significant benefit in a busy OB clinic. This project benefited health systems through increasing efficiency of education at no cost, implemented a change in protocol which was patient-centered, and advocated for equitable care among patients of all education levels.

Personal impact

Hypertensive disorders of pregnancy are a major cause of maternal morbidity and mortality in the United States. Unfortunately, the signs and symptoms of severe disease

are subtle and non-specific, which can lead to delays in treatment, and increased risk of developing eclampsia or dying. Knowing these signs and symptoms, when to seek help, and what next steps to take must be emphasized to patients, and it is part of our duty as providers to make sure patients understand this. Though maternal morbidity and mortality in the United States is multifactorial, this research seeks to address one small but important component of reducing maternal death.

It can be easy for physicians to get lost in quickly describing medical conditions to patients and prescribing treatments. However, if patients don't have access to such treatments, understand the severity of their condition or how to appropriately manage their condition, or feel empowered to take care of their health, prescribing these treatments is futile. I often think of how many lives could be saved and how much health care spending could be reduced if providers took time to deliver comprehensive education, ensured patient understanding, and certified patient access to treatment.

I hope that when my patients are asked why they take a medication they never say "I just take them because Dr. Cooley told me to." I want my patients to be confident and knowledgeable about their health, and doing this work means tailoring language and education to meet the needs of the individual patient. Wherever I practice, I hope to learn our local patient population inside and out and be involved in the community so I can understand where our patients have barriers and meet them where they are. That's providing equitable care. This work has inspired me to turn my attention toward education on other health conditions in pregnancy, such as gestational diabetes. As an aspiring future OB/GYN, I hope that by empowering patients, together we can work toward helping them live the life they want.

Leadership



Evaluating Physician Executive Leadership Plus: Incorporating an Integrated Management and Leadership Curriculum Adjacent to Traditional Medical School Programs

Project lead

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Faculty mentor

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Project location

Sidney Kimmel Medical College

Abstract

The Physician Executive Leadership Plus program is a program aiming to provide students with the foundational knowledge to effectively work and lead in today's complex health care environment, cultivate their interests in all aspects of health care, and provide guidance from leaders and innovators in evolving fields integral to medical practice. The club provides medical students with unique opportunities to engage with industry executives to inform their future careers as leaders in health care. Our study aimed to assess the efficacy of this program's new curriculum through the administration of pre and post assessments that evaluated criteria such as confidence, team-based skills and interest. The results of our study showed an increase in student interest in fields explored by the curriculum, increase in team-based skills and increase in self-reported leadership confidence.

Project addressed/problem discovered

Leadership training of medical students has been cited as a core competency that allows future physicians to make macroscopic changes to our health systems that improve patient care. Physician Executive Leadership (PEL) Plus is a student-run management and leadership curriculum consisting of subject matter experts in medicine, design, business, engineering and population health to teach interactive sessions to first- and second-year medical students. The program includes teaching sessions that engage students within the domains of health systems science such as leadership, health policy, clinical informatics and value-based health care. The aim of this study is to evaluate the effect of an integrated leadership development curriculum on student confidence regarding leadership skills, management capabilities, and team-based skill using a survey-based approach.

Approach

A cohort of 24 first- and second-year medical students were selected to participate in the curriculum. Lecture sessions occurred once per week, with a total of eight lectures by executive leaders within our enterprise or adjacent medical organizations between September 29, 2021, and December 1, 2021, as well as a team-based capstone project. The curriculum focused on health care delivery and innovation, similar to topics found in master's of business administration programs and health care executive education courses. Sessions included Introduction to Healthcare Leadership, Population Health and Value Based Healthcare, Organizational Leadership Healthcare Strategy, Design Thinking in Healthcare, Data Science and Healthcare Informatics, Care Delivery Innovation, Healthcare Policy, and the Art of the Pitch. Each session was given by an executive in their respective field, making the lectures fully interactive. Students were also provided with mentorship opportunities within each field discussed after each talk.

A survey was given at the end of each session, excluding the first introductory lecture, to assess the session's impact on student interest level, confidence, and value of the given topic area (Likert Scale 1 - 5, 1 = strongly disagree, 2 = strongly agree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).

Outcomes

Students reported high levels of interest in the curriculum. As a result of the program, many students reported an improvement in leadership, team-based, and management skills. We attribute the receptiveness and impact of these sessions on students to the robust structure of the PEL Plus program. Given that the speakers were primarily executives

within our enterprise or adjacent medical organizations, we believe that they were able to spotlight novel perspectives and leadership skills not exemplified by most lecturers in a traditional medical education class. Students were then able to translate the skills they mastered into their capstone projects, highlighting a higher level of learning.

The results of this study elucidate a high level of impact on student confidence in leadership skills, management capabilities, and team-based skill through participation in extracurricular physician leadership development programs. While many medical schools have made efforts to expose students to aspects of leadership within extra-clinical fields such as design, business, engineering, and population health, our study demonstrates that by fostering a focused cohort to participate in extra-curricular longitudinal sessions, select students can significantly kindle their interests and confidence to learn more about these fields.

Personal impact

My work growing the Physician Executive Leadership Plus program provided me with the foundational knowledge to effectively work and lead in today's complex health care environment, cultivate student interests in all aspects of health care, and obtain guidance from leaders and innovators in evolving fields integral to medical practice. The organization provided me and my peers with unique opportunities to engage with industry executives to inform our future careers as leaders in health care. I can truly say this experience has greatly enriched my medical school experience, helped me to refine my leadership skills, and allowed me to target my career path.

First Aid for Health Policy: Developing the Next Generation of Health Care Leaders

Project lead

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Faculty mentor

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Project location

University of California, Davis, School of Medicine

Abstract

First Aid for Health Policy is a for-credit elective course at the University of California, Davis, School of Medicine composed of eight expert-led one-hour lunch time lectures focused on teaching basic political science and helping medical students build advocacy skills. By teaching the basics of how a bill becomes a law, the current structure of government, and how to conduct legislative visits, among other introductory topics, First Aid for Health Policy is helping medical students build the political science foundation needed to learn health systems science and become active participants in our current health system. The urgency and desire to acquire this knowledge is evident as 48% of our first- and second-year medical students have voluntarily completed the course to date. By emphasizing a simple and approachable manner to political science and health policy topics, First Aid for Health Policy is helping create the next generation of physician leaders.

Project addressed/problem discovered

Since the passage of the Affordable Care Act, the field of medicine has evolved and continues to require a deeper knowledge of health systems science. Specifically, an understanding of health policy and advocacy has become essential to be an active participant and create effective change toward a more equitable health care system. The need for this knowledge has increased as the COVID-19 pandemic exposed and exacerbated existing health inequities. Since the pandemic began, medical students have witnessed the intersection between health, policy, and advocacy in real time.

It is often assumed that entering medical students have a foundational understanding of political science and health policy even though these are not required courses for admission to medical school. At the University of California, Davis, School of Medicine, health systems science courses

were introduced during the first year of medical school for the class of 2023, but it quickly became apparent that a knowledge gap existed. Political science concepts such as how a bill becomes a law or the structure of government were not commonly remembered from high school civics classes and became a barrier for students to fully engage with the curriculum. To address this gap in knowledge, help medical students effectively engage with the school's health systems curriculum, and ultimately support the University of California, Davis, School of Medicine in developing physician leaders, First Aid for Health Policy was created.

Approach

First Aid for Health Policy's goal is to empower medical students to become proficient in health systems thinking, see themselves as agents of change, become leaders in health care, and advocate for their patients. By addressing the gap in foundational political science and health policy knowledge, students can dive into the health systems coursework set forth by the University of California, Davis, School of Medicine and become the physician leaders who serve our diversifying population.

Each fall, First Aid for Health Policy hosts eight one-hour lunch time lectures led by experts in their respective fields. The topics of these lectures include: a basic understanding of the structure of government, our current health care system, the process of how a bill becomes a law, the role of legislative visits, how to conduct a legislative visit, what health care foundations are, the role of non-profits, and health care systems around the world. These lectures purposefully build upon one another, are taught in a simple and approachable manner, and touch upon the health systems science domains of:

1. health care policy and economics
2. population, public and social determinants of health

3. value in health care, health system improvement
4. change agency, management and advocacy
5. leadership, and
6. systems thinking.

By addressing the gap in foundational political science and health policy knowledge, First Aid for Health Policy is helping empower the next generation of health care leaders to tackle the challenge of improving our health care system and providing excellent patient care. This course allows students to begin placing themselves within the health care system early in their medical education, begin to build a framework of medicine that is grounded in health systems science, and be active participants in local, state, and federal health policy discussions. These concepts are reinforced with subsequent coursework focused on payment models and frameworks used for quality assurance/quality improvement. More importantly, students are prepared to join the health care workforce during their clinical years with a better understanding of how the health care system works and how they can contribute to the creation of a more equitable system that meets the needs of our diversifying population.

Outcomes

First Aid for Health Policy was first offered during the fall of 2020 and was enthusiastically received by University of California, Davis, School of Medicine medical students. At a time when distance learning class attendance for other curriculum classes had dwindled, First Aid for Health Policy averaged a hundred students, faculty, and residents in attendance for each of the eight, one-hour Zoom-hosted lectures. Experts in their fields such as professors from the University of California, Davis, Center for Healthcare Policy and Research, executive directors from health advocacy non-profits, presidents of health care foundations, and representatives from the local medical association taught an introductory course about their subject matter expertise. The focus of these lectures was to present the information in a simple and approachable manner. To date, over 48% of the class of 2023 and 2024 from the University of California, Davis, School of Medicine have completed the course.

The enthusiasm for this knowledge extended beyond the classroom though. Some students immediately used their new knowledge and skill set to support causes they cared about. After the lecture on how a bill becomes a law, one student analyzed a bill that was moving through

the legislature and created an infographic that was shared on social media for the health advocacy non-profit they supported. The bill passed. Another student became aware of public hearings being held at the Sacramento Board of Supervisors and used their new skill set to make public comment in support of a health care initiative. This also passed. By introducing foundational health policy and advocacy topics in an approachable way, a culture shift has occurred at the University of California, Davis, School of Medicine. Students have been empowered to see themselves as agents of change, or champions for causes that hold significant meaning to them and are contributing to the creation of a more equitable health care system for all patients.

With the success of First Aid for Health Policy at the University of California, Davis, School of Medicine, my goal now is to adopt similar curriculum at other medical school campuses throughout the country and empower other medical students as well.

Personal impact

Developing First Aid for Health Policy has been an empowering endeavor that has had a profound impact on my development as a physician. This work has helped shape my identity as a future physician leader with a skill set that is additive to my medical knowledge and can help create a more equitable health care system.

As someone from a low-income community who has benefitted from the advocacy of physicians and safety net policies in place, seeing the enthusiasm from my classmates to acquire this knowledge, and even use it immediately, has made me optimistic and encouraged for the future of our profession. It has been an honor and privilege to have played a role in helping my peers realize their potential and feel empowered to participate in health systems thinking.

I firmly believe that my generation of future physicians is embracing the sociopolitical landscape of medicine and the need to be trained in health policy. First Aid for Health Policy is helping create the next generation of socially conscious physician leaders. I am humbled to have had such an impact and look forward to collaborating with other future physicians to create a health care system that allows all people to thrive, not just survive.

Cultivating Future Leaders in Health Care Delivery Science Through a Longitudinal, Immersive Learning-Focused Curricular Thread

Project lead

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Teammates

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Faculty mentor

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Project location

University of Chicago Pritzker School of Medicine

Abstract

Medical school graduates enter a complex health care delivery system (HDS) relying on interprofessional teamwork and value-based patient care decisions. The VISTA program is a longitudinal series of didactic sessions and standardized-patient simulations training students in value of care, improvement science, safety of patients, team training, and advocacy (VISTA). Graduates before and after VISTA implementation completed a mixed-methods survey with 25 five-point Likert-item questions assessing attitudes, knowledge, and behaviors on HDS topics and a free response question soliciting areas for improvement. VISTA graduates reported a significantly higher percent competence on all HDS-related questions compared to pre-VISTA graduates. The two questions exhibiting the greatest increase in competence addressed topics taught through immersive learning. Two of the three questions with the greatest increase in competence were associated with intended practice behaviors. Thus, integrating longitudinal, experiential training on HDS into medical school curricula can improve competence and change the way future physicians practice.

Project addressed/problem discovered

Medical school graduates enter a complex health care delivery system relying on interprofessional teamwork and multifaceted value-based patient care decisions. However, current medical school curricula on health care delivery science (HDS) are fragmented and primarily didactic. We set out to implement and evaluate a longitudinal, skills-based, immersive learning curriculum in HDS to provide medical students with the skills to advocate for a better health care system for patients.

Approach

The VISTA program (value of care, improvement science, safety of patients, team training, and advocacy) was segmentally integrated into all four years of the University of Chicago Pritzker School of Medicine curriculum starting in 2016. Graduated students from the Class of 2018 onward engaged in the completed VISTA thread. Key components include UNITE (a nursing interprofessional experience), the "Room of Horrors" (a patient safety OSCE), the Discharge OSCE (for practicing patient discharge), and training on using the Choosing Wisely® smartphrase (value of care). Graduates before and after VISTA implementation completed a mixed-methods survey with 25 five-point Likert-item questions assessing attitudes, knowledge, and behaviors on HDS topics. A free response question solicited areas for improvement. Data was collected from 2016-2020, with classes of 2016 and 2017 considered pre-VISTA and 2018-2020 considered post-VISTA. The Likert data was dichotomized and analyzed using chi-square testing in R (4.0.4).

Outcomes

Response rates were as follows: 126 graduates (~72%) pre-VISTA and 120 (~45%) graduates post-VISTA. Graduates who underwent the VISTA program reported a significantly higher percent competence on all HDS-related questions compared to pre-VISTA graduates. The three questions with the greatest percent increase in competence were (respectively): "I will communicate effectively with other health care team members at the time of discharge" (39% increase), "I know what a safety event report is" (38% increase), and "In my future clinical decision-making, I will consider the potential costs to the health care system" (37% increase). Two of the above questions addressed topics taught through immersive

learning-based interventions (discharge OSCE, patient safety OSCE), and another two were associated with intended practice behaviors (communicating effectively at discharge, considering potential costs to the system).

Qualitative analysis revealed that VISTA graduates possessed a more thorough understanding of HDS and craved more nuanced knowledge. This includes asking for additional practice “speaking up when an unnecessary test is being ordered” and “hands-on experience with quality improvement issues, including root cause analysis.”

Our next steps include integrating and expanding upon the VISTA components in the design of the new Pritzker School of Medicine curriculum. This will include developing further value-added roles for students as well as immersive learning exercises from the first day of medical school through graduation.

Personal impact

My work on this project has instilled into me the true importance of medical education in shaping the physicians of tomorrow. As an aspiring medical educator, I was reassured to see that real changes could be implemented that would result in graduates who were better equipped to care for their patients in a health care environment that’s incredibly complex and involves significant decision-making outside of direct patient care. As a participant of the VISTA program myself, I’ve experienced first-hand how our didactic and immersive learning interventions have equipped me to better care for patients in the hospital. This work has not only reassured me of my dedication to pursuing a career in medical education but inspired an emphasis on health care delivery education for my future work.

Opioid epidemic



An Innovative Medical Education Approach to Harm Reduction and Opioid Overdose Prevention

Project lead

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Teammates

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Faculty mentor

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Project location

A.T. Still University–Mesa Campus

Abstract

Opioid-related deaths have skyrocketed to more than 100,000 individuals annually, more than motor vehicle accidents and gun deaths combined. Despite abundant evidence supporting the effectiveness of harm reduction in saving lives, harm reduction and naloxone training remains underutilized in both the community and medical education.

To address this need, first-year medical students at A.T. Still University started the Harm Reduction Club and hosted a series of educational sessions. Our club coordinated training for students, faculty and staff to improve their knowledge, attitudes and skills related to opioid overdose prevention. In addition to traditional naloxone training, we addressed stigma and misinformation by facilitating connections with patients with lived experiences of homelessness and drug use in the community. Identifying a gap in the literature, our team studied this unique combination of teaching strategies to develop an effective model to advance opioid overdose prevention education and save lives.

Project addressed/problem discovered

Now in the third wave of the overdose epidemic, there are nearly 300 opioid-related deaths daily, and most are associated with synthetic fentanyl analogues. At the intersection of this epidemic is the reality that these deaths are preventable. Thousands of people are dying as a result of social and health care system failures, lack of awareness within the medical community, misinformation and stigma. Our team recognized the opportunity to complement the medical education curriculum to address community needs. In pursuit of osteopathic excellence, we developed a strategy to further develop competencies in additional aspects of whole-person health care. Recognizing the need to develop

a deeper understanding of the lives of active drug users and those experiencing homelessness, we paired naloxone training with a lived-experience community panel to address stigma and misinformation and facilitate connection in our community. Our project addressed both educational and structural barriers in overcoming opioid overdose stigma and preventing overdose. We identified three types of educational gaps: knowledge, skills and attitudes.

First, we addressed the lack of awareness and knowledge related to harm reduction and prevention of opioid overdose. By connecting students with individuals in the communities where we serve, we strived to increase empathy and collaborative teaming with the community.

The second aim was to increase future physician skill in identifying opioid overdose and overcoming barriers to obtain and carry naloxone. This corresponds with “leadership” and “health care structure and process” domains. Lastly, this project addressed stigma and attitudes toward people experiencing homelessness and people who use drugs.

Approach

This training was designed to address the lack of knowledge related to naloxone pharmacology, how to obtain naloxone, and identifying opioid overdoses in community settings. Additionally, we addressed misconceptions about civil liability related to carrying and administering naloxone. Our training event examined key strategies to achieve a better understanding of the overdose epidemic by bringing the community into the classroom. We hypothesized that creating a bridge between our trainees and people with real-life perspectives of people who use drugs, people experiencing homelessness, and community harm reduction leaders would foster the necessary gateway to ameliorate

gaps in care. Our approach aligns closely with the “health care structure and process” domain as we began “focusing on how individuals, institutions, resources and processes are organized to deliver health care.”

Our training employed a novel delivery model focused on learning from community harm reduction leaders and people with lived experience of homelessness and substance use. Since syringe exchanges and other community-based harm reduction programs are the lowest-barrier way to get naloxone into the hands of people who need it most, we created a seminar with Shot in the Dark, a local harm reduction organization. Our seminar created a unique blend of education and powerful story-telling that created a dynamic understanding of drug use, overdose, homelessness and the points at which we can intersect to support our community.

Research shows that 90% of overdose reversals are done by people who use drugs, therefore, we created a panel of experts from the community of active drug users to ground our understanding from a health care structure and process standpoint.

This project aimed to identify and reduce biases and stigma toward our target population. This included dispelling misinformation and reducing stigma related to homelessness and drug use. Our team studied this unique combination of teaching strategies to develop an effective model to advance opioid overdose prevention education and save lives.

Outcomes

This training served as a groundbreaking tool to break down barriers of care and develop empathy in the classroom. Our pre-intervention survey showed that only 58% of participants felt they could identify an opioid overdose. However, after the seminar 100% of survey participants reported that they felt confident in their ability to identify the signs and symptoms of an opioid overdose. Additionally, we tracked a participant’s confidence in their ability to administer naloxone to someone experiencing an overdose with an initial confidence mean of 2.1 (range 1–5) with nearly half (49%) of the participants reporting “not at all confident” before the seminar. After our training the mean increased to 4.05 and zero participants reported “not at all confident.”

Statistical analysis using a t-test demonstrated significance in the multiple domains including:

1. Participants’ confidence in administering naloxone during an overdose

2. In the universities prioritization of the needs of people who use drugs
3. Comfort level interacting, performing acute care, wound care and social service support with people who use drugs

Implementing a harm reduction perspective into a training designed for medical students required deep introspection into the ways we have created systems of exclusion. This process enabled us to identify structural barriers, particularly toward our homeless and active drug user community, and the policies that were inherently built into our educational system that historically does not value the community’s voice in education. In designing this seminar, we recognized the opportunity to learn from and, in turn, compensate our panelists with lived-experience. Participants were granted an inside look at the real-world challenges and lives of people who were actively homeless and living within the intersection of drug use, medical stigma and daily discrimination. Institutional barriers that had previously excluded our unbanked panelists from compensation were overcome as this project highlighted the need to create spaces of healing for the communities that we have the privilege of learning from and serving as future physicians.

In addition to the significance of our results, one of the most transformative effects of this study continues to be the messaging from our panelists and their ability to take part in shaping future physicians.

Personal impact

A.T. Still University has a mission to prepare individuals through high-quality, innovative, learning-centered undergraduate and graduate medical education programs to become compassionate osteopathic physicians and health care leaders who serve medically underserved populations with a focus on research and community-oriented primary care.

Creating and developing this new learning seminar has given students the opportunity to learn, listen and engage with our most impoverished communities from the first year of their medical education. This impact cannot be understated. As medical schools across the country continue to create new developments of learning, having an opportunity to engage with the community directly affected by the overdose epidemic has created deep and lasting change within our student body. Many students left our seminar remarking that this was the most impactful and best event they attend all year.

We believe that the impact of our training has created lasting relationships, built bridges into our houseless community, and established trust and rapport that is often deeply challenged. This connection and empathetic approach to our education has transformed us into better future leaders and physicians for our underserved and impoverished communities. Passing the microphone and providing space to hear directly from our community made these calls for help real and heard. We hope that trainings like this, that facilitate the voice of people with lived experience and strengthen connections with the community, will create a deeper understanding of the ways medical professionals can work with our houseless community.

Telehealth



Bridging the Digital Divide

Project lead

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Teammates

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Faculty mentor

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Project location

Florida International University Herbert Wertheim College of Medicine

Abstract

The Neighborhood Health Education Learning Program (NeighborhoodHELP) is Florida International University Herbert Wertheim College of Medicine's longitudinal service-learning program centered on providing care for underserved communities and uninsured individuals in Miami-Dade County. With the onset of quarantine restrictions and limited person-to-person contact brought upon by the COVID-19 pandemic, NeighborhoodHELP was tasked with transitioning to online telehealth services in order to continue to provide health care to households in our target communities. However, this transition highlighted a disparity particular to many of our households, lack of proper internet connectivity as a barrier to health care access. In an effort to bridge this digital divide, students and faculty created an initiative centered on improving household access to care through assessment of needs and provision of resources for internet connectivity, devices, and training on online applications.

Project addressed/problem discovered

The COVID-19 pandemic demanded sweeping changes to health care delivery. Telehealth became necessary to provide some essential health care services. While accessible for some, those lacking internet connectivity were left unable to access these services. These disparities were further compounded by the economic hardships brought on by the pandemic, forcing many households to forgo internet to pay for other essentials.

Providing for over 800 low-income families in the South Florida community, the Florida International University (FIU) Herbert Wertheim College of Medicine (HWCOM) Green Family Foundation Neighborhood Health Education Learning Program (NeighborhoodHELP) witnessed the effects of limited internet access firsthand. Upon transitioning to a Zoom telehealth-based system, over 150 households were identified as having

limited to no internet access, making telehealth visits virtually impossible. Facing this issue, HWCOM students and faculty created the "Bridging the Digital Divide" Initiative.

Our primary aim was to assess the needs of identified households through phone surveys and aid them in the application of appropriate resources. Secondary aims include the provision of internet subscriptions and devices through grants and Zoom learning sessions to improve platform navigation.

Our health care delivery model consisted of the NeighborhoodHELP Outreach team, students, and faculty volunteers. Household needs were assessed on internet connectivity, device needs, and technological literacy with regards to Zoom.

We identified 157 households that had a current or previous need for technological assistance. With many families losing work, having limited financial support, and having limited access to health care services, technological need became a major concern within many of our households.

Approach

To address limited internet access as a component of social determinants of health and as a barrier to health care, our first objective was to assess the specific needs among the 157 households with limited or no internet access previously identified by the NeighborhoodHELP

Outreach team. NeighborhoodHELP Outreach identified households using the NeighborhoodHELP Health Risk Profile (HRP), a population health tool developed to assess a household's social needs in ten social determinants of health domains and then translate the information into a scale rated from 1-5 for each domain. Lower numbers are associated with greater need. Households who had an HRP

Technology rating of 1–2, indicating limited to no internet access, were selected for outreach and intervention.

We recruited a group of 27 medical student volunteers who were tasked with the assessment of each household's specific needs based on three major categories: 1) access to internet connectivity at home, 2) device needs, and 3) technological literacy of online applications specifically Zoom—as a barrier to telehealth. We structured the intervention using quality improvement principles. Volunteers assessed households using a premade survey and script to ensure that all household technological needs were properly identified and addressed.

Following completion of the survey, volunteers would share relevant resources from an amassed list and aid in applying for specific resources, should the household decide to apply. Households were then given means to contact volunteers should they need additional assistance or have further questions. All contacted households will be called yearly for further assessment of need and updated resource allocation. Volunteer recruitment, organization, survey construction, script writing, and resource list accumulation were managed by the FIU Rotaract Club.

Secondary aims of the project include the provision of internet subscriptions and devices to our households through grants and Zoom learning sessions to improve platform navigation for telehealth services. In addition, student volunteers are currently working on establishing an in-person Zoom learning session at the North Miami Beach Public Library, a central location for most of our households.

Outcomes

In our first batch of calls, our student volunteers were able to contact 130 of the 157 identified households and offer resources for their specific needs. As an ongoing initiative, impacts of the initiative will be further assessed based on subsequent review of the HRP technology ratings following a year of intervention. A technology rating of 3 or above will signify a positive result and outcome.

The primary goal of this initiative is to improve internet access among our households with the most significant technologic need in order to improve their access to telehealth services. Secondary goals of this initiative would include improvement of access to online education, schooling, health information, and employment opportunities among these indicated households. Additionally, through grant application, we

aim to directly provide technologic devices and internet subscriptions for those indicated households in need. With implementation of the Zoom learning sessions, we hope to improve technological literacy among our households.

We are proud of the fact that our program also laid the groundwork for a system of ongoing intervention, including yearly assessments and continued resource provision. This program has continued to work with the NeighborhoodHELP Outreach team in identifying households in technological need. Through our program, we were able to establish a system of practices to achieve our goals and continue to help our NeighborhoodHELP communities for years to come.

Personal impact

"Today, to be without internet makes me feel like I've been erased from society."

Of all the conversations I had with patients throughout this project, that is the one quote that has never left me. I feel it sums up the importance of this project for patients as well as the impact it has had on my development as a physician. It almost feels cliché to say that the internet is something we often take for granted, however, this project showed me that patients without internet access become invisible even to some of our most rigorous safety nets. So many programs have been developed to help at-risk patients, yet the majority of those programs require internet access. Therefore, without this, patients are unilaterally disconnected from services that will never be aware of them since their own metrics are often based on utilization of online programs.

As a future physician, this program has helped me to be more keenly aware of my "invisible patients." This manifests itself in more nuanced conversations with patients about the true ease of access to the resources we provide as a point of care and more importantly, it has given me a deeper appreciation of the importance of what are true necessities in our modern age — "basic needs" are no longer simply food, water, and shelter. Today, they crucially involve access. In an era where we rightly place so much importance ensuring people are "seen," I feel this project has taught me how to look.

Systems-Based Approach: Tele-Outreach Program Fills Gaps in Pediatric Access and Care

Project lead

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Teammates

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Faculty mentor

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Project location

University of Pittsburgh School of Medicine

Abstract

Annual well-child visits (AWCVs) are important for evaluating patients' well-being. The CATCH program utilizes tele-outreach to schedule AWCVs for patients lost to follow-up and offers access to community-based resources to address families' unmet social needs in Pittsburgh, PA. This study assessed the efficacy of the CATCH program in scheduling pediatric AWCVs and providing access to community resources. We performed a retrospective analysis of pediatric patients lost to follow-up from January 2021 to June 2022. In this analysis of 459 outreach calls, the CATCH program was able to schedule 45% of patients, with 46% of patients attending their scheduled appointments. We also provided access to over 70 community resources. This model offers support for phone call-based outreach to contact families of pediatric patients lost to follow-up and suggests its role in addressing health care and socioeconomic barriers to access.

Project addressed/problem discovered

The American Academy of Pediatrics recommends well-child visits every 12 months for all children through the age of 18 years. Across the United States, the National Center for Health Statistics estimates that 86.5% of children aged 0–17 years received a well-child checkup in the past 12 months. In comparison, this rate drops to 69.5% in the state of Pennsylvania.

Missed AWCVs for children can carry lifelong consequences, including missed diagnosis of a developmental delay or non-adherence to a vaccination schedule. Each year, thousands of children miss their AWCVs, and this problem has only become worse since the start of the COVID-19 pandemic.

Missed pediatric well-child visits jeopardize children's health and well-being while significantly straining our health care system. Many families also have barriers to attending AWCVs due to social factors, including transportation, housing, and childcare. Addressing socioeconomic barriers may improve access to AWCVs.

After identifying a significant number of children lost to follow-up for their AWCVs across several UPMC pediatric clinics in Pittsburgh, PA, we hypothesized that addressing socioeconomic barriers may improve access to AWCVs for many families. Through the CATCH program, we sought to reach families of children lost to follow-up by phone call to schedule AWCVs and offer access to local resources. This study aimed to assess the efficacy of the CATCH program in scheduling AWCVs and addressing social determinants of health by providing access to community resources.

Approach

We implemented a tele-outreach student-led initiative to contact pediatric patients lost to follow-up for AWCVs and discovered the necessity for increased collaboration between our hospital system and community-based organizations to assist families in addressing social determinants of health. We believe the best means of addressing the domain of social determinants of health is by incorporating them into our social-needs screening to provide reliable access to local community resources through direct communication with families.

Prior to initiating the study, call scripts and provided resources were standardized and established. Our team of volunteers

(n=31, 23 medical students and 8 residents) contacted families through phone calls. Each call inquired about interest in scheduling an AWCV, identified preferred pediatric clinics, assessed families' unmet social needs, and provided access to local community resources. Telephone encounters were made in Epic to notify pediatric offices of scheduled AWCVs.

A retrospective analysis of pediatric patients lost to follow-up (children who had not been seen for an AWCV in over 12 months since their last visit) between January 2021 to June 2022 was performed. The reach rate was calculated to determine the effectiveness of the CATCH program at reaching patients and thus, addressing their social determinants of health needs. Further analysis was performed to measure the rate of successful appointment scheduling and with root cause analysis of the most common barriers to scheduling. Chart review was also performed to determine appointment attendance rates and evaluate the CATCH program's long-term impact.

Outcomes

The CATCH program is uniquely positioned to support children and families by connecting them to clinical and social services which promote health equity by improving social determinants of health. The tele-outreach model of the CATCH program significantly increased reach rates and frequency of AWCV scheduling, connecting families with local community resources to address unmet social needs.

A total of 459 families were contacted, of which 266 were not reachable due to invalid phone numbers or after leaving multiple voicemails without a response. Of the 193 families reached (42% reach rate), 79 (17%) had already attended an AWCV within the last 12 months (not documented in Epic), and 22 (5%) patients had reached adulthood and transitioned care. These patients were thus excluded from our sample. Among the remaining 92 families, 41 AWCV appointments were scheduled (45% scheduling rate). Reasons for declining appointment scheduling assistance included change in

residence, different pediatrician, guardianship/custody issues, and personal preference. We identified barriers to scheduling AWCV appointments, including lack of an established pediatrician, change/loss of insurance, undocumented immigration status, and transportation challenges.

Out of 41 scheduled AWCV appointments, 19 were attended by families (46% attendance rate). To address social needs, community resources were offered to all families contacted, with 32 families connected with over 71 resources. Services/resources provided spanned areas of health care/insurance, COVID-19 information, food, housing, transportation, legal services, childcare, and access to community resource hubs.

The CATCH tele-outreach model offers support for phone call-based outreach to contact families of pediatric patients lost to follow-up and suggests its role in addressing social determinants of health barriers. Ultimately, CATCH may serve as a model for other tele-outreach programs in underserved communities.

Personal impact

With this project occurring during the COVID-19 pandemic, I have seen firsthand the exacerbation of existing health inequities in the face of a public health crisis. This project helped me to realize the need for creative approaches to contacting patients and providing outreach to successfully address social determinants of health during a global strain on already fatigued health care systems.

The opportunity to work on this project has helped me to see the potential of utilizing health systems science research to implement change inside and outside of the clinical environment. By utilizing such tools and methodologies in parallel with community outreach initiatives, we have the potential to tackle social determinants of health and address health inequities in our communities. With this approach, we have the ability to create a systems-level impact.

Transgender health



Increasing Access for Transgender and Gender-Expansive Patients Seeking Gender-Affirming Care in Nevada through an Online Statewide Resource Guide

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Project location

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Abstract

There are limited health care options available for transgender and gender-expansive (T/GE) individuals nationally, particularly those who reside in Nevada. To increase the accessibility of gender-affirming care and support prospective patients in finding providers who offer the services they need, the health systems science lessons in our curriculum informed our development of an online resource guide for gender-affirming care. This multi-phase, community-engaged project compiled health care providers' services, including telehealth, payment, and intentional welcoming and safe spaces for T/GE patients. A key outcome of this project is to make health care services more accessible to the T/GE community through a patient-friendly website, facilitating more positive interactions with their providers and building trust between providers and the T/GE community in Nevada.

Project addressed/problem discovered

Research shows transgender and gender-expansive (T/GE) populations historically and presently experience barriers to health care, particularly in Nevada. While a limited number of gender-affirming providers reside in Las Vegas and Reno, access barriers are compounded in rural and frontier counties of Nevada. Acknowledging that 41% of T/GE individuals report feeling mistreated in a health care setting,¹ yet 73% report feeling less suicidal after receiving gender affirming care² and with 72% of the general population using the internet to find health care information,³ our team collaborated with gender affirming providers and T/GE individuals in the community to create an open, online health care resource guide that lists gender affirming providers in Nevada. This enables patients to more safely and easily identify their options for health care and also gives providers a tool to refer T/GE patients within a trustworthy network.

Approach

Our project grew from the "population, public and social determinants of health domain." First, we conducted a literature review compiling the quantitative and qualitative literature on the health care needs and accessibility challenges T/GE communities experience. After identifying the need to improve access to gender-affirming care and resources, the team was able to recognize barriers on a population level and understand their biological, psychological and social impact.

In developing a solution, the "clinical informatics and health technology" domain informed our methodology. Using a REDCap survey, we collected information from providers and worked to collect, analyze and present the data in a patient-friendly way. We have started translating the data from the survey into a website to be made accessible to the T/GE population and providers.

We intend to affect change in the "health system improvement" domain by making health care services visible and accessible to the T/GE community on a statewide level. By consolidating a list of providers who offer gender-affirming care into a single, accessible resource, this improves the entire health care ecosystem's ability to care for T/GE patients. Not only can T/GE patients find resources they seek with ease, but they can also do so safely and anonymously if desired. Additionally, health care providers caring for this community can leverage our website to build their professional and referral network, which will ideally translate to greater trust, safety, and quality and continuity of care for patients.

We validated the site by reviewing the information our team would collect from providers and receiving feedback on how

to make the site patient-friendly from the very stakeholders and members of the community who would utilize and most benefit from this project. By doing so, our goal was to create a meaningful tool that is sustainable and impactful, improving the “value in health care” domain for patients and providers. Through community partnerships, we will implement a plan to ensure the longevity of this resource guide and reduce barriers to care for the T/GE community. In doing so, the guide will have a virtual and funded home for ongoing changes and improvements.

Outcomes

Our goal for this project is to create an accessible, user-friendly, one-stop-shop for gender-affirming care that can be well-utilized by the Nevada T/GE community and providers. There will be two interfaces—one targeted for patients, the other for providers.

Prospective patients will be able to sort the providers by specialty, services of interest, business hours, availability of telehealth appointments, and additional parameters suggested by the T/GE individuals with whom we have been collaborating. Our team hopes this will severely reduce patients’ time and effort spent on finding trustworthy providers who offer quality care. We also want to take the guesswork out of finding appropriate patient referrals on the provider’s side and expand each provider’s network for patient benefit. Another goal is to create a site for the provider to easily and efficiently search for another health care professional to provide a service they may not be able to provide themselves. This will facilitate a warmer handoff between providers and alleviate stress for the patient.

By following this two-pronged approach, we hope to increase the number of T/GE patients having positive experiences with their providers and increase the community’s trust in the health care system overall. Our outcome measures will be extracted from website analytics to quantify the number of page visits, track inter-provider referrals that have been facilitated by the site, and map the geography of where patients are seeking care. To assess patient and provider satisfaction as described above, we will incorporate a user satisfaction survey that asks specifically about the perceived user-friendliness and usefulness of the website. With an eye toward continual improvement, a feedback form will also be available on the site so we can receive and implement changes suggested by website users. These efforts will also increase community buy-in, which is integral to any successful public health effort. Upon completion of this site, we will

be partnering with a team of gender-affirming providers to ensure the site will continue to be updated and helpful for the evolving needs of the T/GE community.

Personal impact

Researching a public health issue and developing a solution to address it from the ground up has given our team a tremendous appreciation for the importance of community involvement in public health research efforts. We received invaluable feedback on the project proposal from community stakeholders and suggestions from T/GE individuals regarding what information they look for in a new provider. Learning from these unique and personal perspectives allowed us to be informed and intentional throughout our project planning and execution. It empowered us as changemakers to create a sustainable solution that mitigates the specific barriers T/GE patients face when seeking health care services, not only specific to their transition, but also for routine or general health care, so they receive trustworthy and quality care the same way any other person needs and deserves. As physicians and patient advocates, we will carry this experience with us in our future practice and with each patient interaction. When interacting with a patient, we will actively involve them in the assessment and plan to provide more effective, informed and quality care. When proposing any institutional or policy changes, we will remain mindful of our position as physicians and always encourage the participation of the people these changes may impact. Specific to this project, we all aspire to be listed on a resource guide similar to this one and be known for providing and being advocates for quality gender-affirming care in our communities.

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Utilizing an Asset-Based Approach to Highlight Transgender Wisdom and Healing Through a Collaborative Community Zine

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Abstract

Community health research has historically utilized a deficit-based approach, asking “what is wrong with us” or “what are we struggling with,” rather than “what is right with us.” This project sought to celebrate and learn from the transgender community, as well as inform a Los Angeles based community clinic of potential strengths that can be leveraged to help transgender patients and reduce care inequities. We conducted in-depth interviews with seven members involved with St. John’s Transgender Health Program (THP) in order to create a collaborative community zine. Questions focused on themes of trans joy, healing, resistance, and sources of wisdom. Participants often described their experiences with barriers to accessing equitable health care, but also highlighted the necessity of leveraging power that already exists within one’s own community in order to heal. Physicians must recognize the power and strength that already exists within transgender patients in order to provide holistic patient-centered care.

Project addressed/problem discovered

All community-level interventions must consider elements of community interest, feasibility, health equity, and sustainability. This means that collaborations with historically marginalized communities should start with an asset-based approach as opposed to a deficit-based approach such that community members have the opportunity to share what strengths they already have. Building trust between health care providers and historically marginalized communities begins with leveraging the epistemological power that already exists within a community’s lived experiences. Our goal for this collaborative project with a local community clinic was to not only utilize asset-based interviews to learn from community members, but also to celebrate the

resilience and joy that was already happening within the St. John’s THP. Our initiative to counter one-dimensional narratives of suffering did so by focusing on themes of transgender joy, healing, resistance and sources of wisdom. Through the medium of a creative collaborative zine as a form of storytelling, we sought to highlight key perspectives on what healing means in the transgender community and how this is impacted by a local transgender health program.

Approach

St John’s THP seeks to provide comprehensive transgender health services in a safe and welcoming environment. They do so by offering primary and preventive care, hormone replacement therapy, referrals for surgery, referrals for legal and social services, and support for name or gender marker changes. Most importantly, transgender patients at St. John’s THP are served by providers and staff who also share similar transgender/nonbinary identities themselves. We wanted to highlight both patient and staff perspectives about the successes of the clinic’s services and their approach to trust building. Our collaborative project was centered on the need for “change agency, management and advocacy.” After much consideration, we chose the form of a creative collaborative zine not only to effectively relay messages of healing and resilience back toward community members, but also to promote sustainability and equitable access to information.

Using an asset-based approach, a collaborative community zine was structured on interviews done with members of the St. John’s THP. Virtual interviews of 30-60 minutes were conducted with two staff members and five participants of the St. John’s THP during July through August 2021. Participants were asked a standard set of ten questions which focused on trans joy, healing, resistance and sources of

wisdom. Interview responses were transcribed and included in the final zine. It was important during each step of the project to maintain accountability and transparency with community stakeholders of the project. Interview questions were reviewed and approved by directors of the THP program before interviews were conducted. Interviewees were all individually compensated with gift cards. Final digital versions of the zine were sent to interview participants for approval before the printing process. Approximately 20% of the physical zines were reserved for free distribution among members of the clinic. The remaining physical copies were intended for sales, in order to fundraise and promote St. John's THP, such that 100% of profits were reinvested back into the program.

Outcomes

Common themes noted throughout the interview and data analysis process include: the opportunity for St. John's to serve as a model health care institution for providing transgender health services in Los Angeles, the need for hiring more members of the transgender community to serve in health care occupations, and recognition that transgender people hold more complex identities than just their transgender status. Multiple participants mentioned that they felt the most pride and recognition when walking comfortably through the clinic and being welcomed by multiple staff—from the security guard at the doorway all the way to the physician or other health care professional in the exam room. The majority of participants discussed the importance of spending time with others who shared similar experiences and feeling a sense of belongingness within a community. For many, seeing other transgender folks taking up space in fields of health care, dentistry, acting, criminal justice, politics, and beyond is a source of joy and healing. Of note, all participants shared deep appreciation for specific providers they have encountered at St. John's clinic and highlighted the way that they were respected as normal human beings.

A total of 107 physical copies of the zine were printed and distributed throughout the Los Angeles area. A portion was successfully distributed for free to members of St. John's THP.

Networks, including personal outreach, social media, local LGBT centers, school-based Pride month programming, and local community organizations, were leveraged in order to promote sales and sharing of the zine. A total of \$300+ was raised for the St. John's THP through direct sales of the zine. Other members of St. John's THP have reached out to express interest in participating in future iterations of the zine. Educators at our school have reached out regarding implementation of the zine as part of the school's curriculum on transgender/nonbinary health care.

To ensure sustainability and accessibility of this project, future opportunities exist to access free public digital versions of the zine. Furthermore, future iterations of this zine project may continue outreach efforts into broader local zine festivals and community night markets.

Personal impact

To be a socially accountable physician, one must know the barriers that a community faces. However, one must also know the community's strengths. Bearing witness to another's story is a true privilege. As medical students and soon to be medical professionals, we get to experience this privilege everyday with our patients. However, within the confines of a short clinic visit, we rarely enjoy the opportunity to learn about the joys, strengths and wisdom that every patient carries with them outside of the clinical space. This project served as an amazing reminder of the power that the majority of community members already wield when we take the time to listen. The ability to share your own story can be a powerful tool for healing.

Furthermore, there is great knowledge to be learned from historically marginalized communities which can not only heal individuals personally but also begin to heal the unequal relationships between patients and physicians. As we look to improve our broken systems and strive for a more equitable and inclusive society, we should look to these communities to lead.

Well-being



A Student-Led, Faculty-Supported Initiative to Improve Medical Student Financial Literacy and Wellness

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Abstract

With the average annual cost of medical school education approaching \$60,000, many medical students are incurring massive debt to meet these rising costs. In 2021, the average medical school graduate owed \$215,900, a 300+ % inflation-adjusted increase from the average indebtedness in 1978.

Medical student debt has been significantly correlated with poor mental well-being and academic outcomes throughout medical training. High debt also drives many medical students to pursue higher paying specialties. However, many medical students lack the knowledge to manage this debt and make informed financial decisions for their future. The Robert Wood Johnson Medical School (RWJMS) Financial Literacy Group (FLIG) implemented a series of lectures on essential financial topics in order to improve the financial health of medical students.

By improving medical student well-being through financial literacy, the FLIG initiative in turn improves value in health care and aligns with the Quadruple Aim.

Project addressed/problem discovered

The cost of attendance for medical school has dramatically risen over time. Based on data collected by Jolly et al. (2005) from the Association of American Medical Colleges (AAMC), both private and public medical school tuition increased by 165 and 312%, respectively. Since then, this problem has worsened: the average medical student debt has increased by 177.7% in just 15 years, outpacing both academic and economic inflation rates.

The impact of the rising costs for medical school are well-stated in the literature. For instance, a cross-sectional survey conducted by Armstrong et al. found that a majority

of students (71%) shared a concern about the financial hardships associated with medical school. Furthermore, Morra et al. report that there is a significant correlation between perceived financial stress and current/anticipated debt. These burdens have been exacerbated by the COVID-19 pandemic, as demonstrated in a survey conducted by Alkureishi et al., which stated that burnout was more prevalent in students who reported financial strain during the pandemic when compared to those who did not.

A required lecture covering value in health care and the Quadruple Aim in the RWJMS "Physicianship" course served as the catalyst for our project while also affirming our belief that financial literacy bolsters student wellness in the midst of the rigorous medical school environment. Thus, we postulated that our project would alleviate this strain on medical students by providing them with critical financial acumen.

Approach

The Financial Literacy Interest Group (FLIG) was founded at Robert Wood Johnson Medical School to address the void in personal financial education in the medical school curriculum. Medical student debt is significantly correlated with poor mental well-being and academic outcomes throughout medical training. High debt also drives many medical students to pursue higher paying specialties. With the average cost of medical school education approaching \$60,000 annually, many medical students experience increased stress and incur massive debt to meet these rising costs of schooling.

However, many medical students lack the knowledge to manage this debt and make educated financial decisions for their future. FLIG believes financial freedom is critical to preventing burnout, a phenomenon known to be associated with an increased incidence of error/cost. Therefore, given

that value in health care can be defined as quality of care divided by cost over time, improvement in financial literacy may result in an increase in health care value.

Our organization developed a lecture series for medical students where financial experts presented key topics in financial literacy tailored to our students' requests. These lectures were intended to provide a foundational understanding of these key topics and provided students with opportunities to ask experts relevant questions. Additionally, lecturers were able to provide information directly relevant to the unique financial situation of a medical student, which is often difficult to obtain. These lectures were supplemented with specific AAMC and Khan Academy financial wellness modules as well as readings from *The White Coat Investor*. Future directions include practical applications of the material such as an investment competition to ensure students apply what they learn.

Overall, FLIG provides a safe space for medical students to discuss the delicate intricacies surrounding finances and provides future doctors with the skills to make educated decisions regarding their financial health and reach financial freedom. This increases the odds that students will pursue historically lower paying fields—such as primary care—which is essential for improving patient and population health. Ultimately, increased physician well-being due to increased financial literacy may lead to better patient outcomes and value in health care.

Outcomes

Our primary goal was to educate and inspire our medical school classmates with the tools and knowledge needed to manage their growing student loan burden to improve value in health care systems by having fewer burned-out physicians in the future. Toward this goal, in our first semester of programming, the RWJMS FLIG hosted five expert guest speakers to educate students on the topics of investing, budgeting, earning potential/practice management, understanding student loans and taxes, and health care leadership opportunities. Each event lasted approximately one-hour (virtually or in-person at the medical school) and was attended by 20-40 medical students. Many students attended multiple events, and some reported watching the recording afterward if they were unable to attend live. Fifteen minutes were included at the end of each event to allow students to ask their own questions: a period of time that was often extended past its planned endpoint.

Additionally, through coordination with the White Coat Investor (WCI) Champion Program, FLIG distributed 106

free copies (\$3,160 value) of the *White Coat Investor's Guide for Students* to RWJMS students. The book thoroughly supplements topics discussed at our events. A member of our leadership team also delivered quarterly financial market reports to the entire MS1 class sharing recent trends in the domestic and international equity, bond, and commodities markets. This report was provided with the goal of developing the habit in our membership of staying up to date on portfolio performance.

Future plans for the program include a pre- and post-survey of incoming first-year medical students' personal finance knowledge to track the efficacy of our program, hosting a book club to revisit personal finance topics/trends discussed in past events, and assembling a team-based investment simulation game so students can apply chosen portfolio strategies that they have learned through the FLIG curriculum. Our hope is that through this work, we can shine light on the importance of managing one's financial health so that it positively contributes to physician wellness and vitality, ultimately adding value in the health system.

Personal impact

The FLIG initiative has shaped my development as a physician by showing me firsthand that we are all uniquely capable of improving value in health care. I personally hope to do so by working with my physician colleagues to bolster their financial literacy.

After our budgeting lecture, one of my classmates reached out to ask if we could set up a call to go through their own budget. They told me that due to the stresses of medical school and a family member's health struggles, their finances had fallen to the bottom of their priority list. I commended my classmate for even seeking help; many health care professionals feel ashamed that they can understand complex pathophysiology better than basic financial terms, but the truth is that we are never taught the latter.

In just over an hour one Friday night, my classmate and I set up a budget and talked through a framework of financial priorities. In the weeks following, my classmate sent me updates about their progress and stated that they felt much better about their situation.

Witnessing the impact of the FLIG curriculum on my classmates' well-being through this personal phone call and our various events has shown me that I have a passion for cultivating financial health among my colleagues. I look forward to building this initiative and improving physician wellness one step at a time.

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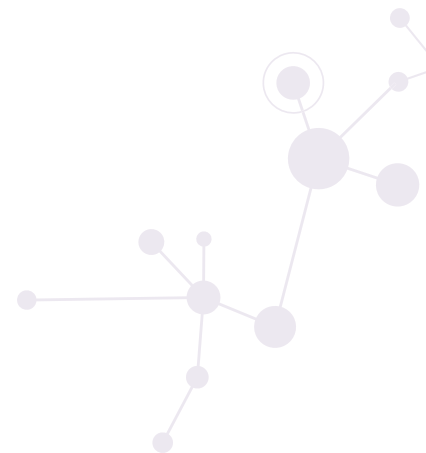
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