Community-Engaged Learning: addressing gaps in medical education through a service-learning curriculum

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Introduction

The Liaison Committee on Medical Education (LCME) requires that allopathic medical school programs provide opportunities for service-learning and/or community service activities for students.[1] The movement towards community involvement in higher education is aimed at fostering relationships between communities and health-professional schools, preparing community-responsive physicians, and achieving social change.[2] Since service-related work is also considered on the American Medical College Application Service and the Electronic Residency Application Service Applications, for AOA designation, and on CVs, engagement can also greatly impact residency and career trajectory for students.[3] While community service activities are required to be offered by medical schools, the institution of a required service-learning curriculum can have greater impacts for students, community partnerships, and advancement of medical education. Since the LCME also sets a curriculum standard which ensures instruction on topics regarding societal problems, cultural competence, and recognizing health care disparities[1], a service-learning curriculum can address these necessary components of a medical curriculum as well.

Service-learning projects are structured learning experiences that use a pedagogical approach to combine community service with planning (based on the assessment of community needs), preparation, engagement and reflection.[4,5] The projects involve not

Abstract

Medical student engagement within their community fosters physicians that are better equipped to meet the needs of their local residents. Service-learning is an approach to community engagement that offers students the chance to prepare, engage, and reflect on service work. Additionally, a service-learning project supplements medical curriculum with experiential social awareness regarding topics that may not otherwise be taught in the classroom. A required 20 hour (minimum) service-learning curriculum instituted at a small public medical school thus demonstrates an effective method of medical student engagement within their local community that bridges gaps in medical education curriculum. . Over the course of a semester, students engaged in a project at their assigned institution, ultimately producing a deliverable to benefit their community far into the future. Students formally reflected on their experience, which demonstrated sentiments including strengthened community partnerships and enlightened perspectives on areas of social justice that are otherwise undertaught in medical curriculum. An unintended consequence of this curriculum also included additional research opportunities and academic writing opportunities for students in regard to their service-learning projects.

only volunteering to help the organizations with community-identified concerns, but these experiences provide a learning opportunity for students wherein they can reflect on their experiences and consolidate new insights.[3] Students learn about the context in which the service is provided, the connection between their service and their academic coursework, and their roles as citizens. Ultimately, service learning may allow students to reconnect with their altruistic reasons for studying medicine, which can often be obscured by the rigorous science curriculum that underlies pre-clerkship education.

The traditional medical curriculum involving two years of didactic work must be carefully structured to incorporate advances in medical research as well as evolving insights related to social justice. Often, important topics such as autism identification, sex trafficking, LGBT sexual health, addressing the needs of caretakers, and other topics may be undertaught to medical students. Service learning projects offer a method of addressing gaps in medical education. For example, Florida reports a large percentage of human trafficking cases in the United States every year, however there were not many opportunities in our curriculum directed at teaching students how to recognize human trafficking cases and its clinical significance. Thus, by working on a service learning project with a local organization that educates the community about sex trafficking, students are then exposed to this important topic in medical education. Addressing gaps in medical education through service learning opportunities can thus supplement an evolving pre-clerkship curriculum.
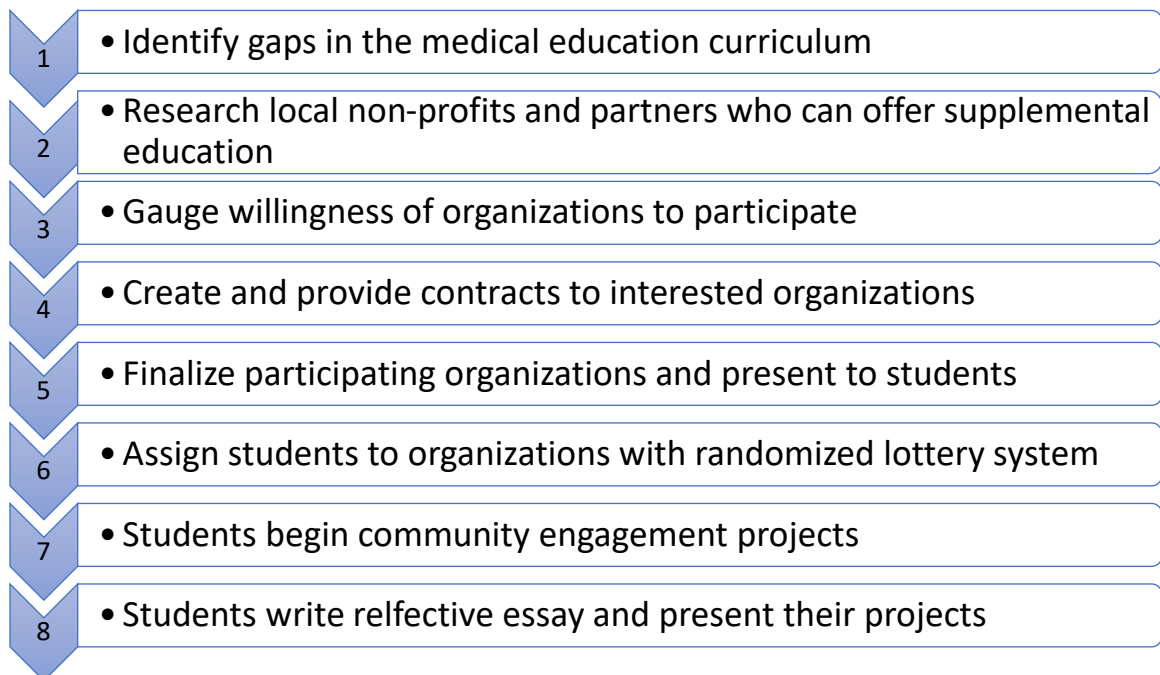
The institution of a required service learning curriculum at a small public medical college demonstrates an emphasis on the importance of service, engagement, and reflection for second year medical students. With this curriculum, students institute a project in a non-clinical, local organization for 20 hours over the course of a semester. The projects that students implement at their assigned locations are aimed at fostering a "deliverable" that the organization can continue using and benefit from after the students complete their required hours. Such deliverables may include medical education or mentorship. At the end of the semester, students write a reflective essay describing their experience and prepare a presentation regarding their organization for the entire medical school. The participating nonprofits organizations are also invited to attend this presentation and are invited to advocate for their organization in addition to describing how their organizations and their clients benefited from medical student participation. Given the heterogeneity and overall effectiveness of service learning curriculum within medical education,[6] this paper serves as a model for effectively (1) recruiting appropriate organizations for participation (2) assigning students to selected organizations, (3) implementing a student-lead project over the course of a semester and (4) reflecting on their experience. This model is further impacted by first identifying gaps that exist within a given institution's curriculum, and then pairing with local communities that shed awareness on these topics. Together, this service-learning curriculum represents a method of revamping the LCME requirement for service/volunteer opportunities for students while also furthering the requirement for students to address various topics of social justice.

Methods

The implementation of a service-learning curriculum can be divided into four important steps (1) Recruit organizations within the community to participate, (2)

Present and assigning students to the participating organizations, and (3) Students engage with their designated organization over the course of the semester and (4) Student reflect regarding their overall experience. From the first informational session to the final wrap up, the service-learning curriculum spans 12 months. Supporting these steps are medical education gap identification and the contracting of organizations that may help to supplement student awareness and education. Roadmap to Implementation demonstrates this process of implementing a service learning curriculum that best supplements medical education.

Roadmap to Implementation:

1. • Identify gaps in the medical education curriculum
2. • Research local non-profits and partners who can offer supplemental education
3. • Gauge willingness of organizations to participate
4. • Create and provide contracts to interested organizations
5. • Finalize participating organizations and present to students
6. • Assign students to organizations with randomized lottery system
7. • Students begin community engagement projects
8. • Students write relfective essay and present their projects

Goals:

- Develop an understanding of the local community and their needs
- Implement a project that addresses the needs of the non-profit organization/community
- Gain knowledge of societal issues people of different populations face
- Collaborate and communicate with an interprofessional group

Non-profit organizations related to social topics that would supplement student education in the community were researched. Their likelihood for hands-on student involvement as well as physical proximity of the organization to the school were also considered. As many medical students participated in volunteer work prior to matriculation, organizations with which students had previously volunteered with were

included. Emails were then sent to the local non-profit organizations to explain the goals of the service learning project and gauge willingness to participate. Those that agreed to have medical student participation were asked to complete a community service-learning agreement:

COMMUNITY SERVICE-LEARNING AGREEMENT BETWEEN
FLORIDA ATLANTIC UNIVERSITY BOARD OF TRUSTEES AND
[*AGENCY*]

This Community Service-Learning Agreement (the "Agreement") is entered into by Florida Atlantic University Board of Trustees, located at 777 Glades Road, Boca Raton, FL 33431 ("FAU"), and *[Agency]*, located at [   ] ("Agency"), each a "party" and collectively the "parties".

WHEREAS, FAU conducts a medical education program (the "Program") for students enrolled or seeking a medical doctorate degree ("medical students") from the FAU Charles E. Schmidt College of Medicine (the "College of Medicine"), which program has received full accreditation by the Liaison Committee on Medical Education ("LCME");

WHEREAS, as part of the 4-year M.D. curriculum, medical students are required to complete a Service-Learning Project with a local non-profit or community-based organization;

WHEREAS, Agency is a non-profit or community-based organization that engages in or conducts [*insert description*];

WHEREAS, the purpose of this Agreement is to provide educational and community service opportunities for medical students to complete their Service-Learning Projects and contribute to the effectiveness and improvement of the Agency's operations while doing so; and

WHEREAS, FAU and Agency agree that this Agreement will be to their mutual benefit.

NOW, THEREFORE, the parties agree as follows:

A. SERVICE-LEARNING PROJECT

1. Each Service-Learning Project is intended to be a six month endeavor for the medical students during their second year of their M.D. curriculum. Service-learning is a structured community service and learning experience that combines community service with learning objectives, preparation and reflection.

2. The Service-Learning Project shall be developed, implemented and evaluated in collaboration with the Agency, taking into account the needs of the surrounding community. It will, ideally, respond to community-identified concerns and attempt to emphasize the community service that is provided while simultaneously

advancing learning objectives for the medical students.   Its goal is to extend learning beyond the classroom, enable medical students to offer service through the application of developing knowledge and skills, and offer an opportunity for critical reflection on service-learning.

3. M1 medical students will be assigned to their Service-Learning Projects during the spring semester in groups of two (2) to five (5) medical students to each Agency. During the M2 year, the service-learning project shall, to the greatest extent practicable, be collaboratively designed with the Agency and implemented accordingly. The Agency and surrounding community should, ideally, be able to continue using and benefiting from the project deliverable(s) (e.g., educational materials, website development, etc.). A final reflective essay shall be written by each group of medical students and shared within the College of Medicine.

4. The Service-Learning Project shall NOT involve clinical care or the use of clinical skills by medical students.

5. The Agency will not be required to provide any supplies or funding to the medical students. The Agency shall provide access to its programs, personnel and facilities for purposes of facilitating the Service Learning Project. The Agency shall retain ultimate responsibility for the operations of its program and its facility.

6. Medical students will be responsible for their own housing, food, books, travel and related expenses while engaging in the Service-Learning Project. No compensation will be paid hereunder to the medical students.

7. Each medical student group shall have an FAU College of Medicine faculty advisor who shall be permitted to periodically visit the Agency as necessary for oversight and evaluation of the medical students. The Agency shall designate a representative to participate with the FAU faculty member in the planning, implementing, coordinating and evaluating the Service Learning Project. Conferences, as necessary, will be held to review and evaluate the medical students, review this Agreement, and resolve specific challenges that may interfere with the achievement of the objectives of the Service Learning Project. Agency will provide evaluations and feedback on the medical students' performance to FAU on forms to be provided by FAU. FAU shall be ultimately responsible for the educational experience and evaluation of the medical students.

8. Medical students shall be required to comply with the established rules and regulations of the Agency. Any problem or disciplinary situations involving the medical students will be subject to FAU's regulations, policies and procedures. Agency will provide notice to FAU as soon as possible of any situation or problem that may threaten a student's successful completion of the Service-Learning Project. Additionally, Agency will keep FAU informed of any academic or disciplinary problems or matters affecting a medical student, as permitted under applicable law.

B. GENERAL PROVISIONS

1. <u>Non-Discrimination</u>: Discrimination against any individual involved in this program because of race, color, religion, sex, national origin, age, disability, veteran's status, marital status, sexual orientation, or any protected basis is prohibited by Agency and FAU, and if practiced by either party shall be cause for terminating this Agreement.

2. <u>Institutional Policies and Regulations</u>: Agency and FAU shall inform medical students of the website (if applicable) or other location that sets forth each of its policies, rules and regulations. All medical students will be informed by FAU and Agency that they are expected to abide by their respective institutional policies, rules and regulations.

3. To the extent applicable, Agency shall reasonably cooperate in the LCME's evaluation, and other applicable accrediting body requirements, of FAU's medical training program.

4. <u>Use of Name</u>: Neither party shall use the name, logo, likeness, trademarks, image or other intellectual property of the other party for any advertising, marketing, endorsement or any other purposes without the specific prior written consent of an authorized representative of the other party as to each such use. Each party may refer to its affiliation with the other party in its catalog and in other public information materials regarding the Service-Learning Project and collaborations hereunder.

5. <u>Amendment and Assignment</u>: Amendments to the terms and conditions of this Agreement shall be effective only upon the mutual written agreement of the parties hereto, signed by a person authorized to approve such amendments. Neither party may assign this Agreement or any rights hereunder without the prior written consent of the other party.

6. <u>Notice</u>: All notices required in this Agreement will be provided in writing by either party and forwarded by certified mail, addressed as follows:

    If to FAU: Florida Atlantic University
                                         Phillip Boiselle, MD
                                         Dean and Professor
                                         Charles E. Schmidt College of Medicine
                                         777 Glades Road, Bldg. 71 – Room 239
                                         Boca Raton, FL 33431

    If to AGENCY: [   ]

7. <u>Independent Contractors</u>: It is expressly understood and agreed that this Agreement is not intended and shall not be construed to create the relationship of agent, servant, employee, partnership, joint venture or association between FAU, the Agency and the medical students, but is rather an agreement by and between independent contractors, these being FAU and the Agency.

8. <u>Non-exclusive Agreement</u>: This Agreement is non-exclusive and both parties have the right to enter into similar agreements with other institutions.

9. <u>Compliance with Law</u>: The parties specifically intend to comply with all applicable laws, rules and regulations as they may be amended from time to time. If any part of this Agreement is determined to violate federal, state or local laws, rules or regulations, the parties agree to negotiate in good faith revisions to any such provisions. If the parties fail to agree within a reasonable time to revisions required to bring the entire Agreement into compliance, either party may terminate this Agreement upon thirty (30) days prior written notice to the other party. Both parties agree to maintain the confidentiality of student records to the maximum extent required by law, including the Family Educational Rights and Privacy Act ("FERPA").

10. <u>Severability</u>: The provisions of this Agreement are severable, and if any provision of this Agreement is found to be invalid, void or unenforceable, the remaining provisions will remain in full force and effect.

11. <u>Waiver</u>: The waiver of any breach of any term of this Agreement does not waive any subsequent breach of that or another term of this Agreement.

12. <u>Diplomas, Certificate and Other Documents</u>: Neither the name of FAU nor the Agency nor the signature of its officials shall appear on the diplomas, certificates and other such documents that might be produced by the other institution without the written permission of the coordinator for the institution whose name is being invoked.

13. <u>Entire Agreement</u>: This Agreement shall constitute the entire agreement and understanding between Agency and FAU as to the subject matter hereof and supersedes all prior discussions, agreements and undertakings of every kind and nature between them, whether written or oral, with respect to such subject matter.

14. <u>Governing Law and Term</u>: This Agreement shall be governed by the laws of the State of Florida and shall be effective for an indefinite duration commencing upon the date of the latest signature by the parties. This Agreement may be terminated by either party by giving ninety (90) days' written notice to the party. Upon a termination, the parties will make best efforts to allow medical students currently involved in a Service-Learning Project at the Agency to complete such

project. FAU may terminate this Agreement immediately if it fails to maintain full or provisional accreditation with the LCME.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their respective duly authorized representatives as of the last date signed below.

[AGENCY] **FLORIDA ATLANTIC UNIVERSITY BOARD OF TRUSTEES**

By: _____   By: _____
Name:_____   Name: Russ Ivy, Ph.D.
Title: _____   Title: Senior Associate Provost
                                                                          Division of Academic Affairs
Date: _____   Date: _____

ACKNOWLEDGED BY CHARLES E. SCHMIDT COLLEGE OF MEDICINE

By: _____   By: _____
Name: _____   Name: Phillip Boiselle, MD
Title: _____   Title: Dean and Professor
                                                                          Charles E. Schmidt College of Medicine
Date: _____   Date: _____

The agreement includes basic information about the service learning project's guidelines, as well as, pertinent general provisions. Examples of accepted organizations included a local day center for adults with disabilities, a childhood cancer foundation, a memory and wellness center, a child development center, an after-school program, among others.

Students attended a preliminary meeting during their MS1 spring semester where the participating organizations were presented and their requirements for involvement were explained. The requirements consisted of attending an initial meeting with their organization's representative, dedicating a minimum of 20 hours to their designed project, and writing a formalized reflection essay after completing their project. Following the preliminary meeting, students ranked the available organization by preference and were assigned by a randomized computer lottery system. Based on their preferences, they were later assigned into groups of 2-5 students per organization.

During the MS2 year, each group of students met with their assigned organizations to discuss the needs of the organization and associated community. Together, they developed a project idea that the students could then implement over the

course of one semester. The projects were to ideally culminate in a deliverable that the organization could continue using and benefit from after the students completed their 20-hour requirement. Examples of implemented projects include organizing and running a health fair and/or food and clothing collection drive, providing age-appropriate medical education, creating informational pamphlets and newsletters for the organizations, and advising, tutoring and serving as role models for disadvantaged youth. It is important to note that the designed project did not involve clinical care or the use of clinical skills by medical students.

At the conclusion of these projects, each student group wrote a 500-word essay reflecting on their experiences, and how they feel these experiences will impact their future and the future of the population they served and will serve throughout their medical career. Students also presented their projects to an audience consisting of their peers, pre-medical students, faculty, staff, directors and other representatives of the participating organizations, and the community at large. This presentation occurred the month following the completion of the service-learning project reflection essay.

Results

The results and effectiveness of the service-learning project was evaluated through a 500 word reflective essay written by the medical students. A scoring rubric was used to grade the reflective essay as a tool to assess the students' efforts. The students were graded in their corresponding organizational groups. The rubric appraises the degree to which the students collaborated with the organization and community, applied knowledge learned in medical school, and actively reflected on their service experience.

Service-Learning Project Scoring Rubric
The Service-Learning Project is graded through evaluation of an essay. Below are the expectations for key areas to address in each essay.

	Not meeting expectations	Some deficits in activity	Meets expectations	Exceeds Expectations
Collaboration with organization and community	No communication with organization or community members with regards to project and its progress.	Organization or community members are partially informed of project progress.	Organization or community members act as consultants in the project development and are informed of progress.	Organization or community members actively and directly collaborate in the project.

Use knowledge learned in medical school in real world settings	No active service experience.	Application of knowledge planned, but not implemented.	Some application of knowledge to benefit organization and/or community members.	Direct application of skill or knowledge in service to an organization and/or community members.
Active Reflection	No reflection. Cannot appreciate impact of activity.	Limited reflection, more of a summary of events. Can describe impact of activity, but unable to appreciate importance.	Able to produce and share what was learned and applied with organization and/or community members. Reflection shows some understanding of importance of service.	Describes deep understanding of the importance of service and the ability to make a difference. Student describes how the experience impacted them, and how it will impact their care of future patients and/or the community they will serve.

These reflective essays also provide the opportunity for course directors to gain insight into how students spent their time at community sites, which could influence if these partnerships are sustainable for future classes.

From these reflective essays, a number of noteworthy sentiments were shared by students. Below are selected excerpts shared by students that demonstrate their expanded understanding of community needs and how it has impacted the way in which they hope to practice:

- "It's lessons like these that go beyond the scope of our standard curriculum to really teach us what is involved with caring for our patients and for members of our community in need."
- "Our experiences in service-learning through cooperation with Big Brothers Big Sisters of Broward County enabled us to more intimately connect with local communities and better understand their needs. We saw firsthand the importance of mentorships programs in learning institutions. Through most of our education we learn knowledge and skills we will need to serve our future patients in a very specific way. This project helped broaden our horizons while serving our community."

- "Through this experience we learned about what happens outside of the hospital room after a diagnosis of cancer is made and a treatment given. We saw firsthand the emotional, physical, and economical strain that is placed not only on the parents but also on the other family members. It was surprising at first that, not only were the services offered at the foundation available for the child with cancer, but also for all their siblings as well. The emotional stress felt by the siblings was something that our group had not thought of prior to our experience. As physicians we will now be able to take the information and lessons we learned through our volunteering experience and help better serve this patient population in the future."
- "We have gained significant experience and knowledge to utilize in providing better care for our future patients: We know that in order to effect positive change in a person we must first understand him or her. We have become especially well aware of the role of socioeconomic status and living conditions on a person's health and on his or her access to care. The four of us will view our patients more holistically, taking into account the personal and societal struggles impacting their physical health and general well-being."
- "We learned about different environments in the community instead of only seeing people in our environment as patients. We benefit because when we see our patients as people first and patients second, our bedside manner improves."

Additionally, a number of projects were enacted by students at their organization over the course of 5 years.
- Creation of a pamphlet that outlines the updated names and locations of health and dental clinics in all of Broward and Palm Beach County offering free and much-needed services to the homeless.

- Organization of a group dance session for adults with developmental challenges to promote social interaction, fun and exercise.

- Development of hands-on lesson plans integrating "basic anatomy and physiology to get the students excited about science, while also exposing them to clinical medicine."

- Organization of a tour of the undergraduate school and medical school for at-risk youth to encourage an interest in science and medicine, as well as encourage better behaviors both in and out of the classroom.
- Creation of a cookbook for children with diabetes including healthy recipes that are easy to make and of interest to children.

While these reflections and organized projects are specific to our institution, the examples of strengthened partnership between local organizations and the medical school are evident. The service learning project proved to advance medical education to new bounds, fruiting many unintended benefits.

Goals Achieved:
- Developed an understanding of the local community and their needs
- Implemented a project that addresses the needs of the non-profit organization
- Gained knowledge of societal issues people of different populations face
- Collaborated and communicated with an interprofessional group

Unintended Benefits:
- Developed lunch and learn sessions regarding Autism and Human Trafficking education with participating organizations to formalize supplemental education
- Implemented adjustments to curriculum including adding LGBTQ discussion panel and standardize patients
- Created research and presentation opportunities for students
- Conceptualized and honed skills taught in didactic lectures
- Developed a foundation of how to become engaged with the local community that can be utilized during residency and practice

For example, certain groups sought to incorporate their service-learning projects and the knowledge gained from their community engagement into the medical school curriculum. Faculty, students, and a local non-profit organization collaborated to create a "lunch and learn" talk specific to human trafficking, in order to address the lack of formal instruction regarding this topic. Additionally, the LGBTQ community from the organization SunServe were invited to participate in formal panels and standardized patient activities to teach students how to best address their medical needs. These activities aimed at further expanding medical student awareness were made possible through the community partnerships established by service-learning.

Many students were also able to engage in scholarly activities after completion of the service-learning curriculum, including publishing research papers and presenting posters related to their organizations and projects. For example, a student who worked with the organization Autism After 21 created a research project that assessed how a 12 day residential program at FAU would affect self-determination in young adults with Autism Spectrum Disorder in order to develop sustainable employment.

Discussion

The variety of service-learning curriculums that exist within medical education reflect the broad range of community needs as well as the learning objectives students should achieve throughout their training.[7] In this service learning curriculum for second year medical students, establishing partnerships and deliverable projects with community organizations results in long term benefits for both the organization and for students. Specifically, students are exposed to demographics, social challenges, and disparities within healthcare that may otherwise be neglected in a standard medical curriculum. In student reflections, the common sentiment of witnessing patient needs "first-hand" demonstrates how engagement within the community expands their primarily textbook-driven education that encompasses pre-clerkship medical education.

The service learning curriculum requires a minimum of 20 hours of engagement, but after forming strong partnerships with these organizations, many students chose to extend their involvement through continued volunteer work and engagement in

subsequent semesters. Expansion of these service-learning projects into supplemental learning opportunities also manifested in medical curriculum such as by developing "lunch and learn" seminars and series stemming from the work completed during the service-learning project. These opportunities further broaden the impact of the community partnership, as students who did not participate with their organization are still able to learn from them in a more formalized setting. Through these examples of meaningful involvement, students have also reported how their experiences have influenced their medical specialty decision. For example, students who were placed with youth organizations have oriented their passion for working in pediatrics. Additionally students whose projects served the disabled have established interests in exploring rehabilitation medicine, a field they may otherwise not have had much exposure to in standard medical education.

Another potential benefit of this curriculum lies in the option for students to engage in research and academic writing related to their projects. Presenting posters or publishing journal articles related to witnessed healthcare disparities is one way of advancing students' academic research competencies. The option for students to submit a "letter to the editor" to advocate for their organizations also offers an option for further reflection. Two student groups have had their "letters to the editor" published in local newspapers, which spreads greater awareness about their organization to the greater community. It is known that service-related work is highly valued by residency programs, as altruism is a necessary trait in a physician. However, this additional aspect of academic writing related to their service work can add an additional benefit that may be valued by residency program and future career opportunities as well. Future service-learning curriculum may consider the possibility of beginning involvement on these projects during the summer between MS1 and MS2 year, thus allowing greater time to engage in research, academic projects, and scholarly writing related to their organization later in the semester.

After witnessing these unmeasured benefits of service-learning curriculum impacting medical education, future programs may consider collecting quantitative measures to denote success of their service-learning programs. The service-learning curriculum also has the opportunity to analyze the long term effects on the participating medical students and how these projects have influenced their medical practice. The impact of this curriculum on community partners could also be assessed, such as by analyzing whether or not the projects implemented by students remain useful to the local organizations after years pass. This feedback would allow for further modification of the curriculum to better suit the community partners and medical students alike.

Some students expressed dissatisfaction with being unable to attend events hosted by their organization due to curricular obligations, which demonstrates the challenge of balancing a medical education with other responsibilities. However, this service-learning curriculum's design of incorporating 20 hours of service over the course of the semester allows greater flexibility in scheduling for both students and their organization. By having students schedule their service-learning schedules autonomously, the option for engagement on nights and weekends is also possible. Incorporate a mandatory service learning project into medical school curriculum is thus not only possible, but adds an additional layer of depth to curriculum that is necessary for promoting well-rounded physicians.

References

Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the MD Degree. Washington, DC: Liaison Committee on Medical Education; 2019.

Faller HS, Dowell MA, Jackson MA. Bridge to the future: nontraditional clinical settings, concepts and issues. *J Nurs Educ*. 1995; 34(8):344-349. http://www.ncbi.nlm.nih.gov/pubmed/8558279. Accessed October 25, 2019.

Hunt JB, Bonham C, Jones L. Understanding the goals of service learning and community-based medical education: A systematic review. *Acad Med*. 2011; 86(2):246-251. doi:10.1097/ACM.0b013e3182046481

Seifer SD. Service-learning: community-campus partnerships for health professions education. *Acad Med*. 1998; 73(3):273-277. Doi: 10.1097/00001888-199803000-00015

Deans T. Service-Learning in Two Keys: Paulo Freire's Critical Pedagogy in Relation to John Dewey's Pragmatism. *Michigan J Community Serv Learn*. 1999:15-29.

Stewart T, Wubbena Z. A Systematic Review of Service-Learning in Medical Education: 1998–2012. *Teach Learn Med*. 2015:115-122.

Wubbena Z, Steward T. An overview of infusing service-learning in medical education. International Journal of Medical Education. 2014; 5:147-156.

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