JRMC Journal of Regional Medical Campuses

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DOI: https://doi.org/10.24926/jrmc.v6i2.4970
Journal of Regional Medical Campuses, Vol. *6*, Issue 2 (2023)

Published by University of Minnesota Libraries Publishing

Evaluation of a Summer Research Program for Medical Students on a Regional Medical Campus

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Abstract

In 2015, the University of Minnesota Medical School Duluth campus implemented a summer research program for medical students between their first and second years of training. The goal of the Medical Student Summer Research Program is to provide support for students who wish to participate in research as part of their medical training and to provide support for faculty for their ongoing research. The program is not a required part of the curriculum and students self-select to participate. We have fostered relationships with faculty mentors from our institution, two regional hospitals, as well as external institutions to support this program. Here we report on attitudes and assessments about this program over the first seven years. Student surveys indicate that the amount of additional stress of taking on a research project is manageable, overall critical thinking skills and communication skills improved by participating in research, and a greater appreciation for the importance and relevance of research to their practice was developed. Faculty survey results indicate that the stress of mentoring is manageable and many faculty report deliverable outcomes such as publications and grant submissions after having mentored students, however there are still some faculty needs that must be addressed. The overall survey results, and the continued support from faculty as mentors, highlight the culture of respect for research, training, and service at the Medical School Duluth and the importance of having a dedicated and sustainable Medical Student Summer Research Program available to our students.

Background

In the United States, the Liaison Committee on Medical Education (LCME) accredits medical education programs resulting in an MD degree. The accreditation process is voluntary and peer-reviewed to ensure that medical education programs uphold 12 established standards. Two of the 12 standards explicitly mention research opportunities being a requirement for medical education programs. Specifically, a medical education program must be carried out in an environment that fosters intellectual challenge and the spirit of inquiry, and provides sufficient opportunities and support for student participation in research. Additionally, faculty in a medical education program must ensure that the medical curriculum includes instruction in the scientific method, scientific principles and ethics, and how research is evaluated and applied to patient care.[1] As competitiveness in careers for medical graduates increases, research skills as part of the curriculum have come to the forefront at medical schools worldwide. Integrating research skills into medical curricula can increase students' confidence in not only carrying out research post-graduation but also their ability to critically evaluate scientific literature.[2] In recent years the paradigm in medical education has embraced evidence-based medicine (EBM) such that scientific data are used to guide diagnosis, and physicians need additional skills to interpret and apply published data in their practice. Using research opportunities to develop these skills can be considered a foundation in medical education. When encouraged to participate in research, medical student participation varies by medical school and country, varying from 25% to 95%, suggesting that formalized research programs are needed to promote student participation in research. Additionally, formalized research programs promote completion of research projects and publication or presentation of data.[3]

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Here we describe the Medical Student Summer Research Program (MSSRP) implemented at the University of Minnesota Medical School Duluth campus (Medical School Duluth) and report student and faculty assessments and attitudes toward the first 7 years of the program. The Medical School Duluth is a regional campus medical school, and students train during the first two years of their medical education in Duluth and complete their third- and fourth-year clerkships at various sites in Minnesota.

Formalized research programs widen access to research opportunities for underrepresented groups by providing a positive experience.[4] In this case, the MSSRP opens up research opportunities to students who choose to train at a regional medical campus, which can present its own challenges due to fewer resources, support, and infrastructure for mentoring.[5] However, at the Duluth campus we have leveraged our smaller class size (65 students in each entering class) to be nimble in designing programs to support medical students. The Medical School Duluth developed the Medical Student Summer Research Program for medical students in 2015 to provide a more formal venue in which students can participate in research and gain valuable training through biomedical, social/behavioral, educational, or clinical studies. In addition to research skills, participants from research programs have reported that research helped them to develop interpersonal skills, including collaborative research ability and an increased sense of confidence in forming research questions, analyzing data, and writing manuscripts.[6]

Critical to our program are research mentors who volunteer to participate. Research mentors are identified not only at the Medical School Duluth but also at the Medical School Twin Cities campus, two local hospitals, as well as other opportunities identified by students at external institutions. The majority of medical students at the Duluth campus work with investigators from the Medical School Duluth. In this way, the MSSRP supports faculty and clinicians' research goals in addition to students' goals and training needs.

Methods

Program Details and Components

The MSSRP is specifically in place for students who have completed their first year of medical school, with research to be carried out over eight weeks during the summer between their first and second years. Each year, a brief description of research opportunities for students is requested from potential mentors and available projects are compiled into a list and distributed to first-year medical students early in the spring semester. Students are responsible for contacting the mentors to establish a working relationship. In addition to the mentor-provided project descriptions, students are encouraged to propose their own research ideas (with a faculty advisor) or continue working on projects on which they have previously worked. As part of the MSSRP, a summer stipend ($2000) is offered to students on an application-based system. The application includes a one-page project summary, including research aims and/or hypotheses and a plan for Institutional Review Board approval (if required). Students must also outline their role in the project and their goals related to the research experience. The MSSRP also provides up to $1000 to research mentors for research expenses on a reimbursement basis; the stipend for mentors is provided to all students whose applications are approved for the summer stipend. Students and mentors who participate in the MSSRP are self-selected; thus far the limiting factor for participation has been students as the number of available projects has outnumbered student participants. The overall timeline for the process of mentor matching and reviewing stipend applications encompasses most of the spring semester. In early February, faculty and clinicians are queried via email about participating in the program as research mentors. The list of available mentors and projects are distributed to first-year medical students in early March. Applications for student stipends are due in mid-March and notifications are sent to students by the end of March. Students are encouraged to meet with their research mentor as soon as possible to allow time to submit any required IRB documentation. Coursework for first year medical students is completed by the end of June and students are encouraged to be poised to begin their data collection at that time.

Training and Compliance
In addition to providing a venue in which students can participate in research, the Medical Student Summer Research Program also prepares students for the required training and compliance to complete research. A didactic Research Integrity and Onboarding session is hosted by the Directors of the MSSRP and is required for students who wish to participate in the program. The session covers requirements for Collaborative Institutional Training Initiative (CITI) training, research integrity and reporting, and Institutional Review Board (IRB) submission requirements. Compliance with these requirements is closely monitored. The MSSRP has a dedicated IRB Specialist who guides students and research mentors through the application process and associated documentation requirements. Because the summer research timeline is short, students are encouraged to begin preparing their IRB documentation early in the spring semester to leave ample time for IRB approval without compromising the time needed for data collection.

Symposium and Awards
Those who participate are required to present their research at the Medical Student Research Symposium specifically designed for students in the MSSRP. The symposium is held in the spring semester after the summer research experience. The requirement to present serves as a safeguard that students will complete their research projects in a timely manner and also provides an opportunity for students to share their results with peers and mentors. Each student is required to present a three-minute talk about their research. Using the short talk model allows for over 25 students to give talks in a two-hour timeframe and also reinforces the idea of developing elevator speeches to succinctly describe their research, which has been shown to increase scientific communication skills.[7] Following the student talks is a one-hour poster session during which each student presents a poster. Associated with the Medical Student Research Symposium are a number of research awards sponsored by the MSSRP and by individual departments at the Medical School Duluth. Faculty (including leaderships) are recruited each year from both the Duluth and Twin Cities campuses to serve as judges for both the student talks and posters with prepared rubrics. The students with the two highest scoring talks and posters earn awards (a small monetary amount and a certificate) which are presented at the Second Year Student Farewell Banquet attended by peers, faculty, and staff.

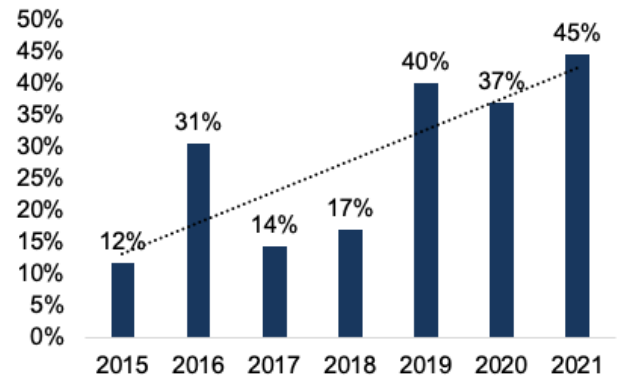
Program Staff and Support
The MSSRP at the Medical School Duluth campus has identified Program Directors and is a collaborative effort. The Program Directors interact with students and mentors to facilitate matching of students with projects. Additionally, one of the Program Directors is the IRB Specialist for the Duluth campus. While students and mentors are required to complete their own IRB documentation, the IRB Specialist provides continuity by having familiarity with the students, mentors, their research projects, and IRB requirements for submission and compliance. The Duluth campus houses two departments, Biomedical Sciences and Family Medicine and Biobehavioral Health, both of which are highly supportive of the research program and provide financial and infrastructure support. There is also involvement from the Education Departments at both local hospital systems, Essentia Health and St. Luke's Hospital, to onboard and train those students who choose to work with investigators from those institutions.

IRB Compliance
The project to evaluate the research program was reviewed by the IRB at the University of Minnesota and determined not to be human subjects research because personal identifiers were not collected in the surveys. Medical students at the University of Minnesota Medical School Duluth between their first and second years of training were surveyed via REDCap to collect their assessments of the MSSRP. Faculty at the Medical School were also surveyed via REDCap to collect their attitudes and assessment of medical student research and the MSSRP. Surveys were sent to 112 medical students and 51 faculty; the response rate was 29% for students and 63% for faculty.

Results

There has been a steady increase in the number of students who have participated in the MSSRP on the Duluth campus since its inception in 2015 (Figure 1).

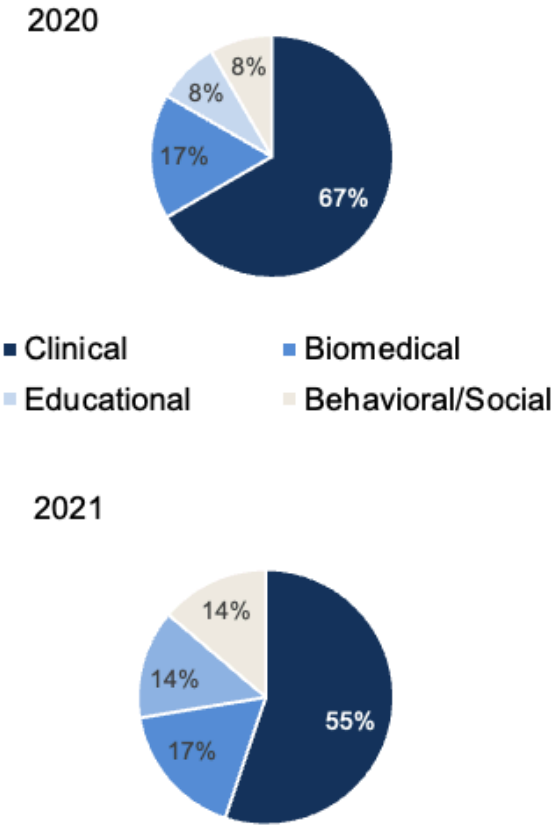
Figure 1. Percentage of Medical Student Classes that Participated in the MSSRP on the Duluth campus by year.



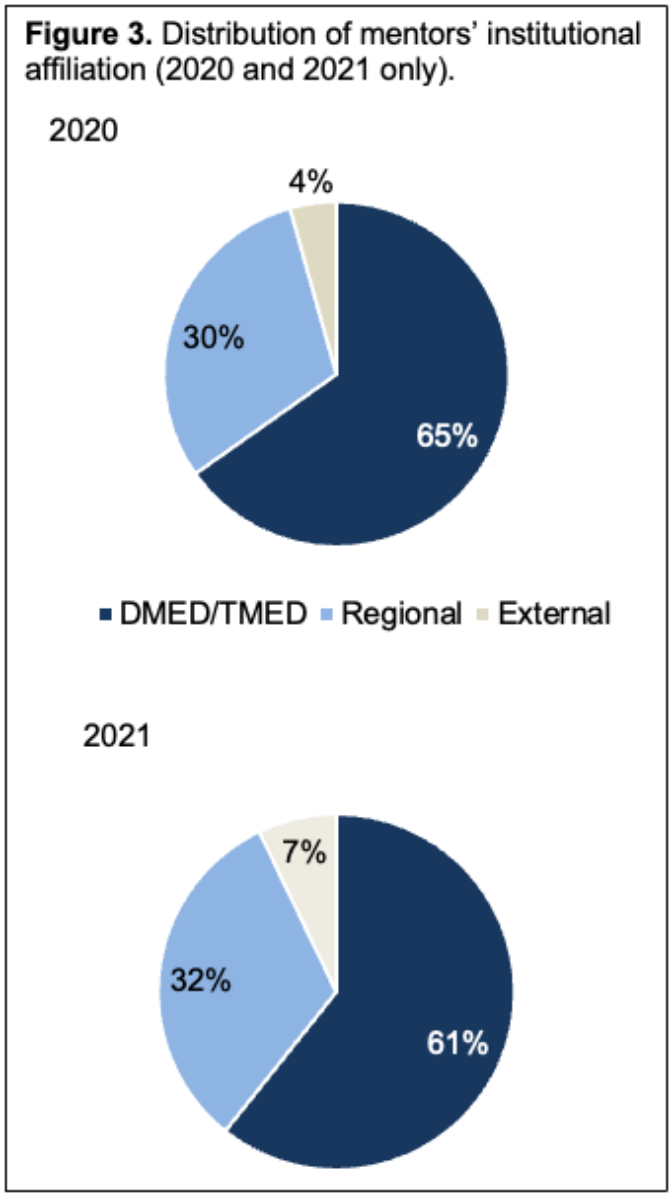
Notably, there was a steep increase in the number of students who participated beginning in 2019 as compared to previous years. This is reflective of the fact that there was a call put out to faculty and clinicians at local hospitals to submit project descriptions appropriate for a summer research experience for a medical student. Previous to 2019, a formalized list of mentors and projects was not distributed to students, leaving the bulk of the responsibility on the students to identify research mentors.

The types of research projects undertaken by student researchers are not limited by the MSSRP. Projects from 2020 and 2021 were categorized into one of four categories: Clinical, Biomedical, Educational, or Social/Behavioral. Most students pursued a clinical project often under mentorship of a practicing clinician. While the percentage of biomedical projects remained constant over the two years assessed, there was a small shift from the proportion of clinical projects to educational and behavioral/social (Figure 2).

Figure 2. Types of research projects by year (percentage of researchers; 2020 and 2021 only).



Mentors are recruited for the MSSRP on a volunteer basis. The proportion of mentors who have primary appointments at the Medical School Duluth Campus/Medical School Twin Cities Campus (DMED/TMED), a regional institution (St. Luke's Hospital and Essentia Health), remained nearly constant in 2020 and 2021 (Figure 3).



Notably, the large proportion of mentors are faculty from the Medical School Duluth.

Students were surveyed before and after their research experience for their assessment of the MSSRP and the skills they may have gained from research experience. As shown in Table 1, students' confidence in critically evaluating data/literature showed a statistically significant improvement ($p<0.05$) due to their research experience. While not statistically significant, the results from the other survey questions were overwhelmingly positive. Improvements were reported for students' confidence in sharing their scientific/medical ideas with peers and critical thinking skills. Additionally, students reported that they see research as relevant to their future career goals, including practicing evidence-based medicine, and are more likely to participate in research and collaborative relationships in their practice after participating in the MSSRP. Notably, the amount of perceived stress added to their academic burden was nearly the same before the research experience as compared to after. Finally, student responses indicated no change in the idea that a research experience would be helpful in preparing for qualifying exams.

Faculty at the Medical School Duluth were surveyed to assess their attitudes toward the MSSRP. Of 32 respondents, 26 indicated that they have mentored a medical student researcher as part of this program and the reasons for those who indicated they had never mentored a student centered on a lack of student interest. The content of the research is unknown for those citing a lack of student interest but does identify a need to ensure that potential mentors and projects are adequately advertised to students.

Faculty were also asked four questions regarding the amount of stress a student researcher added to their academic burden, the amount of progress that was made toward research goals, the relevance of research experience to medical training, and the likelihood of them mentoring a student in the future (Table 2). The responses to the faculty survey were largely positive. The amount of stress added to faculty's academic burden seemed to be, on average, manageable though the range of responses indicated that some respondents had very little extra stress while others experienced much more. Academic progress also had a large range of responses from no progress to student-dependent progress. The responses to the relevance of research experience to medical student training were largely positive and this is reflected in our observation that we continue to have faculty mentors volunteer to mentor students year after year. Finally, there was a wide range of responses to the likelihood of faculty mentoring students in the future. On average the response is positive but the range of scores indicates there are some faculty who will not likely mentor a student in the future.

As a follow-up question, we also asked what additional kind of support would help faculty in their roles as mentors. Not surprisingly many answers centered on needing more financial support for research and additional professional support from a statistician and additional staff to help with manuscript preparation and data management. Some responses indicated that a longer-term relationship with the student would be helpful as well as more accountability for student researchers. Taken together these ideas may reflect the high stress scores and low scores for the other three questions and identify gaps in the program that must be addressed.

To assess outcomes of the MSSRP, we asked faculty to report student presentations, publications, and grant submissions resulting from mentoring a student researcher. Forty-two percent of faculty mentors reported student presentations as a result of the research experience while 50% reported publishing manuscripts and 12% reported grant submissions. The expectation for the MSSRP is not that every student will generate a manuscript, but these data indicate that mentors are identifying discrete enough projects to be completed in the given time frame and enough work to warrant authorship for students.

Table 1. Results of student survey questions; shaded questions are statistically significant with $p<0.05$

Survey Question	Mean score before research experience	Mean score after research experience
How would you rate your level of confidence critically evaluating data/literature? (1 = Not confident; 5 = Very confident)	3.6	4.5
How would you rate your level of confidence sharing your thoughts/ideas about medical/scientific topics with peers? (1 = Not Confident; 5 = Very Confident)	3.6	4.1
How relevant is research to your future career goals? (1 = Not relevant at all; 5 = Very relevant)	3.3	3.8
How much do you think research will help in preparing for your qualifying exams? (1 = Not at all helpful; 5 = Very Helpful)	2.6	2.5
How would you rate your level of confidence in your critical thinking skills? (1 = Not confident; 5 = Very confident)	3.9	4.1
How would you rate the relevance of your research experience to practicing evidence-based medicine? (1 = Not relevant; 5 = Very relevant)	3.7	4.2
How would you rate the amount of additional stress that your research experience added to your academic burden? (1 = No additional stress; 5 = Unreasonable/prohibitive amount of added stress)	2.8	2.6
How likely are you to participate in research in your medical practice? (1 = Not likely; 5 = Very likely)	2.6	2.9
How likely are you to pursue collaborations (research or medical practice-based) in your medical practice? (1 = Not likely; 5 = Very likely)	2.8	3.5

Table 2. Average value of faculty survey question responses on a 1-5 Likert scale.

Survey Question	Average response value	Range of responses
How much stress did having a medical student researcher in your lab/under your supervision add to your academic burden? (1= No additional stress; 5 = A great deal of stress).	2.4	1-4
How would you rate the amount of progress you/your lab made toward research or other academic goals due to having a research student in your lab or under your supervision? (1 = No progress/prohibitive to progress; 5 = Made progress that would not have occurred without a student researcher).	3	1-5
In your view, how relevant is research experience to a medical student's training? (1 = Not relevant; 5 = Very relevant).	4.2	3-5
How likely are you to mentor a student again in the future? (1 = Not likely; 5 = Definitely).	3.9	1-5

Discussion

Research experiences during medical school are becoming more common as medical education evolves to encourage physicians to not only be engaged in acquiring medical knowledge but also understanding how that knowledge was generated.[8-9] Duke University School of Medicine and Stanford University School of Medicine have both had scholarly research programs as part of medical education for more than 60 years, though those programs

encompass 10-12 months of research.[9] Similar to the MSSRP at the Medical School Duluth, the University of Texas Medical Branch at Galveston has implemented a summer research experience between the first and second years of medical school as an elective that is part of the curriculum and is assigned a pass/fail designation at the completion of the course.[8] The MSSRP at the Medical School Duluth is not a required component of medical students' training and does not require students to sign up for course credit (though the option is available for those who choose). There is also no formal assessment (graded or pass/fail) of a student's research efforts other than the required presentation at the Medical Student Research Symposium which is assessed by a rubric for award selection. Based on the results of the student surveys (Table 1) the amount of stress that adding research to students' academic burden was manageable, suggesting that adding research as a required component of the curriculum could be considered. However, there are other summer programs offered by the Medical School Duluth including the Summer Internship in Medicine (SIM) during which students from both the Duluth and Twin Cities campuses have an immersive experience to learn about life as a rural health professional. Making the MSSRP a required component of the curriculum, in its current form, would take away from other, equally important opportunities for students. Additionally, while the mission of the Medical School Duluth is focused on rural health and training rural, family medicine physicians, many students choose to enter more competitive specialties and are better served by a research program and vice versa for those who intend to practice as rural physicians and benefit from SIM.

One of the goals of the MSSRP at the Medical School Duluth is to support students who choose to be involved in research. In Figure 1 there is a notable increase in student participation in 2019 as compared to previous years. Prior to 2019, MSSRP was a formalized program, but mentors were not recruited and asked to develop project descriptions appropriate for a summer medical student researcher. Instead, students were expected to contact faculty and clinicians and ask if they would be willing to mentor a student. This can make it difficult and intimidating for students to approach potential mentors and likewise potential mentors do not have time to prepare projects and assess whether they are able to supervise a student during the summer. By formalizing the process of identifying potential mentors and available projects, identifying a research mentor became less onerous for students and students and mentors are more easily paired.

The COVID-19 pandemic had an effect on participation in the MSSRP; Figure 1 shows that the number of participants decreased in 2020 as compared to 2019. The number of students who were interested in research remained nearly constant but with pandemic-related restrictions in place there were some projects that were unable to be implemented. The Medical Student Research Symposium was retooled to be held virtually via Zoom in Spring 2021 so that students who were able to complete their research remotely had a venue in which to present their projects and be considered for research awards. As COVID-19-associated restrictions are decreasing, the number of students participating in research not only recovered but increased in the summer of 2021. These data demonstrate the resiliency of our students and the overall importance of offering a research program as part of medical student training.

The composition of research projects is not surprising considering the number of faculty who do clinical research at the Medical School Duluth, as well as the relationships we have built with the two local hospitals (St. Luke's and Essentia Health), each of which have physician investigators who mentor students from the Medical School Duluth (Figures 2 and 3). Additionally, considering these are medical students pursuing research experiences, it is likely that clinical projects are chosen most frequently because the content aligns with their career interests. Mentors being from DMED/TMED versus external institutions likely varies year-to-year as all mentors do not take students each summer and we have observed that some mentors tend to take students every other year, which helps to explain the distribution of institutional representation. It should be noted that in 2020 and 2021 the number of mentors from the University of Minnesota Medical School (both Duluth and Twin Cities campuses) remained nearly constant. This reflects the support of faculty mentors at our institution and a culture that

respects the importance of research and of training students.

The results of the student surveys indicate that research experience increased students' skills and confidence, likelihood to participate in collaborative relationships in their practice, and increased their perception of the relevance of research to their practice (Table 1). The level of confidence students have in critically evaluating data and literature showed a statistically significant ($p<0.05$) increase after the research experience. As medical education and practice continues to shift to evidence-based medicine, the ability to evaluate primary literature will become increasingly imperative for physicians and having a research experience to hone these skills is an effective way to incorporate them into the curriculum.

The amount of perceived stress research would add to students' academic burden was similar before and after the research experience, which reflects well on the design of the MSSRP and the expectations made of students. This also suggests that research mentors are identifying appropriate projects for students. Student survey results also show that students do not think that research is helpful in directly preparing for their qualifying exams. However, as STEP exams transition to pass/fail rather than scored exams, research experiences will become more important to set students apart from their peers when competing for residency positions, and we anticipate an increase in student researchers in coming years. Finally, student attitudes toward the importance of a research program reflect the perceived importance of the MSSRP, as well, though the reasons behind those survey scores were not collected.

Faculty were asked if they had ever mentored a student as part of the MSSRP, and if they had not, to describe why. The most often cited reason was lack of student interest. The current method for advertising available mentors and projects is a list of mentors and project descriptions that is distributed electronically to the first-year medical student class. Project descriptions are written by the mentors. However, in order to garner additional student interest, it may be helpful to have potential mentors describe their projects to students directly to generate more enthusiasm.

The responses from the faculty survey were largely positive, but we identified gaps in the MSSRP that must be addressed. The amount of stress incurred by faculty mentors appears to be largely manageable but the range of values in response to the academic progress made toward research goals and how likely faculty are to mentor a student in the future indicate that there are unmet needs for faculty mentors. As a follow-up question, faculty were asked to identify what they need to be more supported in their roles as mentors as a free-response question within the survey.

Needs included longer term relationships with students and more accountability for student researchers. Summer is an unfortunately short time period within which to fit a research project into students' schedules. Extending the research/data collection period is not feasible with student schedules, but the introductory phase between the student and mentor could be extended by making the list of mentors and projects available to students earlier in the year. An in-person or Zoom session with mentors and students would also help foster these relationships as previously mentioned.

A need for more financial support for student research was another common theme from the faculty survey, as well as support from a statistician and staff for manuscript preparation and data management. Specifically, it was noted that for bench science projects, the cost of having a student researcher can be thousands of dollars in laboratory consumables while for clinical or social/behavioral projects the cost may be minimal and is not equitable. The financial aspect of implementing a medical student research program is not trivial and the sustainability of the program relies heavily on research mentors. As such, their needs must be considered when preparing funding proposals for the program. Finally, increased student accountability was mentioned as a need for mentors. The MSSRP has some requirements that help to ensure that students will finish their projects in an efficient timeline, but other criteria will need to be put in place. Funding applications should include discrete,

attainable research goals for the students that are agreed upon with the mentor. Currently the students are asked to outline their research goals but there is no required input by the mentor. Asking mentors to outline expectations early in the partnership will increase student accountability and make it clear to both the student and the mentor what the expectations are for the project. By increasing the accountability of students, one would predict that faculty-reported academic progress may increase in future years.

While there are gaps to address in implementation of the MSSRP, the student outcomes of the MSSRP, as reported by faculty, indicate that half of faculty have published manuscripts with a medical student researcher, 42% reported student presentations (outside of the required Medical Student Research Symposium), and 12% reported grant submissions. While it is difficult to reconcile the wide range of reported scores in response to the question about academic progress, it seems that many faculty mentors are making important progress with deliverable outcomes when mentoring students. The student surveys used to collect the data reported on here did not ask about whether students had published a manuscript or presented their data elsewhere but will be an addition to future surveys to get a clearer picture of how many students are getting the opportunity to publish and present. In the years since implementation of the MSSRP in 2015, the program has evolved to better serve our students and mentors and will continue to do so in response to these data.

Sustainability of a Summer Research Program

The financial commitment to a program such as the MSSRP at the Medical School Duluth is not trivial. In 2015 the Regional Campus Dean designed the MSSRP and contributed finances as well as significant effort to implementing this program. In 2022 the Dean of the Medical School committed $90,000 to the MSSRP on the Duluth campus; part of those funds will be carried over for 2023. The two departments at the Medical School Duluth, Biomedical Sciences and Family Medicine and Biobehavioral Health, have contributed both financially and with infrastructural support. With a strongly supported program we have been fortunate that every student who has applied for a summer stipend in 2020 and 2021 was funded. Considering the number of students that participate and costs associated with the symposium, our annual cost for the program varies but at a minimum is $3000 per student plus the expenses associated with the Research Integrity Training and Research Symposium. As such, significant financial support, including external grant support, is required for a research program to not only be sustained but also to have the opportunity to grow as student and mentor needs change.

As the MSSRP grows, dedicated staff are needed to direct the program. Currently there are identified program directors, but the MSSRP has been a responsibility taken on as a service to the Medical School Duluth. Directors recruit mentors, ensure projects are appropriate for a summer medical student, host a Research Integrity and Onboarding session for students, review summer stipend applications, and assist with IRB applications for over 25 students and projects. Additionally, the directors plan and implement the Medical Student Research Symposium and develop rubrics for scoring talks and posters. Throughout the academic year directors also serve as direct contacts for students with questions about their research and how best to navigate their experience. With a steadily increasing number of students participating each year, and increased needs to be filled for faculty and students, the responsibilities of MSSRP directors will comparably increase and become more than service-oriented roles.

Training and compliance are always at the forefront of the MSSRP. For a medical school to implement a program like that at the Medical School Duluth, access to CITI training and IRB oversight is imperative. Additionally, in order to collaborate with mentors from local and regional institutions, a research program should have a director with expertise in navigating IRB requirements among multiple institutions.

The MSSRP heavily depends on mentors volunteering each year. Thus far the number of mentors and projects available has not been a limiting factor but as the number of students who participate in the program continues to increase, the need for mentors

will similarly increase. There are no financial incentives for mentors, so the success of our program relies on the strong culture of training and service at the Medical School Duluth and Twin Cities campuses, Essentia Health, and St. Luke's Hospital in Duluth, as well as at the external institutions that have supported research for our students.

Future Directions

Prior to collection of these data there were no formal learning objectives outlined for the MSSRP, nor a mission for its purpose. While only one of the student survey questions showed a statistically significant change in the mean, the overall trends can be used to inform and shape the learning objectives and mission of the MSSRP to be published on the program website. Having discrete learning objectives may also contribute to faculty mentors being more satisfied with the program.

Implementation of a mid-summer gathering of students and mentors is another way we intend to increase accountability of student researchers, increase collegiality, and offer a venue in which students can informally report on how their research is progressing and any barriers they are experiencing. The research program at the University of Texas Medical Branch at Galveston requires a written report at mid-term for students and may be another effective way to keep projects on pace.[8] The benefit of having an informal gathering versus a more formal, written report is that reports must be assessed by program staff and do not promote the collegiality of an in-person meeting with verbal self-assessments of students' research projects. Additionally, with a short time period for students to collect data, their time should be dedicated to data collection rather than developing a written report.

To help promote the MSSRP at the Medical School Duluth and garner increased interest from students, the program will be described during medical student orientation at the beginning of students' first year. Because the program has been successfully implemented for seven years, students may hear about the opportunity for research from their second-year peers, but a formalized introduction to the MSSRP will help students form initial thoughts about their research interests. Additionally, program directors will host an in-person session with the entire first-year medical student class early in the spring and show a pre-recorded video compilation of mentors briefly describing their projects so students can better identify which projects interest them.

Promotion and visibility of the MSSRP at the Medical School Duluth will not only make it easier for students to participate, but also help the sustainability of the program. Currently the MSSRP has a website with a description of the program (https://med.umn.edu/about/duluth-campus/office-research-support/medical-student-research-opportunities). However, the program can also be incorporated into the admissions process by asking students about their research experience, interests, and goals.[9] The MSSRP website will continue to be updated with infographics, timelines within the program, details about the available stipend, and a list of program directors and staff.

Acknowledgments

The authors would like to thank Essentia Health and St. Luke's Hospital in Duluth as well as Dr. Peter Nalin and Dr. Jean Regal, chairs of the Departments of Family Medicine and Biobehavioral Health, and Biomedical Sciences, respectively, at the UMMS Duluth campus, as well as Dean Jakub Tolar, Dean of the UMMS, for their continued support of the MSSRP.

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