

COVER PAGE

- Project title
- Name and degree of primary investigator (PI)
- Name and degrees of co-investigators/collaborators
- Name of affiliated department(s)
- Section(s) that grant focuses on: *UGME, GME, CME, IPE*
- Contact information for primary investigator

PROPOSAL ABSTRACT

- 12-point font and 1-inch margins, no more than 300 words.
- Format: Problem/Educational Issue, Goal, Approach, Predicted Outcomes, and Anticipated Impact including dissemination plan.

PROPOSAL NARRATIVE

- Does not exceed five, single-spaced pages, 12-point font; 1-inch margins
- Rationale & Statement of the Problem**
- Background & Theoretical Framework**
- Approach**
- Outcomes and Evaluation Plan**
- Plan for dissemination of project outcomes regionally and nationally**
- References** (*not included in the 5-page limit*)
- Necessary addendums / appendices** (*not included in 5-page limit*)

PROJECT TIMELINE

BUDGET

- Itemized costs
- Statement of justification for each budget line item

BIOGRAPHICAL SKETCHES

- Template provided in guidelines has been used for each biosketch

LETTERS OF SUPPORT

- One letter of support for each study applicant (PI and Co-PI[s])

INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

- If this is a research project involving human subjects, documentation that the proposal has been submitted to the Institutional Review Board (IRB) for review must be included in the application

I have reviewed the proposal and verify that the items listed above are included.

PI Signature:  _____

Title:

A Novel Microlearning Intervention for Internal Medicine Residents on Menopause Management

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PROPOSAL ABSTRACT

Educational Issue: There has been a recent call to action to improve the quality of menopause care in the US. Primary care providers (PCPs) are positioned to deliver menopause care, yet often lack appropriate training. Currently, no menopause curricula have been shown to be effective and scalable to the extent necessary. Microlearning interventions may help to address this need.

Goal: To develop, implement, and evaluate a novel microlearning intervention in menopause management for internal medicine residents.

Approach:

We will create a series of microlearning videos to complement four synchronous sessions on menopause management for trainees in two internal medicine programs. Traditional pre-readings will be available to all participants. Participants will receive either the menopause didactics plus the microlearning videos, the menopause didactics alone, or the microlearning videos alone. Using a mixed-methods approach, participants will complete baseline and post-intervention surveys for each session to assess knowledge and comfort managing menopause in the primary care setting. For those using the microlearning videos, usage data will be collected. Statistical analysis will include frequencies, proportions and non-parametric tests for Likert scale data. Free text survey responses will be analyzed qualitatively via thematic analysis.

Predicted outcomes:

We predict that:

1. Participants will have low levels of baseline confidence and knowledge in menopause management.
2. Participants who engage with the microlearning videos will display greater confidence and knowledge in menopause management compared to participants who received the lectures alone.
3. Participants will prefer asynchronous microlearning content to assigned pre-readings.

Anticipated impact (including dissemination plan):

Our results will be disseminated in peer-reviewed publications and national academic meetings. The microlearning videos will be shared with trainees and faculty in other primary care relevant disciplines and professions throughout our health system. This same approach could be employed to create additional microlearning modules in various educational and clinical content areas in the future.

PROPOSAL NARRATIVE

Rationale and Statement of the Problem

There has been a recent call to action by women and gender-diverse individuals to improve the quality of menopause care in the United States (US).¹ Primary care providers (PCPs) play a critical role in administering women's health services,² yet are often unprepared to manage menopause.³ Untreated menopause symptoms have harmful effects on individuals and result in an estimated 1.8 billion dollars in lost productivity per year in the US.⁴ The scope of the problem will grow with our aging population; there is therefore an urgent need to train PCPs in women's health, particularly related to the menopause transition.

Providers' lack of confidence in menopause management begins early. Surveys of US medical school students show great variability in the gender-specific curricula covered in their medical schools.⁵ The issue is perpetuated at the graduate medical education level, as demonstrated by a study of internal medicine residents at a large academic medical center which indicated low levels of comfort in managing menopausal symptoms.⁶ Program directors in internal medicine value women's health topics, but may not incorporate them into their programs' core curricula.⁷

Discomfort with menopause management extends throughout the continuum of medical education. Within our own health system, recent informal surveys of IM residents at Lenox Hill Hospital showed low self-perceived knowledge in women's health and a lack of confidence in managing menopause symptoms in clinic. On a systems level, a recent survey of Northwell Health PCPs also showed low confidence, knowledge, and comfort in providing menopause care.

The American Board of Internal Medicine (ABIM) has called for IM residency programs to integrate women's health into their curricula⁸ and women's health competencies for internal medicine residents have been proposed.⁹⁻¹¹ However, as stated above, current educational efforts are inconsistent in meeting learners' needs in this area. Previous educational interventions in women's health and, more specifically, menopause management have been published. A study evaluating IM residents' knowledge of women's health following a one-month long women's reproductive health curriculum found a significant improvement in resident knowledge on the post-test.¹⁰ Similarly, another study examining the impact of weekly menopause clinic found a significant improvement in knowledge with this targeted activity.¹²

According to adult learning theory, effective educational interventions support active learning.¹³ A flipped-classroom approach is frequently used in medical education to promote active learning, but studies of flipped classroom curricula often cite inconsistent completion of pre-session asynchronous work by learners.¹⁴ A recent informal poll of a convenience sample of internal medicine residents at Lenox Hill Hospital indicated that, although they intend to complete pre-reading assignments, multiple barriers to doing so exist, including time constraints and incompatibility of dense written articles with certain learning styles.

Millennial and Generation Z learners increasingly incorporate technology into their learning. Microlearning, an educational strategy which presents small learning units in an incremental approach, has been shown to be a promising tool in health professions education.¹⁵ It also shows potential for the seamless integration of technology with flipped classroom interventions.

We will utilize a mixed-methods approach to address the following specific aims:

Aim 1: To create, implement, and evaluate a novel microlearning educational intervention for training internal medicine residents to manage menopause in the primary care setting.

- We will create a video series based on best-evidence recommendations for microlearning to complement a series of four interactive synchronous lectures on menopause topics for internal medicine residents at Lenox Hill Hospital and North Shore/LIJ.

Aim 2: To compare a menopause management didactic series supplemented with microlearning video content to the didactic series alone and the videos alone.

- We hypothesize that participants who engage with both the microlearning content plus the synchronous lecture series will perform better on knowledge assessments and will report greater confidence in managing menopause than those who participate in the lecture series alone.
- We will explore satisfaction and engagement with microlearning content and whether there is a difference in confidence or knowledge depending on degree of engagement with the microlearning videos. We hypothesize that participants who engage more with microlearning videos (measured by number of views) will perform better on knowledge assessments than those with low or no engagement with the videos.
- We will explore the effectiveness of microlearning videos alone in impacting knowledge and confidence in menopause management in the primary care setting. Those participants who are randomized to receive the microlearning videos but are unable to attend the synchronous lectures due to scheduling conflicts or other unanticipated absences will still receive pre- and post-intervention surveys as the “video only” group. Although anticipated to be a small group, the performance of the video only group has implications for dissemination of the microlearning videos to trainees or faculty outside of the two residency programs in the study.

Aim 3: To explore the experiences of internal medicine residents related to microlearning for management of menopause in the primary care setting.

- Qualitative data regarding resident experience with menopause management will be collected via self-reported free text answers to pre- and post-intervention surveys
- Responses from participants in the three groups (microlearning content plus lecture, lecture alone, and microlearning content alone) will be compared to explore self-reported knowledge, skills, and attitudes toward both microlearning and menopause management.

Background and Theoretical Framework

Self-determination theory (SDT) posits that humans are growth-oriented and intrinsically motivated to learn. Intrinsic motivation is driven by the need to satisfy three basic psychological needs: the need for autonomy, the need for competence, and the need for relatedness to others.¹⁶ The educational strategies employed in a curriculum may either help or hinder this motivation.¹⁷ For example, a learner-centered curriculum which includes problem-based learning in small groups may promote intrinsic motivation by allowing for autonomy, competence and relatedness to other learners.

Microlearning is emerging as a promising pedagogical approach and is well aligned with self-determination theory. Also referred to as micro-content, microlearning is characterized by very short lesson modules used to reinforce key course concepts and allows for significant learner autonomy given its asynchronous nature.¹⁵ It also allows learners to gain immediate access to relevant information in a just-in-time teaching (JITT) model.^{18,19} It may be particularly suited to Millennial and Gen Z learners given its delivery via digital technology.²⁰

We propose to develop a curriculum on menopause for internal medicine residents using Kern's 6-step model for curricular development.²¹ A series of 4 flipped-classroom,²² case-based learning sessions will be facilitated by faculty with content expertise in menopause management. For each session in the series, a complementary chalk-talk style video will be developed using the principles of microlearning to highlight key concepts. Chalk-talk style videos are ubiquitous on the internet and show promise for promoting learning among medical trainees.²³ The chalk-talk videos, as well as the multimedia components of the synchronous sessions, will follow best practices for multimedia teaching according to Mayer's cognitive theory of multimedia learning.²⁴

Approach

The internal medicine (IM) residency programs at Lenox Hill Hospital (LHH) in Manhattan and the North Shore and Long Island Jewish (NS/LIJ) Hospitals on Long Island host a total of 186 residents (76 at LHH and 110 at NS/LIJ). Both programs are affiliated with the Zucker School of Medicine at Hofstra/Northwell. Participants will be eligible for study inclusion if they are a current LHH or NS/LIJ internal medicine resident and are willing to participate. The research team will invite learners to participate via email using a secure web-based application, Research Data Capture application (REDCap). Through this application, they will receive a consent form and a baseline survey of knowledge and attitudes related to menopause management. Those individuals who consent to participate will opt in to completion of pre- and post-session surveys for all four sessions, described below. Participants may opt out of the study at any time without penalty. All residents in both programs will be given access to the microlearning videos and multimedia content used in the synchronous sessions to review on their own after the study is complete, whether or not they participate in the study.

The research team will develop very brief (6-8 minutes duration) educational videos for menopause management based on the principles of microlearning. This series of asynchronous videos will complement the four synchronous learning sessions on menopause management. The modules will be developed using tools from the following educational software programs: Camtasia, Powtoons, and Dall E2. The videos will be posted on an educational platform (EDPuzzle) where participants can log in to view the microlearning videos and complete embedded knowledge-based multiple-choice questions pertaining to each section. In addition to secure, confidential access to the microlearning content, EDPuzzle will allow for analysis of user engagement data including number of times videos are viewed.

The curricular content will be based on national recommendation by the North American Menopause Society (NAMS) and established practice guidelines.²⁵⁻²⁷ The curriculum will be comprised of four modules relevant to the management of menopause in a primary care setting: (1) menopause symptoms and diagnosis, (2) hormonal and non-hormonal treatment of vasomotor symptoms of menopause, (3) treatment of genitourinary symptoms, and (4) bone

health. Knowledge questions will be based on existing sources including UWorld (www.uworld.com) and the American College of Physicians Medical Knowledge Self-Assessment Program (MKSAP) which are commonly used by IM trainees and faculty for board preparation as well as a textbook of sex- and gender-based women's health.²⁸

All participants will be scheduled to attend interactive lectures on menopause management in the primary care setting. Through random selection, one-half of participants will be asked to complete online menopause microlearning videos prior to the lecture (intervention), while half will participate in the lecture only (control). Any participants who are randomized to the intervention group, but are unable to attend will still be offered access to the microlearning video content and will receive the pre- and post-intervention surveys. This group is expected to be small and will constitute a potential third group for analysis (video only). All participants will be provided with relevant articles for pre-reading prior to the sessions.

Our proposed project is innovative because it utilizes video modules designed using the principles of microlearning to deliver content on the management of menopause. Microlearning interventions in this content area have not been reported previously. Additionally, microlearning interventions in health professions education published in other clinical areas have targeted medical students rather than graduate medical trainees.

Anticipated barriers include a potentially low response rate to our pre- and post-intervention surveys. However, the inclusion of two separate study sites allows for a relatively large sample size for a pilot curriculum. Additionally, we plan to encourage participation by administering the pre- and post- surveys immediately before and after the synchronous sessions, with protected time for learners at the beginning and end of the sessions to complete the surveys. The use of two study sites with different block schedules ("6+2" block scheduling at LHH and "4+1" block scheduling at NS/LIJ) may result in unanticipated logistical and scheduling challenges. However, the study team will meet regularly to discuss curriculum implementation and make adjustments accordingly. Finally, the use of technology for teaching presents a risk of technical malfunctions, but the cost of the software and equipment proposed for completion of this project includes ongoing technical support for all products through the two-year duration of the pilot curriculum.

Outcomes and Evaluation Plan

Regarding Specific Aim 2, pre- and post-test Likert scale responses will be compared among the three groups using the Kruskal-Wallis test for multiple comparisons. If there are few or no participants in the "video only" group, an alternative non-parametric test (Wilcoxon signed rank) will be utilized to compare the microlearning videos plus lecture series group to the lecture series only group. The pre- and post-surveys will also include multiple choice knowledge questions related to menopause topics. Pre- and post-intervention learner feedback and knowledge scores will be compared across study groups, meeting levels 1 and 2 of the Kirkpatrick model of evaluation, respectively.²⁹ Learner behavior, or Kirkpatrick level 3 outcomes, will be assessed using the microlearning video usage data both during and after each module. We do not intend to measure outcomes at Kirkpatrick level 4, or patient outcomes, in this pilot curriculum. However, next steps in future iterations of the curriculum would include

retrospective chart review to assess whether patients' menopause symptoms are documented and addressed by trainees during their ambulatory rotations.

For those participants who engage with the microlearning videos, we will track usage data including amount of time spent on each video and number of times viewed in addition to percentage of embedded knowledge questions answered correctly. We will link video usage and pre/post intervention surveys using participant created anonymous user IDs in order to determine whether degree of engagement with the microlearning content impacts knowledge outcomes or satisfaction. All participants will receive access to the microlearning videos following completion of each module in the curriculum. We will review video usage data at 1 and 3 months after each module to assess whether learners continue to use the microlearning content.

Regarding Specific Aim 3, qualitative data regarding resident experience with menopause management and microlearning will be collected via self-reported free text answers to pre- and post-intervention surveys. Free text responses from participants in the three study groups will be compared using thematic analysis to explore self-reported knowledge, skills, and attitudes toward both microlearning and menopause management.

Plan for dissemination of project outcomes regionally and nationally

This pilot project would help create a virtual library of women's health modules built upon the principles of microlearning. This content could be made available through departmental shared drives, iLearn or other online platforms to allow for focused, just-in-time teaching in women's health for trainees and clinicians in relevant fields throughout the Northwell Health System.

Throughout this project, the research team will submit interim findings for presentation at regional and national academic conferences, such as the Association of Program Directors in Internal Medicine (APDIM), the Society of General Internal Medicine (SGIM), the American College of Physicians (ACP) and the annual meeting of the North American Menopause Society (NAMS). The PI and co-investigators will create manuscripts for submission to at least one peer-reviewed publication, such as MedEdPORTAL or Menopause, at the end of years 1 and 2. We also anticipate publication of the microlearning videos on an online platform such as GIMLearn, the online learning platform for the Society of General Internal Medicine.

We anticipate that this pilot curriculum will give rise to an ongoing, sustainable project on microlearning for medical trainees across our two internal medicine residency programs. The tools and software procured through the Zucker School of Medicine Academy of Medical Educators Innovations Fund would equip our collaborative research team to generate a library of high-quality microlearning videos for learners across the spectrum of health professions education. We plan to publish extensively on our experience and use our outcomes data to obtain support for future software and equipment needs through departmental funds or external grants following the conclusion of this project. The potential for monetizing our microlearning content for external use exists and could be considered in the future as an approach to sustainably fund ongoing content development. Future directions for this project include evaluation of patient-level outcomes and return on investment information for microlearning content in medical education.

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APPENDIX

Please see the following documents attached below:

1. Pre-session survey for educational unit on menopausal vasomotor symptoms.
2. Post-session survey for educational unit on menopausal vasomotor symptoms.

Menopause microlearning pre-test

Please complete the survey below. We are eager to learn how to improve the medical education of IM residents on women's health topics that have not been adequately addressed in undergraduate medical education. Menopause is one of those topics. Your participation drives the strength of this study.

Thank you for your help!

What year of residency are you in?

- PGY1
 PGY2
 PGY3

Section 1: Confidence in knowledge and skills with management of menopause symptoms.

I have sufficient medical knowledge to treat menopausal vasomotor symptoms in clinic.

- Strongly disagree
 Somewhat disagree
 Neither agree nor disagree
 Somewhat agree
 Strongly agree

Internal medicine residents should be able to manage vasomotor symptoms of menopause

- Strongly agree
 Somewhat agree
 Unsure
 Somewhat disagree
 Strongly disagree

I am able to identify vasomotor symptoms independently in clinic

- Yes
 No

I routinely ask my menopausal patients about the associated symptoms of menopause during my ROS.

- Yes
 No

If no, can you please briefly elaborate as to why?

I am comfortable managing vasomotor symptoms symptoms in clinic.

- Yes
 No

If no, can you elaborate as to why?

Section 2: Viewpoints on microlearning as a tool for medical education.

What is microlearning? Microlearning is an educational strategy that focuses on learning new information in small units (for example: think short videos or short bullet point documents)

How often do you go to online sources like YouTube to review videos on clinical topics?

- Very often
- Somewhat often
- Unsure
- Not very often
- Never

How likely would you be to watch a short educational video (~8 min) in advance of ambulatory didactics which covers common clinical scenarios?

- Very likely
- Somewhat likely
- Unsure
- Not likely
- Definitely unlikely

What do you prefer, short targeted educational content or the process of learning topics over longer periods of time?

- I prefer short, targeted content
- I prefer long form educational content
- It depends

If it depends, can you please elaborate on what topics you routinely turn to long form content (lectures, textbooks)

What types of educational videos, if any, do you use for your own learning (eg YouTube, Khan academy, online meded)

Section 3: Knowledge about menopause: vasomotor symptoms

You have a 63 F patient with PMH of HTN, depression, hx of PE in 2022 (on xarelto), and osteoarthritis who presents to LHM with worsening vasomotor symptoms. She states she has woken up with night sweats and has hot flashes at work. She would like to trial medication for these symptoms. What would you recommend?

- estrogen-progestin pill
- escitalopram
- propranolol
- bisphosphonate

A 54 year old woman presents to LHM with severe hot flashes, she smokes 1 pack of cigarettes a day. Aside from smoking she has class III obesity and is considering a gastric sleeve in the future. She wants something for her debilitating hot flashes. What drug would you recommend?

- oral estrogen
- venlafaxine
- bupropion
- oral progesterone

You have a patient with vaginal dryness, hot flashes, and night sweats for whom you started hormone replacement therapy (HRT). They are feeling improvement in their symptoms but did not realize HRT if continued has increased risks of the following:

- uterine cancer
- ovarian polyps
- breast cancer
- osteoporosis

Have these questions perked your interest in learning about menopause management?

- Highly interested
- Somewhat interested
- Neutral
- Somewhat disinterested
- Highly disinterested

Menopause microlearning post-test

Please complete the survey below. We are eager to learn how to improve the medical education of IM residents on women's health topics that have not been adequately addressed in undergraduate medical education. Menopause is one of those topics. Your participation drives the strength of this study.

Thank you for your help!

What year of residency are you in?

- PGY1
 PGY2
 PGY3

Which study group did you participate in?

- Lecture only
 Videos only
 Videos + lectures
 None

Section 1: Confidence in knowledge and skills with management of menopause symptoms.

I have sufficient medical knowledge to treat menopausal vasomotor symptoms in clinic.

- Strongly disagree
 Somewhat disagree
 Neither agree nor disagree
 Somewhat agree
 Strongly agree

Internal medicine residents should be able to manage vasomotor symptoms of menopause

- Strongly agree
 Somewhat agree
 Unsure
 Somewhat disagree
 Strongly disagree

I am able to identify vasomotor symptoms independently in clinic.

- Yes
 No

I will routinely ask my menopausal patients about the associated symptoms of menopause during my ROS.

- Yes
 No

If no, can you please briefly elaborate as to why?

I am comfortable managing vasomotor symptoms in clinic.

- Yes
 No

If no, can you elaborate as to why?

Section 2: Viewpoints on microlearning as a tool for medical education.

What is microlearning? Microlearning is an educational strategy that focuses on learning new information in small units (for example: think short videos or short bullet point documents)

How often do you go to youtube to review short videos on clinical topics?

- Very often
- Somewhat often
- Unsure
- Not very often
- Never

Since participating in this study, would you be more likely to watch a short educational video (5 min max) in advance of ambulatory didactics?

- Very likely
- Somewhat likely
- Unsure
- Not likely
- Definitely unlikely

The menopause course videos were a valuable resource for my learning.

- Strongly agree
- Somewhat agree
- Not applicable/did not watch them
- Somewhat disagree
- Strongly disagree

What do you prefer, short targeted educational content or the process of learning topics over longer periods of time?

- I prefer short, targeted content
- I prefer long form educational content
- It depends

If it depends, can you please elaborate on what topics you routinely turn to long form content (lectures, textbooks)

Section 3: Knowledge about menopause: vasomotor symptoms

You have a 63 F patient with PMH of HTN, depression, hx of PE in 2022 (on xarelto), and osteoarthritis who presents to LHM with worsening vasomotor symptoms. She states she has woken up with night sweats and has hot flashes at work. She would like to trial medication for these symptoms. What would you recommend?

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- uterine cancer
- ovarian polyps
- breast cancer
- osteoporosis

Have these questions perked your interest in learning about menopause management?

- Highly interested
- Somewhat interested
- Neutral
- Somewhat disinterested
- Highly disinterested

Please share and comments or concerns you have about this educational module. Thank you!

PROJECT TIMELINE

Months 1-3

Curriculum Build for Units 1 and 2 (6 weeks)

Flipped-classroom sessions for the first two subtopics in the menopause educational series will be developed based upon Kern's 6-step approach to curriculum design. The first two subtopics are (1) menopause symptoms and diagnosis and (2) hormonal and non-hormonal treatment of vasomotor symptoms of menopause. The session content will be based on current best practices in menopause evaluation and treatment of vasomotor symptoms. Co-creation of the sessions by attending internal medicine physicians with expertise in menopause management and medical education (Drs. Conigliaro, Srivastava, and Killian) with a current resident physician in internal medicine (Dr. Mangla) will allow for high-yield, interactive sessions optimized for internal medicine trainees.

Microlearning Video Creation for Units 1 and 2 (6 weeks)

Based on the learner outcome objectives for units 1 and 2, the research team will create a series of brief (6-8 minute), chalk-talk style videos intended for independent learning by resident physicians prior to the synchronous sessions. The videos will be created on a tablet commonly used in visual facilitation and design (Wacom Cintiq 22 Graphics Tablet) according to the principles of microlearning. All videos will be created through consultation with a Northwell librarian with extensive knowledge in educational video design (Stacy Posillico, MLS, JD). A combination of web-based resources will be utilized to make visually appealing, engaging videos targeting adult learners. The videos will be posted on the EDPuzzle educational platform and made accessible to learners via password protected log-in.

Months 4-7

Preparation (6 weeks)

The study faculty at both residency program sites (LHH and NS/LIJ) will review the microlearning videos and curriculum for the synchronous sessions in their entirety to discuss teaching strategies in detail and ensure that sessions at both sites are facilitated in an identical manner. Residents from both study sites will be e-mailed the study information and consent form for participation.

Curriculum Implementation for Module 1 (6 weeks)

At the start of each regularly scheduled ambulatory didactic blocks for both residency programs, a random selection of half of participants in that ambulatory block will receive an invitation to create an account in EDPuzzle to view microlearning videos for subtopic #1, menopause symptoms and diagnosis. On their regularly scheduled academic half day for ambulatory didactics, 15-20 residents from LHH and 20-30 residents from NS-LIJ from PGY levels 1-2 will report to their respective ambulatory didactic locations for a synchronous educational session on that topic. At that time, residents will have the opportunity to consent for participation if they have not done so previously via email. Residents who consent to study participation will be given the pre-test for that unit and then participate in the 60-minute learning session. Participants will receive the link to the post-session survey prior to leaving the session. Those who decline to participate will be excused for 60 minutes of self-study time. All residents will receive access to all multimedia materials after their scheduled session, whether they consented to study participation or not. Those residents who consent to participate but miss the synchronous session due to scheduling conflicts or other absence will still be asked to complete pre- and post-intervention surveys, with a random selection of them having access to the microlearning videos. This group is

anticipated to be small and will constitute the “video only” group during our data analysis. The curriculum will be repeated for each ambulatory group once every one to two weeks to allow for participation by all categorical internal medicine and primary care track residents in both residency programs.

Months 7-9

The preparation and implementation phases detailed above will be repeated for the second module of the curriculum, hormonal and non-hormonal treatment of vasomotor symptoms of menopause.

Months 10-12

Statistical analysis and national meeting preparation (8 weeks)

Quantitative and qualitative analysis will be performed on the data by the research team as described previously in the project proposal. During this time, preliminary results will be prepared for submission and presentation at regional and national academic meetings such as the meetings of the Association of Program Directors in Internal Medicine and Society of General Internal Medicine (SGIM).

Manuscript writing: (8 weeks)

The PI and co-investigators will create a manuscript for submission to a peer-reviewed publication based on the results of the first two modules of the curriculum. We plan to submit the curriculum to MedEdPORTAL or another medical education publication. Our outcomes and curricular content would also be appropriate for submission to a women’s health publication such as the journal, Menopause. We also anticipate publication of the microlearning videos on an online platform such as GIMLearn, the online learning platform for the Society of General Internal Medicine.

Months 12-24

The procedure described for units 1 and 2 above will be repeated for units 3 and 4, the genitourinary syndrome of menopause and bone health.

BUDGET

Item	Cost	Justification	More Information
Wacom Cintiq 22 graphics tablet	1299.95+115.37 tax =\$1415.32	Drawing tablet commonly used in creation of high-quality chalk-talk style educational videos (e.g. Khan Academy style videos).	https://estore.wacom.com/en-us/wacom-cintiq-22
2-year extended warranty for Wacom Cintiq 22 graphics tablet	\$109	Extended coverage for repairs, extended failure protection, power surges and electrical failures	https://estore.wacom.com
Wacom Tablet Protective Case	\$34.95 + \$3.10 tax =\$38.05	To protect the drawing tablet from damage.	estore.wacom.com
Camtasia Video Editing Software + Snagit screen capture bundle	\$455.98 (with educator discount)	Two perpetual licenses to Camtasia video editing software and Snagit screen capture software for creation of microlearning videos	https://www.techsmith.com/store/
EDPuzzle Pro Teacher Plan	\$13.50 per month for 24 months =\$324	Password protected platform for educational video creation and hosting. Allows for monitoring learner engagement in real time, embedded knowledge assessment questions.	https://edpuzzle.com/pricing
Powtoon Pro	\$40 per month x 24 months =\$960		https://www.powtoon.com
Canva Pro	\$119.99 x 2 years =\$239.98		https://www.canva.com/pricing/
DALL-E 3	\$0.08 per image \$260 for 3,250 images	High quality images generated via artificial intelligence. Will give the research team flexibility to create images tailored to the educational needs of the learner. Eliminates need for	https://openai.com/pricing

		training or advanced skill in drawing or painting.	
Shift-It materials for graphic facilitation	\$1,134 (50% discount rate of \$567 offered in November 2023)	Online and printed materials for self-study on the fundamentals of teaching and communicating via graphic representations	https://www.shift-it-coach.com/fundamentals-kit/
Total:	\$4,936.33		

6. BIOGRAPHICAL SKETCHES

Please see attached biosketches for:

- PI: Katherine Killian MD, MPH, MEd
- Co-investigator: Sneha Shrivastava MD, MEd, MSCP
- Co-investigator: Rosemarie Lombardi Conigliaro, MD, FACP, MSCP
- Co-investigator: Mahima Mangla D., S., MPH

Collaborator:

Stacy F. Posillico MLS, JD is an accomplished information research professional, writer, and instructor. She is the Health Sciences Librarian of the Eastern Region Hospitals of Northwell Health and previously worked as a law librarian. An emerging technology and digital resource specialist with experience in faculty development in that area, she will bring valuable insight into the creation of our curriculum, particularly in the design and implementation of the microlearning and technological aspects of the project.

7. LETTERS OF SUPPORT

Please see attached letters of support for the PI and all co-investigators

8. INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

Please see screenshot below from Northwell IRB Manager indicating submission of exemption application for this project to the IRB.

The screenshot displays the Northwell Health IRB Manager interface. The top navigation bar includes 'Home', 'My Forms', and a search box 'Find Study (Ctrl+Q)'. A user menu shows 'Katherine's Settings' and 'Sign off'. A 'What's this?' tooltip is visible, stating: 'This table shows xForms associated with you as a user of IRBManager across the entire system.' Below this, a status dropdown is set to 'Waiting For The PI, Department Chair Or Committee Review'. A table lists the submission details:

Action	Form	Identifier	Owner	Stage	As Of
	Initial Submission Application	A Microlearning Intervention for Internal Medicine Residents on Menopause Management	Killian, Katherine (KKillian@northwell.edu)	Department Chair Approval	11/11/2023 2:18 AM ET

BIOGRAPHICAL SKETCHES

BIOGRAPHICAL SKETCH

NAME: Killian, Katherine

POSITION TITLE: Associate Program Director, Director of Primary Care Track Lenox Hill Hospital

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
Johns Hopkins University, Baltimore, MD	BA	05/2006	Spanish
Emory University Rollins School of Public Health, Atlanta, GA	MPH	05/2012	Epidemiology
Emory University School of Medicine, Atlanta, GA	MD	05/2012	Dual MD/MPH
Hofstra University, Hempstead, NY	MSED	05/2023	Health Professions Education
Beth Israel Deaconess Medical Center, Boston, MA	Resident	07/2015	Internal Medicine Residency Program

A. Personal Statement

My work centers on health professions education at the graduate medical education level. Working with Millennial and Generation Z learners, I am very interested in the impact of technology on learning. In my role as Associate Program Director and Director of the Primary Care Track in the Lenox Hill Hospital Internal Medicine Residency Program, I design and implement curricula for primary care and categorical track internal medicine residents. These curricula are based on best practices in adult learning theory and multimedia teaching. As chair of the Lenox Hill Internal Medicine Resident Grand Rounds Committee, I have the pleasure of instructing others in multimedia teaching through didactic sessions and by mentoring resident physicians in the creation of effective presentations.

Since becoming faculty at Lenox Hill Hospital, I have had a variety of experiences which have shaped me as an educator and prepared me to pursue the proposed project. In the last two years, I have given multiple grand rounds presentations on best practices in multimedia teaching at academic institutions in my region. My interest in this area and my familiarity with information processing theory and the cognitive theory of multimedia learning make me well suited for my proposed project. In 2022, I completed a summer course in medical education video production through Northwell called MedEd in Motion, which inspired me to integrate videos into many of my teaching sessions and to explore the potential of using microlearning videos in the current proposal. To better meet the needs of my learners, I pursued graduate training in health professions education through Hofstra University and graduated earlier this year. Through the MSED program, I gained skills in mixed-methods educational research and scholarship. Recently, I joined the content team for GIMLearn, the online learning platform for the Society of General Internal Medicine. In this role, I look forward to helping to improve the digital learning experiences of general internists over my two-year term.

For my proposed Academy of Medical Educators Innovations Fund project, I will utilize and further develop my skills in multimedia teaching and educational scholarship. With my co-investigators, I will develop a series of educational videos based on the principles of microlearning, an emerging pedagogical approach in health professions education. I am fortunate to collaborate with team members who are highly qualified for this project. Dr. Srivastava has training in women's health and medical education and will contribute her extensive content knowledge to our proposed internal medicine curriculum on menopause. Dr. Conigliaro is also an expert in women's health and a leader in our healthcare system. Her body of work includes numerous peer-reviewed publications. Her research experience will inform our efforts to disseminate our findings from the proposed intervention. Dr. Mangla has prior experience in research, curricular design, and survey development. Additionally, her unique perspective as a current internal medicine resident will be invaluable to our efforts. Also providing unique perspective will be Northwell librarian, Stacy Posillico, who brings a wealth of experience in eLearning and medical education technology. I am confident that our collaboration will be productive and sustainable in the long term.

B. Positions Held

Positions and Scientific Appointments

- 2023 - Member, GIMLearn Content Team, Society for General Internal Medicine
- 2023 - Chair, Resident Grand Rounds Committee, Lenox Hill Hospital Internal Medicine Residency Program, New York, NY
- 2022 - Education Committee Member, Society for General Internal Medicine
- 2020 - Director of Primary Care Track, Lenox Hill Hospital, Internal Medicine Residency Program, New York, NY
- 2020 - Associate Program Director, Lenox Hill Hospital, Internal Medicine Residency Program, New York, NY
- 2019 - Core Faculty, Lenox Hill Hospital, Internal Medicine Residency Program, New York, NY
- 2019 - Primary Care Physician, Northwell Health Physician Partners, New York, NY
- 2019 - Assistant Professor, Department of Internal Medicine, Donald and Barbara Zucker School of Medicine at Hofstra/Northwell, Lake Success, NY
- 2015 - Primary Care Physician, Beth Israel Deaconess Medical Center, Bowdoin Street Health Center, 2018
Dorchester, MA
- 2015 - Instructor of Medicine, Harvard Medical School, Boston, MA
2018
- 2015 - Nocturnist, Beth Israel Deaconess Medical Center, Boston, MA
2015

Honors

- 2019 - 2020 Teacher of the Year, Northwell Health
- 2019 Attending of the Year, Lenox Hill Hospital
- 2018 Linde Primary Care Leadership Fellowship Selectee, Linde Family Foundation

C. Contributions to Medical Education

Szymanski, E. Sottile, E. Thomas, M. Donovan, A. **Killian, K.** Tan, E. Kiefer, M. Leung, P. (2023, May 12). Society for General Internal Medicine 2023 Clinical Update in Medical Education. Society for General Internal Medicine 2023. Aurora, CO.

Vartak, N., Varkey, A., **Killian, K.** LDL-Cholesterol Management in Diabetics for Primary Prevention of Atherosclerotic Cardiovascular Disease. Northwell Health Just in Time Teaching. May 2023.

Killian, K. (2022, September 27). Best Practices for Teaching in a Virtual Classroom. Internal Medicine Faculty Meeting Einstein School of Medicine. New York, NY.

Killian, K. (2022, September 1). Best Practices for Teaching in a Virtual Classroom. Department of General Medicine Grand Rounds Mt. Sinai Hospital. New York, NY.

Killian, K. (2022, April 29). Teaching in a Virtual Classroom: From Disruption to Best Practices. Department of Medicine Grand Rounds Lenox Hill Hospital. New York, NY.

D. Additional Information

Nandiwada, D., Callender, D, Farkas, A., Nikiforova, T., Leung, P., Donovan, A., **Killian, K.**, Thomas, M., Singh, M., Gallagher, B. Exploring Models of Exposure to Primary Care Careers in Training: A Narrative Review. *Journal of General Internal Medicine*. Manuscript accepted for publication November 2023.

Killian, K., Khamis, N. (2023, September 23). A Train-the-Trainer Workshop for Hypothesis-Driven Physical Examination and Diagnosis of Common Shoulder Conditions for Primary Care Residents. Poster presented at Society for General Internal Medicine Mid-Atlantic Regional Conference. New York, NY.

Szymanski, E. Sottile, E. Thomas, M. Donovan, A. **Killian, K.** Tan, E. Kiefer, M. Leung, P. (2023, July 6). Society for General Internal Medicine 2023 Clinical Update in Medical Education. General Medicine Grand Rounds, Weill Cornell Medicine. (Virtual).

Killian, K., Im, S., Shah, J Turbow, S. (2021, September 23). Negotiating for Equity: Proven Techniques to Advocate for Your Patients, Your Colleagues and Yourself [Seminar]. Association of Program Directors in Internal Medicine Fall Conference (Virtual).

Killian, K., Im, S., Taylor, J., Turbow, S. (2021, April 20-23). Negotiating for Equity: Proven Techniques to Advocate for Your Patients, Your Colleagues and Yourself [Workshop]. Society of General Internal Medicine Annual Conference (Virtual).

BIOGRAPHICAL SKETCH

NAME: Sneha Shrivastava MD, MEd, MSCP

POSITION TITLE: Director of Women's Health Education; Assistant Professor, Department of Medicine, Donald and Barbara Zucker School of Medicine

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
York University, Toronto, Canada	B.S.	06/2006	Biology
St. George's University, Grenada	M.D.	06/2011	Medicine
Allegheny General Hospital, Pittsburgh, PA	Residency	06/2014	Internal Medicine
Hofstra University, Hempstead, NY	MEd	07/2018- 06/2021	Masters in Medical Education
Northwell Health, NY	Fellowship	07/2018- 06/2021	General Internal Medicine

A. Personal Statement

I am listed as co-investigator in the grant application, a position for which I believe I am well qualified due to experience in women's health, primary care, teaching, and curriculum development. In addition to clinical work in primary care and precepting residents in our practice which serves a diverse, largely underserved population. I also lead the women's health clinic at my one of our division's clinical sites, which provides care to women and trains residents and medical students in women's health. I have the expertise, training, and motivation necessary to carry out the proposed research project successfully. I have a broad background in Internal Medicine, with specific training and expertise in women's health. My fellowship was focused on breast and cervical cancer screening education for women. I teach yearly women's health didactics to internal medicine resident and women's health elective to third- and fourth-year medical students. I am the PI of several medical educational projects, for which I mentor medical students, residents, and fellows. I am certified to provide menopause care by The Menopause Society. I have particular interest in the areas of women's health, medical education, preventive care and telehealth.

B. Positions and Honors

Positions and Employment

2011-present	Director, Women's Health Education, Division of General Internal Medicine, Northwell
2011-present	Core Faculty, Internal Medicine Residency Program
2019-present	Assistant professor, Donald and Barbara Zucker School of Medicine, Hempstead, NY
2019-2011	Fellow, Division of General Internal Medicine, Northwell Health
2019-2011	Internal Medicine Physician (15% clinical), Long Island Jewish Medical Center Medical Specialty at Glen Oaks Glen Oaks, NY
4/2020-5/2020	Hospitalist (100% clinical), Valley Stream Hospital (COVID-19 Redeployment), Valley Stream, NY
2015-2019	Internal Medicine Physician (100% clinical), Cornerstone Family Healthcare, Newburgh, NY

2015-2019 Adjunct Clinical Assistant Professor of Internal Medicine, Touro College of Osteopathic Medicine, New York, NY

Honors and Awards

2019 High Potential Mentor, Mentoring and Professionalism in Training (MAP-IT) Program, Northwell Health
2014 Excellence in Ambulatory Medicine Award, Allegheny General Hospital
2014 First place in poster competition at Women's Health 22nd Annual Congress 2014
2013 First place in poster competition at American College of Physicians Western Pennsylvania Chapter
2009 Dean's list - St. George's University 2009
2008 Dean's List- St. George's University
2007 Chancellor's list - St. George's University
2003 Canadian Millennium Scholarship - York University
2002 Brandon University Board of Governors' Entrance Scholarship and Brandon University James of Goodlan's Scholarship - Brandon University

C. Contributions to Science

1. **Shrivastava S**, Gandhi A, Spencer AL. Filling unmet needs: Integrating Women's Health education into the Internal Medicine Residency Program Curriculum. Southern Medical Journal, 2021 Feb;114(2):116-122
2. **Shrivastava S**, Martinez J, Coletti D, Fornari A. Interprofessional leadership development: the role of emotional intelligence and communication skills training. MedEd-PORTAL. 2022;18:11247.
3. **Shrivastava S**, Conigliaro R. Polycystic Ovarian Syndrome. Medical Clinics of North America, Women's Health. Edited by Melissa McNeil, Elsevier, March 2023, 227-234.
4. Ly J, Feng A, McNally ST, **Shrivastava S**. Changes in Ob/Gyn Resident Perception in Perinatal Mood and Anxiety Disorders (PMAD) with Additional Education and Training. American College of Obstetrics and Gynecology District II Meeting 2022.
5. **Shrivastava S**, McNally ST, Do we screen for postpartum depression? The Society for Academic Specialists in General Obstetrics and Gynecology 2021.

Invited talks:

1. Katz Institute for Women's Health annual CME conference: Women's Health Beyond the Bikini Approach: Polycystic Ovarian Syndrome-Diagnosis and Management throughout the Lifespan 03/2023
2. Northwell Health Wellness Webinars: Menopause 101 10/2023

D. Additional Information: Research Support and/or Scholastic Performance

Ongoing Unfunded Projects

Project Title: Women's Health Ambulatory Curriculum
Development of a longitudinal women's health ambulatory curriculum for Internal Medicine residents.
Role: PI

Project Title: Telehealth curriculum
Implementation and assessment of a telehealth curriculum for Internal Medicine residents.
Role: Mentor

Project Title: Microlearning and contraception
Implementation of a contraception curriculum in a microlearning format for Internal Medicine residents.
Role: Mentor

BIOGRAPHICAL SKETCH

NAME: Rosemarie Lombardi Conigliaro, MD, FACP, NCMP

POSITION TITLE: Section Chief, Women's Health, Northwell Health, Professor of Medicine, Zucker School of Medicine at Hofstra/Northwell

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
New York University, New York, NY	B.A.	05/1983	Chemistry
State University of NY, Upstate Medical University, Syracuse, NY	M.D.	05/1987	Medicine
Bronx Municipal Hospital Center/Albert Einstein College of Medicine, Bronx NY	Residency	07/1987 - 06/1990	Internal Medicine

Personal Statement:

I am an academic general internist and clinician educator with over 30 years of experience teaching at the UME, GME and CME levels. I have practiced comprehensive women's health care for the entirety of my career. I have training and expertise in communication skills, simulation, and curriculum development. I have created curricular content for all levels of learners via on-line and web-based modules, videos, and interactive sessions. I currently teach WH to medical students, residents, fellows, other faculty, both in the clinical setting and via didactics and workshops and provide extensive WH education in the community. I am a certified Menopause provider through the (NA) Menopause society. I have the expertise, training, and motivation necessary to carry out the proposed research project successfully.

Positions Held:

2020 -present Professor of Medicine; Department of Medicine; Hofstra/Zucker School of Medicine
2020 -present Section Chief, Women's Health; Internal Medicine; Northwell Health Physician Partners
2018– 2020 Professor of Medicine; Department of Medicine; New York Medical College
2018 –2020 Vice Chair, Education; Department of Medicine; Westchester Medical Center
2018 – 2020 Section Chief, General Internal Medicine; Department of Medicine; Westchester Medical Center
2012 - 2018 Professor of Medicine; Department of Medicine; Albert Einstein College of Medicine (COM)
2012 –2018 Assistant Dean at Montefiore Medical Center; Albert Einstein College of Medicine
2012 –2018 Program Director, Internal Medicine; Associate Chair for Graduate Medical Education Montefiore Medical Center
2010 - 2012 Professor of Medicine; Department of Medicine; University of Kentucky COM
2009 -2012 Senior Assistant Dean for Curriculum; University of Kentucky College of Medicine

- 2005- 2010 Associate Professor of Medicine; Department of Medicine; University of Kentucky, COM
- 2005-2009 Senior Associate Program Director; Internal Medicine Training Program; University of Kentucky Chandler Medical Center
- 2003 - 2005 Associate Program Director; Internal Medicine Training Program; University of Pittsburgh Medical Center
- 2002 -2005 Associate Professor of Medicine; Department of Medicine; University of Pittsburgh School of Medicine (SOM)
- 1991 – 2002 Assistant Professor of Medicine; Department of Medicine; University of Pittsburgh SOM
- 1990 – 1991 Instructor in Medicine; Ambulatory Care/Department of Medicine; Bronx Municipal Hospital Center; Albert Einstein College of Medicine

Honors and Awards:

1. Excellence in Teaching Award – Internal Medicine Training Program, Westchester Medical Center/New York Medical College, 2018-2019
2. Davidoff Society, Albert Einstein College of Medicine – for Outstanding Achievement in the Teaching of Medical Students, May 2017
3. Abraham Flexner Master Educator Award – University of Kentucky, College of Medicine, 2011
4. Categories: *Educational Innovation & Curriculum Development; Educational Evaluation & Research; 2008 Categories: Educational Leadership & Administration; Teaching Contribution or Mentorship; Faculty Development in Education*
5. American College of Physicians (ACP) Kentucky Chapter Faculty Teaching Award, September 2011
6. Outstanding Faculty Teaching Award – DOM Housestaff, University of Kentucky, 2010-2011
7. AOA Faculty Member – Nominated by Class of 2011, University of Kentucky, College of Medicine
8. Outstanding Teaching Attending Award – DOM Interns, University of Pittsburgh Medical Center, 2004-2005

Contributions to Medical Education:

1. **Conigliaro R**, Kuperstein J, Dupuis J, Welsh D, Taylor S, Weber D, Jones M. The PEEER Model: Effective Healthcare Team-Patient Communications. MedEdPORTAL; 2013. Available at: www.mededportal.org/publication/9360.
2. Shrivastava S, **Conigliaro RL**. “Polycystic Ovarian Syndrome.” In McNeil M (ed). Medical Clinics of North America Clinical Review Articles: Women’s Health. Elsevier Inc, 2023. Vol 107(2): 227-234.
3. Northwell Health Division of General Internal Medicine Grand Rounds; April 2023; Cardiovascular Disease in Women
4. Northwell Health **Department of Medicine Grand Rounds**; June 2021; *Medicine’s Purview of Women’s Health*

Additional Information:

1. Paralkar N, LaVine N, Ryan S, **Conigliaro R**, Ehrlich J, Khan A, Block L. Career Plans of Internal Medicine Residents from 2019 to 2021. *JAMA Int Med* 2023; 183(8): E1-2.
2. Jagannath AD, Nabors C, Southern W, Schlair S, **Conigliaro R**. Resident Inbox Task Completion Is Improved with a Single Electronic Health Record (EHR) System. *J Gen Intern Med* 05 March 2020.
3. **Conigliaro RL**, Peterson K, Stratton TD. Lack of Diversity in Simulation Technology: An Educational Limitation? *Simulation in Health Care* April 2020;15:112-114.
4. Galen B, **Conigliaro R**. A Curriculum for Lumbar Puncture Training in Internal Medicine Residency. *MedEdPublish* 2019; (1). <https://doi.org/10.15694/mep.2019.000033.1>.
5. Galen BT, **Conigliaro RL**. The Montefiore 10: A Pilot Curriculum in Point-of-Care Ultrasound for Internal Medicine Residency Training. *Journal of Graduate Medical Education*. 2018;10 (1): 110-111.

NAME: Mahima Mangla
 POSITION TITLE: Internal Medicine Resident (PGY-1)
 EDUCATION/TRAINING:

Institution and Location	Degree (if applicable)	Completion Date	FIELD OF STUDY
New York Institute of Technology College of Osteopathic Medicine (NYITCOM), Old Westbury, NY	D.O.	05/2023	Medicine
New York Institute of Technology College of Osteopathic Medicine (NYITCOM), Old Westbury, NY	M.S. in Academic Medicine	05/2023	Academic Medicine
Boston University School of Public Health	M.P.H.	01/2013	Public Health

A. Personal Statement

Mahima Mangla D.O., M.S., M.P.H is a first-year internal medicine resident at the Lenox Hill Internal Medicine Residency Program. Before medical school, Dr. Mangla worked at Massachusetts General Hospital (MGH) from 2013 – 2018, where she managed research studies on patient engagement and shared decision making. She explored how to support patients making elective surgical decisions for knee and hip osteoarthritis, herniated disc and spinal stenosis. In this role, Dr. Mangla oversaw research and quality improvement projects focused on the implementation of decision aid delivery into routine patient care. She investigated gender-based differences in orthopedic care for women. She also led a patient advisory committee to ensure the patient voice is systematically included in research design. This professional experience fueled her passion for supporting patients, and especially women, to make informed, patient-centered decisions.

While at NYITCOM, her interest in medical education grew as she was selected for a competitive academic medicine scholarship program. Alongside her medical degree, Dr. Mangla obtained a MS in Academic Medicine. Through this master’s coursework she learned about curriculum design and explored methodologies like the flipped classroom and asynchronous learning as tools for medical education. Her area of interest is in preventative medicine and she gave lectures and workshops to medical students on nutrition, cardiovascular health, and physical exam skills. In the future, she seeks to build on her skills in shared decision making and medical education to focus on women’s’ preventative medicine.

B. Positions Held

- 2023 - Present Medical Intern (PGY-1), Lenox Hill Hospital Internal Medicine Residency
- 2023 – 2018 Medical Student and MS Academic Medicine Student at NYITCOM
- 2018 – 2016 Project Manager at the Massachusetts General Hospital, Division of General Internal Medicine, Health Decision Sciences Center
- 2016 – 2013 Clinical Research Coordinator at the Massachusetts General Hospital, Division of General Internal Medicine, Health Decision Sciences Center
- 2013 – 2011 Graduate research assistant at Boston University School of Public Health and Boston University School of Medicine

C. Honors & Awards

- Present – 2022 Gold Humanism Honor Society Inductee
- 2023 Andrea N. Watson, D.O., Excellence in Humanism Award
- 2023 United States Public Health Task Force Excellence in Public Health Award
- 2022-2021 NYITCOM Academic Medicine Scholar

2021 First Place Winner - American Osteopathic Association OMED Student Poster Competition
2013 Boston University School of Public Health Student Leadership Award
2011 Boston University School of Public Health Merit Based Financial Scholarship

C. Contributions to Medical Education

Publications:

Mangla M, Valentine K, Vo H, Sepucha K. How does patient gender influence surgeon understanding of patient preference for hip or knee osteoarthritis treatment?. *Women in Medicine Summit. International Journal of Academic Medicine*. September 24-25, 2021.

Mangla M, Kanady D, Sepucha K. Engaging patient advisors to make clinical research studies more patient-centered: Lessons from five years with a patient advisory committee. *International Patient- and Family-Centered Care Conference*, June 11- 13, 2018, Baltimore, MD

Mangla M, Cha T, Dorrwachter J, Freiberg A, Leavitt L, Rubash H, Simmons L, Wendell E, Sepucha K. Increasing the use of patient decision aids in orthopaedic care: results of a quality improvement project. *BMJ Quality & Safety*. 2017;27(5):347-354. doi:10.1136/bmjqs-2017-007019

Lectures: *Nutrition, Health Promotion, Counseling in the Prevention of Cardiovascular Disease*, Foundation of Medicine II, NYITCOM, Fall 2021

D. Additional Information: Research Support and/or Scholastic Performance

Mangla M, Bedair H, Dwyer M, Freiberg A, Sepucha K. Pilot Study Examining Feasibility and Comparing the Effectiveness of Decision Aids for Hip and Knee Osteoarthritis: A Randomized Trial. *MDM Policy & Practice*. 2019;4(1)
doi:10.1177/2381468319827278

Mangla M, Bedair H, Chang Y, Daggett S, Dwyer M, Freiberg A, Mwangi S, Talmo C, Vo H, Sepucha K. Protocol for a randomised trial evaluating the comparative effectiveness of strategies to promote shared decision making for hip and knee osteoarthritis (DECIDE-OA study). *BMJ Open*. 2019. doi:10.1136/bmjopen-2018-024906

Sepucha K, Atlas S, Chang Y, Freiberg A, Malchau H, **Mangla M**, Rubash H, Simmons L, Cha T. Informed, Patient-Centered Decisions Associated with Better Health Outcomes in Orthopedics: Prospective Cohort Study. *Medical Decision Making*. 2018;38(8):1018-1026. doi:10.1177/0272989x18801308

Mangla M, Cha T, Dorrwachter J, Freiberg A, Leavitt L, Rubash H, Simmons L, Wendell E, Sepucha K. Increasing the use of patient decision aids in orthopaedic care: results of a quality improvement project. *BMJ Quality & Safety*. 2017;27(5):347-354. doi:10.1136/bmjqs-2017-007019

Sepucha K, Atlas S, Chang Y, Dorrwachter J, Freiberg A, **Mangla M**, Rubash H, Simmons L, Cha T. Patient Decision Aids Improve Decision Quality and Patient Experience and Reduce Surgical Rates in Routine Orthopaedic Care. *The Journal of Bone and Joint Surgery*. 2017;99(15):1253-1260. doi:10.2106/JBJS.16.01045

LETTERS OF SUPPORT



Re: Katherine Killian MD, MPH, Associate Program Director, Lenox Hill Hospital Internal Medicine Residency Program. Application for Academy of Medical Educators Innovation Fund

To whom it may concern,

It is my pleasure to write a letter to offer my unconditional support for Katherine Killian for the application for the Zucker School of Medicine Academy of Medical Educators Innovation Fund. I know Kate very well as I have worked alongside her in the resident teaching clinic for 18 months. Dr. Killian has worked at Lenox Hill/Northwell Hospital for almost 5 years as an Associate Program Director for our Internal Medicine Residency Program. She has led the primary care track for over 3 years. She has had many successes while working at our program. She has successfully initiated the design of our primary-care training program. Dr. Killian directed the redesign of our ambulatory training program of categorical internal medicine residents. Kate is amongst the most dedicated educators that I have had the good fortune to interact with in my 30+ years in academic medicine. She is insightful, patient and demonstrates great affection for our trainees as well as our patients. Kate is adept at dealing with problems that befall our trainees and is able to deal with conflict in a respectful, and direct fashion. I believe we have developed into a very strong Internal Medicine Program due in no small part to educators like Dr. Killian who are creative and flexible. I think with additional investment in her with appropriate resources, Dr. Killian will soon ascend to being a national leader in resident education.

Dr. Killian's proposal focuses on creating online educational modules on high-yield women's health topics for primary care providers. Such videos would be an important resource for education and clinical practice, enhancing knowledge and confidence in these topics among our internal medicine trainees and faculty. Dr. Killian has a strong interest in women's health, having incorporated primary care women's health services into her practice since graduating from residency in 2015. She recently became a certified menopause practitioner through the North American Menopause society, further expanding her skills and highlighting her commitment to women's health in her educational role and clinical practice. She will be collaborating with Dr. Sneha Shrivastava and Dr. Rosemarie Conigliaro,

both of whom are leaders in women's health within and beyond our health system. We are confident that Dr. Killian can become a leader in women's health education which should increase the numbers of future primary care physicians who are able to provide high quality women's health services to our patients.

After prioritizing women's health training skills for internal medicine trainees at Lenox Hill Hospital and Northshore/LIJ, we anticipate Dr. Killian would expand the program to internal medicine trainees and faculty throughout the Northwell System. The nature of the online modules Dr. Killian proposes to create would allow them to be disseminated widely, through national and international publications and online platforms. I believe we are at a unique time, in which we have an extremely dedicated and talented physician like Dr. Killian, a clear need and desire for women's health training, and a commitment of institutional resources for this program to be successful. We are excited to go forward and I enthusiastically support Dr. Killian's pursuit of this proposal.



Daniel P. Dunham, MD, MPH, FACP

Pronouns: He, Him, His

Chair, Department of Medicine

Lenox Hill Hospital / Northwell Health

Professor of Medicine, Zucker School of Medicine at Hofstra Northwell

V.P., Western Region of the Medicine Service Line Northwell Health



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Department of Medicine
Division of General Internal Medicine



DONALD AND BARBARA
ZUCKER SCHOOL of MEDICINE
AT HOFSTRA/NORTHWELL

November 3, 2023

Dear Dr. Rosemarie Conigliaro

As Vice Chairperson of the Department of Medicine and Chief of the Division of General Internal Medicine, I am pleased to offer my support for your proposal titled: "A Novel Microlearning Intervention for Internal Medicine Residents on Menopause Management."

As you well know, the Division of General Internal Medicine is heavily invested in the training and education of our resident physicians, and we take pride in helping to shape well-rounded and successful clinicians. I am most enthusiastic about your proposal, which would provide education on the key women's health topics, and ultimately provide better care to women in our clinics. I am happy to provide you with the resources necessary to carry out this program in collaboration with the Department of Medicine, Lenox Hill.

The proposed curriculum aims to improve the trainees' knowledge of women's health using interactive video-based modules. These can also be used to train faculty who precept trainees at their continuity clinics. Additionally, the educational component alone will improve our residents' knowledge, comfort, and skill, increase comprehensive women's health care, decrease barriers to care, and further incorporate women's health in primary care, all of which are of great importance to our division.

I offer you my enthusiastic support for your proposal and please feel free to contact me if you have any questions.

Sincerely,

Joseph Conigliaro, MD, MPH, FACP

A handwritten signature in black ink, appearing to read "J. Conigliaro".

Vice Chair, Academic Affairs, Department of Medicine
Professor of Medicine and Chief, Division of General Internal Medicine
Northwell Health
The Donald and Barbara Zucker School of Medicine at Hofstra Northwell



Department of Medicine
Division of General Internal Medicine



DONALD AND BARBARA
ZUCKER SCHOOL of MEDICINE
AT HOFSTRA/NORTHWELL

November 3, 2023

Dear Dr. Sneha Shrivastava

As Vice Chairperson of the Department of Medicine and Chief of the Division of General Internal Medicine, I am pleased to offer my support for your proposal titled: "A Novel Microlearning Intervention for Internal Medicine Residents on Menopause Management."

As you well know, the Division of General Internal Medicine is heavily invested in the training and education of our resident physicians, and we take pride in helping to shape well-rounded and successful clinicians. I am most enthusiastic about your proposal, which would provide education on the key women's health topics, and ultimately provide better care to women in our clinics. I am happy to provide you with the resources necessary to carry out this program in collaboration with the Department of Medicine, Lenox Hill.

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Sincerely,

Joseph Conigliaro, MD, MPH, FACP

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Vice Chair, Academic Affairs, Department of Medicine
Professor of Medicine and Chief, Division of General Internal Medicine
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Lenox Hill Hospital
Division of General Internal Medicine

November 8, 2023

To Whom It May Concern:

It is my pleasure to write a letter of enthusiastic support of Dr. Mahima Mangla and her proposed project "A Novel Microlearning Intervention for Internal Medicine Residents on Menopause Management" which is seeking an award via the Lawrence G. Smith Fund for Innovation in Medical Education. It is well known that menopause is a clinical process that has little attention in medical education and practice, despite being a clinical process that half the population will experience in their lifetime. The goal of providing menopause management education for primary care providers is incredibly important and will be well received by learners in internal medicine.

As the Chief of the Division of General Internal Medicine at Lenox Hill Hospital, I oversee primary care delivery in Manhattan as well as research and education initiatives, including the ambulatory education of Internal Medicine residents. Dr. Mangla is one of our rising stars in the residency program, having already distinguished herself in her short time here.

Dr. Mangla is well suited to be an active participant in the planning, execution, evaluation, and dissemination of this work. In addition to her medical degree, Dr. Mangla has an MS in Academic Medicine and an MPH. Furthermore, she has experience in quality improvement, decision aids, and the influence of gender on clinical decision making which have garnered her multiple publications.

I am confident Dr. Mangla's experience and expertise will add much to this project, and wholeheartedly endorse her participation.

Thank you for your consideration.

A handwritten signature in black ink, appearing to read "Nancy A. LaVine".

Nancy A. LaVine, MD FACP
Chief, Division of General Internal Medicine, Lenox Hill Hospital
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