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Implementing Wellness Curriculum in Residency

Nguyet-Cam V. Lam and Elspeth Black

Abstract

Transitions from medical school training to residency and then on to practice can be very challenging. An important but often overlooked aspect of medical education is the development of strategies to improve and sustain individual well-being so that trainees can successfully complete their training and transition into practice. In this chapter, we will be discussing ways in which physician and trainee well-being can be objectively assessed through the use of a burnout and work engagement index, as well as components of a wellness curriculum that can help to maintain and improve physician well-being across the continuum of training. Establishing a framework and wellness curriculum can help to prevent physician burnout and improve physician and trainee work engagement and well-being.

Keywords: resident physician well-being, wellness curriculum, wellness, residency, medicine, medical education, burnout, physician attrition, physician retention, quality improvement, medical school, education, sustainability

When health is absent,

Wisdom cannot reveal itself.

Art cannot manifest,

Strength cannot fight,

Wealth becomes useless, and intelligence cannot be applied.

—Herophilus, 300 B.C., Greek physician and pioneer of anatomy.

1. Introduction

Wellness is an essential training for new physicians, not only for their own well-being but for the well-being of their patients and the communities to which they belong. The reason why this should matter is obvious: depressed residents make 6.2 times as many medication errors per resident month as residents who are not depressed [1]. As mentioned in the previous chapter, physician wellness is also a public health issue because many US patients lose their physicians to suicide every year [2]. Burnout and depression in physicians, residents, and medical students is something we can objectively measure, study, and intervene to prevent. Residency programs are gradually adopting the idea of wellness into their culture and curriculum, with some initial research beginning to show the positive effects. Although

the objective is the avoidance of burnout, the focus truly needs to be on a cultural shift away from rigorous study that requires self-sacrifice and an extreme work-life balance mismatch to a culture that is focused on education and the support of a balanced workplace that promotes wellness. Tenets of wellness need to be woven into the fabric of medical education, just as clearly emphasized as those of professionalism and patient safety.

As defined by Christina Maslach, burnout is a syndrome characterized by a loss of enthusiasm for work (emotional exhaustion), feelings of cynicism (depersonalization), and reduced personal accomplishment [3]. Although there has been much published on the subject of burnout in residency, there has been significantly less focused on the promotion of wellness [4]. Despite the fact that some programs have adopted wellness initiatives for their residents, many are still lacking a standardized, evidenced-based curriculum proven to improve outcomes. Similarly, some medical schools are beginning to integrate wellness practices into their curriculum, or at least into their extracurricular activities on offer. The issue of burnout must arise in medical school, as students entering medical schools are no different from their non-medical peers in terms of their mental health. Soon after starting their medical studies, the students' overall mental health state declines [5]. Studies have shown by making simple modifications in medical schools such as transitioning to a pass-fail model, strengthening student relationships with faculty and peers, and incorporating mindfulness and stress reduction techniques into training, we can prevent burnout and help manage preexisting depression [5].

One of the most intuitive places to start with a wellness curriculum is the encouragement and integration of physical activity into one's routine. There are numerous studies in the general population on the psychological, emotional, and mental well-being benefits derived from physical activity and time spent in an outdoors environment. Some studies have investigated the prevalence and possible incentivization of exercise for those in residency. One study that looked at internal medicine residents showed that although 35% of residents exercised daily prior to starting residency, only 4% were found to exercise daily during residency. About 41% of residents failed to meet the recommended guidelines for exercise as defined by the Department of Health and Human Services (HHS), and 80% reported a decrease in physical activity since starting medical training. Of greatest interest is that those residents who met the HHS guidelines for physical activity were less like to be burned out than their fellow residents (OR 0.38) [6]. A recent meta-analysis of trials investigating the impact of exercise on depression demonstrated a standardized mean difference of -0.62 (a moderate effect) in depression at the end of the study when comparing exercise with no treatment or a control intervention [7].

A study at the Mayo Clinic in 2013 investigated the specific effect of exercise on burnout in post-graduate training. They invited residents and fellows to participate in a voluntary, team-based 12-week exercise program. Prior to the intervention, only 31% of medical trainees were meeting HHS recommendations for physical activity. At the completion of the program, rates of adequate physical activity among the participants significantly increased (to 48%) compared to non-participants (23%). Most importantly, there was an increase in quality of life and a decrease in rates of burnout [8]. Another study identified that there are specific benefits to be gained by exercising outdoors, particularly in an alpine environment. The study showed that this environment improved symptoms of depression and quality of life measurements in those suffering from depression. Those with major depression were found to have lower levels of resiliency than their health counterparts at baseline, and that being physically active in an alpine environment was positively associated with an increase in resilience [9].

There has been significant research published to date on emotional intelligence (EI) and psychological resiliency as counterweights against workplace stressors and reactions to trauma in the workplace in nurses and other professions (not to mention the research on EI as a prognostic in various at-risk populations such as children with autism spectrum disorder). A study showed that there were individual positive curvilinear relationships between both EI and psychological resilience with post-traumatic growth in nursing students. Moderate-level EI and resilience were associated with the greatest growth [10, 11]. This echoes similar studies in caregivers, where it was found that lack of resiliency was one of the main predictors of burden [12]. A separate study that investigated EI, resilience and burnout in pediatric and medicine-pediatric residents further supported the above conclusions. They found that self-compassion and mindfulness were positively associated with resilience and inversely associated with burnout. Interestingly, physician empathy and EI were not significantly correlated with burnout or resilience, suggesting that the impact of mindfulness and resiliency on burnout may be the reasonable focus to emphasize during curriculum development [13].

Failed attempts in the past have revolved around the individualized approach. The institution may ask what is wrong with the individual physician that causes him/her to become burned out. Rather than focusing on *who* is not succeeding, one should focus on what environmental factors are *causing* them to perform sub-optimally. One factor that has previously been undervalued is that of leadership behaviors present in the environment. A recent Mayo Clinic study showed that every one-point increase on a 60-point leadership scale of a physician's immediate supervisor was associated with a 3.3% decrease in the likelihood of burnout and a 9.0% increase in satisfaction [14]. In addition, leaders can dramatically reduce the chance of burnout in their subordinate physicians by asking them what professional activity is most meaningful to them. Physicians who spend 20% of their time at work on something they value and find meaningful are at significantly lower risk for burnout [15]. Most residency programs are highly structured, both on a day-to-day level and overall, not leaving much time for flexibility or personal choice. Identifying opportunities to allow residents to spend some of their work hours doing the type of work that will continue to motivate and drive them through the work that is required by their programs is of immense importance.

Similarly, building a community at work is exceedingly important to overall physician well-being. Creating the space for interaction through literal spaces like physician lounges or through protected time during work hours for interest group meetings can be of significant value. Shared professional identity and support from one's peers have a demonstrated ability to reduce burnout [16]. An institution should be motivating its physicians to be efficient and provide good patient care, but sometimes these incentives can contribute to burnout and thus meet a self-defeating end. For example: the common payment structure of the base salary plus a productivity bonus. Productivity can be increased by seeing more patients per unit of time, ordering more tests, and by working longer hours. All three can contribute to reduced quality of care and increased physician burnout, despite being considered "productive" actions. The more recent shift in payment structure has been toward one of quality measures and patient satisfaction, but this model has yet to demonstrate actual improvement in quality and may not truly change the day-to-day experience of the overworked physician [17].

Regardless of the ultimate practices that they enter, we can significantly improve the outcomes if we integrate wellness into medical training as early as possible. There is a growing number of programs and health systems realizing this and creating wellness curricula for their residents. In the last few years, the American Medical Association (AMA) and the American Academic of Family Physicians (AAFP) have

developed resources and even entire conferences devoted to the subject of physician wellness [18, 19]. More often than a few years ago, one sees the term “resident wellness” on the websites promoting residency programs. Not only is the concept of physician wellness becoming more common, but so is the development of interventions to try to increase wellness. One such study at the Mayo Clinic demonstrated that a simple intervention of biweekly 1-hour discussion groups focused on mindfulness, shared experience, and small-group learning not only improved engagement at work and decreased burnout, but the effect was sustained 1 year later [20].

A meta-analysis in 2016 evaluated over 2000 articles regarding physician burnout (not residents, specifically), with 15 randomized trials and 37 cohort studies. The literature indicated that multiple techniques could be utilized that resulted in clinically meaningful reductions in burnout. When examined grossly, these studies showed the rates of overall burnout, emotional exhaustion, and depersonalization decreased following intervention by 10, 14, and 4%, respectively [21].

The following year, a meta-analysis was completed specifically to investigate the efficacy of interventions in reducing resident physician burnout. Approximately $\frac{1}{2}$ of the studies included in the meta-analysis were specifically examining the effects of the 2003 & 2011 Accreditation Council for Graduate Medical Education (ACGME) duty hour regulations. The collective results showed that reduced work hours were positively associated with a decrease in emotional exhaustion and depersonalization and no effect on personal accomplishment. The same were also decreased with other interventions including self-care workshops and a meditation intervention [22].

This collective research has been inspiring but less specific than desired to those in the medical education industry. Our aim was to implement a specific wellness curriculum, collect data illustrating its effectiveness, and present it to the readers in a comprehensive curriculum that is ready to implement. The data thus far collected has demonstrated the efficacy of our curriculum and we continue to strive to expand and add to the curriculum as the needs of our residents are established.

Our goal is to describe the most practical residency wellness education curriculum, to provide the tools for objective measurement of resident wellness and burnout, and to assist in career longevity of our young doctors. This should be a priority not only for those going through the process, but for patients and administrators, too. Physician burnout affects all groups and is a pervasive issue that affects healthcare at every level. Burnout leads to decreased quality of care, increased medical errors, decreased patient satisfaction, decreased productivity and time management, and a high rate of physician turnover [16]. It is in the best interests of patients, doctors, administrators and ultimately the larger community to devote time and resources to this issue.

2. Assessment

Whenever an intervention or curriculum is devised, it is equally important to properly develop an assessment and a timeline of monitoring to see if the desired effect or educational goals are being achieved. The following assessments were found to be reliable, validated, and appropriate to use to evaluate burnout and work satisfaction in the physician [3, 23, 24].

2.1 Maslach Burnout Inventory

The original Maslach Burnout Inventory (MBI) is a self-assessment tool composed of 22 items pertaining to occupational burnout. This tool assesses the three

categories of burnout: emotional exhaustion, depersonalization, and personal accomplishment. In our suggested curriculum, the abbreviated Maslach Burnout Inventory (aMBI) is used, which adds an additional category of assessment that indicates satisfaction with medicine. This inventory can be periodically administered to monitor for increasing or decreasing levels of burnout in the individual or group.

Of the 12 items in the aMBI, they are separated as follows:

Emotional exhaustion is measured by three items. Higher scores are correlated with feeling more emotionally overextended and exhausted at work.

Depersonalization is measured by three items. Higher scores are correlated with a more frequent sensation of detachment and unfeelingness toward the care one provides at work.

Personal accomplishment is measured by three items. Lower scores are correlated with a reduced feeling of competence and success at work, and thus higher burnout.

Satisfaction in Medicine is measured by three items. Lower scores are correlated with a lower satisfaction in the career of medicine, and thus high burnout risk.

The MBI and the aMBI have been shown to have strong reliability, as well as being highly applicable and valid specifically in evaluation of family practice physicians [3, 23, 25].

2.2 Work engagement scale

The Utrecht Work Engagement Scale (UWES) was developed to measure the positive opposite of burnout, which is work engagement [18]. Work engagement is defined “as a positive, fulfilled, work-related state of mind that is characterized by vigor, dedication, and absorption.” The UWES was originally developed with 17 items, however multiple studies have since streamlined and verified the validity of the UWES-9 [24, 26, 27]. The nine-item UWES measures vigor, dedication and absorption with three items each as follows:

Vigor: These three items aim to identify the subject’s vigor. A higher score indicates that the subject has a high level of energy and mental resilience while working and that they are willing to invest effort in their work. They also demonstrate persistence in the face of difficulty.

Dedication: These three items aim to identify the subject’s dedication. A higher score indicates that the subject has a greater sense of significance, enthusiasm, inspiration, pride, and challenge in their work.

Absorption: These three items aim to identify the subject’s absorption. A higher score indicates that the subject is more deeply engrossed in their work. While at work, they experience time passing quickly and may have difficulty in detaching themselves from their work [24, 26–28].

UWES is an important metric to use in conjunction with the aMBI as work engagement has significant associations with productivity and mental health. Work engagement has been associated with numerous benefits including mental and psychosomatic health, intrinsic motivation, and positive attitudes toward work and the organization and high performance [28]. Furthermore, engagement is a more chronic, persistent state that is not associated with the day-to-day variations in work activity as may be other measurable indicators [24, 26–28].

3. Curriculum

Transitioning from medical school training to residency can be very challenging. An important but often overlooked aspect of graduate medical education

is to help residents develop strategies to improve and sustain their well-being so that they can not only successfully complete their training but enter practice ready to overcome challenges. This section presents successful, practical initiatives from our family medicine residency program to assess, monitor, and enhance resident physician well-being. We will walk you through the steps of our wellness curriculum development and implementation. We will also present the spreading change from a single family medicine residency program to the hospital health network.

In August 2015, St. Luke's Family Medicine Residency Program in Bethlehem decided to study its resident burnout and wellness in preparation for a faculty development on physician burnout. Residents were assessed with the abbreviated Maslach Burnout Inventory (aMBI) [23, 29, 30]. The aMBI assesses the following three components: emotional exhaustion, depersonalization, and personal accomplishment. The "satisfaction with medicine" component was added to see how all these risk factors affect the residents' personal satisfaction with life in medicine.

Our analysis revealed that our residents' burnout levels approximated the national average, with emotional exhaustion being the predominant burnout category. Once we had obtained baseline data, the next step was to develop an intervention for ongoing wellness reinforcement and burnout prevention. At a program retreat in September 2015, we introduced the topic of physician burnout and wellness. We also discussed ways to construct resiliency to combat burnout. We encouraged residents to make goals to improve their well-being in several dimensions including physical, emotional, spiritual, and support goals. At this retreat, we organized a working group composed of faculty and residents to address wellness as a way to combat burnout. The working group was led by a faculty member passionate about wellness and one volunteer from each class (six residents per class). Following the creation of this group, a wellness curriculum was developed to include: monthly wellness education, engagement opportunities, and recognition of resident/faculty accomplishments. The main objective was to obtain a baseline wellness/burnout level in the intern year followed by reassessment every 6 months through the entirety of residency training. Using this data, we aimed to shape the culture and wellness initiatives to the needs of our program.

By the spring retreat in March 2016, we had made considerable progress in measuring wellness and burnout for our residents. Among other topics at the retreat, we presented "Practical wellness applications for our residency program to prevent burnout." Given that the highest category of burnout was emotional exhaustion, we specifically targeted the topics chosen for our residency retreat and wellness curriculum to focus on decreasing this particular risk. Although we focused on emotional exhaustion, our retreat still addressed the other objectives of decreasing depersonalization, enhancing a personal sense of achievement, and implementing healthy habits to combat burnout.

The wellness curriculum has two major components: hosting a residency retreat every 6 months and a monthly wellness meeting that was built into our previously established academic curriculum.

Common topics addressed at the biannual retreat are as follows:

- Communication and leadership skills
- Conflict management exercise
- Work-life balance and time management

- Burnout and wellness in residency
- Meaningfulness at work
- The privilege of medicine
- Strategies for day-to-day challenges
- Teamwork and team building activities
- Giving and receiving feedback

Every month, a 1-hour time block is reserved during academic day to have a focused discussion either in small groups (five–six residents each) or with the entire group (all residents). Topics presented focus on enhancing wellness and decreasing burnout focus on three main categories: (1) importance of physician wellness, satisfaction in medicine, and healthy lifestyle, (2) addressing emotional exhaustion, depersonalization, and (3) encourage sense of personal achievement. Individual session’s topics are summarized in **Table 1**.

In the small group format, especially in topics like wellness goal and goal setting, we use coaching technique to skill set in prioritization, self-care, and self-awareness [31].

Along with developing a curriculum to enhance wellness and decrease the risk of burnout, we also developed both a formal Physician Well-being Policy and a Resource Manual in March 2017 and May 2017, respectively. This was given to every intern at the beginning of their academic year to provide them the tools and resources they would need to optimize their wellness. In August 2017, we also added the Work Engagement Scale (UWES) to be used in conjunction with the aMBI [26].

Importance of physician wellness, satisfaction in medicine, and healthy lifestyle:
<ul style="list-style-type: none">• Introduction to well-being to combat burnout• Planning for life after residency in fellowship/practice/academia• Nutrition and exercise• Office exercise or walk in the park with your advisor• Financial pearls
Addressing emotional exhaustion:
<ul style="list-style-type: none">• Wellness goals and goal setting• Share an inspirational quote• Loving kindness guided meditation• Work-life balance• Time management
Addressing depersonalization
<ul style="list-style-type: none">• Sharing a difficult patient encounter• Mindfulness/reflection/empathy
Addressing low achievement
<ul style="list-style-type: none">• Reflective writing on professionalism• Cultural celebration

Table 1.
Wellness curriculum topics: 1 hour presentation and discussion.

4. Results

Since August 2015, we have assessed the wellness/burnout of our residents every 6 months. Results were compiled looking at both our program as a group, as well as separated out by class. Of significant interest is that we were able to follow the class of 2018 from their intern year to graduation, thus collecting a full 3 years of data from the same cohort. **Figures 1** and **2** and **Tables 2** and **3** summarize the data for both the residency as a whole and for the class of 2018 from summer 2015 to winter 2018.

When examining the data from all residents as seen in **Figure 1**, we see decreasing indicators of burnout in three of four categories: emotional exhaustion decreased from 41 to 39%, depersonalization decreased from 33 to 11%, low satisfaction with medicine decreased from 22 to 19%, and low achievement increased from 4 to 12%. For the most part, there is a seasonal bimodal effect exhibited in most of these categories with increased burnout occurring in the winter with subsequent improvement in the summer months.

In **Figure 2**, the data from the class of 2018 was analyzed from the beginning of their intern year in 2015 until the winter before graduation in 2018. The risk factors of depersonalization, low achievement, and low satisfaction with medicine all decreased from 20–40 to 0%, while the emotional exhaustion category increased from 20 to

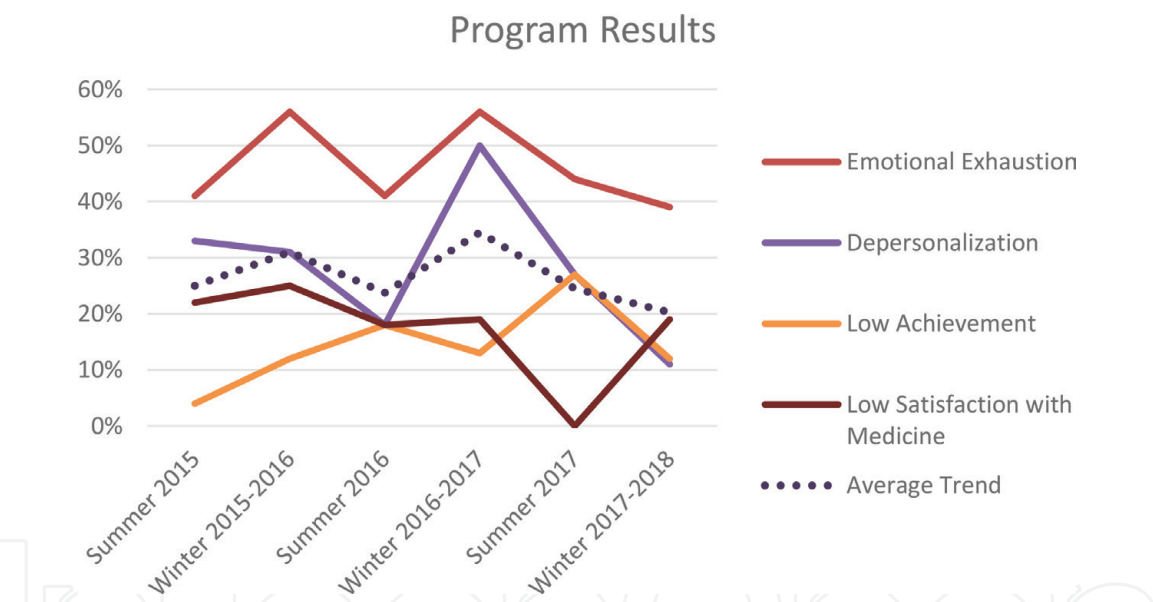


Figure 1.
Percent at risk per burnout category over time: program.

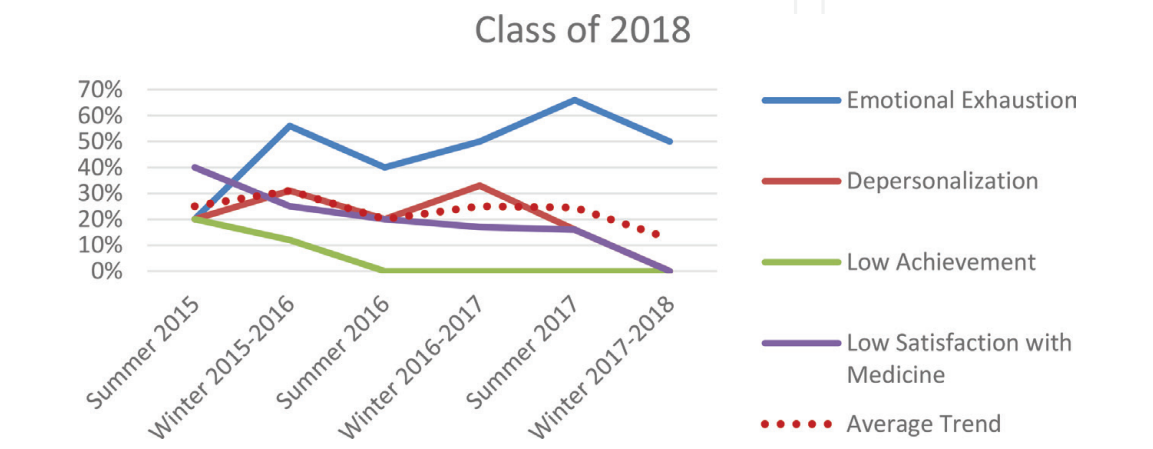


Figure 2.
Percent at risk per burnout category over time: class of 2018.

Program data	Emotional exhaustion	Depersonalization	Low achievement	Low satisfaction with medicine
Summer 2015	41%	33%	4%	22%
Winter 2015–2016	56%	31%	12%	25%
Summer 2016	41%	18%	18%	18%
Winter 2016–2017	56%	50%	13%	19%
Summer 2017	44%	27%	27%	0%
Winter 2017–2018	39%	11%	12%	19%

Table 2.
St. Luke’s family medicine residency program data.

Class of 2018	Emotional exhaustion	Depersonalization	Low achievement	Low satisfaction with medicine
Summer 2015	20%	20%	20%	40%
Winter 2015–2016	56%	31%	12%	25%
Summer 2016	40%	20%	0%	20%
Winter 2016–2017	50%	33%	0%	17%
Summer 2017	66%	16%	0%	16%
Winter 2017–2018	50%	0%	0%	0%

Table 3.
St. Luke’s family medicine residency class of 2018 data.

50%. Again, the seasonal bimodal pattern is noted in some risk factors, with peaks in winter and troughs in summer. Of note, during the residency training of this particular class significant stressors occurred including the departure of three residents during a 1-year time period as well as many interpersonal conflicts among residents.

The Work and Well-being survey was added as an additional study parameter in the summer of 2017 using the Utrecht Work Engagement Scale (UWES) [26]. So far, we only have two data points for summer 2017 and winter 2017–2018. The highest risk group which is not engaged at work and at risk for burnout has been constant at 33%.

Our residency has been using validated tools to assess physician burnout and engagement by using the aMBI and UWES. Our wellness program is effective in addressing burnout and promoting wellness given the encouraging result in the residency data in decreasing physician burnout from 2015 to present time in 2018. This result helps to validate the effectiveness of our curriculum.

5. Practicalities of implementing the resident physician wellness program

The call for addressing wellness was stated in ACGME letter from August 2016 to the community: “While a commitment to resident well-being has been a shared

focus for all of us engaged in graduate medical education, the topic of physician well-being has recently risen to the forefront within the broader medical community... Layered on top of these challenges is the stigma that many physicians in training and in practice encounter related to acknowledging that they need help, and to feeling supported and safe in asking for that help.” [32] In March 2017, the ACGME revised the new section VI in Common Program Requirement asking each residency program to address physician well-being [33].

The implementation of a well-being program in residency does, however, come with challenges. It requires additional time and energy for the faculty wellness champion to rally support, train, organize, and execute the wellness program. Cost may also be an additional factor for the already tight residency budget.

In our residency program, we were fortunate to have the endorsement of the residency Program Director as well as the Designated Institution Official (DIO) in piloting wellness initiatives at our family medicine residency. We were able to get the support of faculty to promote wellness and participate in the curriculum for the residents. There is 1 hour per month set aside for the residents to participate in the wellness curriculum, and the involved faculty members spent about 1 hour per month on planning and preparing for the month's activities. Preparation for the biannual retreat (scheduled for a 5-hour block of time) usually begins 3 months prior to the retreat and requires an additional 1 hour per month toward preparations from the involved faculty. In the week leading up to the retreat, participating faculty may spend up to 3 more hours making specific preparations for organized discussions, team building games, other activities and food arrangements. Therefore, it takes about 40–50 hours per year for each faculty dedicated to wellness curriculum involvement.

In terms of cost, our residency utilized low-cost resources and implemented creative plans for our wellness activities. Wellness activities such as a walk in the park or exercising in the office can be accomplished without cost. The speakers and group leaders for the wellness topics were individuals from our own faculty or physician experts outsourced from the hospital network, again eliminating cost. At each monthly wellness meeting, our residency provided healthful snacks such as fruits, vegetables, healthy dips, crackers, and water which cost about \$25–\$30 per month. The retreat is usually held at a local park pavilion which costs approximately \$50 per retreat to rent. Food and materials necessary for each retreat costs approximately \$300. Therefore, in an academic year with two residency retreats, 12 wellness monthly meeting, the average annual cost to our residency budget is about \$1000 to support residency wellness.

Given the success of our residency program in addressing resident physician wellness, the DIO and GME has formed a physician well-being subcommittee to share the well-being initiatives we have developed, and to help spread the positive change to other residency programs within the network. The success in enhancing physician wellness goes beyond the work of individual residency program. It requires a multilevel approach from individual residents starting at orientation with assessment and personal goal setting to enhance well-being, to the program recognizing, assessing, organizing, and addressing well-being for residents, to the network endorsement by GME leadership and expanding wellness initiatives throughout the health network.

6. Future directions

Our residency program has seen many positive outcomes through promoting a culture of wellness and addressing physician burnout. Promoting physician wellness takes more than just a wellness curriculum. It requires efforts from individual

physicians, residency faculty at the program level, and also support at institution level. On a national level, the ACGME and many other national organizations have called for awareness and continued support to promote physician well-being and decrease burnout risks. Ultimately, this will help to fulfill the quadruple aims of healthcare in enhancing patient experience, improving population health, reducing costs, and improving the work life of the health care providers.

As we continue to strive for a better future, we hope to build upon the excellent response to the wellness curriculum in our residency over the past 3 years. We will need to continue improving and modifying our approach to best meet the need of our residents. The structure of our current curriculum, including both monthly sessions and the content of the retreat is drawn directly from similar ideas present in the current literature [34]. As we continue to grow, we may consider the addition of required reading about wellness or introducing apps for mindfulness to the residents [35]. In term of topics, we could add in modules as suggested by Arnold et al. such as physician suicide, “I need help”, or “dealing with difficult consultants and staff” [36].

Another area of focus for development would be addressing resiliency. A meta-analysis identified that the factors conferring the largest increase in resiliency were higher self-esteem, most positive attributional style, and lower perfectionism. Other factors with moderate impact on resilience include lower trait reappraisal and higher EI. This study thus identifies avenues for further development of curriculum modules in order to bolster well-being during residency through resiliency training [37].

In recent years, literature has focused on a discussion of work-life balance versus work-life integration [38–40]. It is important to realize that a well-balanced integration for professional and private life is an important goal for the new generation of doctor [41]. We can consider changing our curriculum topic of work-life balance to work-life integration to emphasize that the work life and personal life can mingle and integrate. The physician can find a sense of joy and enhance well-being when there are meaningful interconnections between the many existing roles in both work and personal life.

Among the many factors that could help improving physician well-being, coaching has been an effective tool in improving general well-being of employees and reducing burnout [42, 43]. In our small group, we use coaching techniques to help residents with goal settings, self-awareness, and self-care. However, we can consider getting more formal training for faculty in coaching residents so that we can have similar training standards for our coaching techniques.

Given the above future directions, we will need to ensure that we continue to assess our physician wellness and evaluating all the initiatives to make sure that our curriculum is effective and validated. By continuing to measure burnout and wellness with the aMBI and the UWES every 6 months, we can monitor the wellness of our residents as well as assessing the effectiveness of our curriculum in improving well-being through time. There are many other validated instruments to assess work-related dimensions of well-being such as Oldenburg Inventory, Physician Work-life Study’s Single-Item, Copenhagen Burnout Inventory, Stanford Professional Fulfillment Index, Well-Being Index, Patient Health Questionnaire-9 [44]. The choice of using any of these validated would be depending on the resource available for the residents or organization in term of cost and personnel to conduct the test and monitor the results.

7. Conclusion

Formal assessment of wellness and burnout and the development and maintenance of a wellness curriculum throughout medical education is essential to future

physician well-being. Given that the major factors contributing to resident well-being are autonomy, competency, social connectedness and time away from work, we will need more than just the residency program to address these issues [45]. The promotion of resident wellness requires a multi-level approach involving the individual physician, the residency, and the systematic support at organizational and national levels to wholly address burnout and enhance well-being. The ACGME's Clinical Learning Environment Review (CLER) program requires residency to monitor physician well-being and burnout. It is recommended that the CLER can go further to expect institutions to have initiatives to enhance resident wellness and increase engagement through identifying suboptimal aspects of the learning environment and enhance resiliency in residency [46]. The health of our physicians is a far-reaching issue and must be addressed. Their longevity, productivity and happiness are heavily impacted by wellness and rates of burnout and can be greatly shaped throughout their medical education journey. The foundation has been built, but we must continue to fervently pursue the establishment of wellness as a pillar of medical education.

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Conflict of interest

The authors have no conflicts of interest to disclose.

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