Improving resident well-being: a narrative review of wellness curricula

Erin R Ahart, †Lisa Gilmer, ‡Kelsey Tenpenny, ‡Kelli Krase

ABSTRACT

Background To improve wellness among residents, many graduate medical education programs have implemented formal wellness curricula. Curricular development has recently shifted focus from drivers of burnout to promotion of wellness. The specific components of successful wellness curricula, however, are not yet well defined.

Objective To review the published literature assessing core components of wellness curricula in graduate medical education programs.

Methods Searches were conducted through June 2020 in PubMed, Education Resources Information Center, Google Scholar and Web of Science using the search terms wellness curricula, wellness programs, well-being and graduate medical education. Additional articles were identified from reference lists. Curricula from primarily undergraduate medical education, singular interventions, non-peer-reviewed studies and non-English language studies were excluded.

Results Eighteen articles were selected and reviewed by three authors. Critical drivers of success included support from program leadership and opportunities for resident involvement in the curriculum implementation. Most curricula included interventions related to both physical and mental health. Curricula including challenging components of professionalisation, such as critical conversations, medical errors and boundary setting, seemed to foster increased resident buy-in. The most frequently used curricular assessment tools were the Maslach Burnout Inventory and resident satisfaction surveys.

Conclusions Different specialties have different wellness needs. A resource or ‘toolbox’ that includes a variety of general as well as specialty-specific wellness components might allow institutions and programs to select interventions that best suit their individual needs. Assessment of wellness curricula is still in its infancy and is largely limited to single institution experiences.

INTRODUCTION

Physicians are at higher risk of burnout, depression and suicide than the general population.1 It is estimated that 50% of physicians fall into one of these categories, a rate twice that of the general working population in the USA.2 The cost of physician burnout is estimated at $3 billion per year due to reduced productivity and increased job turnover.3 The current COVID-19 pandemic places physician mental and emotional well-being under even greater pressure and vulnerability.4 Resident physicians have significantly higher rates of professional distress than comparable groups of medical students or physicians in early practice.4 Residents face substantial and synergistic challenges to their physical and mental health, including high stress, social isolation, long hours, disrupted sleep cycles and lack of exercise opportunities.5

In 2017, the Accreditation Council for Graduate Medical Education (ACGME) included ‘Well-Being’ in the Common Program Requirements, recognising that resident well-being is ‘critical in the development of the competent, caring and resilient physician’.6 A study by Carson et al found that while program leaders value their role in supporting the well-being of their residents, many feel unprepared to perform this critical task.7 Several case studies demonstrate the variability between residency programs with single wellness interventions to those with full curricula. These studies consistently conclude with a lack of evidence-based findings that provide generalisable guidance on the most effective and efficient programs.8-16 Several specialties, including obstetrics and gynaecology, have attempted to develop national programs to overcome this barrier. The Council on Resident Education in Obstetrics and Gynecology recently completed a pilot program involving 25 programs and released a wellness curriculum composed of six workshops focusing on a variety of wellness elements, such as resilience, time management and empathy. Residents who attended at least four sessions had significantly lower rates of burnout and higher rates of professional fulfilment.17 In this review, we use the term ‘curriculum’ to describe the group of interventions selected by the graduate medical education program to improve resident wellness.

The responsibility of fostering resident well-being and creating wellness curricula has fallen largely on individual residency programs due to limited availability of evidence-based curricular content on a large scale. In recent years, development and implementation of curricula to support resident well-being has been increasingly prioritised by graduate medical education programs.18 Initially driven by rising awareness of the negative impacts of resident burnout,2 more recent initiatives have focused on physician well-being, resilience and vitality.19 Though the need for wellness curricula has been established, specific interventions that improve resident well-being are not clearly defined.

The current lack of data demonstrating which wellness interventions improve overall resident well-being leaves program leaders unclear about potential strategies to produce positive change. Some residency programs have published individual or institutional experiences with and assessment
of wellness strategies, but a centralised resource that offers a comprehensive review of these wellness interventions is lacking. Such a resource could provide literature-driven and evidence-based approaches to the development, implementation and assessment of wellness curricula for individuals, programs and institutions. The purpose of this study is to conduct a narrative literature review to identify recent updates to the core components of residency wellness curricula that have been shown to improve resident well-being or reduce resident burnout, as well as to answer specific questions surrounding levels of intervention, drivers of success, resident engagement, interventions and associated costs, and reliable, validated assessment tools.

METHODS
The authors conducted a literature search for peer-reviewed, English language articles using PubMed, Educational Resources Information Center, Google Scholar and Web of Science to identify articles describing the wellness curricula used by graduate medical education programs. The search terms wellness curriculum, wellness program and graduate medical education were used to locate relevant articles from inception through June of 2020. Additional studies were identified from reference lists of these articles. Our literature search yielded 72 articles. Two authors (KK and LG) reviewed each article for pertinence to the research question and quality of study design. Nineteen articles focused on undergraduate medical education, other health professions or faculty were excluded; 22 articles lacking an intervention including surveys, commentaries or perspective articles were excluded; 13 articles were not full length and excluded and articles that did not include any program assessment were also excluded. The 18 articles meeting inclusion criteria were reviewed by the four authors to discuss in the narrative review (table 1). Through iterative discussions of study articles, the authors identified six thematic questions. These six questions were formulated after reviewing the literature; they did not drive the literature search.

Given the variability in study design of wellness curricula in the literature as well as the paucity of programme assessment, the authors concluded that a narrative review could best describe the themes to answer the research questions.

FINDINGS AND THEMES
The 18 articles meeting inclusion criteria were reviewed by the four authors to discuss in the narrative review (table 1). Seventeen of these articles included observational studies; one included a randomised controlled trial. Six thematic questions were identified.

Which interventions are used in current wellness curricula?
Determining the individual components of a residency program’s wellness curriculum is a challenging task, especially with limited information about which interventions are most effective. Most published wellness curricula include multiple, diverse elements. Mentorship is a key part of many curricula. Many programs incorporate wellness coaching by providing residents access to guidance from a trusted faculty member.8 11 13 20 21 Additionally, residents find value in mentorship and reflective activities among peers.9 12 20 22 23 Peer discussions about challenges during residency can help to normalise those experiences and create a greater sense of collegiality.10 Open discussions about challenges to well-being enable residents to develop learner-driven interventions.24 ‘Design thinking’ is a strategy that can be employed to evaluate these challenges and generate innovative solutions based on empathy and understanding of human dynamics.24

Many wellness curricula include didactic components with wellness talks or workshops.8 9 11–16 22 23 25–29 These sessions focus on a wide range of topics, including resilience, physician suicide and self-care. Some wellness programs incorporate the expertise of trained mental health professionals to lead individual counselling sessions or group workshops.12–14 20 21 27 Sessions on practical job-related skills may also address program-specific competencies, such as delivering bad news, dealing with difficult people, debriefing after traumatic events and recovering from medical errors.8 9 21 25 29

While much of the literature on wellness in graduate medical education focuses on resident mental and emotional health, attention to physical health is also an important element of a comprehensive wellness curriculum. Examples of program support of resident fitness include discounted access to fitness centres or trainers,8 16 dedicated time for exercise8 and access to refrigerators and healthy foods.12 13 16 21 30 Programs that focus on physical well-being provide residents with increased time off for renewing activities such as sleep or social events outside of work.12 13 21 22 30

At which level should interventions occur (individual, programme and/or institutional)?
Maintaining resident well-being is identified as a shared responsibility for individual residents, programs and the organisation for which they work.8 9 25 It appears that graduate medical education programs that incorporate wellness interventions at multiple levels are the most effective. An opportunity to promote this sort of collaborative culture change might be a discussion evaluating the program and institutional mission statements for inclusion of a commitment to providing resident protection and well-being.1 31 Examples of interventions at an individual, program and institutional level are depicted in table 2.13 Individual behaviour changes vary greatly and are important components of a successful curriculum. Self-directed interventions unique to each resident should be celebrated by their residency program and perhaps shared between residents to promote community.9 Examples of program-level changes include incorporating resident workshops that focus on wellness-related skills, such as strengthening coping mechanisms. Another strategy is simply providing a department representative with the time, resources and departmental support to develop a thoughtful wellness curriculum.25 A notable institution-level intervention involved bringing together a group of trained volunteers from a variety of medical disciplines with hospital leadership to develop institution-wide strategies to optimise the clinical work environment.8

What are the primary drivers of success?
Two major components appear to drive a successful wellness curriculum: resident engagement and program leadership. First, engaging and empowering members of a group to participate in making decisions about their environment, a practice often used in the business world, also applies in graduate medical education.31 The resident perspective is critical during curricular development and should be incorporated throughout that process. For example, one residency program established resident-led action teams enabling residents to actively communicate feedback about their program and be involved in policy changes.24 Second, the formation of a core group of faculty members committed to physician wellness is imperative in a
### Table 1  Published wellness interventions used by various specialties

<table>
<thead>
<tr>
<th>Article title</th>
<th>Author</th>
<th>Date</th>
<th>Specialty</th>
<th>Location</th>
<th># of participants</th>
<th>Intervention components</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A strategy for wellness in a pathology residency program: enhancing chances</td>
<td>Saint Martin et al</td>
<td>2018</td>
<td>Pathology</td>
<td>Chicago, IL</td>
<td>17</td>
<td>Wellness training for individual, programme and institution; wellness talks; resilience</td>
<td>Satisfaction and utilisation survey</td>
</tr>
<tr>
<td>Anesthesia resident wellness program at University of Saskatchewan: concept</td>
<td>Chakravarti et al</td>
<td>2015</td>
<td>Anaesthesia</td>
<td>Canada</td>
<td>31</td>
<td>Modular curriculum with eight topics: wellness, resilience, professionalism, occupational</td>
<td>Survey and focus groups</td>
</tr>
<tr>
<td>Impact of family medicine resident wellness curriculum: a feasibility study</td>
<td>Runyan et al</td>
<td>2013</td>
<td>Family Medicine</td>
<td>Worcester, MA</td>
<td>36</td>
<td>1 month wellness curriculum for PGY-2 residents led by behaviour science faculty focusing</td>
<td>MBI, Self-Compassion Scale, Perceived</td>
</tr>
<tr>
<td>Implementation of small group reflection rounds at an emergency medicine</td>
<td>Wen et al</td>
<td>2011</td>
<td>Emergency Medicine</td>
<td>Boston, MA</td>
<td>9</td>
<td>Small group reflection rounds: 1 hour monthly sessions with faculty facilitators to</td>
<td>Satisfaction survey</td>
</tr>
<tr>
<td>Current wellness practices among otorhinolaryngology residencies</td>
<td>O’Brien et al</td>
<td>2017</td>
<td>ENT</td>
<td>Multi</td>
<td>107</td>
<td>Faculty mentoring, wellness lecture, no-cost mental health resources, seminars in</td>
<td>Survey</td>
</tr>
<tr>
<td>Feasibility of comprehensive wellness and suicide prevention program: a</td>
<td>Ey et al</td>
<td>2011</td>
<td>Multi</td>
<td>Portland, OR</td>
<td>906</td>
<td>Individual counselling, psychiatric evaluation, wellness workshops.</td>
<td>Utilisation rates of services,</td>
</tr>
<tr>
<td>Perspectives from a residency training program following the implementation</td>
<td>Buchholz et al</td>
<td>2015</td>
<td>Neurosurgery</td>
<td>Charleston, SC</td>
<td>10</td>
<td>Wellness lectures, weekly 1 hour team exercise, healthy food choices at conferences,</td>
<td>Satisfaction survey</td>
</tr>
<tr>
<td>Perceived value of a program to promote surgical resident well being</td>
<td>Salles et al</td>
<td>2012</td>
<td>Surgery</td>
<td>Stanford, CA</td>
<td>76</td>
<td>Balance in life programme with six components: refrigerator stocked with healthy food and</td>
<td>MBI, Dupuy Psychological Well</td>
</tr>
<tr>
<td>Wellness program for anesthesiology residents: a randomized controlled trial</td>
<td>Saadat et al</td>
<td>2012</td>
<td>Anaesthesia</td>
<td>New Haven, CT</td>
<td>60</td>
<td>Three groups: wellness intervention (16 1.5 hour-sessions on coping with work and family</td>
<td>Multiple instruments including</td>
</tr>
<tr>
<td>Does implementation of a corporate wellness initiative improve burnout?</td>
<td>Hart et al</td>
<td>2017</td>
<td>Emergency Medicine</td>
<td>Minneapolis, MN</td>
<td>46</td>
<td>Trial of wellness programmes (The Happiness Practice) originating from other industries.</td>
<td>MBI and reactions data</td>
</tr>
<tr>
<td>A program to prevent burnout, depression, anxiety in first-year pediatric</td>
<td>Slavin et al</td>
<td>2016</td>
<td>Paediatrics</td>
<td>St. Louis, MO</td>
<td>17</td>
<td>Three facet programme: stress reduction &amp; finding meaning in medicine; ethics including</td>
<td>MBI, Center for Epidemiologic</td>
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<tr>
<td>Continued</td>
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<td></td>
<td></td>
<td>approach to difficult patients or medical mistakes; organisational approach.</td>
<td>Studies Depression Scale, State-</td>
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<td>Trait Anxiety Inventory</td>
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</table>
successful wellness program. These faculty take an active role in monitoring and advocating for the chosen wellness interventions. Faculty buy-in enables well-being to be prioritised and integrated into the residency’s daily practices. Strong, sustained and cohesive support among residency program leadership may help to alleviate anxiety and overcome resistance from residents, faculty or staff during the cultural shift towards increased prioritisation of resident well-being. As a starting point, a needs assessment survey or focus group can be useful in informing program-wide opportunities for improvement.

How can resident engagement be increased?

Certain curricular components appear to promote resident engagement more than others. Interventions that directly impact job performance are more likely to receive a positive resident response. The sense of increasing mastery and improved confidence are associated with greater well-being, particularly when accompanied by increasing autonomy. Residents seem to find these activities more valuable than passive interventions, such as wellness didactics. Coaching in practical skills to alleviate the adverse impact of stressful or negative experiences is another important element of wellness curricula. Improved well-being has also been reported following resident skill-development in communication, dealing with difficult people and recovering after adverse events. Using wellness interventions that provide tools for resident performance enhancement is a powerful strategy that improves both patient care and provider well-being. This is especially important in fostering resident engagement.

What are the costs associated with implementation of wellness curricula?

Costs associated with implementing wellness curricula vary widely based on the interventions, number of participants, geographic region and institutions. Funding is primarily through the associated department or Graduate Medical Education budget. Curriculum designs that focus on small peer reflection groups and didactics require little to no funding. One curriculum noted that keeping refrigerators stocked with healthy

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### Table 1

<table>
<thead>
<tr>
<th>Article title</th>
<th>Author</th>
<th>Date</th>
<th>Specialty</th>
<th>Location</th>
<th># of participants</th>
<th>Intervention components</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation La Sierra: a novel wellness initiative for the neurosurgery residents</td>
<td>Fargen et al</td>
<td>2015</td>
<td>Neurosurgery</td>
<td>Charleston, SC</td>
<td>9</td>
<td>FitBits, wellness lectures, weekly exercise sessions with a trainer and healthy food choices at morning conferences</td>
<td>Body composition testing, satisfaction survey</td>
</tr>
<tr>
<td>Evidence-based longitudinal curriculum for resident physician wellness: 2017 resident wellness consensus summit</td>
<td>Arnold et al</td>
<td>2017</td>
<td>Emergency Medicine</td>
<td>Multi</td>
<td>30</td>
<td>Foundational modules: Intro to Wellness; Self Care Series (Sleep to Financial Wellness); Physician Suicide &amp; Self Help; Clinical Care Series; Wellness in the Workplace; Dealing with Medical Errors &amp; Shame.</td>
<td>‘Wellness Think Tank’</td>
</tr>
<tr>
<td>Resident physician wellness curriculum: a study of efficacy and satisfaction</td>
<td>Lefebvre et al</td>
<td>2019</td>
<td>Emergency Medicine</td>
<td>Canada</td>
<td>58</td>
<td>Two components: scheduled meetings with dedicated faculty wellness mentor; wellness lectures related to fitness, healthy food preparation and financial planning.</td>
<td>Brief Resident Wellness Profile and SF-8 Health Survey</td>
</tr>
<tr>
<td>Resident-led organisational initiatives to reduce burnout and improve wellness</td>
<td>Mari et al</td>
<td>2019</td>
<td>Psychiatry</td>
<td>Boston, MA</td>
<td>39</td>
<td>On-Call Task Force and Food Action Team to improve on-call experience, financially supported social events, designated ‘wellness day’, mindfulness didactics, recommended primary care providers.</td>
<td>Copenhagen Burnout Inventory</td>
</tr>
<tr>
<td>Evaluation of a formal wellness curriculum to reduce burnout in anaesthesia residents: a pilot study</td>
<td>Brainard et al</td>
<td>2019</td>
<td>Anaesthesia</td>
<td>Aurora, CO</td>
<td>39</td>
<td>Didactics, interactive sessions on mindfulness, peer-mentoring program, monthly wellness education articles, wellness reference card, confidential monitored wellness email address, quarterly resident group dinners.</td>
<td>MBI</td>
</tr>
<tr>
<td>A comprehensive residency wellness curriculum</td>
<td>Zradzinski et al</td>
<td>2020</td>
<td>Emergency Medicine</td>
<td>Atlanta, GA</td>
<td>106</td>
<td>Workshops on seven wellness domains: emotional, occupational, financial, physical, intellectual, social and spiritual.</td>
<td>MBI, satisfaction survey</td>
</tr>
<tr>
<td>Designing well-being: using design thinking to engage residents in developing well-being interventions</td>
<td>Thomas et al</td>
<td>2020</td>
<td>Internal Medicine</td>
<td>San Francisco, CA</td>
<td>18</td>
<td>Design thinking programme with four workshops to discuss and solve well-being problems. Themes included community and connection, space for reflection, peer support and availability of individualised wellness.</td>
<td>Post-intervention interviews</td>
</tr>
</tbody>
</table>

Separated by date of publication, specialty, location of residency programme, number of residents who participated in the intervention, description of the intervention components and method of assessment.

MBI, Maslach Burnout Inventory.

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Review
The CBI, a survey that aims to evaluate persona, work-related burnout and client-related burnout, has also been used. This is a less commonly used tool compared with the MBI and was created to be useful in a variety of occupations, however, there is no associated cost and interpretation is straightforward, with higher scores indicating a higher degree of burnout. The BRWP is another validated tool that assesses mood and sense of professional accomplishment using a series of questions as well as a ‘faces’ graphic to represent mood. The BRWP appears reliable and can be completed and interpreted quickly, though its ability to detect patterns of change is less studied. Inclusion of depression scales and anxiety inventories in assessing wellness curricula may also be considered. These assessments are compared in table 3. Unfortunately, there are no known validated assessment tools to evaluate wellness curricula themselves. Therefore, the existing data rely on assessments of individual residents in evaluating the impact of the curriculum.

**DISCUSSION AND RECOMMENDATIONS**

This narrative review contributes a summary of common themes across various specialty-specific residency programs’ wellness initiatives to the current body of literature on this topic. We identify that successful wellness curricula include: (1) changes at the individual, program and institutional levels, (2) engagement of residents and faculty during curricular development and implementation, (3) inclusion of practical job-related competencies, (4) incorporation of multiple interventions and (5) the use of validated assessment tools to track the success of the program. These themes provide a general framework that could be useful to residency program leadership in the development of successful wellness initiatives.

Our recommendation is to begin wellness curricular development with a needs assessment; this enables programs, institutions and organisations to develop tailored initiatives. Ongoing assessment to gauge progress and guide further interventions is also important. A key next step in furthering our understanding of wellness curricula is to create a framework for the standardised assessment of wellness programming. Existing assessment methods, such as the MBI, leave room for improvement in their ability to compare outcomes on a larger, more meaningful scale. Assessments of organisational culture or morale may help to accomplish this. It is difficult to measure the effectiveness of a wellness curriculum or to characterise its impact on goals such as decreased resident burnout or improved patient care. A tool that gives investigators the ability to conduct multi-institution, multispecialty analyses would be more informative, and could guide future interventions more accurately.

Our findings have limitations. One challenge in creating this framework is that assessment of the core components of wellness curricula remains generalised and thematic. The needs of individual residents, residency programs, institutions and the graduate medical education community vary widely, so recommendations for specific, single interventions are unlikely to impact change. A multi-level and adaptable wellness curriculum is in the best interest of residency programs, their residents and the patients they serve. Another challenge in describing the components of successful wellness curricula is the lack of outcome data. The published literature is largely observational data about individual residency program experiences. Randomised controlled trials for resident wellness curricula are uncommon. We hypothesise

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**Table 2** Wellness curricula can be implemented in several levels, including individual, program and institutional level

<table>
<thead>
<tr>
<th>Examples of levels of intervention</th>
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<tbody>
<tr>
<td>Individual</td>
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<tr>
<td>Mindfulness</td>
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<tr>
<td>Exercise</td>
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<tr>
<td>Nutrition</td>
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<td>Sleep</td>
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<td>Self-compassion</td>
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<td>Positive reframing</td>
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<tr>
<td>Design thinking</td>
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<tr>
<td>Discussion with peers</td>
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<tr>
<td>Involvement in wellness curricula</td>
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</tbody>
</table>

Allowing dedicated time for curricular development

Examples of each are provided.

EMR, electronic medical record.

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**Table 3** Several burnout assessment tools are compared on question number, completion time, cost per assessment and ease of interpretation

<table>
<thead>
<tr>
<th>Burnout assessment tools</th>
<th>Question number</th>
<th>Time to complete</th>
<th>Cost per assessment</th>
<th>Ease of interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maslach burnout inventory</td>
<td>22</td>
<td>10 min</td>
<td>$15</td>
<td>Variable</td>
</tr>
<tr>
<td>Copenhagen burnout inventory</td>
<td>19</td>
<td>10 min</td>
<td>Free</td>
<td>Easy</td>
</tr>
<tr>
<td>Brief resident wellness profile</td>
<td>7</td>
<td>5 min</td>
<td>Free</td>
<td>Easy</td>
</tr>
</tbody>
</table>
that this is largely due to ethical issues that arise with the use of a control group in such investigations, especially considering the rising rate of physician suicide.

No one-size-fits-all roadmap exists for developing, implementing or assessing resident wellness programs. We instead envision a wellness ‘toolbox’ of curricular elements from which programs can select to best serve their residents’ unique needs. We intend for this review of wellness interventions to be used as a starting point for individuals, program leaders, institutions and organisations looking to develop and implement wellness curricula. We also hope this data is useful to the ACGME in evaluating best practices, validating assessment measures and providing opportunities for institutions to work together in meeting common program requirements. A new ACGME well-being website includes a collection of general wellness resources as well as an invitation for individuals, programs and institutions to submit their own well-being strategies.

The ACGME is uniquely positioned to collect data on wellness interventions, connect leaders from all programs and enable them to share experiences across disciplines. This collaboration could provide additional insights to create a collection of wellness interventions that all specialties can use to better serve their residents. We hope the ACGME will take the lead in evaluating the effectiveness of these strategies, and work towards an evidence-based well-being curriculum.

CONCLUSIONS
Existing data on wellness curricula embrace several shared thematic components. Because different residency programs and institutions have different wellness needs, a resource including general as well as specialty-specific wellness components is needed. In this narrative review, we identify several recommendations: use of a needs assessment; implementation of change at the individual, program and institutional level; engagement of stakeholders; inclusion of practical job-related competencies; and use of standardised, validated assessment tools to evaluate the curriculum. We also offer an evaluation of costs associated with wellness interventions. Development of wellness curricula remains in its infancy; this review aims to inform future wellness initiatives in postgraduate medical education. Additional work is needed to capture other successful wellness strategies and outcome data.

Contributors KK planned the study. LG and KK performed the literature review. EA, KK, LG reviewed the themes. KT reviewed costs and edited the paper.

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ORCID iD Erin R Ahart http://orcid.org/0000-0002-0285-7273
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