

## National Landscape of Interventions to Improve Pediatric Resident Wellness and Reduce Burnout

*Paria M. Wilson, MD, MEd; Kathi J. Kemper, MD, MPH; Charles J. Schubert, MD; Maneesh Batra, MD, MPH; Betty B. Staples, MD; Janet R. Serwint, MD; Hilary McClafferty, MD; John D. Mahan, MD; for the Pediatric Resident Burnout and Resilience Study Consortium (PRBRSC)*

From the Department of Pediatrics, Division of Emergency Medicine, University of Pittsburgh, Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pa (Dr Wilson); Department of Pediatrics and Center for Integrative Health and Wellness (Dr Kemper), Department of Pediatrics and Nephrology (Dr Mahan), Nationwide Children's Hospital, Columbus, Ohio; Department of Pediatrics, Division of Emergency Medicine, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio (Dr Schubert); Department of Neonatology and Pediatrics, University of Washington, Seattle Children's Hospital (Dr Batra); Department of Pediatrics, Duke University Medical Center, Durham, NC (Dr Staples); Department of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Md (Dr Serwint); and Department of Medicine, University of Arizona College of Medicine, Tucson, Ariz (Dr McClafferty)

The authors have no conflicts of interest to disclose.

Address correspondence to Paria M. Wilson, MD, MEd, Division of Emergency Medicine, Children's Hospital of Pittsburgh of UPMC, 4401 Penn Ave, AOB Suite 2400, Pittsburgh, PA 15224 (e-mail: [paria.wilson@gmail.com](mailto:paria.wilson@gmail.com)).

**ACADEMIC PEDIATRICS** 2017; ■:1–4

PEDIATRIC RESIDENTS FACE a range of emotional and physical challenges that include caring for traumatized and chronically ill children, long duty hours with revolving supervisors, and adaptation to electronic medical records. Burnout is pervasive across the medical spectrum, with higher rates reported in resident physicians compared to their faculty counterparts, possibly related to the time demands of training, the steep learning curve of clinical practice, and work–life imbalance. Failure to acknowledge these significant stressors can negatively affect the psychological health of resident physicians<sup>1</sup> and result in trainee burnout<sup>2</sup> that may persist into professional practice.<sup>3</sup>

Physician well-being is important in the dynamic process of maintaining self-awareness and a balanced lifestyle<sup>4</sup> as well as the ability to respond to stressors in a healthy adaptive manner (resilience).<sup>5</sup> Burnout is a maladaptive response to chronic emotional and interpersonal work-related stressors and is defined by the 3 dimensions of emotional exhaustion, cynicism, and inefficacy.<sup>6</sup> Residents with burnout are more likely to experience depression and alcohol abuse, and to report medical errors.<sup>3,7</sup> Attempts at addressing resident wellness through duty-hour restrictions have demonstrated variable improvements in the rates of resident burnout.<sup>8,9</sup> Few studies discuss evidence-based interventions aimed at mitigating burnout and well-defined associated outcomes,<sup>2,4,9–11</sup> with little known about the current landscape of efforts in pediatric residency programs. Understanding these efforts is necessary to ensure that program directors (PD) are aware of the gravity of burnout, are engaged in addressing the wellness needs of residents, and are making a collective effort to measure and mitigate burnout.

To address this gap, we developed the Pediatric Resident Burnout and Resilience Study Consortium (PRBRSC, <http://pedsresresilience.com>) with the overall goal of measuring pediatric resident burnout nationally, and improving pediatric resident resilience, compassion, and wellness. The purpose of this initial work from the PRBRSC was to provide foundational evidence about the state of residency program interventions designed to promote wellness as defined by these 3 objectives: 1) determine interventions provided by pediatric residency programs in 2015–2016 to address resident wellness and burnout; 2) determine current and planned outcome measures related to described interventions; and 3) determine barriers to implementation and evaluation of resident wellness programs as perceived by PDs.

### METHODS

This was a cross-sectional electronic survey of pediatric residency PDs in the United States and Canada during May–June 2016. The survey was approved by the Cincinnati Children's Hospital institutional review board.

### STUDY POPULATION

PDs were eligible for survey inclusion if their programs were members of the Association of Pediatric Program Directors (APPD). During survey distribution, 198 of the 204 pediatric residency programs accredited by the Accreditation Council for Graduate Medical Education (ACGME) and 1 of the 17 pediatric residency programs accredited by the Royal College of Physician and Surgeons of Canada were members of APPD. Associate PDs were excluded to prevent multiple responses from a single institution.

## SURVEY INSTRUMENT

The survey was developed by consensus on the basis of prior research and experiences of the PRBRSC Steering Committee.<sup>12</sup> The survey consisted of 7 multiple choice demographic questions including location and size of residency program (designated as small <30, medium 31 to 60, and large >60 residents), hospital affiliation, presence of specialized residency tracks,<sup>13</sup> gender and ethnicity of residents, and presence of underrepresented minorities as defined by the 2003 Association of American Medical Colleges.<sup>14</sup>

The instrument also included multiple response questions of predefined wellness activities and assessed outcome measures during the 2015–2016 academic year as well as planned outcome measures for the 2016–2017 academic year, including an option for open-ended responses to these questions. On the basis of prior research, wellness interventions were dichotomized into 2 categories, active and passive.<sup>15</sup> Active interventions were defined as access to counselors or social workers, debriefings, didactic sessions on wellness, faculty mentoring programs, formal training on communication or reflection, mind–body skills training, and small-group discussions. Passive interventions were defined as organized social events, retreats, access to exercise equipment, town hall sessions, food delivery services, and housecleaning services. Summary measures for PD responses to active versus passive interventions reflected the presence of any of the above measures. Satisfaction with the effectiveness of current interventions was assessed using an 11-point Likert scale, with 0 = Not at all satisfied and 10 = Very satisfied.

The 19-item survey instrument was created using REDCap and distributed electronically during May–June 2016 with twice-a-month survey completion reminders. The survey was pilot tested by 33 programs who were members of the PRBRSC and was modified before submission to the APPD research task force, which approved the survey and distributed it to member PDs.

## ANALYSIS

Descriptive statistics were calculated for categorical variables. Pearson's chi-square test (or Fisher's exact test when cell sizes were less than 5) was used to examine categorical differences between program size and presence of interventions. Analysis of variance was used to examine ordinal variables. Data were analyzed by SPSS 19.0.0 (IBM SPSS, Chicago, Ill), and  $P < .05$  was considered statistically significant.

## RESULTS

Responses were received from 101 (51%) of 199 PDs. Training programs represented all geographic regions of the United States, with 70% being university based, 23% university affiliated, and 7% community based or military affiliated. Nineteen percent of programs were small, 45% medium, and 36% large.

Program activities during the 2015–2016 academic year aimed at reducing burnout and improving wellness included a range of active and passive interventions, most commonly organized social events (91%), access to mental health specialists (90%), and retreats (72%). Larger programs were more likely to offer town hall sessions, mind–body skills training, didactic sessions on wellness and burnout, and debriefings than small- or medium-size programs ( $P < .01$ ) (Table 1).

Less than half of PDs reported formal assessment of trainee wellness and burnout outcome measures in 2015–2016, with 36% of programs having measured burnout and 6% resilience. There was a marked increase in the number of evaluations planned in all categories for the 2016–2017 academic year, with a 2-fold increase in programs planning to measure burnout and a nearly 10-fold increase in planned measurement of resilience (Table 2). Of the 32 PDs who responded to satisfaction with the

**Table 1.** Programmatic Interventions Available in 2015–2016

Characteristic	Small Program, n (%) (n = 19)	Medium Program, n (%) (n = 45)	Large Program, n (%) (n = 37)	All Programs, n (%) (n = 101)	<i>P</i>
Active	18 (95)	44 (98)	37 (100)	99 (98)	.4
Access to mental health specialists	16 (84)	40 (89)	35 (95)	91 (90)	.44
Didactic sessions	10 (53)	26 (58)	32 (86)	68 (67)	<.01
Debriefing	5 (26)	28 (62)	28 (76)	61 (60)	<.01
Mind–body skills training	5 (26)	19 (42)	25 (68)	49 (49)	<.01
Formal training on communication	8 (42)	15 (33)	20 (54)	43 (43)	.17
Faculty mentoring program on personal health and wellness	6 (32)	8 (18)	9 (24)	23 (23)	.47
Small-group training	3 (16)	10 (22)	10 (27)	23 (23)	.63
Formal training on reflection	4 (21)	6 (13)	6 (16)	16 (16)	.74
Passive	17 (89)	43 (96)	37 (100)	97 (96)	.15
Organized social events	16 (84)	40 (89)	36 (97)	92 (91)	.21
Retreats	13 (68)	33 (73)	27 (73)	73 (72)	.9
Access to exercise equipment	9 (47)	25 (56)	24 (65)	58 (57)	.43
Town hall sessions	2 (11)	9 (20)	19 (51)	30 (30)	<.01
Food delivery services	0	0	1 (3)	1 (1)	.42
No intervention	1 (5)	1 (2)	0	2 (2)	–

**Table 2.** Number of Wellness/Burnout Reduction Outcomes Measured (n = 101)

Measure	2015–2016	2016–2017 (Planned)
Burnout	36	73
Resilience	6	58
Mindfulness	2	58
Sleep	6	47
Empathy	7	29
Self-compassion	4	17
Spirituality	0	8
None	61	7

effectiveness of current activities, the mean level of satisfaction was rated at an intermediate level of 5.5 (range 3–9), with only 8 PDs responding to this question, stating that they were highly satisfied ( $\geq 8$ ) with their current activities.

Most PDs (82%) reported one or more barriers to providing wellness activities, including inadequate time (82%), faculty expertise/availability (68%), money (64%), lack of resident interest (30%), and space (17%), with no significant differences by program size.

## DISCUSSION

Despite increasing awareness of the impact of resident burnout on wellness and resilience, to our knowledge, this is the first national study describing pediatric residency program efforts to monitor and address resident burnout. We demonstrated that availability of wellness activities was rarely associated with program size and that only a minority of programs measured the effectiveness of the interventions they provided for pediatric trainees. Predictably, time, money, and lack of expertise posed significant barriers to implementing and evaluating wellness programs.

Among the many competing priorities residents face during training, wellness appears to be integral to self-care and delivery of effective patient care.<sup>3</sup> Despite the serious personal and professional consequences of burnout, there has been a paucity of randomized interventional research addressing burnout. A systematic review of burnout interventions revealed resident assistance programs, workshops, self-care interventions, didactic sessions, and stress-management/coping training as the most commonly cited interventions.<sup>11</sup> Efficacy of interventions in reducing burnout has been demonstrated with clinically meaningful reduction in burnout from individual-focused interventions such as facilitated small-group curricula,<sup>16</sup> stress management and self-care training,<sup>9</sup> and communication skills training,<sup>11</sup> but effects may be more meaningful for practicing rather than resident physicians.<sup>9</sup> Our study revealed that only 23% of PDs reported small-group training, and less than half reported formal training on communication skills. Social events and retreats were some of the most commonly reported interventions. While evidence does support the ability of retreats to help develop leadership skills and resilience,<sup>17</sup> the content, design, implementation, and focus of retreats are not consistent across residency programs and may not uniformly aim to address well-being. Narrative medicine may serve as a means of bridging the divide between physicians

and patients, but in our study, only 16% of programs reported formal training on reflection. Ninety percent of programs provided access to mental health services, which is a reassuring organizational initiative, given the frequency of the concomitant presence of burnout and depression in trainees.<sup>1,3</sup> Our results indicate that an increase in the availability of evidence-based interventions is necessary to help mitigate resident physician burnout.

PDs in our study planned to increase multiple trainee wellness outcome measurements. Formal measurement of burnout in trainees was the most commonly reported outcome measure in the 2015–2016 academic year, affirming PD acknowledgement of the importance of understanding burnout in their residents. The most notable plans, endorsed by 55% of PDs, were to assess mindfulness in order to capitalize on the recognition of the impact of mindfulness in the well-being of medical professionals.<sup>18,19</sup> Although the ACGME mandates that programs educate trainees to recognize the signs of fatigue and sleep deprivation,<sup>20</sup> only 6 programs reported measuring outcomes related to sleep in 2015–2016, with 47 programs planning to assess these measures the following academic year. Monitoring for fatigue is relevant because sleep deprivation has been associated with development of mood disorders.<sup>21</sup> PDs in our study reported time and faculty expertise as barriers to addressing and monitoring resident wellness, which is consistent with prior research.<sup>22</sup> Institutional investments in faculty development through retreats and use of online wellness curricula are needed to not only model wellness behavior for residents but also to improve the sustainability of current resident wellness initiatives.<sup>10,23</sup>

Acknowledgment of burnout from the American Academy of Pediatrics<sup>3</sup> has led to curricular development such as the Pediatric Integrative Medicine in Residency program,<sup>24</sup> which uses a combination of online and on-site experiential instruction on resident self-care, burnout, and mindfulness in medicine and the Resilience in the Face of Grief and Loss Curriculum.<sup>25</sup> Online training in mindfulness, such as the Ohio State University's online Mind-Body Skills Training course for health professionals, has demonstrated immediate improvement in mindfulness in trainees.<sup>18,19</sup> These efforts offer promise that organized educational methods can effectively address the pitfalls of burnout and advocate for healthy habits in future trainees.

Structured resident wellness programs should educate about the pitfalls of burnout while fostering mindfulness and self-care and develop interventions based on input from key stakeholders.<sup>2,4,10</sup> Reporting of stressors can be encouraged by developing confidential environments where resident burnout surveillance can be monitored.<sup>15</sup> Burnout is a systemic issue requiring deliberate, sustained, and comprehensive efforts to mitigate its effects; leadership and sustained attention from the highest level of an organization are key to making progress.<sup>10,11</sup>

This study has several limitations, including its cross-sectional design, which precludes determination of the direction and causality of relationships. This survey is not a

standardized measure but was piloted and reviewed by the APPD before dissemination. Because of the deidentified nature of responses, we were unable to assess the data of nonresponders, which could limit generalizability to all programs; however, respondents included PDs in different states and in both community- and university-based programs. Because the survey was administered only to PDs, these results represent their perceptions and were not validated or triangulated with other stakeholders in the program. Our survey did not identify whether PDs planned outcome measures on the basis of validated tools or institutional assessments. We acknowledge that we have captured only a single point in time in a rapidly changing field in which the understanding of interventions and outcome measures are also rapidly evolving, and that this study was unable to determine the effectiveness of interventions available at various institutions.

## CONCLUSIONS

Our national study of pediatric PDs demonstrates that 98% of respondent programs have interventions in place to address resident wellness and burnout, but most are not evidence based. Future directions include implementation of evidence-based interventions and program evaluations into pediatric training to help create a supportive, respectful culture of wellness.

## ACKNOWLEDGMENTS

We thank Michael Fitzgerald, PhD, for providing us with his expertise in survey design and statistical support.

Presented in part as a poster at the Pediatric Academic Societies annual meeting, Baltimore, Md, April 30, 2016.

## REFERENCES

1. Lebensohn P, Dodds S, Benn R, et al. Resident wellness behaviors: relationship to stress, depression, and burnout. *Fam Med*. 2013;45:541–549.
2. Satterfield JM, Becerra C. Developmental challenges, stressors and coping strategies in medical residents: a qualitative analysis of support groups. *Med Educ*. 2010;44:908–916.
3. McClafferty H, Brown OW, Section on Integrative Medicine; Committee on Practice And Ambulatory Medicine; Section on Integrative Medicine. Physician health and wellness. *Pediatrics*. 2014;134:830–835.
4. Eckleberry-Hunt J, Van Dyke A, Lick D, et al. Changing the conversation from burnout to wellness: physician well-being in residency training programs. *J Grad Med Educ*. 2009;1:225–230.
5. Epstein RM, Krasner MS. Physician resilience: what it means, why it matters, and how to promote it. *Acad Med*. 2013;88:301–303.
6. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001;52:397–422.
7. Fahrenkopf AM, Sectish TC, Barger LK, et al. Rates of medication errors among depressed and burnt out residents: prospective cohort study. *BMJ*. 2008;336:488–491.
8. Fletcher KE, Davis SQ, Underwood W, et al. Systematic review: effects of resident work hours on patient safety. *Ann Intern Med*. 2004;141:851–857.
9. Busireddy KR, Miller JA, Ellison K, et al. Efficacy of interventions to reduce resident physician burnout: a systematic review. *J Grad Med Educ*. 2017;9:294–301.
10. Shanafelt TD, Noseworthy JH. Executive leadership and physician well-being: nine organizational strategies to promote engagement and reduce burnout. *Mayo Clin Proc*. 2017;92:129–146.
11. West CP, Dyrbye LN, Erwin PJ, et al. Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *Lancet*. 2016;388:2272–2281.
12. Gardiner P, Filippelli AC, Lebensohn P, et al. The incorporation of stress management programming into family medicine residencies—results of a national survey of residency directors: a CERA study. *Fam Med*. 2015;47:272–278.
13. Batra M, Shugerman RP, Whitlock KB, et al. Reducing pediatric resident burnout: longitudinal effect of individualized pathways in global health and advocacy [abstract]. Presented at: Pediatric Academic Societies (PAS) annual meeting; April 30–May 3, 2016; Baltimore, Md.
14. Association of American Medical Colleges. Underrepresented in Medicine Definition; 2004. Available at: <https://www.aamc.org/initiatives/urml/>. Accessed May 3, 2017.
15. Lefebvre DC. Perspective: resident physician wellness: a new hope. *Acad Med*. 2012;87:598–602.
16. West CP, Dyrbye LN, Rabatin JT, et al. Intervention to promote physician well-being, job satisfaction, and professionalism: a randomized clinical trial. *JAMA Intern Med*. 2014;174:527–533.
17. Pidgeon AM, Ford L, Klaassen F. Evaluating the effectiveness of enhancing resilience in human service professionals using a retreat-based Mindfulness with Metta Training Program: a randomised control trial. *Psychol Health Med*. 2014;19:355–364.
18. Olson K, Kemper KJ, Mahan JD. What factors promote resilience and protect against burnout in first-year pediatric and medicine-pediatric residents? *J Evid Based Complementary Altern Med*. 2015;20:192–198.
19. Kemper KJ. Brief online mindfulness training: immediate impact. *J Evid Based Complementary Altern Med*. 2017;22:75–80.
20. Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Pediatrics; 2013. Available at: [http://www.acgme.org/Portals/0/PFAssets/2013-PRFAQ-PIF/700\\_med\\_peds\\_07012013.pdf](http://www.acgme.org/Portals/0/PFAssets/2013-PRFAQ-PIF/700_med_peds_07012013.pdf). Accessed September 16, 2017.
21. Rosen IM, Gimotty PA, Shea JA, et al. Evolution of sleep quantity, sleep deprivation, mood disturbances, empathy, and burnout among interns. *Acad Med*. 2006;81:82–85.
22. Ey S, Moffit M, Kinzie JM, et al. “If you build it, they will come”: attitudes of medical residents and fellows about seeking services in a resident wellness program. *J Grad Med Educ*. 2013;5:486–492.
23. Gjerde CL, Kokotailo P, Olson CA, et al. A weekend program model for faculty development with primary care physicians. *Fam Med*. 2004;36(suppl):S110–S114.
24. McClafferty H, Dodds S, Brooks A, et al. Pediatric Integrative Medicine in Residency (PIMR): description of a new online educational curriculum. *Children (Basel)*. 2015;2:98–107.
25. Serwint JR, Bostwick S, Burke AE, et al. The AAP Resilience in the Face of Grief and Loss Curriculum. *Pediatrics*. 2016;138(5).