Improving Overall Resident and Faculty Wellbeing Through Program-Sponsored Innovations

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Abstract

Problem

Studies suggest that burnout and wellbeing are inversely associated, thus early identification of risk factors for burnout and targeted interventions to improve resident wellbeing could help mitigate these outcomes. However, little is known about the impact of department-sponsored wellbeing programs on improving personal physician wellbeing.

Approach

Our innovation attempted to create a culture of physician wellbeing within one year (October 2016-October 2017) after discovering high levels of burnout among our Internal Medicine residents and faculty. All residents and faculty were invited to participate in programming and an internally-developed "Wellness Needs Assessment" tracked the effectiveness of our efforts. Wellness endeavors were generally low-resource/high-yield interventions and included establishing a Physician Wellbeing Committee and budget, creating a robust social media presence, and providing over thirty event-based and continuous wellness interventions throughout the year.

Outcomes

Over one year, our wellbeing program demonstrated improvements across all ten sub-domains of wellness, although the distribution of responses when comparing their current overall level of wellness did not reach statistical significance. A large decrease in the rate of self-reported "thoughts of self-harm" was noted. Over 90% of participating physicians felt that the "culture of wellness" in the workplace had influenced their personal wellness.

Next Steps

Next steps include determining which wellbeing interventions are the most effective in promoting a culture of wellness and improving personal wellbeing. We plan to determine sustainability of the program over time, growing
our arsenal of effective strategies to improve culture, and determine the effectiveness of this strategy across other specialties and locations.

**Keywords:** Resident well-being; self-harm; suicide; wellness; wellbeing; physician wellbeing; resident wellbeing

**Introduction**

Physician burnout is a well-documented problem in the United States and can lead to poorer clinical performance, attrition, depression, and suicide (Shanafelt and Noseworth, 2017). Residents in training are not immune to the risks of professional burnout and its deleterious consequences (Raj, 2016). Studies suggest that burnout and wellbeing are inversely associated (Hall et al., 2016). Thus, early identification of risk factors for burnout and targeted interventions to improve wellbeing should help mitigate these outcomes and improve physician satisfaction. Emphasizing personal wellbeing early in a physician's career may not only curtail burnout during residency but give individuals the tools they need to combat factors that may contribute to burnout throughout their career.

At the time of our innovation, the Department of Internal Medicine at our community-based, academic institution included over 120 physicians: 42 Internal Medicine residents, 8 Internal Medicine/Family Medicine residents, 24 Transitional Year/ Preliminary Medicine residents, 19 core teaching faculty, and 28 non-core teaching faculty. As part of an initial quality improvement study, faculty and residents in our department completed a modified Maslach Burnout Inventory-Health Services Survey (MBI-HSS) in January 2016. The results of this initial quality improvement study demonstrated that almost 44% of inpatient teaching faculty and 43% of our current residents were experiencing high levels of distress in one of three subdomains: emotional exhaustion, depersonalization, or low sense of personal accomplishment. To move from identifying burnout to promoting wellness (Eckleberry-Hunt, Kirkpatrick, and Barbera, 2018), an internally developed "Wellness Needs Assessment" (WNA, see Supplementary File 1) was administered via electronic survey link in October 2016. Eighty percent (53/66) of invited residents and core faculty completed the survey. Less than half of respondents rated their overall level of wellness as high or very high, with the subdomains of physical, emotional, and spiritual wellness being the most poorly rated. Most concerning, almost 15% of respondents had thoughts of self-harm in the previous year, higher than averages reported in national surveys (Goebert et al., 2009).

Given these results, it was apparent that the creation of a comprehensive strategy to improve resident and faculty physician wellbeing was crucial. Our program design focused on low-resource/high-impact strategies targeting loneliness which is known to correlate with burnout in physicians in a dose-dependent fashion (Shapiro, Zhang and Warm, 2015). We also recognized the importance of 'making the business case' for wellbeing – all to decrease physician turnover and improve quality of care and physician satisfaction (West et al., 2016).

Ultimately our program design objectives were:

- To implement a diverse and comprehensive assortment of wellbeing activities, as a one-size-fits-all approach will not meet individual wellbeing needs
- To engage all department physicians (resident and faculty alike) to participate in all wellbeing opportunities
To prioritize low-resource, high-impact interventions including both longitudinal and event-based programming

To achieve culture change by delivering frequent, consistent messages regarding physician wellbeing.

With the initiation of this prospective research study, our institutional IRB-approved initiative aimed to improve physician wellbeing, reduce thoughts of self-harm (with the intent of suicide prevention), and improve overall physician experience in our residency program. In this current study, we report our first-year experience with the implementation of this program during academic year 2016-17.

**Methods**

**Program Design**

Based upon the results of the WNA, our Physician Wellbeing Committee developed a comprehensive program introduced strategically over twelve months (see Supplementary File 2). Programmatic innovations included (among others):

- Environmental updates: ergonomic workstations, photography contest displaying winning prints, department clean-up, wellbeing bulletin board, office fitness circuit

- Distribution of a monthly ‘Wellness Bulletin’ detailing events, birthdays, physician spotlights, recipes, fitness classes (See Supplementary File 3)

- Monthly social events: off-campus social hours, bowling, art therapy, participating in races, volunteer events

- Fitness Challenges: monthly group or paired step, mindful minutes, sleep, and nutrition challenges

- Biannual ‘Wellness Weeks’: 2-3 diverse daily events or promotions - including chair massages and visits by adoptable animals

- Creation and promotion of ‘S.A.F.E. Zones:’ faculty and coordinators who offer confidential and judgment-free support (see Supplementary File 4).

Improving physician connectedness by developing a robust social media presence was a cornerstone of our wellbeing initiative. By having faculty and resident wellbeing champions who had access to the program’s social media accounts, we ‘sprinkled’ in wellness, thereby promoting 24/7 connectedness to our physician followers who may otherwise be separated by rotation/practice site or shift. Diverse and frequent posts on Instagram - our residents’ preferred platform (@stvimresidency) - featured photos of lectures, individuals presenting at national conferences,
"behind the scenes" photos of residents at work, social activities, mindfulness exercises, and advertising for wellbeing events. We utilize custom hashtags (#stvimresidency and #stvimwellness) as well as geotags to improve our visibility within the program and hospital. This free initiative to improve connectedness was, and continues to be, our most important and effective strategy to date.

Our first-year endeavors towards physician wellbeing were initially grant-funded through our institution’s charitable foundation. We spent $5000 for nearly 100 faculty and resident physicians, which was enough to achieve our goals (see Supplementary File 5).

Program promotion was achieved by developing a logo for immediate recognition and branding in addition to conventional advertising (email, signs, word of mouth). Due to the public nature of this novel venue, we attracted the attention and subsequent support of our health system leadership and prospective residents.

**Survey and Data Analysis**

The program described here employs an investigator-developed survey assessing department physicians annually. The survey was used to assess the success of the program, monitor the various domains needing the most focus, and determine which interventions were the most effective. The survey was distributed among physicians within the first four months of the start of the academic year and was open for one month. Surveys were distributed using commercially available survey software via email link. Those who completed the survey were eligible to enter a drawing to receive a $25 USD gift card if they notified survey administrators of completion.

The baseline survey data was compared to data collected one year after initiation of the Wellbeing Program. To strengthen confidentiality among physician responses, the data was compared in a cohort fashion as opposed to comparing matched responses for each physician. Although statistical comparisons are not as strong, the committee felt the added layer of confidentiality in physician responses would illicit more honest feedback among faculty and resident physicians. Demographic variables and survey responses were compared among the baseline and post-intervention groups using Pearson Chi-Square and Fisher’s Exact Tests depending on the assumptions of the test. Data was analyzed using SPSS 24.0. A p-value of less than 0.05 was considered statistically significant.

**Results/Analysis**

A total of 53 of 66 physicians (80.3%) completed the baseline survey and 62 of 78 physicians (79.4%) completed the Year 1 survey. First, Second, Third, and Fourth (IM/FM combined; n=2) year resident physicians participated in the baseline and Year 1 WNA in similar distributions (p=0.83). Comparing faculty physician experience between "those with less than 5 years out of residency" and "those with 5 or more years out of residency", there was no significantly different distribution between the two time-periods (p=0.23). Overall, there was no statistically significant difference in the distribution of participation among both resident and faculty physicians (x2=2.93, p=0.71).

Table 1 presents demographic information for physicians who participated in the WNA. All demographic variables displayed had no statistically significantly different distribution between the baseline and Year 1 assessment. Most participants completing the assessment were male, married or in a serious relationship, and the primary breadwinner in their family. Most participants were also the first physician in their family (72.0% baseline, 76.3% post-intervention).
Table 1: Demographics of Physicians Participating in the "Wellness Needs Assessment"

| Variable                              | Response     | Baseline n(%) | Year One n(%) | p   |
|---------------------------------------|--------------|---------------|---------------|-----|
| Level of Training                     | Resident     | 37 (69.8%)    | 44 (71.0%)    | 1.00|
| Sex                                   | Female       | 25 (49.0%)    | 22 (36.7%)    | 0.25|
| Married or in a serious relationship  | Yes          | 37 (77.1%)    | 42 (71.2%)    | 0.52|
| A parent                              | Yes          | 23 (47.9%)    | 24 (42.9%)    | 0.69|
| The primary breadwinner in your family| Yes          | 27 (58.7%)    | 35 (63.6%)    | 0.68|
| The first physician in your family    | Yes          | 36 (72.0%)    | 45 (76.3%)    | 0.66|
| A member of a particular faith tradition/religion | Yes | 28 (57.1%) | 34 (58.6%) | 1.00|

Baseline and Year 1 overall level of wellness are shown in Figure 1.

**Figure 1: Responses to "How would you describe your current overall level of wellness?"**

Over the course of one year, our comprehensive wellbeing program demonstrated improvements in overall levels of wellness. Although there was no statistically significant difference in the distribution of responses when comparing
their overall level of wellness (p=0.30) among baseline and Year 1 survey data, the responses reveal an increase of "high" and "very high" ratings (Figure 1). When combined, "high" and "very high" ratings increase from 47.2% at baseline to 62.9% at the post-intervention. These responses did have a statistically significant difference in the distribution of ratings (p=0.01).

Table 2 displays the various modes of wellness as well as the response counts and rates for specific wellness sub-domains.

Table 2: "Wellness Needs Assessment" Physician Response Distributions among Wellness Modes/Domains

| Wellness Factors         | Baseline n (%) | Year One n (%) | Very Poor | Poor | Neither High or Low | High | Very High | p |
|-------------------------|----------------|----------------|-----------|-----|---------------------|------|-----------|---|
| Q4.1 Social Wellness    | Baseline       | 1 (1.9%)       | 11 (20.8%)| 18  | (34.0%)             | 19   | (35.8%)   | 4  | (7.5%) |
|                         | Year One       | 1 (1.6%)       | 5 (8.1%)  | 25  | (40.3%)             | 21   | (33.9%)   | 10 | (16.1%)|
| Q4.2 Occupational Wellness | Baseline      | 1 (1.9%)       | 6 (11.5%) | 18  | (34.6%)             | 26   | (50.0%)   | 1  | (1.9%) |
|                         | Year One       | 2 (3.2%)       | 3 (4.8%)  | 17  | (27.4%)             | 33   | (53.2%)   | 7  | (11.3%)|
| Q4.3 Spiritual Wellness | Baseline       | 1 (1.9%)       | 8 (15.1%) | 29  | (54.7%)             | 11   | (20.8%)   | 4  | (7.5%) |
|                         | Year One       | 2 (3.2%)       | 6 (9.7%)  | 23  | (37.1%)             | 22   | (35.5%)   | 9  | (14.5%)|
| Q4.4 Physical Wellness  | Baseline       | 1 (1.9%)       | 19 (35.8%)| 21  | (39.6%)             | 6    | (11.3%)   | 6  | (11.3%)|
|                         | Year One       | 1 (1.6%)       | 16 (26.2%)| 21  | (34.4%)             | 17   | (27.9%)   | 6  | (9.8%) |
| Q4.5 Intellectual Wellness | Baseline | 0 (0%)         | 4 (7.5%)  | 17  | (32.1%)             | 28   | (52.8%)   | 4  | (7.5%) |
|                         | Year One       | 0 (0%)         | 2 (3.2%)  | 16  | (25.8%)             | 37   | (59.7%)   | 7  | (11.3%)|
| Q4.6 Emotional Wellness | Baseline       | 1 (1.9%)       | 9 (17.0%) | 22  | (41.5%)             | 19   | (35.8%)   | 2  | (3.8%) |
|                         | Year One       | 1 (1.6%)       | 5 (8.1%)  | 14  | (22.6%)             | 36   | (58.1%)   | 6  | (9.7%) |
| Q4.7 Environmental Wellness | Baseline | 0 (0%)         | 4 (7.5%)  | 28  | (52.8%)             | 20   | (37.7%)   | 1  | (1.9%) |
|                         | Year One       | 0 (0%)         | 0 (0%)    | 25  | (41.0%)             | 27   | (44.3%)   | 9  | (14.8%)|
| Q4.8 Financial Wellness | Baseline       | 4 (7.5%)       | 7 (13.2%) | 19  | (35.8%)             | 19   | (35.8%)   | 4  | (7.5%) |
|                         | Year One       | 2 (3.2%)       | 6 (9.7%)  | 26  | (41.9%)             | 19   | (30.6%)   | 9  | (14.5%)|
| Q4.9 Mental Wellness    | Baseline       | 0 (0%)         | 7 (13.2%) | 19  | (35.8%)             | 26   | (49.1%)   | 1  | (1.9%) |
|                         | Year One       | 1 (1.6%)       | 4 (6.5%)  | 16  | (25.8%)             | 36   | (58.1%)   | 5  | (8.1%) |
Among the sub-domains of wellness (Table 2), both Emotional and Environmental Wellness were found to have statistically significant differences in distribution of responses. The baseline and Year 1 responses display a bimodal distribution with the Year 1 responses trending towards "high" or "very high". This positive trend, although not statistically significant, across all wellness factors is seen for all sub-domains examined in the Year 1 WNA.

The survey also examined various self-reported behaviors among physicians including alcohol usage, mental health, and exercise (Table 3).

**Table 3: Physician Reported Behaviors & Opinions from the "Wellness Needs Assessment"

| Behavior                                    | Response | Baseline n(%) | Year One n(%) | p     |
|---------------------------------------------|----------|---------------|---------------|-------|
| Use alcohol >5 days per week                | Yes      | 9 (18.8%)     | 9 (15.8%)     | 0.80  |
| I suffer from anxiety or depression         | Yes      | 10 (20.8%)    | 11 (18.6%)    | 0.81  |
| I feel safe and supported at work           | Yes      | 45 (90.0%)    | 56 (96.6%)    | 0.25  |
| I feel safe and supported at home           | Yes      | 48 (96.0%)    | 60 (100%)     | 0.20  |
| I exercise, on average, 3 days weekly or more | Yes     | 17 (35.4%)    | 27 (46.6%)    | 0.32  |

There were no statistically significant differences in responses between baseline and Year 1 surveys for behaviors in Table 3. However, there are consistent increases among physicians feeling safe and supported as well as exercising three or more days weekly.

**Figure 2: Responses to the statement, "I have had thoughts of self-harm in the last year"**
A large decrease in the rate of self-reported "thoughts of self-harm" is especially notable (Figure 2) and approaches statistical significance (p=0.08). The physicians' responses are shown combined as well as separated into both faculty and resident responses.

Figure 3: Responses to the statement "To what degree has the culture of wellness at work influenced your personal wellness?"
Our post-intervention results indicate that 91% of respondents felt that the culture of wellness at work has at least some influence on their personal wellness (Figure 3).

**Discussion**

Improving personal physician wellbeing among resident and faculty physicians is crucial to the long-term success of our profession. Our wellbeing initiative aimed to address burnout in our department by optimizing a culture of wellness, and we feel that our results overall were positive. It should be noted that there was a trend towards improvement across the ten subdomains and in overall wellness after program intervention. There was also an observed reduction in thoughts of self-harm by five persons that approached statistical significance. We elected to study the cumulative program as a proxy for quantifying culture change rather than focus on one intervention at a time. The culture change within our department, albeit difficult to quantitate, has been palpable, and was felt by almost all survey respondents to have had some influence upon their personal wellness. Due to the success of our wellbeing program, it has and continues to be propagated across our institution with the support of our institution's leadership team.

Key aspects of our success were centered on our initial program objectives and included inviting all Internal Medicine residents, faculty, and non-teaching hospitalists to participate thereby fostering a sense of community within our department and improved faculty-to-resident role-modeling. We focused on low-resource, high-impact interventions which helped to create a maintainable set of diverse interventions that did not rely on large amounts of funding. While we were able to garner a small internal charitable grant, other avenues for funding that were
explored included donations, external grants, departmental funding, and/or benefactors within the program. We focused on achieving complete institutional buy-in, not only within our department, but up to and including the hospital executive leadership team. By continually engaging both resident and faculty physicians, we reinforced the idea of marrying personal wellbeing with workplace wellbeing and provided physicians a toolbox of techniques for maintaining their own wellbeing throughout their careers.

Our study is strengthened by excellent survey response rates but does have several limitations. First, this represents the experience of one department in a single teaching hospital. Our data is also limited by use of a non-validated survey tool to assess personal physician wellbeing. Furthermore, the study population was different for the pre-intervention and Year 1 surveys due to the natural end and beginning of the academic year mid-study, though our results demonstrate no significant difference in the demographics of the baseline and Year 1 respondents. Because of the sensitivity of some of the survey questions (e.g. alcohol use, thoughts of self-harm), anonymity was prioritized to encourage honest responses. Thus, we were unable to compare individual self-reports of wellbeing before and after Year 1. Another limitation is that while this programming does utilize low-cost interventions, labor contributed by committee members, including administrative support, is unaccounted for and does require resources. We estimate an average of 0.15 full-time equivalent (FTE) physician and 0.1 FTE administrative support for our program.

Conclusion

While improving physician wellbeing is a complicated task, this study provides the first known evidence that residency department wellbeing programming, via departmental culture change, can positively impact personal physician wellbeing and may be associated with a reduction in physician thoughts of self-harm. Next steps include modification of the program to meet evolving physician needs and demonstrating sustainability over time. We hope that the interventions we outlined can be generalizable to other programs to promote physician wellbeing as part of a multi-faceted approach.

Take Home Messages

- Improvement in wellbeing was achieved using a combination of event-based and longitudinal wellbeing programming delivered simultaneously to both residents and faculty.
- Program-sponsored wellbeing initiatives can improve physician self-reported levels of personal (off-campus) wellbeing.
- Successful wellbeing programs can be achieved using low-resource, high-impact strategies such as building community via social media.
- Initiating a comprehensive wellbeing program was associated with a reduction in reported thoughts of self-harm.

Notes On Contributors

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Appendices

None.

Declarations

The author has declared that there are no conflicts of interest.

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Ethics Statement

The Institutional Review Boards of St. Vincent Hospital and Health Care Center, Inc, have determined that this study (IRB ID: R20180047) has met the criteria for exempt classification.

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