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## OPERATIONS AND ECONOMICS IN A PANDEMIC

# Understanding the Intersection of Working from Home and Burnout to Optimize Post-COVID19 Work Arrangements in Radiation Oncology



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**Purpose:** To evaluate burnout in an academic radiation oncology program after the workforce shifted to working from home all or part of the time to better understand the impact of remote work and if it is sustainable after the COVID-19 virus abates.

**Methods and Materials:** In May 2020, in the midst of work-safe policies in the state and stabilizing COVID-19 case numbers, the Qualtrics-based MiniZ burnout survey was amended to include questions related to COVID-19 and working from home and was emailed to all radiation oncology employees across 3 departments: radiation oncology, radiation physics, and experimental radiation oncology. Descriptive and  $\chi^2$  statistics were calculated within Qualtrics using StatIQ to evaluate factors associated with burnout and positive work from home experience.

**Results:** Five hundred seventy-five employees completed the survey. Aggregating 3 responses that indicate having some degree of burnout, the rate of burnout across the cohort was 32%. For the same survey questions administered a year earlier, burnout rate was reported to be 40%. In the current survey, radiation oncology faculty and therapists had the highest reported burnout rates, at 47% and 44%, respectively ( $P = .031$ ). The majority of employees working from home at least part of the time reported the experience was positive (74%, 323/436), and feeling positive about working from home was associated with reduced burnout ( $P = .030$ ). Qualitative data review suggested the main drivers of unfavorable work-from-home responses were child/family care issues and information technology issues.

**Conclusions:** Burnout was not increased during the emerging COVID-19 period compared with pre-COVID data. The shift to working from home was positive for most of the workforce and a potential benefit in reducing burnout for many staff groups. Maintaining work-from-home options post COVID-19 may help reduce burnout long term. It is important to personalize options for those unable to work effectively from home and to resolve information technology challenges to ensure functionality. © 2020 Elsevier Inc. All rights reserved.

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## Introduction

The onset of the COVID-19 pandemic has brought an abrupt transition to remote working for much of the radiation oncology workforce. Although there are potential benefits,

including less time spent commuting and more time with family, there are also drawbacks, including less human interaction and no physical separation between work and home.

There is significant risk that remote work can contribute to employee burnout, as the lines between personal and

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professional life are blurred.<sup>1</sup> The shift to remote work may be particularly stressful during the COVID-19 pandemic, when schools have been closed and individuals have increased caregiving activities with little advance warning to set up optimal at-home information technology resources.

The World Health Organization defines burnout as an occupational mental health syndrome characterized by “feelings of energy depletion or exhaustion, increased mental distance from one’s job or feelings of cynicism or negativism about one’s job, and reduced professional efficacy.”<sup>2</sup> In 2018, Massachusetts-based health care organizations, citing evidence that burnout negatively affects physician mental health, patient outcomes, and quality of care and contributes to the growing physician shortage, declared physician burnout a public health crisis.<sup>3</sup>

We sought to evaluate the impact of remote work on employee burnout in our radiation oncology departments to understand how to improve remote work and whether remote work is sustainable after the COVID-19 virus abates.

## Methods and Materials

The American Medical Association MiniZ burnout survey and 4 additional questions specific to the COVID-19 pandemic were administered using Qualtrics and offered by email to employees across 3 departments: radiation oncology, radiation physics, and experimental radiation oncology. The survey response window was May 6 to May 20, 2020.

The American Medical Association MiniZ burnout survey contains a series of 11 questions pertaining to workplace stress levels.<sup>4</sup> Using their own definition of “burnout,” respondents selected 1 of the following statements of increasing severity: (1) I enjoy my work. I have no symptoms of burnout; (2) I am under stress and do not always have as much energy as I did, but I do not feel burned out; (3) I am definitely burning out and have 1 or more symptoms of burnout (eg, emotional exhaustion); (4) The symptoms of burnout that I am experiencing will not go away. I think about work frustrations a lot; (5) I feel completely burned out. I am at the point where I may need to seek help. Respondents who selected any of the 3 responses including a statement of having burnout (choices 3-5) were grouped into the “burnout” category, and all other respondents were grouped into the “no burnout” category.

Four questions specific to the COVID pandemic were added to the survey: I feel a great deal of stress because of COVID-19 (5-point Likert scale); I worry about my job security because of COVID-19 (yes/no); my proficiency with telehealth is (on a 4-point Likert scale, Novice to Expert; and, if you work from home some or all of the time, working from home is (5-point Likert scale, from negative to positive). We also asked an open-ended question with

free-text response: “Tell us more about your stresses and what we can do to minimize them.”

StatIQ was used to create descriptive statistics, evaluate factors associated with burnout, and compare frequency of pre-COVID-19 burnout levels to current burnout levels.

## Results

In total, 575 of 981 employees (59%) who were sent an email link to the survey completed at least 1 question in the survey. Some respondents did not answer all of the questions.

Among those responding to the optional demographics questions, 69% (251/365) selected female sex and 24.5% (62/253) Latino/Hispanic race/ethnicity.

Overall, 89% of respondents (449/502) reported working from home some or all of the time. Work-from-home experience by role is reported in [Table 1](#). Although most of the workforce was working from home, 92.0% (466/497) reported their care team worked effectively together. Among those working from home, 74% (323/436) reported that working from home is positive or somewhat positive, 12% (53/436) reported that it is negative or somewhat negative, and 16% (72/436) were neutral. Overall, 56% (284/507) agreed or strongly agreed they felt a great deal of stress because of COVID-19 and 40% (219/555) a great deal of stress because of their job. Fifty-two percent (260/500) answered that they worry or believe COVID-19 has affected their job security.

Aggregating 3 response options that indicate having some degree of burnout, rate of burnout across the cohort was 32% ([Table 1](#)). For the same questions from the survey administered a year earlier, rate of burnout was 40%. Demographics regarding role and burnout by role are listed in [Table 1](#). Radiation oncology faculty and therapists had the highest reported burnout rates, at 47% and 44%, respectively ( $P = .031$ ).

Self-report of burnout symptoms was associated with feeling a great deal of stress because of one’s job ( $P < .001$ ) and because of the COVID-19 pandemic ( $P < .001$ ). It was also associated with reporting poor or marginal control over workload ( $P < .001$ ) and worry or belief that COVID-19 has affected job security ( $P < .001$ ).

Among those working from home, self-report of burnout was associated with reporting a negative or somewhat negative work-from-home experience ( $P = .03$ ). Forty-five percent (24/53) of those reporting a negative or somewhat negative work-from-home experience had symptoms of burnout, whereas only 29% (94/323) of those reporting a positive or somewhat positive work-from-home experience reported symptoms of burnout. Sex ( $P = .89$ ) and ethnicity ( $P = .21$ ) were not significantly associated with positivity or negativity of work-from-home experience. In pairwise comparisons of work-from-home experience and role, favorable or unfavorable work-from-home experience was significantly and directly associated with burnout by role for

**Table 1** Frequency of working from home, burnout symptoms, stress, team effectiveness, and positive perception of working from home

	Work role with which they most closely identify		Work from home some or all the time		Self-reported symptoms of burnout		I feel a great deal of stress because of my job	
	No. of respondents	% of respondents	% Work from home	No. of respondents	% Burnout	No. of respondents	% Agree or strongly agree	No. of respondents
	<b>TOTAL</b>	<b>575</b>	<b>100.0%</b>	<b>89.4%</b>	<b>502</b>	<b>31.9%</b>	<b>505</b>	<b>39.5%</b>
Physician faculty	40	7.0%	100.0%	37	47.4%	38	60.0%	40
Resident physicians	11	1.9%	100.0%	10	40.0%	10	45.5%	11
Advance practice providers	32	5.6%	96.7%	30	40.0%	30	43.8%	32
Therapist	75	13.0%	60.0%	60	44.3%	61	60.6%	71
Nurse	49	8.5%	79.1%	43	35.7%	42	44.4%	45
Physics faculty	35	6.1%	100.0%	30	38.7%	31	39.4%	33
Physics staff	26	4.5%	95.7%	23	21.7%	23	16.0%	25
Dosimetrist	45	7.8%	100.0%	42	31.0%	42	47.7%	44
Patient service coordinator	15	2.6%	83.3%	12	41.7%	12	53.3%	15
Administrative staff	87	15.1%	97.4%	77	26.0%	77	27.1%	85
Experimental radiation oncology faculty	7	1.2%	80.0%	5	20.0%	5	57.1%	7
Experimental radiation oncology staff	4	0.7%	100.0%	4	0.0%	4	50.0%	4
Research staff	82	14.3%	98.6%	73	16.4%	73	21.3%	80
Trainee	22	3.8%	94.1%	17	41.2%	17	36.8%	19
Other	45	7.8%	71.8%	39	25.0%	40	31.8%	44

dosimetry, where burnout was lower than the average and with favorable work-from-home scores, and for radiation oncology faculty and physics faculty, where those reporting negative work-from-home experience had a higher likelihood of selecting positive burnout responses (all  $P < .05$ ).

Qualitative factors from free-text responses regarding negative work-from-home experience largely related to family and childcare issues and information technology issues including hardware, virtual private network, and Internet connections.

## Discussion

At the time of the study, in the midst of work-safe policies enacted because of the COVID-19 pandemic, nearly all of the surveyed radiation oncology workforce had shifted to working from home some or all of the time, and the majority reported that working from home was a positive experience with their teams working effectively together. Although respondents reported significant stress related to COVID-19, including concerns about job security, frequency of self-reported symptoms of burnout was similar to or better than the rate of burnout reported in the previous year. Fewer symptoms of burnout were reported by individuals with a positive work-from-home experience.

Working from home has been implemented nationally to reduce density in the workplace and reduce risk of exposure among staff during the COVID-19 pandemic.<sup>5</sup> Data regarding this transition in radiation oncology are informative on considerations regarding permanent work-from-home arrangements after the virus abates. The majority of the radiation oncology workforce reported a positive experience, reflecting the potential benefits of remote work, including time with family, less commute time, and more flexible schedules. There are also known challenges with remote work, including difficulty unplugging from work, loneliness, difficulty collaborating/communicating, distractions from home, difficulty staying motivated, and having reliable Wi-Fi.<sup>6</sup> Some respondents did report a negative work-from-home experience. Qualitatively, negative work-from-home experiences were largely related to caregiving responsibilities and information technology issues.

It was reassuring that the frequency of self-reported burnout symptoms reported after the workforce shifted to work from home was better than the frequency reported by the workforce 1 year prior. Concern has been raised that working from home can contribute to employee burnout<sup>1,7</sup> as the lines between personal and professional life are blurred, making it more challenging to unplug from work. In health care, burnout not only causes emotional exhaustion, depersonalization, and reduced sense of personal

**Table 1** Frequency of working from home, burnout symptoms, stress, team effectiveness, and positive perception of working from home (*continued*)

I feel a great deal of stress because of COVID-19		The degree to which my care team works effectively together		If you work from home some or all of the time: overall, working from home is	
% Agree or strongly agree	No. of respondents	% Satisfactory, good, or optimal	No. of respondents	% Positive or somewhat positive	No. of respondents
56.0%	507	92.0%	497	74.3%	436
71.1%	38	86.8%	38	61.8%	34
60.0%	10	100.0%	10	77.8%	9
48.4%	31	90.0%	30	72.4%	29
77.0%	61	96.7%	60	74.3%	35
65.1%	43	88.4%	43	71.9%	32
46.7%	30	93.3%	30	48.3%	29
39.1%	23	100.0%	23	76.2%	21
23.8%	42	97.6%	42	90.5%	42
83.3%	12	83.3%	12	70.0%	10
64.9%	77	94.7%	75	82.7%	75
60.0%	5	100.0%	4	75.0%	4
50.0%	4	100.0%	4	100.0%	4
54.1%	74	90.0%	70	72.1%	68
47.1%	17	94.1%	17	56.3%	16
37.5%	40	79.5%	39	85.7%	28

accomplishment among practitioners, it also places considerable strain on the entire system.<sup>8,9</sup> Practitioner burnout is associated with much higher rates of medical errors and poorer patient outcomes.<sup>10</sup> A positive work-from-home experience was associated with less burnout, suggesting a potential benefit in addressing burnout.

Interpretation of our results may be restricted by certain implicit limitations of our survey. Several questions in our survey used the Likert 5-point scale, which is vulnerable to extreme response bias, in which respondents tend to select the most extreme options given to them. There is potential for nonrespondent bias, and there was low representativeness of some job roles in the sample. Despite anonymity, social desirability bias might cause some respondents to be reluctant to admit the extent of their feelings about burnout, dissatisfaction with their job, or workplace stress.

## Conclusions

The shift to working from home was a positive change for most of the radiation oncology workforce and had a potential beneficial effect on burnout for many staff groups. Maintaining work-from-home options post COVID-19 may help reduce burnout in the long term. It is important to personalize options for those unable to work effectively from home and to resolve information technology challenges to ensure functionality.

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