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Measuring the Impact of COVID-19 on Hematology-Oncology Trainees: A Quantitative and Qualitative Assessment

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Introduction:

While the COVID-19 pandemic has affected many aspects of clinical care, research, and medical training, its impact on hematology-oncology trainees and professional development has not been described. The American Society of Hematology (ASH) and the American Society of Clinical Oncology (ASCO) sought to assess the impact of COVID-19 on fellows enrolled in hematology-oncology programs.

Methods:

In spring 2020, ASH and ASCO developed and administered a survey by e-mail to active hematology-oncology fellow members. Response formats used both a semi-Likert scale and open-ended text. Questions focused on fellow experiences and how changes in their programs have impacted their personal and professional lives across several domains. Multiple-choice responses were analyzed using descriptive statistics, and NVivo software was used for qualitative analysis of open-ended questions.

Results:

Respondent demographics are described in Table 1. Of 2,306 trainees, 620 (27%) responded to the survey. Most respondents continued patient care responsibilities during the pandemic (80%). Almost half of all trainees (47%) reported that they felt less productive than usual. Stress and/or anxiety about the current situation was the most cited factor affecting productivity in the overall cohort (Figure 1). One-third (33%) of respondents had volunteered or were assigned to clinical/non-clinical COVID-19-related efforts. Of the 90 visa holders in our cohort, 30% (N=27) reported experiencing issues with their visa/immigration status.

Eight percent of respondents stated their career plans had changed due to COVID-19. Of those who said their plans had changed, 30 respondents were considering careers in academia pre-pandemic and 11 were considering private practice. However, only 14 respondents were considering academia post-pandemic while 19 were interested in private practice. Overall, most respondents had concerns about at least one of the following: salary reductions, availability of networking events, family well-being, mental health and obtaining a job (Figure 2).

The prevalence of burnout increased from 22% (N=105) before the pandemic to 33% (N=161) during (p<.001). Of the respondents who did not report burnout before COVID-19, 22% noted new-onset burnout during the pandemic. New-onset burnout prevalence varied based on the type of work respondents performed: no COVID-related work (17%), COVID-related non-clinical work (26%), and COVID-related clinical work (34%) (p<0.01).
The open-ended responses yielded several consistent themes. Clinical and educational constraints were enumerated: lost learning opportunities due to low patient volumes, unavailability of colleagues to discuss cases, and overall low perceived quality of virtual learning. Trainees also reported reduced motivation to complete work within a stipulated time frame due to lack of robust discussions in the virtual environment and technological challenges in navigating educational resources. Trainee research was also severely impacted as laboratories closed, experimental animal colonies were lost, and many research activities ceased. Respondents also expressed concern that cuts in research training initiatives and budgets would jeopardize faculty positions for graduating fellows and that funding for travel and conferences was suspended.

Fellows' recommendations for ASH and ASCO included improved online education, virtual research training and networking opportunities, practical guidance on caring for immune-compromised patients during the pandemic, increased funding resources for trainees, mental health resources, and advocating on behalf of trainee visa holders.

Conclusions:

Hematology-oncology trainees reported their training experiences have been deeply impacted by the COVID-19 pandemic. A majority of trainees are concerned about the negative impact on career opportunities, research funding, financial well-being, and mental health. Burnout increased during COVID-19, especially in trainees who were assigned to specific COVID-related efforts. Training programs
and professional societies can support trainees by increasing trainee research funding, online networking and learning opportunities, mental health resources and, support for international trainees.

### Table 1: Respondent characteristics

| Category                                  | N   | %   |
|-------------------------------------------|-----|-----|
| Sex                                       |     |     |
| Female                                    | 253 | 49.7|
| Male                                      | 252 | 49.5|
| Transgender                                | 1   | 0.6 |
| Other/prefer to self-describe              | 3   | 0.2 |
| Professional Credential                   |     |     |
| MD, DO or equivalent                       | 385 | 75.3|
| MD/PhD or DO/PhD                          | 53  | 10.4|
| MD or DO + other degree                    | 41  | 8   |
| PhD                                       | 32  | 6.3 |
| Clinical fellowship                        | 469 | 91.4|
| Non-clinical fellowship (i.e. post-doctoral)| 44  | 8.6 |
| Primary specialty work area                |     |     |
| Adult hematology/oncology                 | 367 | 73.6|
| Pediatric hematology/oncology             | 64  | 12.5|
| Adult medical oncology                     | 64  | 12.5|
| Adult hematology                          | 63  | 12.3|
| Science/research (non-clinical)            | 54  | 10.6|
| Other                                     | 5   | 1   |
| Current year in fellowship                |     |     |
| First                                     | 135 | 26.4|
| Second                                    | 189 | 36.9|
| Third                                     | 158 | 30.9|
| Fourth                                    | 17  | 3.3 |
| Fifth or more                             | 13  | 2.5 |
| Visa holder                               |     |     |
| Yes                                       | 90  | 17.5|
| No                                        | 423 | 82.5|

### Disclosures

Velazquez Manana: Corbus Pharmaceuticals: Other: Immediate family member stock ownership; Portola Pharmaceuticals: Other: Immediate family member stock ownership; Midatech: Other: Immediate family member stock ownership. Wun: Glycomimetics, Inc.: Consultancy.

### Author notes

* Asterisk with author names denotes non-ASH members.

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