

# Women Physicians and Medical Conferences: A Pilot Survey Study of Participation Challenges and Options to Optimize Wellness and Work-Life Integration

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## ABSTRACT

**Introduction:** Women physicians experience challenges in career advancement, work-life integration (WLI), and wellness. Participation (attending and speaking) at academic conferences is one way for women physicians to advance their careers, but barriers to physical participation (travel, WLI) pose challenges. Virtual participation options may enhance career advancement. In this pilot study, we explored women physicians' conference participation patterns and preferences regarding virtual participation options.

**Methods:** In this cross-sectional pilot study of 70 women physicians from the Physician Women in Leadership (PWL) and Physician Moms Group (PMG) Facebook groups, we collected demographic, burnout, and WLI data, information on barriers to in-person conference participation, and attitudes regarding virtual participation options.

**Results:** Fifty-eight (85.3%) respondents reported challenges with attending and 36 (72%) with speaking at conferences in person. Challenges most cited included: childcare difficulties (42, 66.7%; 24, 61.5% for attendees and speakers, respectively) and WLI issues (41, 65.1%; 28, 71.8%). Sixty (87%) respondents wanted an option for virtual attendance and 39 (81.3%) wanted an option for virtual speaking. We found no significant association between women who reported higher levels of burnout or more WLI difficulties and likelihood of reporting challenges with conference participation.

**Conclusion:** Women physicians reported challenges with traveling to attend/speak at in-person conferences. The majority expressed support for virtual attendance and/or presentation options. Future studies should examine these themes in detail and future policy resolutions could advocate for virtual conference participation as an option to reduce barriers to conference participation for women physicians.

## INTRODUCTION

Women physicians face many barriers in terms of career development, work-life integration (WLI), and wellness from slower career advancement, pay inequities, and increased incidence of sexual harassment [1, 2, 3]. Conference participation - via attendance to build ones' knowledge base and/or speaking to gain local and national recognition as a subject matter expert - is one way that women physicians can enhance their career development [4, 5]. In-person conference participation, however, may pose significant challenges to women physicians as they navigate conflicting responsibilities and maintain WLI and wellness while traveling.

Literature suggests that women physicians attend fewer conferences than their male counterparts and are less likely to serve as panelists and invited lecturers; yet physicians of both genders place equal value on conference attendance [6, 7]. Virtual

platforms for conference attendance/presentation may increase opportunities for women physicians to participate, yet studies exploring the role of virtual conference platforms and their desirability to women physicians have not been conducted. In this pilot study, our aim was to identify patterns of conference participation and barriers to / preferences for future participation with a focus on whether women physicians would find virtual participation options to be helpful for their careers.

## METHODS

### Study Population

We conducted an anonymous online cross-sectional pilot survey using a convenience sample of women physicians. Participants were selected from the Physician Women in Leadership (PWL) and Physician Moms Group (PMG) Facebook online

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communities. PWL and PMG members were invited to participate via online Facebook postings. The survey remained open for four weeks with once-weekly reminder postings to both groups. This study was deemed Exempt by the University of Pennsylvania Institutional Review Board.

### Survey Instruments

Participant demographics and employment characteristics were collected via multiple choice questions. Burnout was assessed using two-items (“I feel burned out from my work” and “I have become more callous toward people since I took this job”) on a seven-point Likert-type scale [8]. This two-item score has been shown to correlate with the Maslach Burnout Inventory and used previously to characterize burnout among physicians [9]. Satisfaction with WLI was assessed using the question “My work schedule leaves me enough time for my personal/family life” [10]. Individuals who either agreed or strongly agreed were considered satisfied with WLI [11]. Participants were asked through a series of multiple-choice questions as well as an open-ended discussion section to describe their current conference participation patterns as well as challenges they have faced while participating in conferences. They were then asked about their level of support for virtual conference participation options, and asked to assess how important these options would be for physicians in general and for their own careers personally.

### Analysis

All results were analyzed using Tableau Desktop version 2021.2.2 and Microsoft Excel version 16.45. We used bar plots to showcase relationships amongst numeric and categorical variables. Fisher’s test was used to compare categorical variables between the groups of interest. *P*-values of <0.05 were considered statistically significant for determining significance of association between variables.

## RESULTS

### Demographics

Seventy women physicians responded to the survey. Participant demographics are shown in Table 1. Most respondents were between 35 and 54 years old. Respondents practiced in a variety of specialties/subspecialties. Most respondents (45, 64.3%) spent the highest percentage of their time in clinical work, with most in academic practice (35, 50%). Sixty-one respondents (87.1%) were married, 64 (91.4%) had children.

### Burnout and Work Life Integration (WLI)

Participant responses to questions regarding burnout and WLI are shown in Table 1. Out of a total of 70 respondents, 5 (7.1%) reported feeling burned out from their work once a week, 15 (21.4%) a few times a week and 3 (4.3%) every day. Moreover, 12 (17.14%) reported that they had become more callous a few times a month toward people since taking their current job, 4 (5.7%) reported a few times a week and 2 (2.8%) responded for every day. Twenty-eight (40%) reported poor WLI (defined by reporting that their work schedule did not leave them enough time for personal/family life).

Table 1: Demographics, Clinical Practice, Work-Life Integration (N=70)

Age Group (Years)	N (%)
35-44	33 (47.14)
44-54	28 (40)
Less than 35	5 (7.14)
55-64	3 (4.29)
65 or older	1 (1.43)
<b>Medical specialty/subspecialty</b>	
Pediatric subspecialist	10 (14.49)
Internal medicine subspecialist	9 (12.86)
Internal medicine (general)	9 (12.86)
Family medicine	9 (12.86)
Pediatrics (general)	6 (8.57)
Obstetrics and gynecology or OB-GYN subspecialist	6 (8.57)
Other	4 (5.71)
Neurology	4 (5.71)
General surgery subspecialty	3 (4.29)
Anesthesia	3 (4.29)
General surgery	2 (2.86)
Emergency medicine	1 (1.43)
Pathology	1 (1.43)
Physical medicine and rehabilitation	1 (1.43)
Psychiatry	1 (1.43)
Radiology	1 (1.43)
<b>Relationship status</b>	
Married	61 (87.14)
Single	8 (11.43)
Widowed	1 (1.43)
<b>Primary Work Type</b>	
Clinical	45 (64.29)
Administrative	16 (22.86)
Other	5 (7.14)
Research	4 (5.71)
<b>Primary Work Setting</b>	
Academic institution	35 (50)
Private or community practice	23 (32.86)
Other	7 (10)
Community based Teaching health center	1 (1.43)
Community GME program	1 (1.43)
Employed	1 (1.43)
Insurance	1 (1.43)
Local government	1 (1.43)
<b>Number of children</b>	
2	35 (54.69)
3 or more	15 (23.44)
1	14 (21.88)
<b>Age of youngest child</b>	
5-12 years	27 (42.19)
<5 years	19 (29.69)
13-18 years	12 (18.75)
19-22 years	3 (4.69)
23 years or older	3 (4.69)
<b>"My work life leaves me with enough time for my personal/family life (WLI)"</b>	
Neutral	20 (28.57)
Disagree	19 (27.14)
Agree	17 (24.29)
Strongly disagree	9 (12.86)
Strongly agree	5 (7.14)
<b>"I feel burned out from my work"</b>	
A few times a year or less	20 (28.57)
A few times a month	18 (25.71)
A few times a week	15 (21.43)
Once a month or less	9 (12.86)
Once a week	5 (7.14)
Every day	3 (4.29)
<b>"I have become more callous toward people since I took my current job"</b>	
Once a month or less	17 (24.29)
A few times a year or less	17 (24.29)
Never	12 (17.14)
A few times a month	12 (17.14)
Once a week	6 (8.57)
A few times a week	4 (5.71)
Every day	2 (2.86)

## Conference Attendance

Responses to questions about conference attendance are summarized in **Table 2**. Sixty-nine (98.6%) of respondents reported attending medical conferences in the past and 66 (94.2%) reported planning to attend at least one conference in the future. Out of 50 responses to the question of challenges with conference attendance, 36 (72%) reported facing challenges while attempting to attend conferences in person (**Figure 1**). With 63 overlapping responses about specific challenges faced, the most common were childcare difficulties (42, 66.7%), WLI (41, 65.1%), patient care (30, 47.6%), and breastfeeding (7, 11.1%) as shown in **Figure 2**.

Table 2: History of Conference Attendance and Presenting/Speaking

Survey Question	N=70 (percentage)
Attended medical conferences in the past either in-person or virtually	69 (98.6)
Plans on attending at least one conference in the future	66 (94.2)
Presents/speaks at medical conferences either in-person or virtually	49 (70)

Written in responses included "taking off for multiple conferences per year", "work that piles up while I am attending conference. I end up with extra work when I get back", "company to be able to pay for these", "organization is cutting funding to attend live meetings, yet they want us to go and represent our organization and our research", and "guilt kids give me for not being home."

Out of 69 responses, 60 participants (87%) wanted an option to attend conferences virtually as shown in **Figure 3**. Thirty-nine (56.5%) and 22 (31.9%) felt it was very important or somewhat important, respectively, that conferences should offer a virtual attendance option in general. Thirty-one (45.6%) and 20 (29.4%) women felt it was very important or somewhat important that conferences offer a virtual attendance option for their careers personally (Table 2). Out of 70 responses, 51 (72.9%) expressed support for a resolution that all conferences offer a virtual option for attendees as shown in **Figure 4**.

## Speaking/Presenting at Conferences

Responses to questions about speaking/presenting at conferences are summarized in Table 2. Forty-nine (70%) of respondents reported speaking/presenting at medical conferences. Out of 68 responses, 58 (85.3%) reported facing challenges while attempting to speak/present at conferences in person (Figure 1). With 39 overlapping responses to specific challenges faced, the most common were WLI (28, 71.8%), childcare difficulties (24,

61.5%), patient care (18, 46.2%), and breastfeeding (6, 15.4%) as shown in Figure 2. Out of 48 responses received, 39 respondents (81.3%) wanted an option to speak/present at conferences virtually as shown in Figure 3. Twenty-four (48%) and 14 (28%) felt it was very important or somewhat important, respectively, that conferences should offer a virtual presentation option in general, and 20 (48%) and 13 (26.5%) felt it was very important or somewhat important that conferences offer a virtual presentation option for their careers personally (Table 2). Out of 70 responses, 44 (62.9%) expressed support for a resolution that all conferences offer a virtual presentation option for attendees as shown in Figure 4.

## Burnout/WLI and Conference Participation

Associations between burnout, WLI and responses to questions about conference participation are shown in **Table 3**. Fisher's Test was used to calculate the p-value for individual associations. There were no significant associations between women who reported a higher level of burnout with those who reported difficulties in attending (26,  $p = 1.52$ ) or speaking/presenting (18,  $p = 0.12$ ) at conferences. Similarly, there were no significant associations between women who reported more WLI difficulties with various other factors (as shown in **Table 4**).

Table 3: Burnout and In-Person Conference Attendance/Speaking

	Burnout Level: Higher		Burnout Level: Lower		Two tailed p-value
	Yes	No	Yes	No	
Difficulty in attending conference	31	4	29	5	1.52
Difficulty in presenting/speaking at conference	15	6	24	3	0.12

Burnout Level: Higher connotes survey responses as "a few times a month", "a few times a week", "everyday"  
 Burnout Level: Lower connotes survey responses as "a few times a year or less", "once a month or less", "once a week"

Table 4: Work-Life Integration (WLI) and Conference Preferences

	My work schedule leaves me with sufficient time for my personal/family life (WLI)?				Two tailed p-value
	Agree/Strongly Agree		Disagree/Strongly Disagree		
	Yes	No	Yes	No	
Difficulty in attending conference	14	8	26	1	1.99
Difficulty in presenting/speaking at conference	8	8	18	3	1.99
Would you want an option to attend conferences virtually	17	5	24	4	1.87
Would you want an option to present/speak at conferences virtually	10	5	17	4	1.91
Would you support a resolution that all conferences offer a virtual option for attendees?	16	6	20	8	1.57
Would you support a resolution that ALL conferences should offer a virtual option for presenting/speaking?	13	9	16	12	1.5

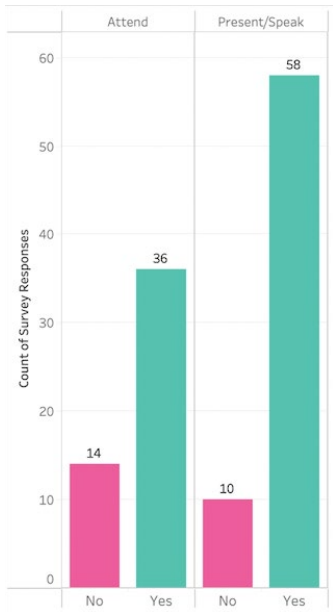


Figure 1: Challenges attending and presenting/speaking at in-person conferences. Measured by the survey questions “Do you face any challenges when attending conferences in-person” and “Do you face any challenges when presenting/speaking at conferences in-person.”

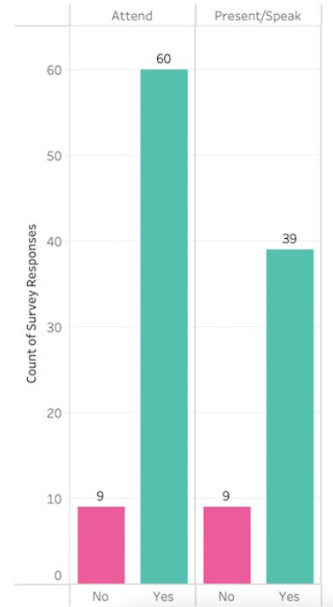


Figure 3: Preferences towards virtual conference attendance options. Measured by the survey questions “Would you want an option to attend medical conferences virtually” and “Would you want an option to present/speak at these conferences virtually.”

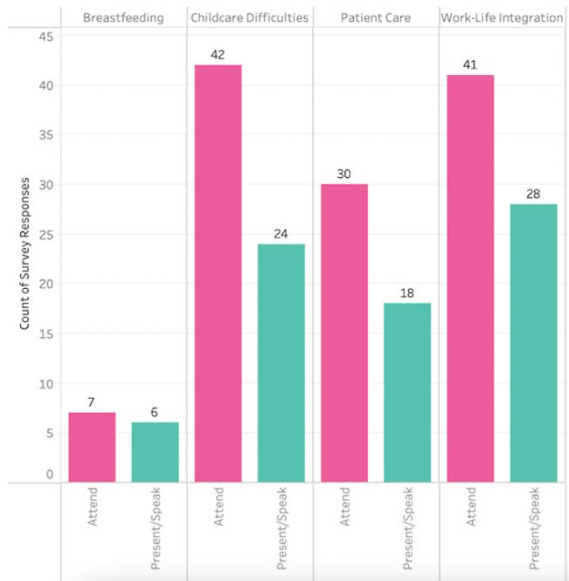


Figure 2: Factors influencing attending or presenting/speaking at in-person conferences. Measured by the survey questions “If you do face challenges attending in-person conferences, what are they” and “If you do face challenges presenting/speaking at conferences, what are they.” Respondents were able to select multiple answers to this question.

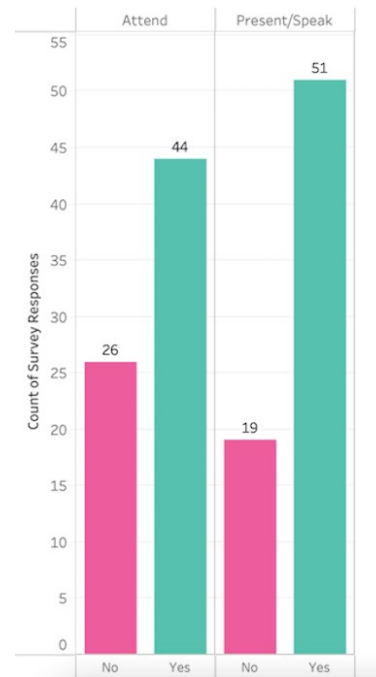


Figure 4: Preferences towards resolution that all conferences offer virtual option. Measured by the survey questions “Would you support a resolution that all conferences offer a virtual option for attendees” and “Would you support a resolution that all conferences should offer a virtual option for presenters/speakers.”

## DISCUSSION

In this cross-sectional pilot study, we found that most women physicians reported barriers to participation at in-person conferences, most commonly difficulties providing childcare and struggles with WLI. Most respondents desired an option to attend and/or speak/present at conferences virtually and voiced support for a resolution in which all conferences offer a virtual option. However, there was no specific association between higher levels of burnout or more difficulties with WLI and reported rates of difficulty attending or speaking/presenting at conferences.

We conducted this study in the setting of the strong existing evidence for significant gender disparities in medicine [12]. These include disparities in leadership roles such as dean/department chair, career advancement to the role of associate professor and professor, percent of women on editorial boards and as editors of prominent medical journals, and disparities in salary among many others [1, 2, 3, 13, 14, 15, 16, 17]. In addition to these disparities in career advancement, there is significant evidence demonstrating disparities in burnout and WLI based on physician gender [18].

Our results are consistent with prior literature reporting that childcare responsibilities are a major barrier to women physicians' participation at in-person conferences [6]. While several forward-thinking conferences do provide on-site childcare, this may not offer enough support to allow attendance. Travel, breastfeeding, and other expenses (food, childcare during non-conference times, etc.) associated with bringing children to in-person conferences may persist and prevent attendance [19, 20].

While we found no significant association between more WLI difficulties related to conference participation, the gender disparities in conference participation and leadership paired with the identified gender gap in the level of WLI may contribute to the lack of career advancement for women physicians [21]. Gender-specific conferences aiming to promote the advancement for women physicians in their careers are a first step towards combating gender inequities; but such conferences do not provide a sufficient solution for women who face barriers participating in-person conferences, unless virtual attendance options are also provided [22].

As a pilot study, we acknowledge that the opinions of the 70 women physicians who responded to the survey may not be generalizable to all women physicians. The nature of the online communities to which the survey was distributed may reflect a population which experiences more challenges in terms of childcare and places higher value on conference participation than the broader population of all women physicians. However, we believe that these results are of enough interest and importance to recommend larger-scale study of virtual conference participation and to recommend that the idea of policy/resolutions supporting virtual conference participation be further explored as a method for improving career development for women physicians.

While this survey focused on female physicians, we acknowledge that male physicians likely also face challenges with respect

to childcare, burnout, and WLI while participating in conferences [23, 24, 25]. We believe that based on these pilot results, future studies should survey both men and women physicians to explore attitudes towards virtual conference participation.

Evidence from the COVID-19 era has demonstrated that virtual conference options promote diversity, equity and inclusion among participants and are associated with reports of positive experiences for conference attendees [26, 27, 28]. Currently, there is no discrete number for how many conferences are being held exclusively in-person, but there is a consensus that hybrid academic conferences models are highly favored [29]. We believe that virtual conference participation options may provide women physicians with increased ability to attend conferences that they otherwise would forego if in-person participation was the only option [30]. The ability to participate in conferences contributes to women physicians' social wellness by providing connections and networking. It has been shown that participating in academic conferences helps to develop presentation skills and contributes to social learning processes through mimicry [31].

The virtual option may improve physical wellness through minimizing the risk of potential viral spread in the COVID-19 era. We do acknowledge, however, that conferences that offer virtual options may create an environment where participants are afforded fewer opportunities to interact with their peers, network, and physically "get away" from their primary work environment. Therefore, we endorse hybrid options where participants who wish to and can participate in person have the opportunity to do so, and those who are unable to participate in person can still engage with their colleagues virtually rather than being unable to participate all together.

## CONCLUSION

The COVID-19 era has shown the feasibility for implementation of novel conference participation solutions, and our findings demonstrate an interest in these options by women physicians. Based on this pilot survey study, we found women physicians face notable barriers to in-person conference participation and would like the option to participate in conferences virtually. We found no significant association between difficulty participating in in-person conferences and higher levels of burnout or more difficulties with WLI. These findings suggest virtual conference attendance options may help resolve barriers to participation, thereby optimizing career advancement and reducing gender disparities for women physicians.

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## Appendix A

### DEMOGRAPHICS

What is your age?

- a. Less than 35
- b. 35-44
- c. 44-54
- d. 55-64
- e. 65 or older

What is your medical specialty/subspecialty?

- a. Anesthesia
- b. Dermatology
- c. Emergency medicine
- d. Family medicine
- e. General surgery
- f. General surgery subspecialty
- g. Internal medicine (general)
- h. Internal medicine subspecialist
- i. Neurology
- j. Neurosurgery
- k. Obstetrics and gynecology or OB-GYN subspecialist
- l. Orthopedic surgery
- m. Otolaryngology
- n. Pathology
- o. Pediatrics (general)
- p. Pediatric subspecialist
- q. Physical medicine and rehabilitation
- r. Psychiatry
- s. Radiation oncology
- t. Radiology
- u. Urology
- v. Other

What is your PRIMARY work type?

- a. Clinical
- b. Research
- c. Administrative
- d. Other

What is your PRIMARY work setting?

- a. Academic institution
- b. Private or community practice
- c. Other

What is your relationship status?

- a. Single
- b. Married
- c. Partnered
- d. Widowed



Do you have children?

- a. Yes
- b. No

If yes, how many children?

- a. 1
- b. 2
- c. 3 or more

If yes, what is the age of your youngest child?

- a. <5 years
- b. 5-12 years
- c. 13-18 years
- d. 19-22 years
- e. 23 years or older

### **BURNOUT and WORK-LIFE INTEGRATION**

I feel burned out from my work

- a. Never
- b. A few times a year or less
- c. Once a month or less
- d. A few times a month
- e. Once a week
- f. A few times a week
- g. Every day

I have become more callous toward people since I took my current job

- a. Never
- b. A few times a year or less
- c. Once a month or less
- d. A few times a month
- e. Once a week
- f. A few times a week
- g. Every day

My work schedule leaves me enough time for my personal/family life

- a. Strongly agree
- b. Agree
- c. Neutral
- d. Disagree
- e. Strongly disagree

## CONFERENCES

### ***Conference Attendance***

Do you attend medical conferences either in-person or virtually?

- a. Yes
- b. No (if no, please do not complete the rest of this section of the survey)

Approximately how many medical conferences do you currently plan to attend per year in person (post-COVID i.e., from 2022 onwards)?

- a. 0
- b. 1-2
- c. 3-4
- d. More than 4

Do you face any challenges when attending conferences in-person?

- a. Yes
- b. No

If you do face challenges attending in-person conferences, what are they (check all that apply)?

- a. Childcare (difficulties finding childcare either at the conference or difficulties leaving children at home while travelling to conferences)
- b. Breastfeeding (facilities, privacy, storage of pumped milk, etc)
- c. Patient care (difficulties rescheduling patients when missing clinic or inpatient time to travel)
- d. Work-life integration (working out travel arrangements with significant other, etc)
- e. Other (please list)

Would you want an option to attend medical conferences virtually?

- a. Yes
- b. No

How important do you feel it is in GENERAL that conferences should offer a virtual option for attendees?

- a. Very important
- b. Somewhat important
- c. Neutral
- d. Somewhat unimportant
- e. Very unimportant

### ***Conference Presenting/Speaking***

Do you present/speak at medical conferences either in-person or virtually?

- a. Yes
- b. No (if no, please do not complete the rest of this section of the survey)

Approximately how many medical conferences do you speak/present at per year in person (post-COVID i.e., from 2022 onwards)?

- e. 0
- f. 1-2
- g. 3-4
- h. More than 4

Do you face any challenges when presenting/speaking at conferences in-person?

- a. Yes
- b. No

If you do face challenges presenting/speaking at in-person conferences, what are they (check all that apply)?

- a. Childcare (difficulties finding child care either at the conference or difficulties leaving children at home while travelling to conferences)
- b. Breastfeeding (facilities, privacy, storage of pumped milk, etc)
- c. Patient care (difficulties rescheduling patients when missing clinic or inpatient time to travel)
- d. Work-life integration (working out travel arrangements with significant other, etc)
- e. Other (please list)

Would you want an option to present/speak at these conferences virtually?

- a. Yes
- b. No

How important do you feel it is in GENERAL that conferences should offer a virtual option for presenters/speakers?

- a. Very important
- b. Somewhat important
- c. Neutral
- d. Somewhat unimportant
- e. Very unimportant

How important do you feel it is for your career PERSONALLY that conferences should offer a virtual option for presenters/speakers?

- f. Very important
- g. Somewhat important
- h. Neutral
- i. Somewhat unimportant
- j. Very unimportant

**OPEN-ENDED RESPONSE**

Are there any other recommendations/suggestions you have to improve the experience of women physicians (especially mothers) when attending and/or presenting/speaking at medical conferences (open-ended, no length limit, please be as specific as possible)?