Exploring the impact of the COVID-19 pandemic on medical learners

Start of Block: Country

Q2.1 What level of learner are you currently? (select one)

- Medical Student, Pre-Clerkship or Pre-Clinical Years
- Medical Student, Clerkship or Clinical Years
- 1st year resident or intern (i.e., PGY1 Resident)
- 2nd year resident (i.e., PGY2 Resident)
- 3rd year resident (i.e., PGY3 Resident)
- 4th year resident (i.e., PGY4 Resident)
- 5th year resident (i.e., PGY5 Resident)
- 6th year resident or above (i.e., PGY6 or higher Resident)
- I prefer to not answer this question

Q2.2 In which country is your medical school or residency program located? (select one)

▼ Afghanistan ... Zimbabwe

End of Block: Country

Start of Block: Demographic Questions

Display This Question:
if Q2.2 = Canada

Q3.1 What academic institution are you currently a registered learner at in Canada? (select one)

▼ University of British Columbia (1) ... I prefer to not answer this question (18)
Q3.2 Which of the following best describes your gender identity? (select all that apply)

- I identify as a woman
- I identify as a man
- I identify as non-binary
- I prefer to self-describe: ____________________________________________
- I prefer to not answer this question

Q3.3 Which of the following condensed categories best describe your race or how you are racialized? (select all that apply)

- White/Caucasian
- Black/African American (e.g., African American)
- Hispanic/Latinx (e.g., Latin American, Spanish, Portuguese, etc.)
- South Asian (e.g., Indian, Pakistani, Bangladeshi, Sri Lankan, etc.)
- Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai, Filipino, etc.)
- West Asian (e.g., Middle Eastern, etc.)
- East Asian (e.g., Chinese, Japanese, Korean, etc.)
- I prefer to self describe: ____________________________________________
- I prefer to not answer this question

Display This Question:
If Q2.2 = Canada

Q3.4 Do you consider yourself an Aboriginal or Indigenous person, that is, First Nations, Metis, or Inuit? (select one)

- Yes (1) ... I prefer not to answer this question

Q3.5 Do you consider yourself to live with a physical disability? (select one)

- No (1) ... I prefer not to answer this question

Q3.6 Do you consider yourself to live with a learning disability? (select one)

- No (1) ... I prefer not to answer this question
Q3.7 Has the response to the COVID-19 pandemic from your medical school or residency program resulted in any concern(s) about how you may be disadvantaged at this time as a result of your physical or learning disability? (select one)

▼ Yes (1) ... I prefer not to answer this question

Q3.8 Do you have children? (select one)

▼ No (1) ... I prefer not to answer this question

Q3.9 Do you feel that you have adequate childcare during this time? (select one)

▼ Yes, I have adequate childcare at this time... I prefer not to answer this question

Q3.10 Are you currently a caregiver to others (e.g., family members)? (select one)

▼ No ... I prefer not to answer this question

Q3.11 Are you able to continue to maintain your caregiver responsibilities at this time? (select one)

▼ Yes ... I prefer not to answer this question

End of Block: Demographic Questions
Start of Block: Questions for Medical Clerks

Q4.1 Did your medical school formally excuse you from clinical duties (i.e., clerkship rotations, other clinical rotations or experiences) as a result of the COVID-19 pandemic? (select one)

- Yes
- No
- I prefer not to answer this question

Q4.2 Are you currently working clinically? (select one)

- Yes, I am currently working in my planned clinical rotations as a medical student
- Yes, I am currently working but in other clinical ways at this time
- No, I am not currently working clinically at this time
- No, I am still in pre-clerkship or the pre-clinical stage of my training
- I prefer not to answer this question

Q4.3 If your medical school has excused you from clinical duties or moved your scheduled curriculum to online learning modalities, did you leave or depart from your primary residence (i.e., where you live during the school year) to go to another location during this time? (select all that apply)

- Yes, I left my primary residence where I live during the school year to go to stay at my parent(s) or family member's house
- Yes, I left my primary residence where I live during the school year to go to stay at a friend's house
- Yes, I left my primary residence to go somewhere else during this time (specify)
- No, I have not left the primary residence where I live during the school year
- I prefer to not answer this question
Q4.4 How are you spending your time at the moment? (select all that apply)

☐ My learning or training has not been disrupted so I am spending my time as I typically would during the medical school year

☐ My learning is now online as coordinated by the medical school

☐ I am engaging in self-directed learning

☐ I am studying for licensing examinations

☐ I am working on research or scholarly projects

☐ I am volunteering

☐ I am helping with contact tracing

☐ I am taking this time to relax or rest

☐ I am taking care of someone who is ill

☐ I am personally unwell and need to self-isolate

☐ I am spending this time to take care of my children/family

☐ I am taking this time to engage in more wellness activities than I usually would

☐ Other (please describe) _______________________________________________

☐ I prefer not to answer this question

---

Display This Question:
If Q4.4 = I am volunteering

Q4.5 How are you currently volunteering? (select all that apply)

☐ Contact tracing

☐ Call centres

☐ Screening centres

☐ Providing child care to healthcare professionals

☐ Providing child care to others

☐ Other (please describe) _______________________________________________

☐ I prefer not to answer this question
Q4.6 How did you get involved in the volunteer opportunities you are currently engaged in as a result of, and/or during, the COVID-19 pandemic? Please provide a brief description about how you found out about these opportunities, or how you may have sought them out yourself.

________________________________________________________________
________________________________________________________________
________________________________________________________________
________________________________________________________________

Q4.7 Have you participated in any online learning during this time that was coordinated or organized by your medical school for aspects of your core curriculum (e.g., lectures or clerkship teaching sessions on Zoom)? (select one)

- Yes
- No
- I prefer not to answer this question

Q4.8 Do you feel that the quality of your medical education will be lower as a result of any online learning your school is coordinating at this time? (select one)

- Yes
- No
- I prefer not to answer this question
Q4.9 Do you have any challenges accessing online learning modalities (e.g., Zoom, online lectures)? (select all that apply)

☐ Yes - I have difficulties accessing a computer
☐ Yes - I have difficulties accessing the internet
☐ Yes - I have difficulties learning from home
☐ Yes - I have other difficulties I wish to describe

☐ No - I do not have any difficulties accessing online learning
☐ I prefer not to answer this question

Display This Question:
If Q2.1 = Medical Student, Clerkship or Clinical Years

Q4.10 How has the COVID-19 pandemic directly impacted your clinical electives? (select all that apply)

☐ My visiting electives at other institutions have been cancelled or postponed at this time
☐ My core electives at my own medical school have been cancelled or postponed at this time
☐ My electives have not yet been influenced at this time
☐ Not applicable, as all of my clinical electives have already been completed
☐ Not applicable, as I am a pre-clerkship or pre-clinical level of learner
☐ I prefer not to answer this question

Display This Question:
If Q4.10 = My visiting electives at other institutions have been cancelled or postponed at this time
Or Q4.10 = My core electives at my own medical school have been cancelled or postponed at this time

Q4.11 How many weeks of electives have been impacted so far? Feel free to provide any additional information below about how these electives have been impacted or any concerns about this area.

Display This Question:
If Q2.1 = Medical Student, Pre-Clerkship or Pre-Clinical Years
Or Q2.1 = Medical Student, Clerkship or Clinical Years
Q4.12 How has the COVID-19 pandemic influenced your career decision-making (e.g., residency interests, career planning)? (select all that apply)

- It has influenced the residency program or programs I wish to apply to
- It has increased my interest in Public Health as a specialty
- It has increased my interest in Infectious Diseases as a specialty
- It has increased my interest in Family Medicine as a specialty
- It has increased my interest in other programs (specify)
- It has not influenced my career decision making or interests
- I prefer not to answer this question

Display This Question:
If Q2.1 = Medical Student, Pre-Clerkship or Pre-Clinical Years
Or Q2.1 = Medical Student, Clerkship or Clinical Years
Q4.13 Please respond to each of the following statements by selecting a response regarding your level of agreement:
(select one response per row)

<table>
<thead>
<tr>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
<th>Not Applicable (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would have preferred to help out clinically at this time, thereby continuing my clinical rotations</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I feel under-utilized at this time</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I would feel comfortable helping out clinically at this time</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>I am concerned about the impact of COVID-19 on my chance to match to residency (select Not Applicable if you have already matched)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>The COVID-19 pandemic has negatively influenced my well-being</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I am concerned about the risk of exposure to COVID-19 during rotations</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>I am concerned about the risk of exposure to COVID-19 in the community</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>The response to COVID-19 will have minimal impact on my learning or skill development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The response to COVID-19 will have minimal impact on my ability to enter residency with the knowledge and skills to provide safe, high quality care</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with how my program or institution is communicating information regarding the impact of COVID-19 on us as learners and the next steps for me as a learner (e.g., remainder of my training, career progression, etc.)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>I am worried about the impact of this disruption on my progression and timeline through medical training, including matching to a residency program, following a defined timeline, completing licensing exams on time, and/or starting a residency program on schedule</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Block: Questions for Medical Clerks
Start of Block: Questions for Residents

Display This Question:
If Q2.1 = 1st year resident or intern (i.e., PGY1 Resident)
Or Q2.1 = 2nd year resident (i.e., PGY2 Resident)
Or Q2.1 = 3rd year resident (i.e., PGY3 Resident)
Or Q2.1 = 4th year resident (i.e., PGY4 Resident)
Or Q2.1 = 5th year resident (i.e., PGY5 Resident)
Or Q2.1 = 6th year resident or above (i.e., PGY6 or higher Resident)

Q5.1 What of the following best describes the primary setting for your residency program? (select one)

- Urban (i.e., large city)
- Rural (i.e., outside of a large city or in a remote location)
- Other (please describe)
- I prefer not to answer this question

Display This Question:
If Q2.1 = 1st year resident or intern (i.e., PGY1 Resident)
Or Q2.1 = 2nd year resident (i.e., PGY2 Resident)
Or Q2.1 = 3rd year resident (i.e., PGY3 Resident)
Or Q2.1 = 4th year resident (i.e., PGY4 Resident)
Or Q2.1 = 5th year resident (i.e., PGY5 Resident)
Or Q2.1 = 6th year resident or above (i.e., PGY6 or higher Resident)

Q5.2 Which of the following category best describes your residency program? (select one)

- Family Medicine
- Public Health
- Emergency Medicine
- Internal Medicine (core training)
- Pediatrics (core training)
- Medical Subspecialty Training (fellowship training)
- Surgery
- Obstetrics and Gynecology
- Anesthesiology
- Psychiatry
- Other: ________________________________________________
- I prefer not to answer this question
Q5.3 Are you working more than usual during the COVID-19 pandemic? (select one)

- Yes, I am working more than usual
- No, I am working the same amount as usual
- No, I am working less than usual
- I prefer not to answer this question

Q5.4 You selected that your residency program is either in Family Medicine or Psychiatry. Do you think residents in these programs could potentially be utilized at this time to provide peer-to-peer mental health support and/or counseling to other residents or healthcare professionals at this time over videoconferencing modalities? (select all that apply)

- Yes, I think we could be useful to provide mental health supports at this time to any and all other residents at this time
- Yes, I think we could be useful to provide mental health supports at this time to residents who are working at the front lines of care, or who may be additionally stressed or burnt out as a result of the pandemic
- Yes, I think we could be useful to provide mental health supports at this time to other healthcare professionals (e.g., nursing) at this time
- No, I do not think we could be useful at this time in providing mental health supports to other residents
Q5.5 Please respond to each of the following statements by selecting a response regarding your level of agreement:
(select one response per row)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>My learning has been negatively impacted by the COVID-19 virus</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>My career/training timeline has been negatively impacted by the COVID-19 virus</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>I possess adequate knowledge of the COVID-19 virus to provide safe care in clinical environments</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>As a resident, I am being adequately utilized during this time to provide patient care</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>As a resident, I am being over-utilized at this time in providing patient care</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>I feel comfortable providing patient care at this time</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>As a resident, I could be better utilized in other ways at this time</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>I feel prepared to use personal protective equipment (PPE) adequately and safety</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>I feel prepared to be utilized on other clinical services or areas (i.e., on services that are not my specialty)</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>I am worried about working in the hospital or the clinic at the moment</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>The COVID-19 pandemic has negatively influenced my well-being</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
<tr>
<td>I am satisfied with how my program or institution is communicating information regarding the impact of COVID-19 on us as learners and the next steps</td>
<td>⬜ ⬜ ⬜ ⬜ ⬜</td>
<td></td>
<td></td>
<td>⬜ ⬜ ⬜</td>
<td></td>
</tr>
</tbody>
</table>

Display This Question:
If Q2.1 = 1st year resident or intern (i.e., PGY1 Resident)
Or Q2.1 = 2nd year resident (i.e., PGY2 Resident)
Or Q2.1 = 3rd year resident (i.e., PGY3 Resident)
Or Q2.1 = 4th year resident (i.e., PGY4 Resident)
Or Q2.1 = 5th year resident (i.e., PGY5 Resident)
Or Q2.1 = 6th year resident or above (i.e., PGY6 or higher Resident)

Q5.6 How could you, as a resident, potentially be better utilized at this time?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

End of Block: Questions for Residents
Start of Block: Common Questions

Q6.1 Please select the response that best reflects how you feel at this time regarding the response of organizations to the COVID-19 pandemic (select one response per row)

<table>
<thead>
<tr>
<th>Response</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am satisfied with how the local/municipal government (i.e., the city where I live) has responded to the COVID-19 pandemic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with how the provincial government (i.e., the province, state, or region where I live) has responded to the COVID-19 pandemic</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with how the federal government (i.e., country where I live) has responded to the COVID-19 pandemic</td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>I am satisfied with how the professional organizations my clinical specialty is affiliated with have responded to the COVID-19 pandemic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am satisfied with how the professional organizations for medical learners have responded to the COVID-19 pandemic (e.g., resident unions or medical student organizations).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Block:

Start of Block: Impact of COVID-19 on Wellness for Learners

Q7.1 The following questions are from a short-form version of the State/Trait Anxiety Inventory for Adults (Tluczek, 2009). Please select the response that best reflects how you feel at this time for each row.

<table>
<thead>
<tr>
<th>Response</th>
<th>Not at all (1)</th>
<th>Somewhat (2)</th>
<th>Moderately (3)</th>
<th>Very much (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am comfortable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am anguished</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel at ease</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel nervous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I feel concerned</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right now I feel good</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Q7.2 The COVID-19 pandemic has **negatively influenced** the following aspects of my **well-being**: (select one per row)

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Neutral (3)</th>
<th>Agree (4)</th>
<th>Strongly Agree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical wellness (e.g., physical activity, nutrition, your own disease management)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Mental wellness (e.g., mood, anxiety, stress management, emotional well-being)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Social wellness (e.g., sense of inclusion, equity)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Intellectual wellness (e.g., ability to learn or fulfill educational goals)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Occupational wellness (e.g., safety in learning and working environments)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

**Display This Question:**
- If Q3.3 = South Asian (e.g., Indian, Pakistani, Bangladeshi, Sri Lankan, etc.)
- Or Q3.3 = Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai, Filipino, etc.)
- Or Q3.3 = West Asian (e.g., Middle Eastern, etc.)
- Or Q3.3 = East Asian (e.g., Chinese, Japanese, Korean, etc.)

Q7.3 At the beginning of this survey, you indicated that you are racialized as Asian. Have you noticed or experienced an **increase in racist comments or behaviors** towards you or other Asian individuals in the clinical setting since the emergence of COVID-19? (select one)

- ○ Yes
- ○ No
- ○ I prefer not to answer this question
Q7.4 Which of the following are **concerns or stressors** for you at this time? (select all that apply)

- My personal health and well-being
- The health and well-being of my family members
- The health and well-being of the public
- My personal financial situation
- The financial situation of others
- The impact of this pandemic on my learning
- Other (specify) ________________________________________________
- I prefer not to answer this question

Q7.5 Would you consider yourself **more anxious during this time** than you typically are during the medical school or residency year? (select one)

- Yes
- No
- I prefer not to answer this question

Q7.6 Are you practicing **social or physical distancing** (e.g., staying home as much as possible to minimize the spread of COVID-19) at this time? (select one)

- Almost always
- As much as I can
- Not at all
- I prefer not to answer this question

Q7.7 Have you had to be in **quarantine or self-isolation** due to testing positive for COVID-19, potential exposure to COVID-19, or having symptoms associated with COVID-19 at this time? (select one)

- Yes
- No
- I prefer not to answer this question
Q7.8 Are you being asked by family and friends to **provide medical expertise or information** regarding the COVID-19 pandemic? (select all that apply)

☐ Yes - Family Members
☐ Yes - Friends
☐ Yes - Others
☐ No
☐ I prefer not to answer this question

Q7.9 Are you using **social media** to communicate information to others about the COVID-19 pandemic? (select all that apply)

☐ Yes - Twitter
☐ Yes - Instagram
☐ Yes - Facebook
☐ Yes - Other _____________________________________________
☐ No
☐ I prefer not to answer this question

End of Block: Impact of COVID-19 on Wellness for Learners
Q8.1 What could medical schools or residency programs do in the future to better inform you, as learners, about the impact of similar events on your training?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Q8.2 How can medical schools or residency programs improve your educational experience during this time or any similar temporary disruptions to your training?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Q8.3 Which strategies or innovations is your program or school using at the moment that could be beneficial for others to consider implementing? (e.g., setting up Zoom meetings for residents to check in with program directors, involving medical students in online screening or volunteer opportunities, etc.)

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Q8.4 Please provide any additional thoughts, comments, or feedback during this time.
### Supplemental File B: Supplemental Analysis

#### Figure B.1 Comparison of Medical Student Scale Items by Geographic Region

<table>
<thead>
<tr>
<th>Medical Student Specific Scale</th>
<th>East Asia and Pacific</th>
<th>Europe and Central Asia</th>
<th>Latin America and Caribbean</th>
<th>Middle East and North Africa</th>
<th>North America</th>
<th>South America</th>
<th>Sub-Saharan Africa</th>
<th>% of Medical Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would have preferred to help out clinically at this time, thereby continuing my clinical rotations</td>
<td>31.92%</td>
<td>32.31%</td>
<td>23.06%</td>
<td>11.54%</td>
<td>23.48%</td>
<td>24.33%</td>
<td>15.48%</td>
<td>15.21%</td>
</tr>
<tr>
<td>I feel under-utilized at this time</td>
<td>23.66%</td>
<td>24.81%</td>
<td>27.78%</td>
<td>17.78%</td>
<td>16.04%</td>
<td>22.45%</td>
<td>12.41%</td>
<td>12.12%</td>
</tr>
<tr>
<td>I would feel comfortable helping out clinically at this time</td>
<td>25.72%</td>
<td>25.65%</td>
<td>18.20%</td>
<td>21.08%</td>
<td>5.87%</td>
<td>22.39%</td>
<td>22.39%</td>
<td>22.39%</td>
</tr>
<tr>
<td>I am concerned about the impact of COVID-19 on my chance to match to residency</td>
<td>23.31%</td>
<td>24.36%</td>
<td>18.42%</td>
<td>12.03%</td>
<td>28.17%</td>
<td>23.31%</td>
<td>12.03%</td>
<td>12.03%</td>
</tr>
<tr>
<td>The COVID-19 pandemic has negatively influenced my well-being</td>
<td>17.15%</td>
<td>18.54%</td>
<td>22.64%</td>
<td>12.41%</td>
<td>12.41%</td>
<td>12.41%</td>
<td>12.41%</td>
<td>12.41%</td>
</tr>
<tr>
<td>I am concerned about the risk of exposure to COVID-19 during rotations</td>
<td>28.57%</td>
<td>30.19%</td>
<td>27.73%</td>
<td>17.65%</td>
<td>15.94%</td>
<td>28.57%</td>
<td>15.94%</td>
<td>15.94%</td>
</tr>
<tr>
<td>The response to COVID-19 will have minimal impact on my ability to enter residency with the knowledge and skills to prov</td>
<td>28.57%</td>
<td>29.26%</td>
<td>28.13%</td>
<td>27.78%</td>
<td>28.13%</td>
<td>27.78%</td>
<td>28.13%</td>
<td>28.13%</td>
</tr>
<tr>
<td>The response to COVID-19 will have minimal impact on my ability to enter residency with the knowledge and skills to prov</td>
<td>34.21%</td>
<td>35.44%</td>
<td>34.21%</td>
<td>35.44%</td>
<td>34.21%</td>
<td>35.44%</td>
<td>34.21%</td>
<td>35.44%</td>
</tr>
<tr>
<td>I am satisfied with how my program or institution is communicating information regarding the impact of COVID-19 on us as</td>
<td>31.55%</td>
<td>32.87%</td>
<td>22.95%</td>
<td>11.66%</td>
<td>31.55%</td>
<td>32.87%</td>
<td>22.95%</td>
<td>11.66%</td>
</tr>
<tr>
<td>I am worried about the impact of this disruption on my progression and timeline through medical training, including matching to a residency program, following a defined timeline, completing licensing exams on time, and/or starting a residency program</td>
<td>27.72%</td>
<td>30.19%</td>
<td>27.72%</td>
<td>12.41%</td>
<td>27.72%</td>
<td>30.19%</td>
<td>12.41%</td>
<td>12.41%</td>
</tr>
</tbody>
</table>
### Resident Scale Comparison of Resident Scale Items by Geographic Region

<table>
<thead>
<tr>
<th>Item Description</th>
<th>East Asia and Pacific</th>
<th>Europe and Central Asia</th>
<th>Latin America and Caribbean</th>
<th>Middle East and North Africa</th>
<th>North America</th>
<th>South Asia</th>
<th>Sub-Saharan Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>My learning has been negatively impacted by the COVID-19 virus</td>
<td>23.4%</td>
<td>26.7%</td>
<td>24.0%</td>
<td>32.6%</td>
<td>21.7%</td>
<td>46.4%</td>
<td>35.6%</td>
</tr>
<tr>
<td>My career/training timeline has been negatively impacted by the COVID-19 virus</td>
<td>34.8%</td>
<td>37.8%</td>
<td>39.6%</td>
<td>39.6%</td>
<td>29.9%</td>
<td>41.4%</td>
<td>39.1%</td>
</tr>
<tr>
<td>I possess adequate knowledge of the COVID-19 virus to provide safe care in clinical environments</td>
<td>46.8%</td>
<td>34.8%</td>
<td>32.0%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>46.8%</td>
<td>34.8%</td>
</tr>
<tr>
<td>As a resident, I am adequately utilized during this time to provide patient care</td>
<td>18.1%</td>
<td>24.0%</td>
<td>24.0%</td>
<td>24.0%</td>
<td>24.0%</td>
<td>18.1%</td>
<td>24.0%</td>
</tr>
<tr>
<td>As a resident, I am being over-utilized at this time in providing patient care</td>
<td>11.0%</td>
<td>24.0%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>11.0%</td>
<td>24.0%</td>
</tr>
<tr>
<td>I feel comfortable providing patient care at this time</td>
<td>25.9%</td>
<td>34.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>25.9%</td>
<td>34.2%</td>
</tr>
<tr>
<td>As a resident, I could be better utilized in other ways at this time</td>
<td>11.1%</td>
<td>34.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>11.1%</td>
<td>34.2%</td>
</tr>
<tr>
<td>I feel prepared to use personal protective equipment (PPE) adequately and safely</td>
<td>12.5%</td>
<td>34.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>12.5%</td>
<td>34.2%</td>
</tr>
<tr>
<td>I am worried about working in the hospital or the clinic at the moment</td>
<td>31.0%</td>
<td>34.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>27.2%</td>
<td>31.0%</td>
<td>34.2%</td>
</tr>
<tr>
<td>The COVID-19 pandemic has negatively influenced my well-being</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

#### Plots
- **Pilot Field Value:** Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree
- **% of Residents:** 0% to 100%
Figure B.3 Frequency of Learner Concerns by Level of Training

<table>
<thead>
<tr>
<th>Concern</th>
<th>Medical Student</th>
<th>Level of Learner</th>
<th>Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td>My personal health and well-being</td>
<td>2,281</td>
<td>2,761</td>
<td>440</td>
</tr>
<tr>
<td>The health and well-being of my family members</td>
<td>1,391</td>
<td>3,518</td>
<td>509</td>
</tr>
<tr>
<td>My personal financial situation</td>
<td>1,391</td>
<td>3,518</td>
<td>605</td>
</tr>
<tr>
<td>The impact of this pandemic on my learning</td>
<td>3,046</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>Other</td>
<td>253</td>
<td></td>
<td>468</td>
</tr>
<tr>
<td></td>
<td>0K</td>
<td>1K</td>
<td>2K</td>
</tr>
</tbody>
</table>

Figure B.4 Comparison of Learner Perceptions of Anxiety by Level of Training

Would you consider yourself more anxious during this time than you typically are during the medical school or residency year?

Figure B.5 Comparison of Social and Physical Distancing by Level of Training

Are you practicing social or physical distancing (e.g., staying home as much as possible to minimize the spread of COVID-19) at this time?

Figure B.6 Comparison of Quarantine or Self-Isolation by Level of Training

Have you had to be in quarantine or self-isolation due to testing positive for COVID-19, potential exposure to COVID-19, or having symptoms associated with COVID-19 at this time?
## Supplemental File C: Inferential Statistical Analyses

<table>
<thead>
<tr>
<th></th>
<th>Satisfaction with Organizational Responses (25)</th>
<th>State-Trait Anxiety Inventory (/24)</th>
<th>Impact of COVID-19 on Wellness</th>
<th>α = 0.806</th>
<th>α = 0.849</th>
<th>α = 0.744</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>95% CI</td>
<td>p-value</td>
<td>Mean (SD)</td>
<td>95% CI</td>
<td>p-value</td>
</tr>
<tr>
<td><strong>Level of Training</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Student</td>
<td>16.95 (4.32)</td>
<td>16.82-17.08</td>
<td>.000</td>
<td>14.36 (4.12)</td>
<td>14.23-14.48</td>
<td>.000</td>
</tr>
<tr>
<td>Resident</td>
<td>15.67 (4.32)</td>
<td>15.36-15.98</td>
<td></td>
<td>15.13 (4.06)</td>
<td>14.83-15.42</td>
<td></td>
</tr>
<tr>
<td><strong>Geographic Regions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Asia and Pacific</td>
<td>18.46 (4.28)</td>
<td>18.01-18.91</td>
<td>.000</td>
<td>13.33 (3.77)</td>
<td>12.93-13.73</td>
<td>.000</td>
</tr>
<tr>
<td>Europe and Central Asia</td>
<td>17.34 (4.25)</td>
<td>17.16-17.52</td>
<td></td>
<td>14.33 (4.18)</td>
<td>14.15-14.51</td>
<td></td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td>16.04 (5.10)</td>
<td>15.13-16.96</td>
<td></td>
<td>14.36 (3.81)</td>
<td>13.66-15.05</td>
<td></td>
</tr>
<tr>
<td>North America</td>
<td>17.14 (3.78)</td>
<td>16.94-17.34</td>
<td></td>
<td>13.45 (4.01)</td>
<td>14.24-14.66</td>
<td></td>
</tr>
</tbody>
</table>

- **α =** Cronbach’s alpha (reliability statistic); upon exploratory factor analysis, all items in each scale loaded to one factor, suggesting each scale is unidimensional (construct validity)
- **a =** Independent samples t-test, equal variances not assumed based on Levene’s test for equality of variances; statistical significance if p < 0.05
- **b =** Analysis of Variance with Bonferroni correction to adjust for post-hoc corrections statistical significance if p < 0.007;
Since being quarantined, medical learners are directly tied creating diagnostic tests and vaccines for COVID-19, many trainees find that there are silver linings in having uncovered the pandemic, such as: opportunities to be involved in new clinical spaces (i.e., volunteering with health link/contact tracing/testing centres, redeployment, telemedicine), opportunities for innovation in scheduling (i.e., studying, clinical rotations, free time, research), and testing strategies before implementing them. Learners expressed a strong desire for transparency. They wished to have information shared with them about what their institution was doing and thinking of doing, in response to the pandemic. These included things such as policies under consideration, details of the decision-making process, and contingency plans.
Feeling under-utilized: learners expressing their desire to be useful clinically or through public health efforts. Many find being sidelined an affront to their training thus far, others feel they are missing valuable learning experience, and some just want to improve the wellbeing of the public. Controversy over whether learner education or public health should be prioritized by their university.

Opportunity – offered to them: Most medical students had opportunities offered to them by their medical student associations, schools, hospitals, or through personal and professional connections. This information was often relayed through social media or email.

Opportunity – personal: A few volunteers either searched/ asked for opportunities or created their own

Personal activities: The pandemic has offered medical students and residents a surplus of free time. Some have used this time to engage in self-care, self-betterment, and helping family. Others have found this challenging as they are struggling with either financial or mental health troubles.

Volunteering – Medical: A minority of those volunteering in the medical field are providing hands-on patient care, the rest are helping with: PPE drives, working in public health, providing care via telehealth, hospital/clinical assistants, helping with research, education (public and other HCW).

Volunteering – Non-medical: Most of the non-medical volunteering still strives to help with consequences of the pandemic: running errands and making food for essential workers and those that need help, coordinating volunteers for various services, helping community organizations, visiting elderly/ getting them in touch with family, working with medical student organizations/ support groups, tutoring, IT services, fundraising, and providing public education.

Utilizing Residents

Residents regularly felt they were under-utilized. If placed in a clinical context outside of their field, many saw it as a conflict with their educational goals, with little yield for patient care. Residents stated a preference for supporting their departments over redeployment. The pandemic has exacerbated tensions in the residents dual role; as a learner and as an employee of the health system. This is evidenced in statements around studying, compensation and learning.

Wellness

Mental Health: Learners reported poor mental health because of the stressors brought about by COVID-19 in their own lives such as their learning and working conditions but were also distressed by the impact COVID-19 has had on others including their family members, friends, colleagues, patients, the broader community, their country’s political climate and economy.

Physical wellness: They reported that proper access to personal and protective equipment was most important to protect themselves, each other and the broader community.

Social wellness: Learners also understood the importance of self-isolation but recognized the impact this had on their wellness and learning.

Spiritual: COVID-19 also allowed a time for reflection and spirituality to signify what really matters to learners and the broader community in which they belonged.

Strategies: The need for support and advocacy for their own and each other’s wellness. Access to counselling, peer support systems and while practicing self-compassion as well as having compassion for others was emphasized.