

Supplementary Material: Demographic & Practice Survey Questions

1. Please enter the Study ID that was given to you by the study team member:

2. Gender
 - Woman
 - Man
 - Transgender
 - Non-binary/non-conforming
 - Prefer not to respond

3. Age group
 - 29 or younger
 - 30-44 years
 - 45-59 years
 - 60-74 years
 - 75 and older

4. Preferred spoken language (*select all that apply*)
 - English
 - French
 - Arabic
 - Bengali
 - Cantonese
 - Dene
 - German
 - Greek
 - Gujarati
 - Hebrew
 - Hindi
 - Inuktitut
 - Italian
 - Korean
 - Mandarin
 - Montagnais (Innu)
 - Oji-Cree
 - Ojibway
 - Persian (Farsi)
 - Polish
 - Portuguese
 - Punjabi (Panjabi)
 - Romanian
 - Russian
 - Somali
 - Spanish

- Tagalog
- Tamil
- Urdu
- Vietnamese
- Other (Please specify) _____
- Prefer not to answer

5. Role

- Family physician
- Nurse practitioner
- Practice nurse (RN, LPN)
- Physician assistant
- Pharmacist
- Social worker
- Quality improvement specialist
- Clinic lead / manager
- Director / manager of program, department or health organization (non-clinical role)
- Other (please specify)

6. Years in practice (or in current leadership role)

- Open numeric response*

7. In what setting is your clinic/health organization located?

- Inner city
- Urban or suburban
- Rural or remote
- Other (please specify; e.g. only virtual)

8. Do you work in an academic or teaching site?

- Yes
- No
- Unsure
- Not applicable

9. What is the primary compensation model for your practice site?

- Fee-for-service
- Enhanced fee-for-service (such as comprehensive care model or family health group)
- Capitation or blended capitation
- Salary or blended Salary
- Specialized model (such as Alternative Funding Plans, Homeless Shelter Agreements, Rural-Northern Physician Group Agreements, etc.)
- Other (please specify)
- Not applicable

10. What is the practice model for your main primary care site?

- Family Health Team
- Community Health Centre
- Independent solo practice
- Independent group practice
- Walk-in clinic
- Rural or remote community practice

11. How would you rate your general knowledge of artificial intelligence?

- 1 – Not knowledgeable at all
- 2 – Minimally knowledgeable
- 3 – Moderately knowledgeable
- 4 – Very knowledgeable
- 5 – Extremely knowledgeable

Supplementary Material: Semi-structured Interview Guide

Pre-ample

Hello *[name of participant]*, my name is *[name of interviewer]* and I am a *[title]* with the Upstream Lab at St. Michael's Hospital in Toronto. Thank you very much for taking part in this interview and taking the time to speak with me today. This interview will be about understanding your thoughts on derived social data from patients.

Consent

Go through Oral Informed Consent Tool (Appendix 3A)

Do you have any questions at this point? *[Address any concerns; if none, continue]*

This interview should take around 20-30 minutes to complete and will be video/audio-recorded. It will be helpful for us if you speak slowly and clearly so that we can accurately transcribe this recording. Once you are ready, I'll start the recording. *[Click 'Record' button]*

Overview of AI

I'll first begin by asking some broad questions about artificial intelligence, or AI.

1. How would you describe your general knowledge of artificial intelligence?
2. What is your ease with adopting technology in your practice or healthcare setting?

Thinking about AI-Derived SDoH data

Next, I'll ask you about information about patient's social determinants of health. These are considered the socioeconomic positions that can shape one's health status and could include income, race/ethnicity, education, housing, occupation, gender, and other material or social factors.

1. What kind of information to you have access to right now about patient social determinants of health?
 - How do you see or access those data?
2. Imagine your EMR could have a program running in the background that could determine information about the social determinants of health for patients in your practice or healthcare organization, such as race, income, gender identity, etc. based on other existing data in the EMR. What are your thoughts on using computers to determine this information, rather than ask people one by one?
 - How useful you think this derived social data would be to you?
 - Can you describe any potential benefits of using AI to derive social data?
 - Can you describe any concerns you may have around using AI to derive social data?
 - Can you comment on how trustworthy you perceive these AI-derived social data to be? *Prompt: for example, using in your clinical work*
 - Can you comment on any perceived issues with fairness with an AI process to derive social data?
 - Can you think of any ethical principles that you would want the AI system to align with? *Prompt: For example, we just discussed fair and trustworthy attributes of AI.*

Using AI-Derived SDoH Data

For the last section, I'll ask questions about how you might use AI-derived social data in your practice or healthcare organization.

3. Can you think of any ways we might evaluate whether or not this derived SDoH information is useful for your purposes? *(For example, when seeing patients or for resource allocation.)*
4. The performance or accuracy of AI algorithms can vary depending on many factors such as the underlying data or type of model selected. When thinking about AI-derived social data, is there an accuracy value that an algorithm would need to demonstrate in order to be acceptable or useable? *Prompt: For example, 70%, 90%, 100%? Would it depend on different social determinants?*
5. When thinking about using AI-derived social data in your practice or health organization, what are some ways that this information should be presented in order for it to be useful to you? *Prompt: For example, pop-up in EMR, dashboard, etc.*
6. How would this best be incorporated into your current clinical workflow or organizational processes? *Prompt: For example, would this pop up at the start of each patient visit? Would you want the opportunity to verify or confirm the derived data (if so, how)?*

Those are all the questions I have for you today. The next stage of this work will be to explore ways to visualize or present AI-derived social data to clinics and healthcare organizations. In the fall, we will be hosting a co-design workshop with clinicians and health system decision-makers. Would you be interested in receiving information about potentially participating?

This concludes the interview. Thank you for your time; your participation is very much appreciated!