

Interview Guide:

Interview Questions

The guide below will cue to think through what questions to ask and how to sequence them. A good guide will help interviewees tell their story and will generate insights. Listening is better than talking.

Choose at least one question per numbered step and fill it in! (30 mins)

1. Introduce your interview plan

Describe why you're interviewing them and what you hope to learn in two sentences

- I'm reaching out to find out/learn about how medical wearables improve life
- Today I hope to learn about your experience as a patient/ healthcare providers
- This will take around 30 minutes, is that timeframe still okay with you?

2. Request permission to record

Make sure to ask the interviewee for permission to record again when you start recording

- It is hard to take notes and listen at the same, do you mind if I record this session?
- I appreciate your time, would you mind if I record this session?

3. Ask open discovery questions

Developing a friendly rapport with your subject is important to express more open answers

- Could you describe to be how you.../your experience with current health wearable? device or apps
- Tell me about _____ about a time? you were unsure of symptoms you/your patient was experiencing?
- What do you do _____?
when you are traveling? will you bring all the device with you?

4. Understand current behaviors

Ask users about the steps involved in their activities. Don't assume anything about the experiences. Asking them to tell their story rather than about specific experiences allows for more serendipitous responses.

- Will you guide me through your current _____ process to getting treatment for illnesses/symptoms?
- Can you recall a situation you when you cannot contact? your healthcare provider when you are feeling real bad
- Can you describe me your initial experience with _____ getting appointments? with your healthcare providers
- Can you describe your most memorable _____ experience with the device or apps?

5. Understand user points of view

Discover user feedback and hot takes on their experiences

- What do you think about _____ medical wearable devices?
- What is your opinion on _____?

6. Get examples of pain points

Learn about the obstacles users are facing in their experiences

- Can you recall a time you had difficulty with _____ accurately remembering what symptoms you had and the frequency of them?
- Can you give me an example of a time [previous recalled difficulty] happened?
- How does this [recalled problem] impact you?

7. Ask BOTH of these questions to receive feedback on storyboards

Check if your initial storyboard aligns with the user's obstacles and experience then receive input

- Is this a problem you resonate with? what is your experience with the problem stated?
- What do you think about the solution that is proposed here?

Throughout

Ask for clarification

- What do you mean by _____?
- That's interesting. Can you tell me a bit more?
- How come / why so?
- You mentioned _____, what's the reason for that?

Recall past answers to questions you have about current

- You mentioned _____ before, does that have to do with _____?
- Can you show me how you did _____?

Rephrase and recheck you have the right interpretation

- So are you trying to say _____?
- It sounds like you are saying _____. Did I understand that correctly?

If you go overtime, check to make sure they can hang on or politely thank them if they have to run

- I noticed our scheduled time ends in 2 minutes. Do you have a few more after this or do you have to go?
- I have just a few more questions but we may go a bit over time. Is that okay or do you have to go?

Resources

- <https://stephaniewalter.design/blog/a-cheatsheet-for-user-interview-and-follow-ups-questions/>

Interview Transcripts

Jonathan:

Could you describe to me about any experience you had with current health tracking wearable devices or apps?

- As an OTA (occupational therapy assistant) working with majority older patients, they have not had a lot of experience with using health tracking wearable devices or apps. There are apps that have existed within their field, but they are poorly designed (i.e. inaccuracy of gathering data of patient's symptoms). They have used Telehealth, where they can video call patients to book appointments, speak to them via the app about any concerns and questions and measuring their patient's range of motion.
- As a patient, they used apps USCD health to book appointments and speak to healthcare providers. They have also used Telehealth as well as a patient.

Could you tell me about a time when you were unsure of what symptoms you had experienced and how you interacted with your doctor at the time?

- As an OTA, they factor in the social environment and influences that surround their patients. They usually would have to reach out to family members to inquire more.
- As a patient, if they were unsure, they would ask for referral from different doctors to better understand their condition.

What do you do with your medical devices when you are traveling?

- Sometimes they will bring it with them if they remember. Oftentimes, they forget it so they don't bring it with them.

Can you guide me through your current process to getting treatment for illnesses/symptoms?

- as a patient, They reach out to their healthcare provider via phone call and/or app. There, they will book an appointment to arrange a check up. Once done, they go in for a check up and get their consultation, which may lead to being prescribed a treatment.
- as an ota, they will look at their documents regarding their symptoms and what their patients are able to do in terms of mobility. they will visit with each of their patients to check in with them. they will transfer them out of bed to a wheelchair to work on their sitting tolerance. From there, they do treatments that focus on their mobility and self-care.

Can you recall a situation when you could not contact your immediate healthcare provider in a timely manner?

- as a patient, if they couldn't contact their healthcare provider, they went ahead and looked for another provider.
- as a ota, they would speak with their supervisor to figure out what is a better time to meet with their patient to speak.

What do you think about medical wearables?

- as a ota, it is nice to monitor your patients and be able to track accurate data. by doing so, allows for a proper way for them to create appropriate treatments.
- as a patient, living independently this design would be very practical and beneficial. especially if something severe were to happen, this device can potentially be life changing. they similarly compared it to lifealert in a way

Can you recall a time you had difficulty with accurately remembering what symptoms you had and the frequency of them?

- as a patient, they have had difficulties with booking appointments with their doctor. because of that, they would be only able to be able to meet them way forward into the future. by then, they already forgot the severity and the frequency of their symptoms. they would have to rely on their long-memory skills
- as a ota, working with dementia patients, they would have to rely on their patients' data in order to keep track of their patient's symptoms.

How does this impact you?

- as an ota, it creates an obstacle from creating proper treatments for their patients.
- as an patient, it may lead to improper diagnosis which may lead to a treatment/prescription that does not help cater their symptoms/condition.

Storyboarding:

Is there a problem you resonate with? What is your experience with the problem stated?

- Patient checkup; As a patient and OTA, they have experienced forgetfulness from both ends. They wish to eliminate this issue by having a medical wearable device + app they can bridge the communication between patients and healthcare providers. DOing so allows for more transparency from all ends.

What do you think about the solution that is proposed here?

- While they believe the solution is great, they also believe that visual aids (i.e. post-it notes) are still important to have. They believe that medical wearables can only do so much to remind patients to keep up with their treatment reminders.
 - As a healthcare provider, they believe this is also a great step forward to being more present in their patient's lives.
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James:

Could you describe to me about any experience you had with current health tracking wearable devices or apps?

- Never was a big fan of tracking apps for health or exercise because they were never easy to use on a daily basis (sometimes the app itself wouldn't save properly or they didn't have the energy to record some of the data itself at times)
- Was interested in the idea of a medical wearable that tracks your symptoms and reporting to your doctor immediately as it would save time, but was concerned about privacy issues.

Could you tell me about a time when you were unsure of what symptoms you had experienced and how you interacted with your doctor at the time?

- Had asthma since childhood and they didn't know exactly what was causing those symptoms, but since their parents were watching over them their parents and doctors discussed the symptoms they had and diagnosed them with asthma.
- Several times ended up at the emergency room due to asthma attacks and the doctors handled their case really well even changing the medication couple times to make sure they got something that worked for them.

What do you do with your medical devices when you are traveling?

- Only medical devices they handled was a peak flow reader and several inhalers. Always keeps their rescue inhaler with them at all times and used to use the peak flow reader to record the impact of their asthma attacks but didn't find it useful so kind of ditched it later on.
- (asked if it was a bother to bring these things wherever they go) "Absolutely at times, but living is a great motivation for bringing them so, it's not really an option not to."

Can you guide me through your current process to getting treatment for illnesses/symptoms?

- Depends on how they're feeling, so if they feel really bad then they might go to urgent care or schedule an appointment, but otherwise just bear with it till it's better.

Can you recall a situation when you could not contact your immediate healthcare provider in a timely manner?

- Scheduling an appointment had to be a month or two in advance which seemed ridiculous to them.
- The only time their hospital visit could happen immediately was in the emergency room.

What do you think about medical wearables?

- Again, think they are interesting and potentially very helpful, but keeping the data collected and transmitted private may be an issue.

Can you recall a time you had difficulty with accurately remembering what symptoms you had and the frequency of them?

- There was a time when they had a bad fever and ended up going to the hospital to treat it, but they themselves couldn't really recall every symptom they experienced nor how long they had it for due to the fever, but thankfully their parents were there and spoke on their behalf and the doctor was able to treat them based on that.

How does this impact you?

- If they are in a state where they can't effectively communicate to their doctor what symptoms they had and what had happened before that moment, having a health journal or tracker that recorded their symptoms and activities before they reach that state would be highly useful for the doctor to come up with a treatment at a faster rate.

Storyboards:

Is there a problem you resonate with? What is your experience with the problem stated?

- They thought that storyboard 4 resonated with them the most because sometimes when they feel some pain or aches or other symptoms and they look online to see what they might have and then self-diagnose themselves with something that they probably don't have. "Getting access to doctors through a device like this and getting a proper diagnosis without having to schedule an appointment sounds awesome."
- Also like storyboard 5 as it shows the uses of the device as a sort of immediate 911 call that occurs when no one else is around to help. Wonders if this sort of device would work in remote areas like mountains or forests.

What do you think about the solution that is proposed here?

- They like the solution again reiterating their concern over privacy briefly, but also thought whether this may prove to be overwhelming doctors since they probably have multiple patients and having one doctor having to constantly check the status of several people everyday might not be feasible.
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Nadia

Could you describe any experience, either for yourself or for your patients, with wearable devices or apps?

As Patient

- the holter monitor
- It is very troublesome as it is not waterproof. Cannot take bath or make it wet when wearing it.
- It limits the activities she can do when wearing it.
- She cannot check her current heart rate for that monitor/ hard to understand
- Apps for appointments with doctors are hard to use.
- hard to communicate with the doctor.

Can you recall a time you had difficulty with accurately remembering what symptoms you had and the frequency of them?

- Very often forget to mark it down after measuring blood pressure and heart rates until parents remind her
- She cannot tell exactly what her symptoms are when she meets the doctor and she does not have data for the doctor to diagnose or analysis

Can you recall a situation when you cannot contact your healthcare provider when you are feeling real bad?

- It makes her feel scared of what she is experiencing.
- Try to search on Google about the symptoms, which make her feeling worse.
- Hope to see an app where she can ask questions anytime and the healthcare provider from the same hospital can reply to her based on her past records after consent.

What do you think may improve the app or wearables?

- It should be light, waterproof, durable, and environmentally friendly, easy to wear, not obvious.
- It should let patients know if they are in good condition. It should be easy to understand.
- It should let patients be able to contact a doctor for instruction when they are feeling very not well

STORYBOARDS

Is there a problem you resonate with? What is your experience with the problem stated?

What do you think about the solution that is proposed here?

- Storyboard 4. She sometimes forgot to note down the data and when she is feeling unwell, the doctors may not be open and she does not think it is as urgent that need to go to the emergency room. Thus, she will search online to see what she is experiencing, however, Google usually exaggerates the disease and says she may need surgery which makes her more worried. Thus, she agrees that if there is an app that can tell whether the data collected says she needs to go to visit a doctor immediately or not, that will be great. However, she is worried that what if the device is broken somehow and reports the wrong information. She wonders if there is a way to know or keep track when it is broken or needs a change.
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Lee

Could you describe any experience, either for yourself or for your patients, with wearable devices or apps?

- Likes the Apple Watch for its “fall detector”
 - “If the watch experiences like a sudden impact, or like, there’s a sudden for that happens...especially for older patients, it helps a lot. It will actually give a notification, it’s like, ‘Did you experience a fall?’ or ‘Do you need us to send help?’ It’ll send a geolocation of where it happened to the nearest police or to an emergency unit that can come and assist.”
- Heart rate monitors
 - “Reading your heart rates is a big thing, especially for people that have tachycardia- or they suffer from heart disease or a heart condition where they have to monitor their heart rate more often. It keeps track of it and sends notifications. It’ll track your normal and say like, ‘hey, this is your baseline.’ and anything way past that or below that it’ll actually send an alert to yourself.”
- Bluetooth stethoscopes
 - Convenient.
 - Don’t have to carry around a traditional scope
 - Pair with noise-canceling headphones/earbuds and volume adjustment helps to hear patients’ heartbeat and breathing better

Tell me about a time that you were unsure of symptoms that your patient was experiencing.

- “There’s a few, I mean, times like in emergencies, you know, especially if we don’t know if they’re septic or not. We regularly check, like blood pressures, temperatures, heart rates and everything. And there are times where, you know, I think it’s more of like internal basis of like, of like from those readings where we have to look into their history. And, but that also involves going to like a computer that also, sorry, that involves like going to like a computer to like pull it up. pretty much a rolling computer that we roll into like the patient’s room or like to where we need to go. So we able to access stuff. But the only problem I think for the, I find with those is just that they’re either too slow or you have to keep them plugged in all the time.”
 - Checking patient history with a rolling computer is cumbersome.
- Patient history
 - Records go all the way from whatever the primary doctors provide to ER or Urgent Care visits.
 - But if they’re a new patient, you will have to reach out to their old hospital/doctor for their records, which takes time.
- **Do you think it would be helpful if there was some way for a wearable device to keep track of patients’ levels (glucose, heart rate, etc) continuously?**
 - “There is actually a development of some, I know there’s like a ring apparently that will actually measure that. Keep track of, I think, like sugar levels or

something. They also have that one, like, patch. It's not a patch or it's not an appliance. It's like a little sticker thing."

- He was referencing the *Freestyle Libre* for diabetics.
- "Something that checks sugar constantly without having to prick the patient. And that actually helps a lot too. Especially for patients that are on blood thinning medication."
- "But I think for just in normal, for people in general, wearable devices are definitely nice to have just because like, even then, like a lot of people wouldn't even know that they have like, an issue with their sugar levels, or they have issues with their heart rate, you know? Whatever the device will record until they actually see a doctor or kind of like sense a problem."
 - "You know, if you catch people, catch it early on, they're able to reverse some things by changing diet or lifestyle. But when it's like, way too late already, you know, harder to maintain, and maintain medication."
- He got misdiagnosed for tonsillitis during an ER visit.

Can you recall a situation when you had tried to contact your own primary doctor when you were feeling really bad?

- "Yeah. I think the last time was when I had issues with my stomach....but the thing is it was late at night, so I didn't really want to. That's sometimes hard to answer if people have to sleep. I just went straight to the ER for that."
- "And, it's like a service, because you're asking the doctor for advice. So most doctors are traditional. They don't have things like that set up yet, where it's like a call type thing where a doctor will check up on you."
- "But like having someone that already knows your history or having someone that like, is able to pull up your, you know, like your files and everything of your actual medical history and then they'll tell you that you need to come in and 'do this.' That helps a lot more than just having to guess and having to make an appointment and waiting longer than you need to."

What's your opinion on wearable medical devices?

- "I think, I honestly think there should be more available."
- More should be wireless

Can you recall a time that you had difficulty with accurately remembering symptoms and the frequencies of those symptoms that you've had?

- "There was a time where, actually, I had to monitor my blood pressure for a while and I forget half the time like, 'Oh, I gotta check every four hours.'"

STORYBOARDS

Is there a problem you resonate with? What is your experience with the problem stated? What do you think about the solution that is proposed here?

- Storyboard #4:

- “I can kinda tell, like, you know, like he’s obviously checking symptoms or something to check his temperature and stuff, but he’s not sure he needs to go to the hospital or if he’s just sick.”
 - Didn’t offer insight into the proposed solution.
- Storyboard #6:
 - “I think the one thing about having a medical wearable device, it’s more of having a peace of mind that you don’t have to consistently, actively check all the time. And I think that’s where the convenience in it is because people that do have to check their sugar or heart rate all the time? They actively do it. Like they have to do it because that’s their life.”
 - “Like normal people that are in good health where it’s like, I have an app that checks my stuff. When I have an app that does this, I’m like, ‘I don’t have to look at it all the time,’ you know?
 - “But if I don’t notice anything and something looks off, my doctor could contact me saying, ‘Hey, we noticed this and this.’”
 - But the people with the app or people that are in, you know, like your doctor or they’re taking care of you, they’re going to check for you or they’re going to offer you a check for you because they’re concerned about this. Or they notice something often they want to address it right away. You know, because that’s, that’s their, that’s their business. That’s their, that’s their business per se. But that’s, that’s their, you know, that’s their job that’s like to help, help the patient. So I think it’s more, it would be more on the apps or the people running the app where people, or the doctors or whoever is taking care of his job to, to quickly look over, to look over things that look out of the ordinary.

Interview Analysis:

Jonathan:

Key Insights:

- Interviewee had experience as a healthcare professional and as a patient.
- Interviewee brought valuable insight about being part of a specialization that is relatively new within the healthcare industry
 - Because of that, there seems to be an issue with user accessibility to apps and devices. Essentially, there is a demand for apps and devices that will cater towards their area of work. Doing so will allow for their field to become more innovative with their treatments and to make them more effective.
- While they believe the medical wearable and app is a step forward in the right direction, they also emphasized that the user—at the end of the day—is accountable for making full use of them.
 - They mentioned that working with older patients with memory loss issues (e.g. dementia and Alzheimer’s), they stressed that physical visual aids such as

colorful sticky notes are very helpful. Doing so gives them an implemented daily routine to practice their cognitive skills.

Trends and Patterns:

- All interviewees have had experience with wearing a medical wearable (e.g. FitBit and Apple Health) and interacting with a healthcare-related app.
- All interviewees have had issues with contacting their healthcare provider(s).

James:

Key Insights:

- Experience as a patient with a chronic disease (asthma)
- Brought forth insight on the current interactions between healthcare and patients as something that has its positives, but could be vastly improved such as decreasing wait time between appointments
- Previous experience with wearables (for sleep tracking and exercise) was not great and haven't used them recently due to their non-user friendly interfaces and tedious nature

Trends and Patterns:

- All interviewees had some experience with medical wearables though not specifically for medical purposes, e.g. tracking habits and exercise
- All interviewees seem to have experienced issues with contacting/connecting with their healthcare providers at one point in their lives

Nadia:

Key Insights:

- Experience as patient with heart arrhythmia
- Brought insight on how inconvenient it is for some of the medical wearables and how hard it is to communicate with healthcare providers if the one who is responsible for them are off duty.
- The records shown by the medical wearables might be hard for normal people who do not have medical understanding to understand.
- May forget to record the data without reminder because of busy schedule

Trends and Patterns:

- All interviewees have had experience with wearable devices and apps related to it for tracking and making appointments.
- The interface should be improved as it is hard for even an adult to use, it will be much harder for an elderly.
- The medical wearable should be able to send and record data automatically and be easy to wear.

Lee:

Key Insights:

- Experience as both patient and healthcare professional.
- By consistently monitoring, one may be able to catch an issue early on before it becomes a much larger, and harder to handle, problem down the line.

- Having a healthcare provider who already has access to and knows a patient's medical history helps to mitigate health scares, and helps keep the patient from having to guess.
 - Being able to communicate with the provider helps knowing when a patient needs to be seen or not.

Trends and Patterns:

- All interviewees have had experience with wearable devices.
 - Not necessarily medical related.