

Covid Watch App v4 Design Usability Test Detailed Report

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Report Prepared by Emily Valente

Overview
Users Need a High Level Overview
<p>The onboarding screens are currently the only place users are given an overview of the functioning of the app. Users often flip through onboarding screens without looking at them in depth with the assumption that they will figure out the user flow when using the app itself. Because Covid Watch is passive until users get an alert, they only see the user flow when they have a potential exposure, This leaves them to figure out the app while under stress.</p> <p>Users were unclear as to how CW protects their privacy, how it functions, and why verification codes are needed. This can be addressed by refining the onboarding screens, and by adding additional information throughout the user flow.</p>
Specific Points Require Clarification
<p>There are specific points that are not clear to users and need clarification. When a user is notified of a potential exposure, understanding the risk of contracting Covid-19 is a key user goal. Because of this, the meaning of risk levels needs to be clearly explained in accessible language and linked to actions which need to be taken in response to that risk.</p>

Design Recommendations

(P1) Priority 1

1. Most important functions should be easily accessible and visible right at the top of homepage. Right now they're a bit scattered throughout the page.
 - i. Find test center
 - ii. Report positive test
 - iii. Share the app
- b. Image on exposure summary screen is very large and is currently hiding important information below/nearly below the fold
 - i. Some users didn't intuitively know that the screen was scrollable, especially older users, a few stated that they expect buttons to look like buttons and scroll bars to be there when they can scroll through something.
- c. The share the app button is below the fold in initial exposure summary page and the text box is not clickable
2. **We should state how we define an 'exposure'**
 - a. Many users asked how this was defined and said they would like to know the definition in order to gauge whether to take the 'exposure notification' seriously and this is not listed anywhere
3. **Risk level details are too technical** - remove terms like "attenuation" and make sure they are accessible to a general audience. Could phrase as a sentence, ie. for ____ minutes you were within ____ft of someone who later tested positive for covid-19..
4. **Exposure notification alert pop up:** have **text that says 'click here'** or an arrow to communicate more clear that we want users to click on this notification to get more information - many users did not know to click on the notification itself and got stuck
5. Users are not prepared to know **what random ids are** until they come across pop up to share them - nearly all users were surprised/confused by this term.
 - a. The only other time this is mentioned is on the very first onboarding screen where they are referred to as 'random numbers'.
 - b. Many users do not fully read the smaller print on the onboarding screens or skip the screens altogether.
 - c. The current structure is **relying on users reading and remembering what they saw** in the initial onboarding screens -- and **most will not**.
 - d. There is no other place where they can get information about what these ids are and what is being shared through them, and what is not.
 - e. Users were also confused as **many thought their phones would just have one 'id'** being shared and asked questions about why it was plural and what other ids were being shared and why. Created privacy concerns
 - f. A few users said they **would not share these ids** since they didn't know what they were and just exit out of the app - therefore not submitting a positive result.

6. Should **provide more information about verification codes re: privacy**
- a. First, we should give users a heads up that they will need this code in order to enter a positive result so that they know to ask for it/are aware they will need something to verify the test in the app
 - i. A few users said they would be upset by this and discontinue reporting
 - b. Who is providing them, what personal information will be linked, will you need the code for any other purpose? How are they generated? Are they linked with private health information?
 - c. **Test results are not anonymous** - users shared concerns about entering **verification code** into app when the code was perceived to be associated with personal health information
 - i. Where is the **verification code being drawn from/checked against?**

Possible solution for P1.4 and P1.5

- ii. Creating **summary screen before submitting positive result** (step 3 of 3):
 - 1. What is shared:
 - a. Your randomly generated, encrypted bluetooth ids only with other random ids you've come into contact with - never with third parties or government entities
 - b. What is never shared or collected:
 - i. Your name, gps location, or any personally identifiable information
 - ii. Your personal health information
 - 2. Sharing your random ids with others is a completely anonymous way of alerting them of your positive result. They will not receive any personally identifiable information about you.
 - 3. (then have the 'submit a positive result' button at the bottom of this page before the apple permission pop up)
7. **'Notify Others' button** - change copy to share test results, or anonymously share results, etc. - something that makes it clear it is the positive test result that is being anonymously shared.
- a. Also **make it clear that this will not automatically shoot off messages to everyone** they've come in contact with - many users expressed they were afraid to click this button

(P2) Priority 2

- 1. **Verification Code info button** - replace (or in addition to) 'i' information icon with clickable text below making it clear users can click on text for more information on code
 - a. Reason: many users did not notice the icon, did not know it was clickable, or did not understand that it would provide them with additional information. They themselves suggested having the clickable text underneath to make it more clear
- 2. We currently don't explain how risk levels are calculated or what the difference between low/mid/high risk levels are

3. **Usability Test Onboarding Screens:** The onboarding screens should give users an overview of how the app works, and how it protects user privacy.
 - a. Usability test the app to ensure that the copy and images are optimized for different use cases (e.g. users who only skim the screens and don't read closely).
 - b. User feedback:
 - i. User who has ESL - has difficulty making sense of wording on onboarding screens (he said it was too wordy and some screens trying to convey too much information at once).
 1. Said therefore he would likely just skip through and try to figure it out through the app (but this information is not provided anywhere else)
 - ii. 'You're all set screen' - **conclusion screen but introducing new information**, ie. verified test results, not previously mentioned in onboarding screens. We should clarify this term before this screen.
 - c. Possible solution for P1.3:
 - i. Creating **summary screen after onboarding screens/before notification permissions**: users thought it would be helpful to have an additional screen summarizing what information was just shared in the onboarding screens:
 - 1) How signals are exchanged anonymously. Need content to explain this - most users won't be familiar with this technology
 - a) Emphasize the **difference between bluetooth vs. GPS** - and how bluetooth works and what it tracks/doesn't
 - 2) What is recorded: anonymous proximity data between phones
 - a) How: encrypted random ids via bluetooth only with other users you came into direct contact with
 - b) Stored locally on your phone only
 - c) No meta data is shared with any personal information
 - 3) What is not recorded
 - a) Any personally identifiable information, ever to anyone
 - b) Your gps location is never recorded (quite a few users assume their gps location is being recorded either because they provided their region or just generally recorded)
 - c) Your phone number
4. **At final 'all set' onboarding screen** - change 'view risk summary' button to more of a call to action like 'get started' or 'browse the app'
 - a. Reasoning: since app was just downloaded there wouldn't actually be any data in the summary
 - b. User feedback: users found this **confusing** and questioned whether the app was somehow **already pulling bluetooth information** from their phones **retroactively** - generating privacy concerns
5. **Address User Privacy Concerns:** Create a Privacy about screen that explains how Covid Watch protects users' private information, explaining where data is stored and how the verification code maintains user anonymity.

6. Remove **'past diagnoses'** from final thank you screen
 - a. What was the initial intention of placing it on this screen? Could instead use space to add comforting language instead for users who have just entered a positive result
7. Add comforting/empowering language to thank you page for users who just reported testing positive and what to do next.
8. Initially unclear that the home screen is **scrollable** and there is more information below the fold.
9. Once receiving exposure notification - **add language** to **motivate/explain** to people **why it's important to act immediately** and not delay to get tested/self isolate.
10. Make risk level banner clickable (and make it clear that it is clickable).
 - a. Reason: users confused about why it says **risk level 'today' is high** - what changed from yesterday? **Unable to click to get more information.**
11. **Back button/navigation across all onboarding screens** - many users tried to go back and look through previous screens but weren't able to
12. **Exposure notification alert pop up: confusing content** - users didn't understand what signal strength meant
13. Provide information for people who need **free tests**
 - a. If there's the perception that getting tested will be expensive then many users won't look into it - providing info about free testing would help overcome this
14. Some users thought that exposure **notifications were sent out regionally**, ie. if he tested positive it would alert everyone in his region vs. only those he came into direct contact with
15. Screen after selecting region - **same image as first screen** so makes it feel like he made a mistake at first and somehow clicked 'back' button
16. We are missing a **Privacy Agreement**
17. **Privacy questions from users:**
 - a. Where is data being stored? Locally or on cloud? How is it exchanged back to you?
 - b. Are bluetooth random ids encrypted?
 - c. Will the sponsoring state or school be getting information about the user?

Comments below also added on [Figma V4 file](#) for design team

User notes compiled: V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD, V4JE (denoted by user ids)

Wording/Content Change/Addition for Improved Clarity		
Onboarding Screens	User ID	Priority
Clarity needed on difference between notification permissions on onboarding screens. Many users did not know what the difference between them was.	V4MA, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD, V4JE	P3
At final onboarding screen "all set!" - change 'view risk summary' to more of a call to action like 'get started' or 'browse the app' <ul style="list-style-type: none"> - since app was just downloaded there wouldn't actually be any data in the summary - users found this confusing and questioned whether the app was somehow already pulling bluetooth information from their phones retroactively 	V4MA, V4SS, V4LN, V4MW, V4LD, V4PD, V4JE	P2
User had difficulty understanding wording in onboarding screens (English as second language).	V4LN	P2
User felt descriptive text in onboarding screens were too wordy - felt this content should be limited to one sentence otherwise people won't read them	V4LN	P2
User felt content on notification permission screens trying to say too much at once - it became unclear to him	V4LN	P2
'You're all set screen' - conclusion screen but introducing new information , ie. verified test results, not previously mentioned in onboarding screens. We should clarify this term before this screen.	V4LN	P2
Exposure Notification / Risk Level	User ID	Priority
Once receiving exposure notification - add language to motivate/explain to people why it's important to act immediately and not delay to get tested/self isolate	V4MA, V4JE	P2
Risk level details are too technical , do not provide clear information to typical users. Change wording to layman's terms. <ul style="list-style-type: none"> - None of the users knew what the terms (e.g. "attenuation") or numbers meant. 	V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD	P1
Confused about why it says risk level 'today' is high - what changed	V4LN,	P2

from yesterday? Unable to click to get more information	V4CB, V4LD	
Reporting Positive Result	User ID	Priority
Change button copy from ‘anonymously notify others’ to ‘report positive test’ or something along those lines - currently causing confusion among users as to what this means - especially the button on the notification details page, people think it’s for alerting others that they have been exposed and not to report a positive test	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD, V4JE	P2
Replace ‘i’ information icon with clickable text below ‘verification code’ - users did not notice icon/did not know it was clickable/did not understand that it would provide them with additional information. Many requested clickable text.	V4MA, V4SS, V4LN, V4MW, V4LD, V4PD	P2
Include comforting/reassuring content/messaging after someone has reported a positive test result	V4JG, V4SS, V4LN, V4JE	P3
Unclear how past diagnoses are useful. Remove from the final thank you page.	V4LN	P3

Additional Information/Guidance Needed		
Onboarding Screens	User ID	Priority
<p>Creating summary screen after onboarding screens/before notification permissions: users thought it would be helpful to have an additional screen summarizing what information was just shared in the onboarding screens:</p> <ul style="list-style-type: none"> 4) What is recorded: anonymous proximity data between phones <ul style="list-style-type: none"> a) How: encrypted random ids via bluetooth only with other users you came into direct contact with b) Stored locally on your phone only c) No meta data is shared with any personal information 5) What is not recorded <ul style="list-style-type: none"> a) Any personally identifiable information, ever to anyone b) Your gps location is never recorded (quite a few users assume their gps location is being recorded - we need to be more clear about this) c) Your phone number 	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4JE	P2
User assumed that since provided his region that gps location was also shared	V4JG	P2
Additional information/clarity needed to explain how app functions even if someone moves between regions - why/when would you change regions	V4JG, V4SS	P3
Unfamiliar with bluetooth tech and how signals are exchanged anonymously. Need content to explain/clarify this.	V4MA, V4SS, V4LN, V4MW, V4LD	P2
User thought exposure notifications were sent out regionally , ie. if he tested positive it would alert everyone in his region vs. only those he came into direct contact with	V4JG, V4SS	P2
introduction/explanatory video would be helpful for onboarding	V4LN	P3
Emphasize the difference between bluetooth vs. GPS - and how bluetooth works and what it tracks/doesn't	V4PD	P2
Exposure Notification / Risk Level	User ID	Priority
Exposure notification alert pop up : have text that says 'click here' -	V4JG,	P1

many users did not know to click on the notification itself for additional information	V4SS, V4MW, V4CB, V4LD, V4PD, V4JE	
Exposure notification alert pop up: confusing content - users didn't understand what signal strength meant <ul style="list-style-type: none"> - User thought it might be how virulent the person was - V4PD - Have more comforting language - V4JE 	V4LN, V4CB, V4MW, V4LD, V4PD, V4JE	P2
Not noted anywhere what the notification time window is <ul style="list-style-type: none"> - how long would you get a notification if you were by someone who had tested positive? 	V4JG	P3
User wanted to know the date of exposure [why was this removed in this version?]	V4JG, V4SS, V4MW	P3
Users mentioned adding reminders to go get tested and to verify test result if tested positive would help people remember/be motivated to do so. Friendly reminders - "hey, have you gone in to get tested yet? Do you need help or have any questions?" etc.	V4SS, V4MA, V4LN	P3
Degrees of separation - explain if people who got exposed to people who got exposed are also notified	V4SS	P3
Unclear how low/mid/high risk levels are calculated	V4LN, V4MW, V4CB, V4LD, V4PD, V4JE	P2
Provide information for people who need free tests <ul style="list-style-type: none"> • If there's the perception that getting tested will be expensive then many users won't look into it - providing info about free testing would help overcome this 	V4LD	P2
Reporting Positive Result	User ID	Priority
Creating summary screen before submitting positive result (step 3 of 3): <ol style="list-style-type: none"> 1) What is shared: <ol style="list-style-type: none"> a) Your randomly generated, encrypted bluetooth ids only with other random ids you've come into contact with - never with third parties or government entities 2) What is never shared or collected: 	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4JE	P1

<ul style="list-style-type: none"> a) Your name, gps location, or any personally identifiable information b) Your personal health information <ul style="list-style-type: none"> - Sharing your random ids with others is a completely anonymous way of alerting them of your positive result. They will not receive any personally identifiable information about you. - (then have the 'submit a positive result' button at the bottom of this page before the apple permission pop up) 		
<p>Users are not prepared to know what random ids are until they come across pop up to share them - nearly all users were surprised/confused by this term.</p> <ul style="list-style-type: none"> - The only other time this is mentioned is on the very first onboarding screen where they are referred to as 'random numbers'. - Many users do not fully read the smaller print on the onboarding screens or skip the screens altogether. - The current structure is relying on users reading and remembering what they saw in the initial onboarding screens -- and most will not. - There is no other place where they can get information about what these ids are and what is being shared through them, and what is not. <p>Users were also confused as many thought their phones would just have one 'id' being shared and asked questions about why it was plural and what other ids were being shared and why.</p> <p>A few users said they would not share these ids since they didn't know what they were and just exit out of the app - therefore not submitting a positive result.</p>	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD, V4JE	P1
<p>Users afraid to click on 'notify others' thinking this will send out notifications immediately</p>	V4SS, V4LN, V4MW, V4LD, V4JE	P1
<p>On thank you screen after sharing positive diagnosis - add language about staying inside, washing hands, etc.</p>	V4SS, V4MW, V4CB	P3
<p>Users asking how long their app stays 'positive' - when does the positive result go away? Concerned that they would have to delete the app if they need to go outside ever again</p>	V4SS, V4LN	P2
<p>Should give users a heads up to ask for a verification code when they get tested/receive their results - or at least let them know more clearly that they will need this information before they log back into the app to report their results and dont have this code - would likely just not report</p>	V4LN, V4JE	P1

the result		
When reporting positive diagnosis should ask whether people have been wearing masks generally and calculate that into the risk score of the alert notification for other users	V4LN, V4MA, V4SS	P3
Should provide more information about verification codes - who is providing them, what personal information will be linked, will you need the code for any other purpose?	V4CB, V4JE	P1

Privacy Concerns		
Comment	User ID	Priority
Is information being stored/tracked on phone number or sim card?	V4JG	P2
Are bluetooth signals encrypted?	V4JG	P2
How easy would it be for a hacker to mimic this app and maliciously exchange bluetooth signals/codes in some way?	V4JG	P3
Privacy statement/agreement: 1) There should be a privacy agreement after the onboarding screens and before the notification permissions screens - could be included at the end of a post onboarding screens summary page (V4JG) 2) Have short summary of privacy at the top that is easy to read (V4LD)	V4JG, V4LD, V4JE	P2
Data has to be stored somewhere - how is it exchanged back to you? you need to connect to the internet in order to share your random ids - those ids must be stored in a cloud or database somewhere	V4JG, V4LD	P2
Test result is not anonymous - concerns about entering verification code into app when that code could be associated - or perceived to be associated - with personal health information - User assumed she was being tracked - V4CB - Where is the verification code being drawn from/checked against? Big concern	V4JG, V4SS, V4LN, V4CB, V4LD	P1
What information will the state be getting in sponsoring this app?	V4JG	P2
"The onboarding screens is pushing anonymity too hard - makes me weary that it's trying to hide something"	V4LN	P3
What defines an 'exposure'? No language explaining this	V4LD, V4JE	P1

Visibility/UI Clarity/Placement/Navigation		
Onboarding Screens	User ID	Priority
Back button /navigation across all onboarding screens would be helpful	V4JG, V4SS, V4LN, V4MW, V4LD, V4PD	P2
Push notification image can be more relevant to content to help explain what is being enabled	V4MA	P3
Screen after selecting region - same image as first screen so makes it feel like he made a mistake at first and somehow clicked 'back' button	V4PD	P2
Exposure Notification / Risk Level	User ID	Priority
Place most important functions right at the top of homepage - these 3 things are essential to the app being used effectively and should be easiest to find 1) Find test center 2) Report positive test 3) Share the app	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD, V4JE	P1
Remove button to report positive result from notification alert details page 1) it's confusing to users - they think they are notifying others about their exposure vs reporting a positive result 2) Majority of users will not have a positive result to report at this point if app is telling them to go get tested once receiving this exposure alert 3) Remove 'notify others' wording completely - a) "makes it seem like there's a direct connection between you/your information and the other users when it's the system that is communicating between you. Use more systematic wording to reinforce anonymity aspect. - V4LN"	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD	P2
Image on exposure summary screen is very large and hides important information below or nearly below the fold, i.e. reporting a positive result. Most important is to highlight exposure notification and next steps	V4MA, V4JG, V4SS, V4LN, V4MW, V4CB, V4LD, V4PD,	P1

	V4JE	
Unclear how to share the app with others - share the app button is below the fold in initial exposure summary page and the text box is not clickable	V4LD	P1
Initially unclear that homescreen is scrollable and there is more information	V4CB, V4LD, V4PD	P2
User tried looking for the home page while on the exposure summary screen - unclear that this is the home page	V4MA	P3

Motivations for Sharing/Using the App	
Making sure he hasn't infected someone he knows - or making sure that they would be alerted if he unknowingly had	V4MA
Friends who are immunocompromised - duty to protect/alert them	V4JG
"Many people would use the app for notification purposes only vs. actually sharing their own results - like online reviews"	V4JG
Source of initially learning about the app is important for level of trust: Would trust most if came from friend or family member, then government agency/public health dept, then least just from the app store or from an ad	V4MA, V4LN
Keeping her friends and family safe - Would share it via email (V4PD)	V4MW, V4PD
Get more people on board and flatten the curve	V4LD

Challenges Users Foresee for the App	
Establishing brand recognition and trust - many people aren't downloading apps like they used to - stigma around data mining	V4MA
Heavily politicized issue - might be difficult to have people see past party divides and download the app	V4SS
Test verification code will be a big hurdle, make that easier to do	V4SS, V4LN, V4CB
Government employees are largely not allowed to have bluetooth turned on while in buildings/premises - might be difficult to engage gov employees if they have to remember to turn bluetooth back on every day for the app	V4LN
If app is not crystal clear, it will generate a lot of calls to local clinics and public health offices of people wanting clarification and being scared. Make sure this won't overburden doctors and clinics.	V4CB, V4LD
Make sure app is HIPAA compliant - safety officers at clinics will likely have to vet, otherwise there won't be buy in	V4CB
Perception that there are long wait times for any call lines - would prefer to have another way to verify result and find a test site other than calling in.	V4LD