10 Lessons Learned from Testing for Accessibility and Usability on a Public Health Website during the COVID-19 pandemic

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Introductions

- Liz Hunt, MPH
- Adam McBride-Smith, CPACC
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Research Topic

- **This paper will focus on the qualitative accessibility and usability testing portions of the project, within the context of centering community voices and vulnerable populations.**

- Community engagement effort and mixed methods end user application testing plan.
- Automated testing and code review with qualitative interview-style end user testing.

Background - Oregon's My Electronic Vaccine Card (MEVC)

Leading with Equity

Provide access in 13 languages

- 13 languages go-live simultaneously
- Translations completed and reviewed by native speakers (not autogenerated)

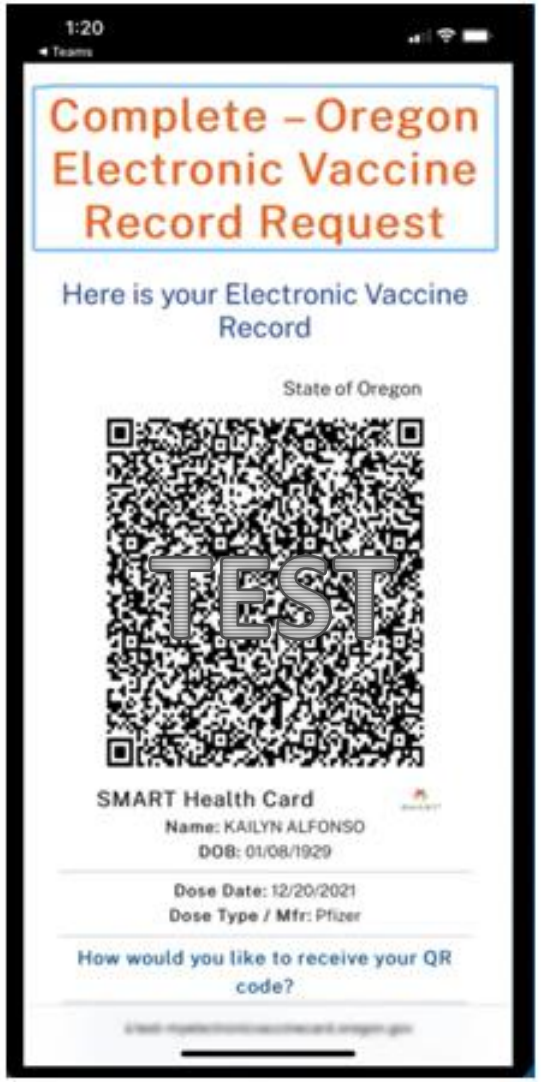
Accessible web platform

- Built to conform with WCAG 2.1 AA
- Tested by a team of native assistive tech users

Center community voices

- Continuous engagement with community
- User acceptance testing by community prior to go-live

What is Oregon's My Electronic Vaccine Card (MEVC)?



- Application to request a QR code vaccine record
- Contains all the same information as the CDC card
- Solution for any individual vaccinated in Oregon who needs a copy of their record
- Able to be stored on phone, printed, or mailed

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Community Outreach and Engagement Overview

Phase I — Initial Outreach
- Meet with community groups
- Develop recommendations for moving forward

Phase II — Feedback
- Demo and Listening Session
- Usability Testing and Feedback

Phase III — Launch Support
- Individual meetings with Business Groups
- Partner with community groups
- Culturally appropriate and accessible communications

Phase IV — Post Launch
- Close out session with all Usability Testers
- Continued partnerships with community groups
- Monitor and respond to feedback through COVID19 feedback app

Literature Review

Accessibility

- Testing team composition
- Web Content Accessibility Guidelines (WCAG) level 2.1AA
- Accessibility and usability testing methodologies
- Plan language standards
- Usability best practices
- Disability policy and advocacy

IT Development

- Project Management principles
- Software Development Lifecycles (SDLC)

Community Engagement

- Community engagement as a public health practice
- Community engagement in IT development

Qualitative Inquiry

- Business anthropology
- Corporate ethnography
- Interview methods
- Processes of observation
- Case study research

Methodology: Accessibility and User Testing

All testing was conducted remotely via Zoom

Accessibility testing

- Automated accessibility testing
- WCAG conformance review by consultant
- Testing with native assistive technology users

Usability testing

- Two facilitators
- Modified “Think Aloud” protocol that combined a semi-structured interview with a task-based application testing walkthrough.
- Tested once with each tester and again with available testers following changes made to the app.

Sample

Accessibility Testing (3)

- IAAP certified consultant
- Native assistive tech user #1 – blind, uses JAWS (screen reader) and VoiceOver (screen reader)
- Native assistive tech user #2 – motor disabilities, Apple Switch Control with Auto-Scan

Usability Testing (10)

- Recruited from the community listening sessions in Phase I of the project
- 4 spoke English-as-a-Second Language
- 3 identified as Latina/Latinx, 3 as Pacific Islander, 1 as Southeast Asian
- 2 were legal permanent residents, 1 held refugee status, 1 was a DACA recipient
- 1 disclosed cognitive and visual processing disabilities

Sample

Reimbursement and Consent

- Accessibility testers paid $100 an hour; community testers paid $50 an hour
- Paid electronically immediately after their testing
- Informed consent obtained for testing and recording

Ethical Commitment

- Pay people with disabilities fairly for their work
- Prioritize building trust and rapport, communication
- Cultivate “Access Intimacy”

Accessibility Results

- Logged and resolved **34** bugs
- Developed **15** personas
- Included **114** user stories in the FDD
- Completed an Accessibility Conformance Report (ACR) for WCAG 2.1 A and AA
- Created an accessible PDF of the user's vaccine record as a download option.
- All 13 languages went live simultaneously
- Work shared with collaborating states to improve their app's accessibility
- Driving change by private technology companies

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Usability Results Phase I – Aug 2021

Benefits	Burdens	Concerns
• Ease of sharing vaccine status	• Lack of technology barrier to some	• Privacy/security of digital information
• Improved access to travel/businesses	• Discrimination against those who don't adopt	• Ensuring all Tribes data included
• Help disability community feel safer		• Interoperability between states and countries

Groups Engaged

- Black/African American Community
- Latina/o/x Community
- Asian American Community
- Tribes
- Pacific Islander Community
- Disability Community

Usability Results Phase II – Feb 2022

- PDF available for download, print, email, or request a mailed copy
- Simplified language for clarity and ease of use
- Additional links to FAQs and OHA main page.
- Order that ‘Oregon’ appears in state dropdown (request both at top and alphabetical)
- FAQ Updates - Question grouping, PIN # clarification, privacy information, plain language that is equity focused.
- ‘How to video’ script updates in all languages with captions, tested with a native screen reader user and a person who speaks ESL

Usability Results Phase II – Feb 2022

“Surprise” findings discovered during usability testing:

- What is a QR code, is it secure, and can we trust how that info is stored and used?
- The “take a picture” solution to downloading and sharing the QR code.
- Discussion of who is/isn’t an authorized rep for adults and children with disabilities.
- The print-and-mail version of the record folded over the QR code, so we redesigned the document.
- Clear instructions for PIN numbers, both written and in the how-to video.
- Plain language error messages to understand the PIN directions

Usability Results Phase III – Mar 2022

March 2022 Listening Sessions

- Feedback from these sessions resulted in pausing the launch to address **concerns related to the application's name** being a deterrent for some people to use the app.
- **In response, OHA worked with the community engagement team and CRRU partners to propose a new name.**
- Community members and partners gave feedback about the new name (MEVC) during listening sessions in English and Spanish.

10 Lessons Learned

1. Use automated testing for accessibility, but also test accessibility with real people
2. Conduct user testing with native assistive technology users whenever possible
3. Accessibility and usability are overlapping and mutually reinforcing
4. Include people with disabilities and people from marginalized communities
5. The modified “Thinking Aloud” interview protocol is an excellent tool for user testing
6. Test your content, too!
7. Test early and often
8. Gift cards are out, paying people fairly for their labor is in!
9. Remote testing is much easier and more equitable for people with disabilities
10. Allow testers with disabilities to determine their own schedules

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Discussion

- Use community engagement to improve equity in government IT
- Use qualitative research to improve both products and relationships
- Engage people in listening sessions and testing throughout the software development lifecycle
- Listen to community members and include them in decision making
- This is health equity work in action.

Q&A