Accessibility Checklist

November 2024

EHRA
HIMSS ELECTRONIC HEALTH RECORD ASSOCIATION

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Introduction

The EHR Association Accessibility Checklist, modeled after the W3C Web Accessibility Initiative's Easy Checks - A First Review of Web Accessibility, is designed to raise awareness and provide guidance for EHR developers in creating software that meets the needs of individuals with disabilities. This checklist presents various scenarios rooted in healthcare settings and emphasizes the importance of considering the human aspect of accessibility when designing EHR products.

While the checklist can be utilized at any stage of the development lifecycle, it is most effective when incorporated during the design phase, ensuring that accessibility is a foundational element rather than an afterthought. By reviewing these scenarios, developers can empathize, identify potential barriers to access, and create health IT solutions that offer equitable experiences for users across a broad spectrum of disabilities. Our goal is to ensure every user is successful.

Common Checks

Scenario - Zoom Resizing Text

"I can't see everything on the screen. I always need to scroll back and forth to see information. This is taking too long!"

Meet Mary Alice, who has a chronic illness and many medical appointments. As she fills out forms on her patient portal to pre-register for her upcoming appointment she finds that she needs to use the zoom feature on her laptop to enlarge the text. Although zooming in on the text allows Mary Alice to complete the pre-registration process independently, it can be time-consuming and may require patience and persistence.

How we can help
Criterion: Zoom

Things to check for
☐ Text is text (semantic text) and not an image
☐ All text actually enlarges
☐ Content is not clipped, truncated, or obscured
☐ Content does not overlap
☐ Interactive elements (e.g. form controls) are visible and usable
☐ Text should resize and reflow to fit the width of the viewport

Why it is important
Browsers allow users to increase font size to enhance its readability. When that happens, the page must still work. It should not create overlapping sections.

Scenario - Image Information

Meet Megan, who cares for her elderly father and strives to stay on top of his healthcare needs by frequently checking his patient portal for updates. After one of her father's appointments, the clinician mentioned that the aftercare instructions would include illustrated examples of exercises to aid his recovery. However, when Megan logged in to view these examples, she encountered a technical issue. The images depicting the exercise positions failed to load, leaving her unable to assist her father with the prescribed exercises.

How we can help
Criterion: Image Alternative Text

Things to check for
□ Images that are functional, like a link or a button, should have alternative text that describes the destination or the function.
□ Complex images like graphs and charts should have short alternative text that describes the type of image and a short summary of the key point. Include the chart type (e.g., line graph), type of data (temperature), and consider supplementing with a link to the raw data for users to access the data.
□ Decorative images do not need alt text. But when in doubt the best decorative images should be hidden from screen readers.

"I depend on Dad's portal to stay informed and able to assist in his care. As a busy mom of three, I need the portal to provide real-time information when I have the opportunity to help."

Why it is important

Alt Text (alternative text) helps users who cannot see the image and allows for screen readers to "read" the image. Alt text is also useful when images will not load. This may occur when users have slow internet access which is an accessibility issue.

Scenario - Page Title

Meet Rachel, who is in charge of regulatory compliance at her organization and must balance federal and state reporting requirements. She also collaborates closely with clinical staff to provide education on quality measures and to make sure reports reflect the care being provided. Rachel often finds that she needs to reference numerous resources to get the full picture of what these different levels of reporting require and has several browser windows and tabs open so she can compare the information. She relies on meaningful, recognizable page titles so she can more easily orient herself.

"It is very difficult to get providers engaged in quality measures when those measures don't seem related to patient care. Being able to connect clinical rationale from regulatory agencies to our outcomes can help show how improving quality improves patient outcomes."

How we can help

Criterion: Page Titles

Things to check for

☐ Is the page title set for the page?
☐ Is the page title unique and explanatory of the page being shown?
☐ Is the page title shown in the window title bar in the browser?

Why it is important

Page titles let users know what page they are on in their browser. This is helpful to anyone with multiple open browser windows, like Mary who may start to do something for her father and need to find it later among her other open tabs. This is also especially important for users who use assistive technology like screen readers or voice control.

Scenario - Headings

"I can't find the information I need among the flood of information."

"My patients complain that I spend more time on the computer than talking to them. I want to spend more time with them than in the EHR."

Meet Sharon, a primary care physician who gets a lot of personal satisfaction from having long-term relationships with her patients, who appreciate the personalized care she provides. Sharon strives to provide the best possible care, and having immediate access to pertinent patient information is crucial for her. Unfortunately, navigating the patient's chart and history often proves challenging, hindering her ability to make informed decisions and engage in meaningful conversations. Her aspiration is to quickly scan the patient's information, enabling her to provide the highest level of care and foster impactful healthcare interactions.

How we can help

Criterion: Heading Structure

Things to check for

☐ All text that looks like a heading is marked as a heading
☐ All text that is marked as a heading actually functions as a heading
☐ The heading hierarchy is meaningful and properly hierarchically nested

Why it is important

Headings help all users organize information by providing a clear page structure. They assist visually impaired users by enabling screen readers to read and navigate content, and they help users with cognitive disabilities by making information easier to follow.

Scenario – Color Contrast

Meet Fran, who works at the front desk of an orthopedist's practice and frequently reviews the schedule throughout the day. As she attempts to book an appointment, she notices a time slot has a note for the provider, but the font color blends seamlessly with the background, making the text unreadable. As a result, she is worried that she is unable to read information regarding the provider's availability. This unexpected hurdle disrupts her flow and leaves her feeling frustrated.

How we can help
Criterion: Color Contrast

Things to check for
☐ Determine contrast issues by viewing the page in grayscale
☐ Confirm the contrast ratio for normal size text is at least 4.5:1. For further information on text sizing review this resource: Understanding Success Criterion 1.4.3: Contrast (Minimum)
☐ Confirm the contrast of text and the background color
☐ Confirm interactive elements such as focus indicators and their background
☐ Check these color contrast checker tools on the Evaluation Tool List

"When I can't read information on the scheduling screen, I worry that I am missing important information and not able to do my job properly."

Why it is important

Good contrast is important for many people with low vision who have reduced contrast acuity. People with color-deficient vision (color blindness) often need good contrast too. Light text on a light background or dark text on a dark background is hard to read. The difference between the luminance of text and the background is the contrast ratio.

*Note: Although this criterion only applies to text, similar issues occur for content presented in charts, graphs, diagrams, and other non-text-based information, which is covered by Success Criterion 1.4.11 Non-Text Contrast.

Scenario – Skip Link

Meet Travis, a member of the hospital's information technology team who is responsible for day-to-day end-user support. Travis has a unique ability to shift gears when interacting with end-users who have various levels of knowledge and experience. In his role, he often references internal web pages related to the hospital's EHR system. Without skip navigation links, he must manually scroll through the webpage to reach the main content, which also makes it difficult for him to quickly navigate to specific sections. This can be time-consuming and frustrating. The addition of skip navigation links would improve Travis's experience and efficiency in his work.

"I am swamped with requests from users. I wish I could get to the content I need to quicker."

How we can help
Criterion: Skip Link

Things to check for
☐ A skip navigation link is available as the first link on the page to move to main content
☐ Repeated blocks of content can be bypassed by skip links
☐ Skip navigation links should only be visible when they receive focus
☐ Skip links are reachable via keyboard
☐ Screen readers pick up the existence of skip links and the skip link is actionable to screen readers
☐ Skip links lead to the intended area

Why it is important
Skip links allow people to quickly navigate to the main content of a webpage, bypassing repetitive elements such as the header and navigation menu. This is helpful to those who use screen readers or have difficulty scrolling or using a mouse. With a skip link, users can easily jump directly to the content they are looking for, improving their overall experience.

Scenario - Keyboard Focus

"I just want to do my job."

Meet Lance, who works in the loading area at a small rural hospital as a receiver in the materials management department. He is responsible for documenting incoming shipments and managing inventory, which means he is constantly entering data into the computer. He has a hand tremor and prefers to use a keyboard over a mouse for data entry. This is because he finds it easier to control the keyboard and minimize the impact of his tremor on his work. There are times when he has to navigate between the mouse and keyboard and that is a challenge for him. He would like to use the keyboard all the time.

How we can help
Criterion: Visible Keyboard Focus

Things to check for
☐ All content can be tabbed to and away from
☐ The tab order follows the reading order
☐ Visual focus is obvious
☐ All content can be used by a keyboard
☐ Image links have a clear focus and can be activated by the keyboard

Why it is important
Many users are not able to use a mouse or touch screen. For example, they may have mobility impairments or sight impairments. People navigating by keyboard or voice need an indication about which element they've moved to. Enabling keyboard access enhances the user experience for everyone. Some users may prefer to navigate using a keyboard. Imagine filling out an address form without being able to tab between fields!

Scenario - Language

Meet Harry, a patient who lives in Canada and whose preferred language is French. Harry uses a screen reader to listen to written discharge instructions which are written in French because his dyslexia makes it hard for him to understand instructions in written form. It is crucial that the screen reader uses the correct French pronunciation so Harry can easily understand the content.

How we can help

Criterion: Language of Page

Things to check for

☐ The default human language is declared using an HTML lang attribute (e.g., <html lang="fr">).

☐ The language attribute has a valid language tag (e.g., "en" for English or "fr" for French).

Why it is important

The intent of this criterion is to ensure that assistive technologies can correctly pronounce text and that browsers can display characters correctly. This helps people with disabilities, including those who are blind, have low vision, or have learning disabilities, to understand the page content.

"It is important that my health information is read in proper French so I can understand it. For example, if my medication dosage is cinq milligrammes, it should be read as such and not 'cinq' with an English pronunciation."

Form Checks

Scenario - Labels

Meet Mary, a medical assistant who wears many hats at her practice. She can be taking vitals for a patient one minute and filling in for a front-desk staff member the next. Mary is friendly, outgoing, and good at multitasking but is frequently interrupted and distracted by the needs of the medical team. She tries to focus as best she can on providing accurate patient documentation for her providers and often has to interact with forms. When those forms have missing labels it can be difficult to determine what they are asking for. This confusion causes delays in her already busy days.

How we can help

Criterion: Form Field Labels

"I have a big impact on the efficient flow in this organization. It's rewarding, but when the tools I am using or other people slow me down, it can be stressful."

Things to check for

☐ All form fields should have persistently visible and programmatically available labels

☐ Ensure that form field labels are always available (do not use helper text inside the form field that disappears when the user accesses the form field or labels on hover that wouldn't be available to voice control users)

☐ Ensure that the labels clearly describe the context of the form field

Why it is important

Form field labels that are persistently visible, programmatically correct, and in good proximity to the form field they describe help everyone understand the context of what they are being asked when completing a form. They are also vitally important to those who use assistive technology like screen readers or voice control and for people with low dexterity who use a mouse. Associating a visual label with the form field creates a larger click target, which is especially important for radio buttons and checkboxes.

Scenario - Required Fields

Meet Carolyn, a nurse working at a 300-bed nonprofit hospital. She must quickly and efficiently shift priorities based on overall patient load, changes to individual patient acuity, staffing, and planned and unplanned procedures. Carolyn is a good communicator with clinical and non-clinical staff, as well as with patients and their families. When documenting care or discharging a patient, she often has to interact with forms that have required fields. If those fields aren't consistently marked, it adds time to her work by forcing her to figure out which fields are required or go back and correct missed fields after submission errors make them apparent. This all adds frustration and confusion and causes delays in her already busy days.

How we can help
Criterion: Required Fields

Things to check for
☐ Ensure that required fields are both programmatically and visibly marked as required in a persistent way (e.g., placeholder labels that disappear when a user clicks into the field or labels that are only visible on hover and are therefore not accessible to all users).
☐ If fields are marked as "optional" versus "required", ensure there is messaging to say "all fields are required unless marked otherwise".
☐ Ensure consistent patterns for required fields for intuitive understanding (e.g., if you mark fields as required in one section/workflow/integrated product, don't shift the user to a workflow where all are required except those marked as optional).
☐ Ensure error messages provide understandable instructions to guide users in resolving issues.

"I just want to get through the form and get back to my patients. I pride myself on making sure each patient and family feels like they are getting the care and attention they need. I get frustrated when the computer delays me from meaningful interactions with my patients."

Why it is important

Visually indicating required fields is important for everyone to know what parts of a form they are required to complete. This helps workflow completion and aids in avoiding errors.

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