

High-level accessibility review – BTAA (PubMed Platform)

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PubMed Platform

Summary

Top 3 problems for the PubMed Platform

This assessment covers portions of the PubMed Platform. The assessment revealed moderate problems with screen reader compatibility, resulting in screen reader users rarely missing critical information needed to understand content and operate features.

1. **Non-Text Contrast** – The visible focus indicator on nearly all focusable elements does not have sufficient contrast to clearly identify the in-focus control.
2. **Programmatic Labels** – On some pages, there are a handful of buttons that all perform different tasks but share the same programmatic name without additional context to help a user identify the unique purpose.
3. **Roles** – On some pages, there are buttons and/or links that either do not contain a valid role, or are missing a required attribute (such as href) to identify and operate as a link.

Accessibility findings

Project wide issues

The issues presented in this section were identified in multiple pages and are recorded here to avoid repetition. These are applicable to each screen. Due to particularities, similar issues are still reported on a page per page basis, where applicable.

Automated findings using Axe

Issues found through automated testing come from the Axe plugin, an open source accessibility testing tool that is available for Chrome, Firefox and Edge. Details here: <https://www.deque.com/products/axe/>.

1. **SC 1.4.3 AA** – The blue links in COVID-19 Information area are low in contrast. Foreground #0071BC against background #F4E3DB results in a 4.1:1 contrast ratio.
2. **SC 2.4.4 A** – The ‘Twitter’, ‘Facebook’ and ‘YouTube’ links in the footer share the same link name but have different destinations with no context to differentiate between same-named links.

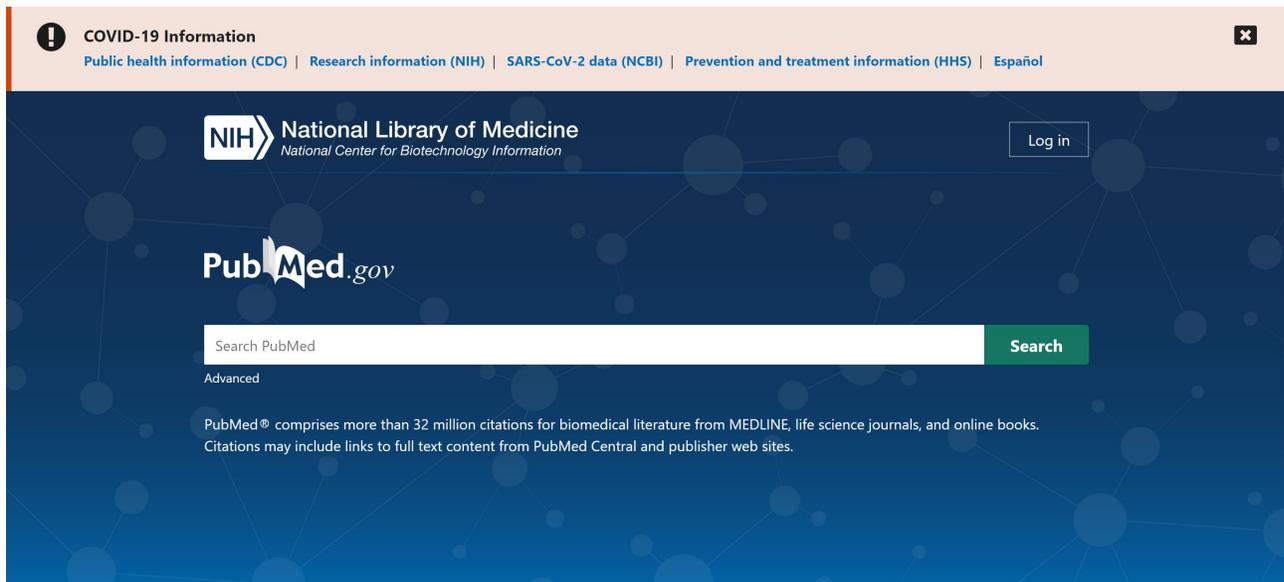
Additional manual findings using NVDA screen reader

1. **SC 1.4.11 AA** – The visible focus indicator for nearly all elements is low in contrast. For example: Primary focus color #AEBOB5 against an adjacent background #FFFFFF results in a 2.2:1 contrast ratio.
2. **SC 3.1.2 AA** – The change in language for the text “Español” is not programmatically defined.
3. **SC 1.1.1 A** – The “NCBI Logo” linked image is missing vital text in its programmatic link name.
4. **SC 1.3.1 A** – The “Follow NCBI” content acts as a heading but is not marked up or semantically identified as a heading.

1. PubMed Home

Source: <https://pubmed.ncbi.nlm.nih.gov/>

Test case: Test homepage, including searchbox near the top of the page, images, links, reading order, etc.
From the initial page, search for: infantile hemangioma (should autofill/complete)



Automated findings using Axe

1. No Issues

Additional manual findings using NVDA screen reader

1. **SC 4.1.2 A** – The “See more trending articles” link is missing an href attribute. As a result, it is not included in the natural tab order or identified as a link.
2. **SC 1.4.11 AA** – The ‘selected’ color change that is applied to a selected auto-complete result is low in contrast. Primary boundary color #E1F3F8 against an adjacent background #FFFFFF results in a 1.1:1 contrast ratio.

2. PubMed Search Results

Source: <https://pubmed.ncbi.nlm.nih.gov/?term=infantile+hemangioma>

Test case: Test search results page from above search, including text, links, any images/graphs, checkboxes, reading order, ability to get to next page of results, etc.

Test display options and limits on search results page. Can one change format from summary to abstract (display options between search box and results list) and select last 5 years from “publication dates” and select “show additional filters” on the left.

The screenshot shows the PubMed search results page for the query 'infantile hemangioma'. At the top, there is a navigation bar with COVID-19 information and various research links. Below that is the NIH logo and the National Library of Medicine name. The search bar contains the text 'infantile hemangioma' and a 'Search' button. Below the search bar are options for 'Advanced', 'Create alert', and 'Create RSS'. There are also buttons for 'Save', 'Email', and 'Send to'. The results are sorted by 'Best match' and there is a 'Display options' button. On the left, there are filters for 'MY NCBI FILTERS', 'RESULTS BY YEAR' (with a graph showing results from 1945 to 2021), and 'TEXT AVAILABILITY' (with options for 'Abstract' and 'Free full text'). The main results list shows two entries, each with a checkbox, a title, a list of authors, a citation, and a 'Share' button. The first entry is 'beta-blockers in the treatment of periorbital infantile hemangioma' by Al-Haddad C, El Salloukh NA, El Moussawi Z. The second entry is 'Laser treatment of infantile hemangioma: A systematic review' by Chinnadurai S, Sathe NA, Surawicz T.

Automated findings using Axe

1. No Issues

Additional manual findings using NVDA screen reader

1. **SC 1.4.12 AA** – When text spacing rules are applied the “Custom Range” radio button text is obscured.
2. **SC 2.4.6 AA** – All “Cite” and “Share” buttons share the same programmatic label but perform different actions. The unique purpose of the buttons is not programmatically defined.
3. **SC 2.5.3 A** – The “Send to” control reads “More Actions”.
4. **SC 1.3.1 A** – The checkboxes on the left-hand column are not associated with their respective group label.
5. **SC 2.4.6 AA** – All result checkboxes read “Select search result to email or save”, sharing the same programmatic label but performing different actions. The unique purpose of each button is not programmatically defined.
6. **SC 2.1.1 A** – The slider controls cannot be operated with keyboard alone.
7. **SC 1.4.11 AA** – The lower area of the Results By Year gradient is low in contrast. The color #1EB194 against an adjacent color #FFFFFF results in a 2.7:1 contrast ratio.
8. **SC 1.4.11 AA** – The unselected areas of the Results By Year slider is low in contrast. Primary color #D9D9D9 against an adjacent color #FFFFFF results in a 1.4:1 contrast ratio.
9. **SC 4.1.3 AA** – When search results are updating, the status message informing the user the results are updating, and the updated number of results is not announced.
10. **SC 4.1.2 A** – In the ‘Additional Filters’ modal, the selected filter category, e.g. “Article Type”, is missing its pressed / selected state.
11. **SC 4.1.2 A** – In the “Additional Filters’ modal, the filter categories are missing an href attribute.

3. PubMed – Individual Search Result

Source: <https://pubmed.ncbi.nlm.nih.gov/30619747/>

Test case: Test an individual search result page: <https://pubmed.ncbi.nlm.nih.gov/30619747/>

The screenshot shows the PubMed search result page. At the top, there is a COVID-19 information banner with links to CDC, NIH, NCBI, HHS, and Español. Below this is the NIH National Library of Medicine logo and a search bar. The search bar contains the text 'Search PubMed' and a 'Search' button. Below the search bar are buttons for 'Save', 'Email', 'Send to', and 'Display options'. The main content area displays the article title 'Topical Timolol Vs. Oral Propranolol for the Treatment of Superficial Infantile Hemangiomas' and the authors 'Hai Wei Wu^{1,2}, Xuan Wang², Ling Zhang¹, Jia Wei Zheng¹, Chao Liu¹, Yan An Wang¹'. There are also buttons for 'Cite', 'Favorites', and 'SHARE'.

Automated findings using Axe

1. No Issues.

Additional manual findings using NVDA screen reader

1. **SC 1.1.1 A** – The “Open Access Frontiers” linked image is missing vital text in its alternative description.
2. **SC 2.5.3 A** – The “Send to” control reads “More Actions”.
3. **SC 2.4.1 A** – The same-page skip links in ‘Page Navigation’, e.g., “Abstract” do not function as expected. The browser viewport is moved but the programmatic focus does not.
4. **SC 4.1.2 A** – The “See all similar articles”, “See all ‘Cited by’ articles” links are missing an href attribute.
5. **SC 2.4.3 A** – When the ‘Figures’ modal is open, a keyboard user can tab out of the modal.
6. **SC 1.3.2 A** – When the ‘Figures’ modal is open, a screen reader user can navigate to content outside the modal.
7. **SC 2.4.6 AA** – The “expand” button name is not sufficiently descriptive for the purpose of the control.
8. **SC 2.5.3 A** – The “Front Oncol” control reads “Frontiers in Oncology”.

4. PubMed – Advanced Search

Source: <https://www.ncbi.nlm.nih.gov/pubmed/advanced>

Test case: Test the advanced search page: <https://www.ncbi.nlm.nih.gov/pubmed/advanced>

Test search builder by entering: infantile -> ADD (to query box), then: hemangioma -> ADD

Test history and search details section of Advanced Search

The screenshot shows the PubMed Advanced Search Builder interface. At the top, there is a navigation bar with a COVID-19 Information banner and links to Public health information (CDC), Research information (NIH), SARS-CoV-2 data (NCBI), Prevention and treatment information (HHS), and Español. Below this is the NIH National Library of Medicine logo and a Log in button. The main content area is titled "PubMed Advanced Search Builder" and features a "Add terms to the query box" section with a dropdown menu set to "All Fields" and an input field for "Enter a search term". To the right of this input field are "ADD" and "Show Index" buttons. Below this is a "Query box" with an input field for "Enter / edit your search query here" and a "Search" button. At the bottom, there is a "History and Search Details" section with the text "Your history is currently empty! As you use PubMed your recent searches will appear here."

Automated findings using Axe

1. **No Issues.**

Additional manual findings using NVDA screen reader

1. **SC 1.4.4 AA** – At 200% zoom, the 'Time' column in the table is no longer available.
2. **SC 1.4.10 AA** – When a reflow viewport is applied, the 'Time' column in the table is no longer available.
3. **SC 4.1.2 A** – The second 'clear query box' control is missing a button role.
4. **SC 4.1.2 A** – The 'actions' button in the "History and Search Details" section does not include expanded / collapsed state for the accordion-type function.
5. **SC 2.5.3 A** – In the "History and Search Details" section, the 'Results' linked control e.g., "874" does not read its visual label but only "Navigate to results for search query".