# High–level accessibility review – BTAA
## (PubMed Platform)

**Primary Point of Contact**
John Truong
Project Manager

Deque Systems, Inc.
Web: www.deque.com
Email: john.truong@deque.com

**April 30, 2021**

deque

# High–level accessibility review – BTAA (PubMed Platform)

## Contents

# 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 #AEB0B5 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)
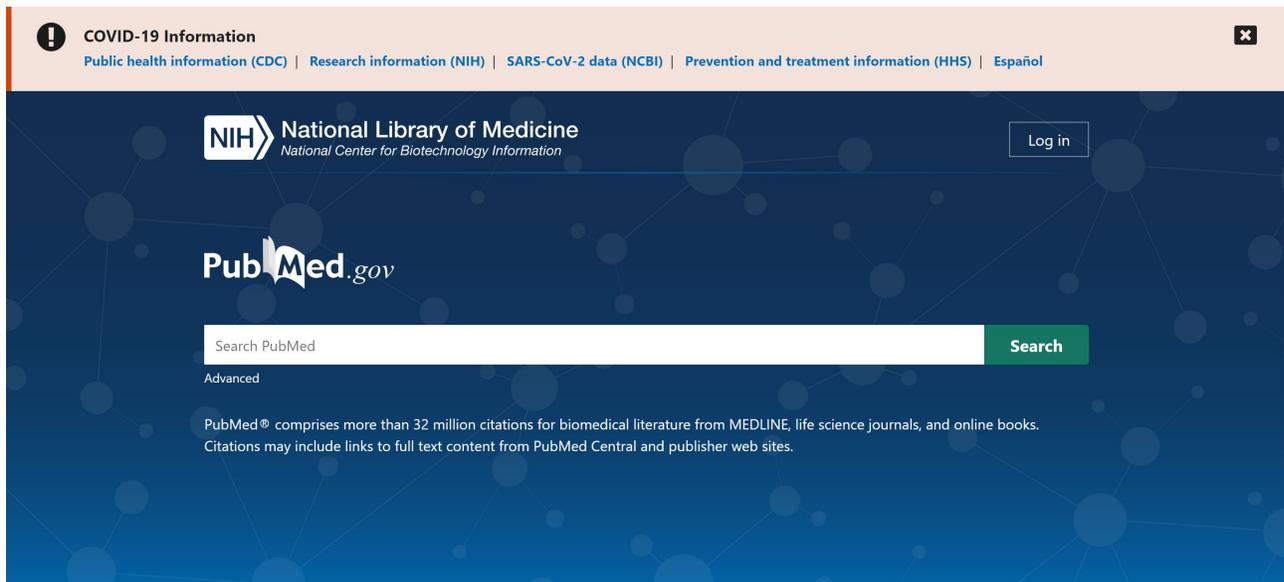


**Automated findings using Axe**
1. **No Issues**

**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.



### 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/



**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



**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".