



# High-Level Accessibility Evaluation (WCAG 2.1)

Ovid Medline

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BTAA-Library Accessibility Alliance

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## SUMMARY

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This report reflects the findings of a high-level assessment of the Ovid Medline platform for its conformance with the W3C Web Content Accessibility Guidelines version 2.1 (WCAG 2.1).

There are very few WCAG 2.1 compliance issues with Ovid Medline and they are very minor overall with the most pressing issue being with ARIA implementation and a few color issues. Below are the most critical issues to address to improve system compliance.

## Top Findings

1. **Perception:** The main problem with the accessibility is the improper use of ARIA and semantic HTML elements, particularly in the navigation. There are missing roles, roles that are not contained by proper parents, and HTML elements that are improperly nested. These can cause significant issues with screen readers and keyboard navigation.
2. **Compatibility:** Another major issue is compatibility, seemingly caused by ARIA labels and several instances of nested controls across the site. This will cause issues with screen readers and keyboard navigation. Please refer to the [WAI-ARIA Authoring Best Practices Guide](#) for examples of proper aria implementation across a variety of use cases.
3. **Color:** There are a few minor color issues that were identified. There are some links that are only identifiable using color that do not meet the minimum 4.5:1 contrast ratio and there should be an additional way of identifying the links even without color, such as, underlining and making sure they meet 4.5:1 contrast with the background and 3:1 contrast with surrounding text.

## Best Practices

- ◆ Form elements should have a visible label.
- ◆ All page content should be contained by landmarks.
- ◆ ARIA role should be appropriate for the element.
- ◆ Heading levels should only increase by one.

## ACCESSIBILITY FINDINGS

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This report was conducted against the Ovid MedlinePlatform and covers a selection of pages and features that were to be tested as a representative sample of the database's conformance to the WCAG 2.1 AA standards.

The resource was reviewed using a combination of manual and automatic review tools and assistive technologies, including the WAVE Accessibility Assessment tool, Axe Accessibility Assessment tool, WCAG Color Contrast Checker, and NVDA screen reader. PDF content was tested against Section 508 requirements using Adobe Acrobat's accessibility tools and manual analysis. All problems identified by automatic tools were verified manually. This evaluation was performed using Firefox on Windows 11.

Below are the errors revealed during the accessibility evaluation of the Ovid Medline platform. Each result shows a summary of accessibility issues and the reason it was flagged. Screenshots are included.

## 1. Initial Interface

**Test Case:** After choosing both Ovid Medline(R) resources, test the initial interface/landing page to ensure menus, sub-menus, search box, images, icons, etc. are accessible. <https://ovidsp-dc2-ovid-com.proxy.lib.umich.edu/ovid-new-a/ovidweb.cgi>

The screenshot shows the Ovid Medline search interface. At the top, there's a navigation bar with links for 'My Account', 'Ask a UM Librarian', 'Support & Training', 'LIBRARY', 'Help', 'Feedback', and 'Log Off'. Below the navigation bar is a search bar with dropdowns for 'Search', 'Journals', 'Books', 'My Workspace', 'EBP Tools', and 'ACC CardioSource Plus'. A 'Search History (0)' section is present, along with buttons for 'Save', 'Remove', 'Combine with: AND', and 'OR'. Below the search bar are buttons for 'Save All', 'Edit', 'Create RSS', 'Create Auto-Alert', and 'View Saved'. A 'Share Search History' button is also available. The main search area includes tabs for 'Basic Search', 'Find Citation', 'Search Tools', 'Search Fields', 'Advanced Search' (which is selected), and 'Multi-Field Search'. Under 'Advanced Search', there's a note about 1 resource selected and a link to 'Hide' or 'Change'. A search input field contains the query '① Ovid MEDLINE(R) ALL 1946 to February 16, 2024'. Below the input field are radio buttons for 'Keyword', 'Author', 'Title', and 'Journal', with 'Keyword' selected. There are checkboxes for 'Include Multimedia' and 'Map Term to Subject Heading', with the latter checked. A 'Limits' section allows filtering by 'Abstracts', 'Structured Abstracts', 'English Language', 'No Language Specified', 'Review Articles', 'Humans', 'Clinically Useful Journals (JMLA July 2023)', 'Pharmacologic Actions', 'COVID-19', and 'Remove Preprint Records'. It also includes a 'Publication Year' range selector and buttons for 'Additional Limits' and 'Edit Limits'. At the bottom, there are language links for English, Français, Italiano, Deutsch, 日本語, 繁體中文, Español, 简体中文, and 한국어, along with links for 'About Us', 'Contact Us', 'Privacy Policy', 'Terms of Use', and 'Manage Cookie Preferences'. The footer notes '© 2024 Ovid Technologies, Inc. All rights reserved. | OvidUI\_05.11.00.008'.

**SC 1.3.1:** Certain ARIA roles must contain particular children.

**Location(s):**

- <ul class="top" role="menu">

**Reason flagged:**

- Element has children which are not allowed: li[aria-current], li[tabindex]
- Element uses aria-busy="true" while showing a loader

**SC 1.3.1:** Certain ARIA roles must be contained by particular parents.

**Location (s):**

- <li class="header-lists" role="menuitem">

**Reason flagged:**

- Required ARIA parents role not present: menu, menubar, group

**SC 1.3.1:** <ul> and <ol> must only directly contain <li>, <script>, or <template> elements.

**Location (s):**

- <ul class="header-list" id="headerList">

**Reason flagged:**

- List element has direct children that are not allowed: [role=menuitem]

**SC 1.3.1:** <li> elements must be contained in a <ul> or <ol>.

**Location(s):**

- <li aria-current="page" class="current search"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=search&Main+Search+Page=1" class="tlink">Search</a></li>
- <li class="journals"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=journals&C=yrovft&Jump+to+Browse=yrovft&New+Database=S.dbListAll%7cSingle%7c26" class="tlink">Journals</a></li>
- <li class="books"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=books&C=books&Jump+to+Browse=books&New+Database=S.dbListAll%7cSingle%7c3" class="tlink">Books</a></li>
- <li class="workspace"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=workspace.projects&Projects+Main+Page=1" class="tlink">My Workspace</a></li>
- <li class="jbi">
- <li class="remote"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&New+Database=S.dbListAll%7cSingle%7c6&C=\_main&pcodes=acccsp" class="tlink">ACC CardioSource Plus</a></li>

**Reason flagged:**

- List item does not have a <ul>, <ol> parent element without a role, or a role="list"

**SC 4.1.2:** ARIA attributes must conform to valid names.

**Location(s):**

- <div class="msp-ovidclassic-box clearfix" id="ovidclassic" role="tabpanel" aria-labeledby="ovidclassic-tab">

**Reason flagged:**

- Invalid ARIA attribute name: aria-labeledby

**SC 4.1.2:** Interactive controls must not be nested.

**Location(s):**

- <li role="tab" tabindex="-1" id="easy-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=easy" data-ual-handler--211366781="true">Basic Search</a></li>
- <li role="tab" tabindex="-1" id="findcite-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=findcite" data-ual-handler--304534413="true">Find Citation</a></li>
- <li role="tab" tabindex="-1" id="subjsrch-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=subjsrch" data-ual-handler--925654691="true">Search Tools</a></li>
- <li role="tab" tabindex="-1" id="fields-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=fields" data-ual-handler--178063802="true">Search Fields</a></li>
- <li role="tab" tabindex="-1" id="multifield-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=multifield" data-ual-handler--1463215170="true">Multi-Field Search</a></li>

**Reason flagged:**

- Element has focusable descendants

## 2. Search Results

**Test Case:** From the initial landing page, conduct a basic search for: "Acetaminophen." Test search results page, including filters/refine search. Under "Limits", select "English language." Under "Filter By", Sort by "Past 3 years."

The screenshot shows the Ovid MEDLINE search interface. At the top, there's a navigation bar with links for My Account, Ask a Librarian, Support & Training, and Log Off. Below the navigation is a search bar with tabs for Search, Journals, Books, My Workspace, EBP Tools, and ACC CardioSource Plus. A "Search History (4)" dropdown is visible. The main search area has a search bar with placeholder "Enter topic or question" and a "Search" button. Below the search bar are checkboxes for "Include Multimedia" and "Include Related Terms". The "Limits" section is expanded, showing filters for Abstracts, Structured Abstracts, English Language (selected), No Language Specified, Review Articles, Humans, Clinically Useful Journals (JMLA July 2023), Pharmacologic Actions, COVID-19, and Remove Preprint Records. It also includes fields for "Publication Year" with dropdown menus and buttons for "Additional Limits" and "Edit Limits". Below the search area is a "Search Information" sidebar with sections for "Search terms used" (Acetaminophen), "Search Returned" (Filters Applied), "Sort By" (SCORE selected), "Customize Display", and "Filter By". The main results list shows two entries: 1. Acetaminophen for the patent ductus arteriosus: has safety been adequately demonstrated? [Review] and 2. Comparing the efficacy of intravenous morphine versus ibuprofen or the combination of ibuprofen and acetaminophen in patients with closed limb fractures: a randomized clinical trial.

**SC 1.3.1:** Certain ARIA roles must contain particular children.

**Location(s):**

- <ul class="top" role="menu">

**Reason flagged:**

- Element has children which are not allowed: li[aria-current], li[tabindex]
- Element uses aria-busy="true" while showing a loader

**SC 1.3.1:** Certain ARIA roles must be contained by particular parents.

**Location(s):**

- <li class="header-lists" role="menuitem">

**Reason flagged:**

- Required ARIA parents role not present: menu, menubar, group

**SC 1.3.1:** <ul> and <ol> must only directly contain <li>, <script>, or <template> elements.

**Location(s):**

- <ul class="header-list" id="headerList">
- <ul id="filterby-filters">

**Reason flagged:**

- List element has direct children that are not allowed: [role=menuitem]
- List element has direct children that are not allowed: a

**SC 1.3.1:** <li> elements must be contained in a <ul> or <ol>.

**Location(s):**

- <li aria-current="page" class="current search"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=search&Main+Search+Page=1" class="tlink">Search</a></li>
- <li class="journals"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=journals&C=yrovft&Jump+to+Browse=yrovft&New+Database=S.dbListAll%7cSingle%7c26" class="tlink">Journals</a></li>
- <li class="books"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=books&C=books&Jump+to+Browse=books&New+Database=S.dbListAll%7cSingle%7c3" class="tlink">Books</a></li>
- <li class="workspace"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=workspace.projects&Projects+Main+Page=1" class="tlink">My Workspace</a></li>
- <li class="jbi">
- <li class="remote"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&New+Database=S.dbListAll%7cSingle%7c6&C=\_main&pcodes=acccsp" class="tlink">ACC CardioSource Plus</a></li>

**Reason flagged:**

- List item does not have a <ul>, <ol> parent element without a role, or a role="list"

**SC 1.4.3:** Elements must meet minimum color contrast ratio thresholds.

**Location(s):**

- <a class="tlink view\_selected\_link tlinkdisabled" role="button" title="Add selected to Search History" href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&View+Selected+Results=1" tabindex="-1" aria-hidden="true"><span class="wk-icon-plus-circle"></span>&ampnbspKeep Selected</a>
- <a class="tlink view\_selected\_link tlinkdisabled" role="button" title="Add selected to Search History" href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&View+Selected+Results=1" tabindex="-1" aria-hidden="true"><span class="wk-icon-plus-circle"></span>&ampnbspKeep Selected</a>

**Reason flagged:**

- Element has insufficient color contrast of 2.4 (foreground color: #80adc9, background color: #ffffff, font size: 10.5pt (14px), font weight: normal). Expected contrast ratio of 4.5:1

**SC 4.1.2:** Elements must only use supported ARIA attributes.

**Location(s):**

- <div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-widget ovid-widget-search\_information" id="search\_information" role="application" aria-selected="false" draggable="true" tabindex="0" aria-labelledby="search\_information-instruction" onkeydown="dragElement(event)" aria-grabbed="false" aria-dropeffect="move">
- <div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-widget ovid-widget-filter\_by" id="filter\_by" role="application" aria-selected="false" draggable="true" tabindex="0" aria-labelledby="filter\_by-instruction" onkeydown="dragElement(event)" aria-grabbed="false" aria-dropeffect="move">
- <span class="filters-inactive browse-journal-subject-selected" aria-selected="true">All Stars</span>
- <div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-widget ovid-widget-my\_projects" id="my\_projects" role="application" aria-selected="false" draggable="true" tabindex="0" aria-labelledby="my\_projects-instruction" onkeydown="dragElement(event)" aria-grabbed="false" aria-dropeffect="move">
- <div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-widget ovid-widget-JBI\_Tools\_Widgets" id="JBI\_Tools\_Widgets" role="application" aria-selected="false" draggable="true" tabindex="0" aria-labelledby="JBI\_Tools\_Widgets-instruction" onkeydown="dragElement(event)" aria-grabbed="false" aria-dropeffect="move">

**Reason flagged:**

- ARIA attribute is not allowed: aria-selected="false"

**SC 4.1.2:** Elements must only use permitted ARIA attributes.

**Location(s):**

- <span class="filter-chevron-icon" aria-label="Specific Year Range" tabindex="-1"></span>

**Reason flagged:**

- aria-label attribute cannot be used on a span with no valid role attribute.

**SC 4.1.2:** ARIA attributes must conform to valid names.

**Location(s):**

- <div class="msp-ovidclassic-box clearfix" id="ovidclassic" role="tabpanel" aria-labeledby="ovidclassic-tab">
- <a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&RT+Widget+Options=RT" role="button" tabindex="0" aria-labeledby="options-label" class="wk-custom-text-button" data-ual-handler--1622985963="true">

**Reason flagged:**

- Invalid ARIA attribute name: aria-labeledby

**SC 4.1.2:** Interactive controls must not be nested.

**Location(s):**

- <li role="tab" tabindex="-1" id="easy-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=easy" data-ual-handler--211366781="true">Basic Search</a></li>
- <li role="tab" tabindex="-1" id="findcite-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=findcite" data-ual-handler--304534413="true">Find Citation</a></li>
- <li role="tab" tabindex="-1" id="subjsrch-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=subjsrch" data-ual-handler--925654691="true">Search Tools</a></li>
- <li role="tab" tabindex="-1" id="fields-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=fields" data-ual-handler--178063802="true">Search Fields</a></li>
- <li role="tab" tabindex="-1" id="multifield-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=multifield" data-ual-handler--1463215170="true">Multi-Field Search</a></li>

**Reason flagged:**

- Element has focusable descendants

## 3. Individual Results

**Test Case:** Test individual search result landing page & test actual document (PDF).

The screenshot shows a search results page for 'Acetaminophen for the patent ductus arteriosus: has safety been adequately demonstrated? [Review]'. The page includes a header with navigation links (Search, Journals, Books, My Workspace, EBP Tools, ACC CardioSource Plus), a search bar, and a sidebar with tools like Cite, Find Similar, and Get It.

**Search Results:**

1 of 8971 Results Go to result: 1 Go Keep Selected Next >

**Details:**

Relevance: \*\*\*\*\*  
Unique Identifier: 37169914  
Title: Acetaminophen for the patent ductus arteriosus: has safety been adequately demonstrated? [Review]  
Digital Object Identifier: <https://dx.doi.org.proxy.lib.umich.edu/10.1038/s4137...>  
Source: Journal of Perinatology. 43(10):1230-1237, 2023 10.  
Abbreviated Source: J Perinatol. 43(10):1230-1237, 2023 10.  
Version ID: 1  
Record Owner: From MEDLINE, a database of the U.S. National Library of Medicine.  
Status: MEDLINE  
Authors: Wright CJ; McCuller DJ; Mitra S; Jensen EA  
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NLM Journal Name: Journal of perinatology : official journal of the California Perinatal Association  
Publishing Model: Journal available in: Print-Electronic  
Citation processed from: Internet  
NLM Journal Code: jfp, 8501884  
ISO Journal Abbreviation: J Perinatol  
PMC Identifier: <https://www.ncbi.nlm.nih.gov.proxy.lib.umich.edu/pmc...>  
Journal Subset: Index Medicus  
Country of Publication: United States  
MeSH Subject Headings: Infant, Newborn  
Humans  
Ductus Arteriosus, Patent / dt [Drug Therapy]  
"Ductus Arteriosus, Patent"  
Acetaminophen / tu [Therapeutic Use]  
Indomethacin  
Infant, Low Birth Weight  
Ibuprofen / tu [Therapeutic Use]  
Cytochrome P-450 CYP2E1  
Infant, Extremely Premature  
Abstract: Patent ductus arteriosus (PDA) is the most common cardiovascular condition diagnosed in premature infants. Acetaminophen was first proposed as a potential treatment for PDA in 2011. Since that time acetaminophen use among extremely preterm neonates has increased substantially. The limited available data demonstrate that acetaminophen reduces PDA without evident hepatotoxicity. These findings have led some to suggest that acetaminophen is a safe and effective therapy for PDA closure. However, the lack of apparent hepatotoxicity is problematic. Acetaminophen-induced cellular damage is due to CYP2E1 derived metabolites, and hepatocyte CYP2E1 expression is low in the fetal and early postnatal period. In view of this, preclinical and clinical research supports the hypothesis that the lung which expresses high levels of CYP2E1 during fetal and early postnatal development, may be particularly susceptible to acetaminophen induced toxicity. Despite these emerging data, the true potential pulmonary risks and benefits of acetaminophen for PDA closure are largely unknown. The available clinical studies in are marked by significant weakness, including low sample sizes and minimal evaluation of extremely preterm infants.

**SC 1.3.1:** Certain ARIA roles must contain particular children.

**Location(s):**

- <ul class="top" role="menu">

**Reason flagged:**

- Element has children which are not allowed: li[aria-current], li[tabindex]
- Element uses aria-busy="true" while showing a loader

**SC 1.3.1:** Certain ARIA roles must be contained by particular parents.

**Location(s):**

- <li class="header-lists" role="menuitem">

**Reason flagged:**

- Required ARIA parents role not present: menu, menubar, group

**SC 1.3.1:** <ul> and <ol> must only directly contain <li>, <script>, or <template> elements.

**Location(s):**

- <ul class="header-list" id="headerList">

**Reason flagged:**

- List element has direct children that are not allowed: [role=menuitem]

**SC 1.3.1:** <li> elements must be contained in a <ul> or <ol>.

**Location(s):**

- <li aria-current="page" class="current search"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=search&Main+Search+Page=1" class="tlink">Search</a></li>
- <li class="journals"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=journals&C=yrovft&Jump+to+Browse=yrovft&New+Database=S.dbListAll%7cSingle%7c26" class="tlink">Journals</a></li>
- <li class="books"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=books&C=books&Jump+to+Browse=books&New+Database=S.dbListAll%7cSingle%7c3" class="tlink">Books</a></li>
- <li class="workspace"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=workspace.projects&Projects+Main+Page=1" class="tlink">My Workspace</a></li>
- <li class="jbi">
- <li class="remote"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&New+Database=S.dbListAll%7cSingle%7c6&C=\_main&pcodes=acccsp" class="tlink">ACC CardioSource Plus</a></li>

**Reason flagged:**

- List item does not have a <ul>, <ol> parent element without a role, or a role="list"

**SC 1.4.1:** Links must be distinguishable without relying on color.

**Location(s):**

- <a href="https://www.ncbi.nlm.nih.gov.proxy.lib.umich.edu/pubmed/33759579" title="https://www.ncbi.nlm.nih.gov.proxy.lib.umich.edu/pubmed/33759579" target="\_blank" class="bibrecord-extlink">
- <a href="https://www.ncbi.nlm.nih.gov.proxy.lib.umich.edu/pubmed/34585971" title="https://www.ncbi.nlm.nih.gov.proxy.lib.umich.edu/pubmed/34585971" target="\_blank" class="bibrecord-extlink">

**Reason flagged:**

- The link has insufficient color contrast of 1.7:1 with the surrounding text. (Minimum contrast is 3:1, link text: #005b92, surrounding text: #353535)
- The link has no styling (such as underline) to distinguish it from the surrounding text

**SC 1.4.3:** Elements must meet minimum color contrast ratio thresholds.

**Location(s):**

- <a class="tlink view\_selected\_link tlinkdisabled" role="button" title="Add selected to Search History" href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&View+S+elected+Results=1" tabindex="-1" aria-hidden="true"><span class="wk-icon-plus-circle"></span>&ampnbspKeep Selected</a>
- <a class="tlink view\_selected\_link tlinkdisabled" role="button" title="Add selected to Search History" href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&View+S+elected+Results=1" tabindex="-1" aria-hidden="true"><span class="wk-icon-plus-circle"></span>&ampnbspKeep Selected</a>

**Reason flagged:**

- Element has insufficient color contrast of 2.4 (foreground color: #80adc9, background color: #ffffff, font size: 10.5pt (14px), font weight: normal). Expected contrast ratio of 4.5:1

**SC 4.1.2:** Interactive controls must not be nested.

**Location(s):**

- <button type="button" class="wk-button wk-button-text wk-button-icon-left wk-button-small">

**Reason flagged:**

- Element has focusable descendants

**PDF Document Analysis:**

<b>PDF Area Assessed</b>	<b>Failed Issues</b>
<b>Document</b>	Tagged PDF Title
<b>Page Content</b>	Tagged Content Tagged Annotations Tab Order
<b>Forms</b>	<i>None</i>
<b>Alternate Text</b>	Figures Alt Text Nested Alt Text Associated with Content Hides Annotation Other Elements Alt Text
<b>Tables</b>	Rows TH and TD Headers Regularity Summary (skipped)
<b>Lists</b>	List Items L1 and Lbody
<b>Headings</b>	Appropriate Nesting

## 4. Advanced Search

**Test Case:** Test “Advanced Search” page using: “Acetaminophen.” Then select “Acetaminophen” and “Auto-Explode.” Choose “Blood” from Subheadings Nodes.

The screenshot shows the Ovid Medline Advanced Search interface. At the top, there are tabs for Basic Search, Find Citation, Search Tools, Search Fields, Advanced Search (which is selected), and Multi-Field Search. Below these tabs, it says "1 resource selected" and shows a search history entry: "Ovid MEDLINE(R) ALL 1946 to February 16, 2024". There are radio buttons for Keyword (selected), Author, Title, and Journal. A search input field contains "Enter keyword or phrase (\* or \$ for truncation)". To the right of the input field are "Search" and "Term Finder" buttons. Below the input field are checkboxes for "Include Multimedia" and "Map Term to Subject Heading", with the latter checked. Under "Limits", there are three columns of checkboxes: Abstracts, Structured Abstracts, English Language; No Language Specified, Review Articles, Humans; Clinically Useful Journals (JMLA July 2023), Pharmacologic Actions, Remove Preprint Records; and COVID-19. Below these are dropdown menus for "Publication Year" and buttons for "Additional Limits" and "Edit Limits".

At the bottom, there is a search results summary. It includes fields for "Search Information" (You searched: exp Acetaminophen/bf[Blood]), "Filter By" (Selected Only (0)), and "Sort By" (All Years). The results table has one row, labeled "1.", with the title "Short-Term Safety of Repeated Acetaminophen Use in Patients With Compensated Cirrhosis.". The result details include authors (McGill MR, James LP, McCullough SS, Moran JH, Mathews SE, Peterson EC, Fleming DP, Tripod ME, Vazquez JH, Kennon-McGill S, Spencer HJ, Dranoff JA), journal ("Hepatology Communications. 6(2):361-373, 2022 02"), and a digital object identifier (<https://dx.doi.org.proxy.lib.umich.edu/10.1002/hep4...>). There are also links for "Abstract Reference", "Complete Reference", "Find Similar", "Find Citing Articles", "Ovid Full Text →", and two "Get It" buttons. At the bottom of the results table are buttons for "Abstract", "Article as PDF (738KB)", "Cite", "+ My Projects", and "+ Annotate".

**SC 1.3.1:** Certain ARIA roles must contain particular children.

**Location(s):**

- <ul class="top" role="menu">

**Reason flagged:**

- Element has children which are not allowed: li[aria-current], li[tabindex]
- Element uses aria-busy="true" while showing a loader

**SC 1.3.1:** Certain ARIA roles must be contained by particular parents.

**Location(s):**

- <li class="header-lists" role="menuitem">

**Reason flagged:**

- Required ARIA parents role not present: menu, menubar, group

**SC 1.3.1:** <ul> and <ol> must only directly contain <li>, <script>, or <template> elements.

**Location(s):**

- <ul class="header-list" id="headerList">
- <ul id="filterby-filters">

**Reason flagged:**

- List element has direct children that are not allowed: [role=menuitem]
- List element has direct children that are not allowed: a

**SC 1.3.1:** <li> elements must be contained in a <ul> or <ol>.

**Location(s):**

- <li aria-current="page" class="current search"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=search&Main+Search+Page=1" class="tlink">Search</a></li>
- <li class="journals"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=journals&C=yrovft&Jump+to+Browse=yrovft&New+Database=S.dbListAll%7cSingle%7c26" class="tlink">Journals</a></li>
- <li class="books"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&tab=books&C=books&Jump+to+Browse=books&New+Database=S.dbListAll%7cSingle%7c3" class="tlink">Books</a></li>
- <li class="workspace"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&C=\_main&tab=workspace.projects&Projects+Main+Page=1" class="tlink">My Workspace</a></li>
- <li class="jbi">
- <li class="remote"><a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&New+D

```
atabase=S.dbListAll%7cSingle%7c6&amp;C=_main&amp;pcodes=acccsp"
class="tlink">ACC CardioSource Plus</a></li>
```

**Reason flagged:**

- List item does not have a <ul>, <ol> parent element without a role, or a role="list"

**SC 1.4.3:** Elements must meet minimum color contrast ratio thresholds.

**Location(s):**

- ```
<a class="tlink view_selected_link tlinkdisabled" role="button" title="Add selected to
Search History"
href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&View+S
elected+Results=1" tabindex="-1" aria-hidden="true"><span class="wk-icon-plus-
circle"></span>&ampnbspKeep Selected</a>
```
- ```
<a class="tlink view_selected_link tlinkdisabled" role="button" title="Add selected to
Search History"
href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&View+S
elected+Results=1" tabindex="-1" aria-hidden="true"><span class="wk-icon-plus-
circle"></span>&ampnbspKeep Selected</a>
```

**Reason flagged:**

- Element has insufficient color contrast of 2.4 (foreground color: #80adc9, background color: #ffffff, font size: 10.5pt (14px), font weight: normal). Expected contrast ratio of 4.5:1

**SC 4.1.2:** Elements must only use supported ARIA attributes.

**Location(s):**

- ```
<div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-
widget ovid-widget-search_information" id="search_information"
role="application" aria-selected="false" draggable="true" tabindex="0" aria-
labelledby="search_information-instruction" onkeydown="dragElement(event)"
aria-grabbed="false" aria-dropeffect="move">
```
- ```
<div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-
widget ovid-widget-filter_by" id="filter_by" role="application" aria-selected="false"
draggable="true" tabindex="0" aria-labelledby="filter_by-instruction"
onkeydown="dragElement(event)" aria-grabbed="false" aria-dropeffect="move">
```
- ```
<span class="filters-inactive browse-journal-subject-selected" aria-
selected="true">All Stars</span>
```
- ```
<div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-
widget ovid-widget-my_projects" id="my_projects" role="application" aria-
selected="false" draggable="true" tabindex="0" aria-labelledby="my_projects-
instruction" onkeydown="dragElement(event)" aria-grabbed="false" aria-
dropeffect="move">
```

- <div class="ovid-vertical-widget ui-widget ui-widget-content ui-helper-clearfix ovid-widget ovid-widget-JBI\_Tools\_Widgets" id="JBI\_Tools\_Widgets" role="application" aria-selected="false" draggable="true" tabindex="0" aria-labelledby="JBI\_Tools\_Widgets-instruction" onkeydown="dragElement(event)" aria-grabbed="false" aria-dropeffect="move">

**Reason flagged:**

- ARIA attribute is not allowed: aria-selected="false"

**SC 4.1.2:** Elements must only use permitted ARIA attributes.

**Location(s):**

- <span class="filter-chevron-icon" aria-label="Specific Year Range" tabindex="-1"></span>

**Reason flagged:**

- aria-label attribute cannot be used on a span with no valid role attribute.

**SC 4.1.2:** ARIA attributes must conform to valid names.

**Location(s):**

- <div class="msp-ovidclassic-box clearfix" id="ovidclassic" role="tabpanel" aria-labelledby="ovidclassic-tab">
- <a href="ovidweb.cgi?&S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&RT+Widget+Options=RT" role="button" tabindex="0" aria-labelledby="options-label" class="wk-custom-text-button" data-ual-handler--1622985963="true">

**Reason flagged:**

- Invalid ARIA attribute name: aria-labelledby

**SC 4.1.2:** Interactive controls must not be nested.

**Location(s):**

- <li role="tab" tabindex="-1" id="easy-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=easy" data-ual-handler--211366781="true">Basic Search</a></li>
- <li role="tab" tabindex="-1" id="findcite-tab" aria-selected="false"><a class="tlink mode-button" href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode=findcite" data-ual-handler--304534413="true">Find Citation</a></li>
- <li role="tab" tabindex="-1" id="subjsrch-tab" aria-selected="false"><a class="tlink mode-button"

```
href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode
=subjsrch" data-ual-handler--925654691="true">Search Tools</a></li>
- <li role="tab" tabindex="-1" id="fields-tab" aria-selected="false"><a class="tlink
mode-button"
href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode
=fields" data-ual-handler--178063802="true">Search Fields</a></li>
- <li role="tab" tabindex="-1" id="multifield-tab" aria-selected="false"><a class="tlink
mode-button"
href="ovidweb.cgi?S=HAAIFPNFKGEBMCABIPKJOHLEIMHJAA00&Display+Mode
=multifield" data-ual-handler--1463215170="true">Multi-Field Search</a></li>
```

**Reason flagged:**

- Element has focusable descendants

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