



# The LIDA Instrument

## Minervation validation instrument for health care web sites

*Full Version (1.2) containing instructions*

Most internet users look for health information online,<sup>1-3</sup> but finding unreliable information can lead to harm.<sup>4</sup> There is no shortage of health information out there. The problem most people have is finding **good quality** information that's **relevant** to them.

These are the challenges to information providers:

1. How can you make sure that the information you are providing is accessible, relevant and high quality?
2. Could your site fall foul of legislation affecting visually impaired Internet users?
3. Does your site's poor usability waste your audience's time by making it hard for them to find what they need?
4. How can you be sure that the information you publish is up-to-date, accurate and reliable?

These difficulties have prompted Minervation to develop a set of free validation tools to help web site developers answer these questions.

### **How to use this document:**

For Level 1 (Accessibility) go to [www.minervation.com/validation](http://www.minervation.com/validation) and type in the URL of the site you wish to assess. This will generate answers to questions 1.1 to 1.4.

For questions 1.5, 1.6, Level 2 (Usability) and Level 3 (Reliability), view the web site as normal and enter your scores in the boxes provided. Score each question on a scale of zero to 3, where:

- 0 = Never
- 1 = Sometimes
- 2 = Mostly
- 3 = Always

### The Minervalidation tool evaluates the design and content of health web sites.

The tool measures three areas:

#### 1. Accessibility

- a. Can your audience access your web site?
- b. Does your site conform to legal accessibility standards?
- c. Are your competitors ahead of you?
- d. Does your site reflect "best practice" in coding and relevant metadata?

#### 2. Usability

- a. Can your users find what they need to know?
- b. Can they use your web site effectively?
- c. What does it cost people to use your web site?
- d. Do your site visitors return to use the site again and again?

#### 3. Reliability

- a. Does your site keep up to date with the latest research?
- b. Does your site reflect best current knowledge?
- c. Do your users trust you to provide them with unbiased information?
- d. Does your site conform to the highest information quality standards throughout?
- e. Is your site harmful or dangerous?

### Why does validation matter?

These three areas are important for a number of reasons: some legal, some political, some financial:

#### Level 1 Accessibility

- Making sure that web sites are accessible to *all* is now law.<sup>5-7</sup>
- By conforming to accessibility standards, NHS and not-for-profit sites producing health information will be permitted to join the NHS Information Partners Programme<sup>8</sup>, and will therefore be searchable via NHS Direct Online<sup>9</sup>, leading to increased traffic.
- Research information which is available full-text online has a higher impact than information which has restricted access.<sup>10</sup>

#### Level 2 Usability

- If people cannot use your web site effectively, they'll go elsewhere.<sup>11-13</sup>
- Your web site may be costing your users time which they cannot afford.<sup>14-16</sup>
- Most health web sites present information in a way that is hard for users to understand.<sup>17-19</sup>
- If your site suffers from poor usability, your users may not come back.<sup>13;20;20-22</sup>

#### Level 3 Reliability

- Users will not trust your web site if it does not have a clear quality control policy.<sup>23</sup>
- Web health information often contains inaccuracies<sup>22</sup> and is usually incomplete.<sup>24;25</sup>
- In some cases web sites have actually been proven to be harmful or dangerous.<sup>26-30</sup>  
Can you be sure that your site is safe?
- Even "evidence-based" guidelines have been shown to be subject to bias.<sup>31;32</sup>

#### Aren't there other evaluation tools we can use?

- Yes, there are hundreds, but almost none have been tested for their reliability.<sup>33</sup>
- Those that have been tested are mostly unreliable.<sup>34</sup>
- The few that are reliable do not adequately address the issues of accessibility and usability.<sup>35</sup>
- Information which is validated according to well-known quality schemes still tends to be unusable.<sup>36</sup>

<b>Level 1 Accessibility</b>	
<ul style="list-style-type: none"> <li>• Does the web site meet W3C and Bobby standards?</li> <li>• Can users access the information in the web site?</li> <li>• Is the web site "future proof"?</li> </ul>	
<b>1.1 Page Setup</b> <i>Characteristics which identify a web page so that web browsers can interpret it correctly.</i>	
<b>1.1.1 Document Type Definition</b>	
<b>1.1.2 HTTP-Equiv Content-Type (in header)</b>	
<b>1.1.3 HTML Language Definition</b>	
<b>1.1.4 Page Title</b>	
<b>1.1.5 Meta Tag Keywords</b>	
<b>1.2 Access Restrictions</b> <i>These factors can restrict users' access to the site, especially those with disabilities.</i>	
<b>1.2.1 Image Alt Tags</b>	
<b>1.2.2 Specified Image Widths</b>	
<b>1.2.3 Table Summaries</b>	
<b>1.2.4 Frames</b> <i>Web sites must not use frames because they confuse disabled users' screen readers and cause usability problems for other users.<sup>37</sup></i>	
<b>1.3 Outdated Code</b> <i>HTML elements which will not be used in future versions; should be done using style sheets to eliminate inefficient and inconsistent design practices.</i>	
<b>1.3.1 Body Tags</b>	
<b>1.3.2 Table Tags</b>	
<b>1.3.3 Font Tags</b>	
<b>1.3.4 Alignment</b>	
<b>1.4 Dublin Core Title Tags</b> <i>Metadata which will ensure compatibility with NHS directives.</i>	
<b>1.5 Browser Test</b> <i>The web site should work in all commonly used browsers and on Macintosh</i>	
<p>For a review of current web browsers, see:  <a href="http://www.minervation.com/news_archive.asp?t=10&amp;nid=160&amp;d=200503">http://www.minervation.com/news_archive.asp?t=10&amp;nid=160&amp;d=200503</a></p>	<input type="checkbox"/>
<b>1.6 Registration</b> <i>Is the information available full text without registration, login or subscription?<sup>10</sup></i>	
<p>3 = No login or registration essential for certain features (e.g. eCommunity)                      1 = Free registration                      0 = Paid registration</p>	<input type="checkbox"/>

<b>Level 2 Usability</b>	
<ul style="list-style-type: none"> <li>• Can users find the information they need?</li> <li>• Poor usability increases costs (for both you and your users)</li> <li>• Good usability increases usage, stickability and revenues.</li> </ul>	
<b>2.1 Clarity</b>  Clear design increases usability by promoting accessibility, signposting content and encouraging exploration. <sup>37-40;40;41</sup>	<b>Total:</b>  <input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>
<b>2.1.1 Is there a clear statement of who this web site is for?</b>  <ul style="list-style-type: none"> <li>○ Did it take you long to find this information (No=2, Yes=1, Couldn't=0)?</li> <li>○ Is this information on the home page (Yes = 3)?</li> </ul>	<input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>
<b>2.1.2 Is the level of detail appropriate to their level of knowledge?</b>  <i>When assessing this question, try to think of a typical user from the group specified in 2.1.1.</i> <ul style="list-style-type: none"> <li>○ Does the site lead the user into the right level of detail in the right sequence?</li> <li>○ Is there a lot of jargon that they would not understand?</li> <li>○ Is the language of the right complexity?</li> <li>○ Does the site make good use of graphics to explain complex information?</li> </ul>	<input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>
<b>2.1.3 Is the layout of the main block of information clear and readable?</b>  <i>Look at the "block of content"</i> <ul style="list-style-type: none"> <li>○ Is the font size appropriate?</li> <li>○ Scannability: use of subheadings?</li> <li>○ Use of bulleted lists and internal links within a long document (good)</li> <li>○ Text wrapping</li> <li>○ Length of the page (long = bad; may need "go back to the top" links)</li> </ul>	<input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>
<b>2.1.4 Is the navigation clear and well structured?</b>  <i>Look at the buttons, links and menus</i> <ul style="list-style-type: none"> <li>○ Can you tell what is a link or button?</li> <li>○ Are they readable?</li> <li>○ Is it clear which menu you need to click to find what you need (e.g. mixing up subtopics with publication types would make this hard)?</li> </ul>	<input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>
<b>2.1.5 Can you always tell your current location in the site?</b>  <ul style="list-style-type: none"> <li>○ There may be breadcrumbs or changes in the menu system telling you which section you're in, though they can be confusing.</li> </ul>	<input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>
<b>2.1.6 Is the colour scheme appropriate and engaging?</b>  <ul style="list-style-type: none"> <li>○ Is it appropriate for the target audience?</li> <li>○ Is it tasteful?</li> <li>○ Is it readable?</li> <li>○ Print out a black and white page to see if there's enough contrast for colour blind people.</li> <li>○ Remember to check the colours of mouse-overs and previously-clicked links etc.</li> </ul>	<input style="width: 40px; height: 40px; border: 2px solid black;" type="text"/>

Additional Comments on Clarity:

<b>2.2 Consistency</b>	<b>Total:</b> <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<i>Consistent design helps users to learn how a web site works and where to look for the information they need.</i> <sup>42,43</sup>	
<b>2.2.1 Is the same page layout used throughout the site?</b>	<input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<p><i>Are the menus, text blocks, header, footer etc consistent throughout?</i></p> <ul style="list-style-type: none"> <li>○ <i>Sometimes it's a good thing to have a different layout, for example when moving from a text-heavy explanation page into a multiple choice question, or if it's a gateway site that links to other resources.</i></li> <li>○ <i>Ask yourself, would this inconsistency be confusing to the user? Does it make sense to use a different layout for this page? Can the user still "retrace their steps" if they need to?</i></li> </ul>	
<b>2.2.2 Do navigational links have a consistent function?</b>	<input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<p><i>Think about what happens when you click the link, e.g.</i></p> <ul style="list-style-type: none"> <li>○ <i>Do external links always open in a new window?</i></li> <li>○ <i>Does the home page or logo link always take you to the home page?</i></li> <li>○ <i>Does the search or feedback button always work in the same way?</i></li> </ul> <p><i>Again, inconsistency may be appropriate depending on whether it would make sense to the user. If it doesn't make sense to you, it certainly won't make sense to everyday users.</i></p>	
<b>2.2.3 Is the site structure (categories or organisation of pages) applied consistently?</b>	<input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<p><i>Think about whether the subsections used in different areas of the site are consistent.</i></p> <ul style="list-style-type: none"> <li>○ <i>If they are, users will find it easier to predict where to find what they need on the site.</i></li> <li>○ <i>The site map should help to assess this question.</i></li> </ul>	

Additional Comments on Consistency:

<b>2.3 Functionality</b>	<b>Total:</b> <input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<i>Web sites must provide users with the right tools to find what they need without overburdening them with unnecessary functions</i> <sup>40,44</sup> .	
<b>2.3.1 Does the site provide an effective search facility?</b>	<input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<p><i>Browse to a section and think of a typical term that might require that information and a synonymous term people might search for which isn't on that page (e.g. Fluoxetine and Prozac). Do a search for each.</i></p> <ul style="list-style-type: none"> <li>○ <i>Did you find the page in question?</i></li> <li>○ <i>Does it work with synonyms?</i></li> <li>○ <i>Is the ranking of results sensible?</i></li> <li>○ <i>Does it display sufficient information on the hits for you to choose the right one?</i></li> <li>○ <i>Can you refine your search?</i></li> <li>○ <i>Is the complexity of the search engine appropriate for the site?</i></li> </ul>	
<b>2.3.2 Does the site provide effective browsing facilities?</b>	<input style="width: 40px; height: 30px; border: 2px solid black;" type="text"/>
<p><i>As above, find a page and think of a typical query that a user of this site might have which requires that page. Go to the site home page.</i></p> <ul style="list-style-type: none"> <li>○ <i>Can you find your page by browsing?</i></li> <li>○ <i>Would it be obvious what to click on to get that page?</i></li> <li>○ <i>How many clicks did it take (target ≤ 3)?</i></li> </ul>	

**2.3.3 Does the design minimise the cognitive overhead of using the site?**

Cognitive overhead means “the additional effort and concentration necessary to maintain several tasks or trails at one time”.<sup>45</sup> So, it’s a general term to describe whether a web site requires its users to learn, do, remember or read lot of unnecessary information before they get what they want.

- If you very quickly get accustomed to a site and how it works, it probably has a low (i.e. good) cognitive overhead.
- The sorts of things that increase cognitive overhead are: having to go to lots of different areas to get the information you need; not being able to tell where to go to get what you want; or not getting what you expected when you click on a link; unusual design or layout that is inconsistent with user expectations, especially in search engine and results pages<sup>46</sup>.

**2.3.4 Does the site support the normal browser navigational tools?**

A usable web site shouldn’t change what you’d expect to be able to do with your web browser:

- e.g. mouse-over a link to get the target, page address displayed in the address bar, title in the window title, browser toolbar buttons present and consistent (back, forward, home, etc)

**2.3.5 Can you use the site without third party plug-ins?**

Typical scores:

- No plug-ins or PDF equivalent of text that’s available elsewhere on the site = 3
- Appropriate use of freely available plug-in (such as PDF) **and** it adds value = 2
- As above but it could have been done in another way without a plug-in = 1
- Gratuitous = 0

Additional Comments on Functionality:

**2.4 Engagability**

**Total:**

Web sites which provide users with a satisfying experience are more effective and more popular<sup>47;48</sup>.

**2.4.1 Can the user make an effective judgment of whether the site applies to them?**

- Could they make this judgment within a few seconds of visiting the site?
- Can the user quickly find the subsection of the site that has been produced specifically for them?

**2.4.2 Is the web site interactive?**

Newsletters, eCommunities, chat, enquiry and feedback forms, animations or illustrations:

- Think about how the site compares with others in the same topic.
- For newsletters – look for the ability to specify topics of interest, rather than general updates.
- For eCommunities – look for active bulletin boards with lots of users.
- For feedback mechanisms – look for forms rather than simple email addresses; is it clear who you are sending feedback to?

**2.4.3 Can the user personalise their experience of using the site?**

**2.4.4 Does the web site integrate non-textual media?**

This includes drawings, diagrams, graphs, photographs as well as audio, video and animation:

- Do they look professional?
- Are they appropriate?

Additional Comments on Engagability:

<b>Level 3 Reliability</b>	
<p><i>Does the site provide comprehensive, relevant and unbiased information? If not, it is unreliable and may be harmful.<sup>4</sup></i></p> <p><i>In a systematic review of studies of the quality of health information on the web, 70% found that quality is a problem<sup>17</sup>.</i></p>	
<p><b>3.1 Currency</b></p> <p><i>If a site is not updated regularly, new evidence may emerge which conflicts with it and which renders the site redundant<sup>49</sup>.</i></p>	<p><b>Total:</b></p> <input type="checkbox"/>
<p><b>3.1.1 Does the site respond to recent events?</b></p> <p><i>Look for coverage of recent events, news items, etc.</i></p>	<input type="checkbox"/>
<p><b>3.1.2 Can users submit comments on specific content?</b></p> <p><i>Look for 'in page' comments (these often appear towards the bottom of the page), rather than simple feedback functionality which does not affect the actual site content.</i></p>	<input type="checkbox"/>
<p><b>3.1.3 Is site content updated at an appropriate interval?</b></p> <p><i>Is the clinical content updated frequently enough to be up to date? Look for a statement in site policy, the date on each page.</i></p> <ul style="list-style-type: none"> <li>○ Can't tell = 0;</li> <li>○ For treatment, an ideal target would be 6 monthly updates; for diagnosis and background information it can be longer.</li> </ul>	<input type="checkbox"/>

Additional Comments on Currency:

<p><b>3.2 Conflicts of interest</b></p> <p><i>Surveys show that disclosure of sponsorship is a key issue for users of health web sites.<sup>17</sup></i></p>	<p><b>Total:</b></p> <input type="checkbox"/>
<p><b>3.2.1 Is it clear who runs the site?</b></p>	<input type="checkbox"/>
<p><b>3.2.2 Is it clear who pays for the site?</b></p> <p><i>Current practice is not good in this area. If you have to look for organisational reports, etc, which disclose funding sources, then that scores 1.</i></p>	<input type="checkbox"/>
<p><b>3.2.3 Is there a declaration of the objectives of the people who run the site?</b></p> <p><i>Are these consistent with the objective of providing you with unbiased and accurate information?</i></p>	<input type="checkbox"/>

Additional Comments on Conflicts of Interest:

<b>3.3 Content production</b> <i>Where information is not gathered using a rigorous methodology, the findings are likely to be biased<sup>31;50-52</sup>.</i>	<b>Total:</b>
	<input type="checkbox"/>
<b>3.3.1 Does the site report a clear content production method?</b> <i>Look for a statement that tells you how information on the site was produced and its quality checked. This might be in an About Us, About this Site or Editorial Policy section.</i>	<input type="checkbox"/>
<b>3.3.2 Is this a robust method?</b> <i>Ideally, it should include:</i> <ul style="list-style-type: none"> <li>○ <i>User-driven identification of user needs and validation of site design</i></li> <li>○ <i>Comprehensive searching for relevant literature</i></li> <li>○ <i>Appraisal of the validity of sources using evidence-based guidelines</i></li> <li>○ <i>Review of the site content by independent experts</i></li> <li>○ <i>Review of the site by target audience</i></li> </ul>	<input type="checkbox"/>
<b>3.3.3 Can the information be checked from original sources?</b> <i>Use your judgment to decide what statements require references. Background information may not need a reference, but clinical definitions of disease usually do; statements of the findings of research certainly do.</i>	<input type="checkbox"/>

Additional Comments on Content Production:

Questions 3.4 and 3.5 are supplemental questions which require a detailed examination of the web site production process. This may not be possible from looking at the site; you may have to find out more by contacting the host organisation.

<b>3.4 Content production procedure - supplemental</b>	<b>Total:</b>
<i>Where the purpose is providing high quality answers to users' questions about health care.</i>	<input type="checkbox"/>
<b>3.4.1 Are the audience needs identified in advance?</b> <i>Determining needs in advance leads to more robust answers<sup>53</sup>; involving users in this process leads to more effective<sup>20</sup>, satisfying (by as much as 40%) and cheaper<sup>16</sup> web solutions.</i>	<input type="checkbox"/>
<b>3.4.2 Is comprehensive literature searching conducted?</b> <i>This is necessary to make sure all the relevant documents are found<sup>54</sup>, and language<sup>55</sup> and publication<sup>56</sup> biases are eliminated.</i>	<input type="checkbox"/>
<b>3.4.3 Are retrieved documents critically appraised?</b> <i>Critical appraisal should be conducted independently using validated appraisal tools.<sup>57</sup></i>	<input type="checkbox"/>
<b>3.4.4 Is content authored by subject experts?</b>	<input type="checkbox"/>
<b>3.4.5 Is content reviewed by an independent expert or panel?</b>	<input type="checkbox"/>

Additional Comments on Content Production – Supplemental:

<b>3.5 Output of content - supplemental</b>	<b>Total:</b>
<i>Does the site provide accurate and reliable information?</i>	<input type="checkbox"/>
<b>3.5.1 Has literature searching found the right information?</b> <i>Are there any important data sources missing from the search?</i>	<input type="checkbox"/>
<b>3.5.2 Does the content check out?</b> <i>Is the content consistent with current best practice in the topic area?</i>	<input type="checkbox"/>
<b>3.5.3 Is the content accurate?</b> <i>Here we're checking for editorial mistakes such as the classification of information (e.g. information about metastatic cancer located in a section header about non-metastatic cancer), use of incorrect references and spelling mistakes.</i>	<input type="checkbox"/>

Additional Comments on Output of Content – Supplemental:

## Summary Sheet

*Calculate totals for each section and record them here*

URL: \_\_\_\_\_

Site Owner: \_\_\_\_\_

### 1 Accessibility Total

**Total (out of 63):**

*Enter the totals from Level 1:*

1.1-4. Automated test  out of 57

1.5. Browser test  out of 3

1.6 Full text availability  out of 3

*Key comments / priorities:*

### 2 Usability Total

**Total (out of 54):**

*Enter the totals from Level 2:*

2.1. Clarity  out of 18

2.2. Consistency  out of 9

2.3. Functionality  out of 15

2.4. Engagability  out of 12

*Key comments / priorities:*

### 3 Reliability Total

**Total (out of 27):**

*Enter the totals from Level 3:*

3.1. Currency  out of 9

3.2. Conflicts of Interest  out of 9

3.3. Content Production  out of 9

3.4. Content Production - Supplemental  out of 15

3.5. Output of Content - Supplemental  out of 9

*Key comments / priorities:*

*Supplementary Total (out of 24):*

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