

## Current state of the preprint servers' web accessibility

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### ABSTRACT

**Background.** The concept of open science is related to several domains: open research data, open communication infrastructures, new metric indicators of scientific quality and impact, open and early sharing of scientific publications, concern for research integrity and public involvement in the scientific process (Open Science Factsheet, 2019). Early sharing of scientific publications is made possible by preprint servers (Fu & Hughey, 2019). Preprinting is an open science practice that allows deposition and distribution of manuscripts before submitting them to a journal for peer-review (Baždarić et al., 2021).

**Aim.** To test web accessibility of preprint servers for persons with various visual, verbal, or other disabilities (15% of the general population) (Campoverde-Molina et al., 2021) as one of the core human right and a priority of the World Wide Web Consortium.

**Methods.** We included 54 preprint server homepages (ASAP bio list; <https://asapbio.org/preprint-servers>) with the WAVE Web Accessibility Evaluation Tool (<https://wave.webaim.org/>), one of the most used automated tools to test web accessibility, which relies on the Web Content Accessibility Guidelines (WCAG v. 2.1) method (Campoverde-Molina et al., 2021). WAVE results are grouped into six categories: Errors, Contrast Errors, Alerts, Features, Structural Elements, and ARIA.

**Results:** Of the 54 server homepages, 47 could be tested. Most frequent Errors based on WCAG 2.1 are: 2.4.4 Link Purpose In Context (49%) and 1.1.1 Non-text Content (47%). Almost half the sites (45%) have Contrast Error (WCAG 1.4.3). Alerts are mainly related to 1.3.1 Info and Relationships (74%), 2.4.6 Headings and Labels (66%) and 2.4.1 Bypass Blocks (60%). Features errors are related to 3.1.2 Language of Parts (89%) and 1.1.1 Non-text Content (62%). Results for measure Structural elements are all over 60%: 1.3.1 Info and Relationships (68%), 2.4.1 Bypass Blocks (68%) and 2.4.6 Headings and Labels (64%). For measure ARIA only 4.1.2 Name, Role, Value (53%) have results over 50%.

**Conclusion:** This automated test clearly shows that there is still ample room for preprint servers to improve accessibility to their web pages, but manual detection is needed to overcome possible mismatches made by an automated tool.

### KEYWORDS

open science; preprint server; WAVE; WCAG; web accessibility

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