Digital Pathology Technology for Histopathological Diagnosis

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Key Message

- One evidence-based guideline was identified regarding the use of digital pathology technology.

Research Question

1. What are the evidence-based guidelines regarding the use of digital pathology technology?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concept was digital pathology. Search filters were applied to limit retrieval to health technology assessments and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English-language documents published between January 1, 2016 and February 25, 2021. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. The Overall Summary of Findings section was based on information available in the abstracts of selected publications. Open-access, full-text versions of evidence-based guidelines were reviewed when abstracts were not available and relevant recommendations were summarized.

Result

One relevant evidence-based guideline was identified regarding the use of digital pathology technology.1

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.
Overall Summary of Findings

One evidence-based guideline\(^1\) was identified regarding the use of digital pathology technology. The authors of this guideline recommend the use of quality controls when using whole slide imaging systems to ensure they are operating normally and that the tests results are reliable.\(^1\) In addition, the guideline recommends the use of immediate action if a system defect is identified, given the potential risk for serious errors in the test results.\(^1\) Please see the full guideline for further details regarding recommendations for validation techniques.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
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<tbody>
<tr>
<td>Population</td>
<td>Individuals of all ages requiring histopathology</td>
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<tr>
<td>Intervention</td>
<td>Digital pathology (e.g., telepathology, whole slide imaging), algorithms for dedicated morphometric analysis, algorithms employing artificial intelligence/machine learning, natural language processing, and novel microscopic techniques (e.g., multispectral, Fourier transform infrared and other infrared spectroscopy, and second harmonic generation imaging)</td>
</tr>
<tr>
<td>Comparator</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Recommendations regarding best practices</td>
</tr>
<tr>
<td>Study designs</td>
<td>Evidence-based guidelines</td>
</tr>
</tbody>
</table>

Table 1: Selection Criteria
Reference

Guidelines and Recommendations
Appendix 1: References of Potential Interest

Previous CADTH Reports


Guidelines and Recommendations

Methodology Not Specified


Alternative Outcome


Conference Proceedings


Review Articles


Additional References
