Validating a search filter for diagnostic sensitivity and specificity

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Validating a Search Filter for Diagnostic Sensitivity and Specificity
Susan A. Fowler, MLIS, Lauren H. Yaeger, MA, MLIS, Monica Rogers, MLIS, Christopher R. Carpenter, MD, MS

**Objective**
To create and validate a search filter for diagnostic sensitivity and specificity (DSS) in PubMed for use in systematic reviews.

**Methods**
Based on work by Haynes and the Hedges Team to validate the PubMed Clinical Query for Diagnosis.

<table>
<thead>
<tr>
<th>Term</th>
<th>PubMed Equivalent</th>
</tr>
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</table>

The Clinical Queries search filters are based on work of Haynes RB et al.

**Results**

<table>
<thead>
<tr>
<th></th>
<th>About DSS</th>
<th>Not About DSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSS Search Results</td>
<td>TP = 49</td>
<td>FP = 11</td>
</tr>
<tr>
<td>Pool</td>
<td>FN = 123</td>
<td>TN = 642</td>
</tr>
</tbody>
</table>

Sensitivity (Recall) \(\frac{49}{49+123} = 79\%\)
Specificity (Precision) \(\frac{642}{11+642} = 98\%\)

**Discussion**
There are no clear step by step instructions on how to create or validate a search filter.

While we based our methods on Haynes, et al., we created our pool differently and it was much smaller. Haynes used articles in 160 journal titles for the year 2000 resulting in a pool of 49,028 articles. Our Septic Arthritis search was limited to the last 5 years and included 765 articles.

Our responsibilities represent the typical work load of an academic medical librarian and this project took three years, fitting it in where we could. Thus, it is not realistic to validate every search strategy created for systematic reviews.

**Conclusion**
The DSS filter achieved 79% sensitivity and 98% specificity therefore it is an effective filter for locating articles on diagnostic sensitivity and specificity in PubMed.