

Constructing an overview of systematic reviews of diagnostic test accuracy

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Post-Colloquium Meeting - Overviews of Systematic Reviews

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Fürich Room, Hotel Astoria, Kärntner Straße 32, 1010 Wien

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Diagnostic test accuracy

There are a number of ways to assess whether medical tests ‘work’, and one of the most common ways is to measure **accuracy**

= a test’s ability to discriminate between people *with* the target condition and people *without* the target condition

This is done by comparing a new test (the **index test**) against the established ‘best available’ test called the **reference standard** and assessing the results using a 2x2 table

		Reference Standard	
		+	-
Index Test	+	True Positive	False Positive
	-	False Negative	True Negative

Reasons for overviewing reviews of diagnostic test accuracy

	DTA systematic reviews	Overviews of DTA systematic reviews
Objectives	To summarize evidence from studies of the accuracy of diagnostic tests.	To summarize evidence from systematic reviews of the accuracy of diagnostic tests.
Selection criteria	Describe inclusion and exclusion criteria for studies.	Describe inclusion and exclusion criteria for reviews.
Search	Comprehensive search for relevant studies.	Typically search for only relevant Cochrane diagnostic test accuracy reviews (?)
Data collection	From included studies.	From included systematic reviews.
Assessment of limitations	For included studies; i.e. risk of bias.	For included systematic reviews.
Quality of evidence	Across studies for each important outcome using the quality assessment of diagnostic accuracy studies tool (QUADAS-2)	Should be based on assessments reported in the included systematic reviews. Currently there is no specific tool available for overviews of systematic reviews of diagnostic test accuracy (?)
Analysis	Syntheses of results across included studies using sensitivity and specificity measures, using direct comparisons where possible	Summary of review results; additional analyses may be undertaken for comparisons across reviews. Mapping of current spread of evidence and gap id.

Overview of reviews of diagnostic test accuracy

A review of existing systematic reviews summarising the accuracy of brief cognitive assessments for identifying dementia, particularly for use in primary care. Protocol published in the York CRD prospective register of systematic reviews (PROSPERO) ref. CRD42015022078

Published SRs within the Cochrane Dementia and Cognitive Improvement Group:

[Informant Questionnaire on Cognitive Decline in the Elderly \(IQCODE\) for the diagnosis of dementia within a general practice \(primary care\) setting](#)

Jennifer K Harrison, Patrician Fearon, Anna H Noel-Storr, Rupert McShane, David J Stott, Terry J Quinn

[*IQCODE for the diagnosis of Alzheimer's disease dementia and other dementias within a community setting](#)

Terry J Quinn, Rupert McShane, Patricia Fearon, Camilla Young, Anna Noel-Storr, David J Stott

[Mini-Cog for the diagnosis of Alzheimer's disease dementia and other dementias within a community setting](#)

Bruce A Fage, Calvin C H Chan, Sudeep S Gill, Anna H Noel-Storr, Nathan Herrmann, Nadja Smailagic, Vasilis Nikolaou, Dallas P Seitz

Searches

- Lack of guidance
- How to identify systematic reviews
 - Inadequate systematic review and test accuracy filters
 - Setting of primary care – also called family practice, general practice, community
- Incremental approach to evidence identification?
 - Cochrane reviews
 - Non-Cochrane diagnostic test accuracy reviews
 - Other forms of evidence (?)

Cochrane vs. non-Cochrane reviews

- Best evidence vs. scorched earth
- Risk of bias assessments – ROBIS for diagnostic test accuracy reviews?
- Approach to take for evaluation; quality appraisal tools seem available yet

Quality appraisal

- Will use a checklist approach using the AMSTAR tool¹
- Particular issues with DTA
 - Spread of evidence far greater
 - Heterogeneity of findings
 - Imperfect or ill-defined reference standards

¹Shea, B. J., Grimshaw, J. M., Wells, G.A., Boers, M., Andersson, N., Hamel, C., ... & Bouter, L. M. (2007). Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. *BMC medical research methodology*, 7(1), 10.

Empirical methods evidence needed

- Quality appraisal tool specifically for overviews of systematic reviews of diagnostic test accuracy (if doesn't exist?)
- Clear guidelines on constructing searches
- Evidence of the value/cost of restricting included systematic reviews to Cochrane reviews as opposed to all systematic reviews

Research to prioritise

- DTA overview quality appraisal tool, if none available
- Clear and consistent guidance on searching for overviews of systematic reviews of DTAs, including:
 - approach to take – ‘best evidence’ (i.e. Cochrane Reviews) or exhaustive inventory
 - Structuring searches without available filters for SRs or DTAs
- Guidance on synthesis – does this differ from overviews of intervention reviews?

Thank you for listening

Please do get in touch if you have any comments or questions:

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