

Interpreting results and drawing conclusions

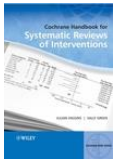
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Based on slides developed by Mariska Leeflang

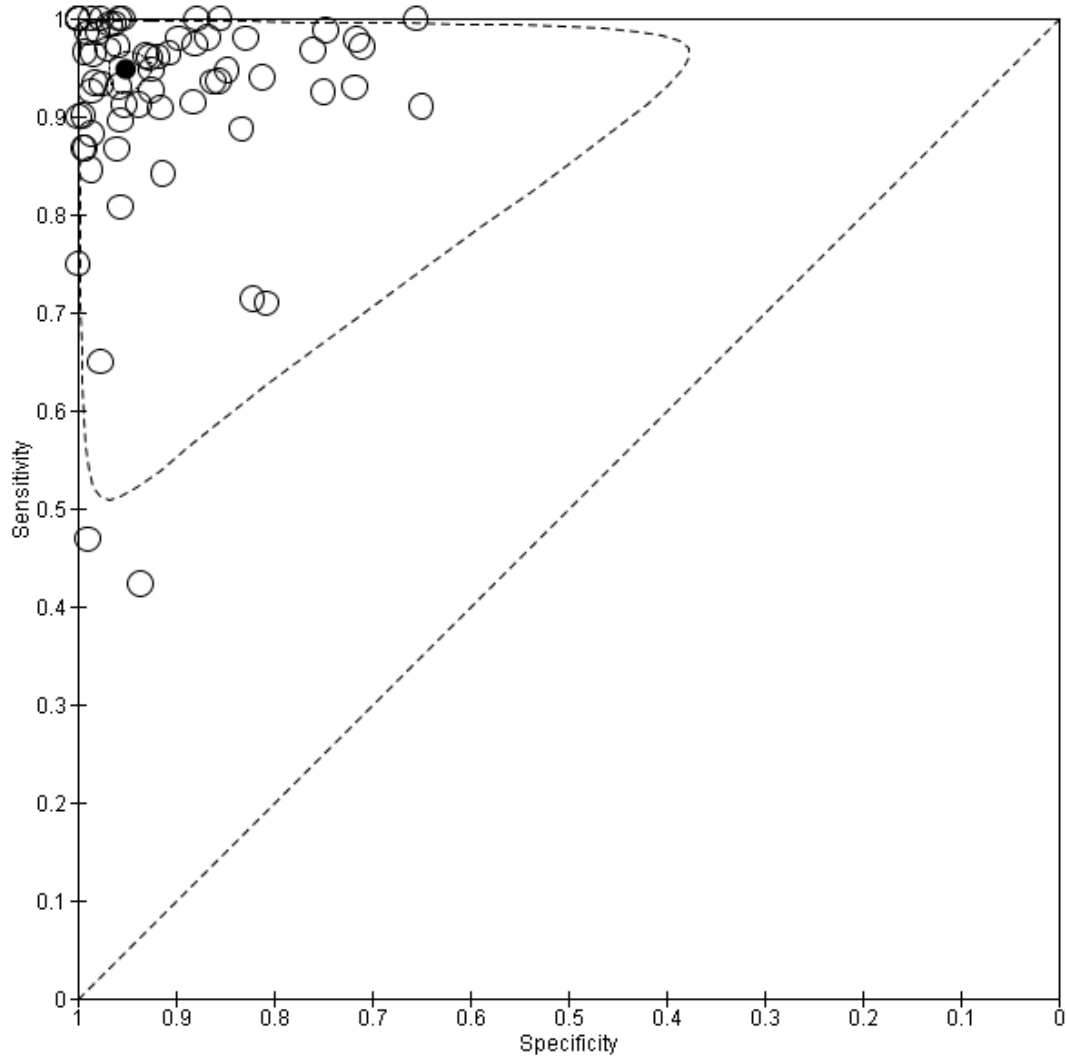
Learning objectives

- To consider the challenges associated with interpreting the findings of a DTA review
- To examine examples of how the results of a DTA review might be presented and interpreted for the intended 'audience'

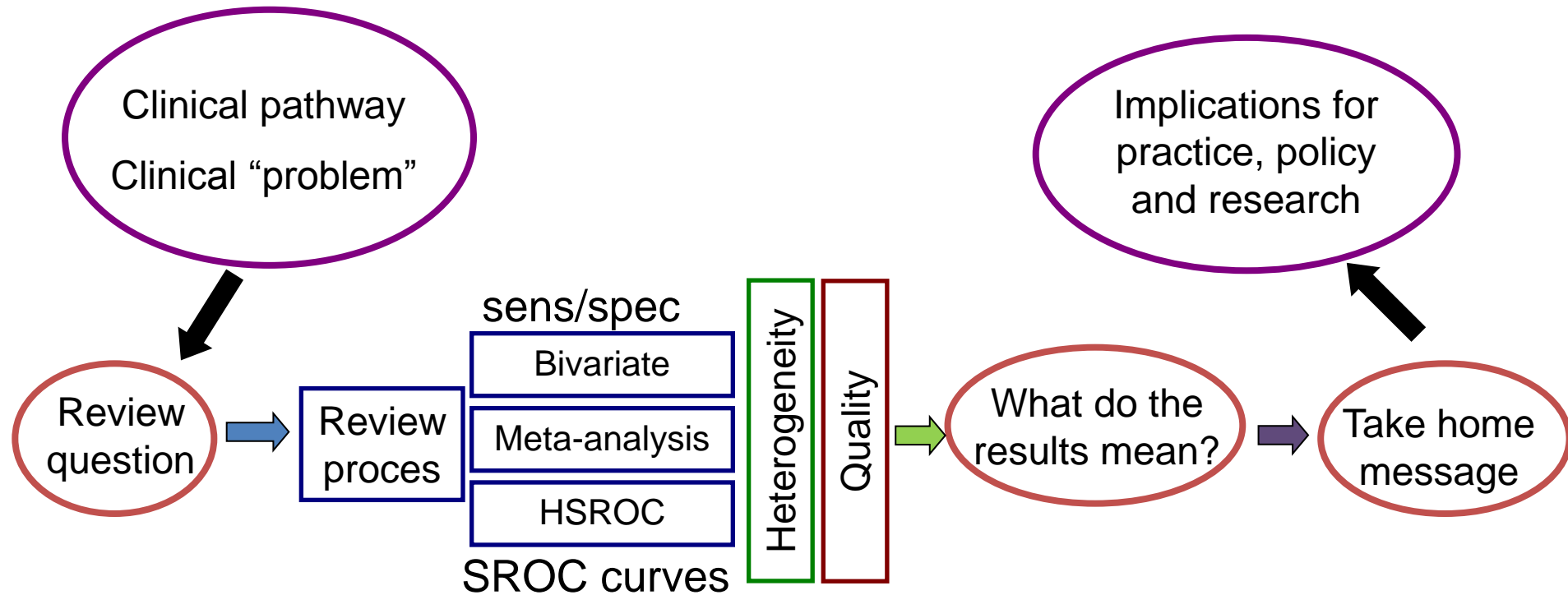


See Chapter 11 of the DTA Handbook
available at dta.cochrane.org

Here's some data to interpret



Interpreting the results of a DTA review



Who reads or uses your review?

Clinicians, policymakers, guideline developers, patients,
...(dealing with ... individual patients versus populations)

The reader should be able to understand what you are saying!

Zhelev *et al.* *Systematic Reviews* 2013, **2**:32
<http://www.systematicreviewsjournal.com/content/2/1/32>



RESEARCH

Open Access

A qualitative study into the difficulties experienced by healthcare decision makers when reading a Cochrane diagnostic test accuracy review

Zhivko Zhelev^{1*†}, Ruth Garside^{2†} and Christopher Hyde^{1†}

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RESULTS: *Participants unfamiliar with the design and methodology of DTARs found the reviews **largely inaccessible**Experience with systematic reviews of interventions did not guarantee better understanding and, in some cases, led to confusion and misinterpretation.....**more accessible presentation, such as presenting the results as natural frequencies, significantly increased participants' understanding.***

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CONCLUSIONS:

*The study demonstrates that authors and editors should pay more attention to the **presentation** as well as the content of Cochrane DTARs, especially if the reports are aimed at readers with various levels of background knowledge and experience.....**different groups of healthcare decision-makers may require different modes of presentation.***

Who reads or uses your review?

What do they **want** to know?

What do they **need** to know?

What will the test be used for and what are the expectations?

What are the alternatives?

What are the consequences of a positive and negative result?

Can I use the test to rule in or rule out disease?

How best is this test placed in a clinical pathway: Can I use this test to replace the other? Can I use this test as a triage or add-on test?

Of all the tests, which one is the best?

The reader should be able to understand!

Discussion section

Standard sub-sections with fixed headings

- Discussion
 - Summary of main results
 - Strengths and weaknesses of the review
 - Applicability of findings to review question
- Authors' conclusions
 - Implications for practice
 - Implications for research

Discussion section in RevMan

The screenshot displays the Review Manager 5.2 interface. The title bar reads "Review Manager 5.2". The menu bar includes "File", "Edit", "Format", "View", "Tools", "Table", "Window", and "Help". The toolbar contains various icons for file operations and editing. The main window title is "[Index test 1] versus [index test 2] for [target condition(s)] in [participant description]".

The left sidebar shows a tree view of the review structure. The "Discussion" item is highlighted. The main content area, titled "Text of Review", lists the following sections:

- Discussion
- Summary of main results
- Strengths and weaknesses of the review
- Applicability of findings to the review question
- Authors' conclusions
- Implications for practice
- Implications for research
- Acknowledgements
- Contributions of authors

A grey box labeled "SoF table" is positioned to the right of the "Discussion" item, with a black arrow pointing from the box to the "Discussion" text.

Summary of main results

- Restate the initial question(s)
- No. of included studies / patients / samples
- Characteristics of included studies
- Quality
- Study results, especially summary sensitivity and specificity
- Consistent with **summary of findings table**

Strengths & weaknesses of the review (1)

- Limitations of review methods
 - Departures from protocol
 - Shortcomings in search
 - Studies not retrieved and translations pending
 - Not chasing missing data
- Limitations of included studies
 - Clinical spectrum especially target condition, prevalence and clinical setting
 - Different versions of the index test, including use of different thresholds/cut-offs
 - Study quality

Strengths & weaknesses of the review (2)

- Limitations in study results
 - Transferability of results to other settings
 - Sources of heterogeneity and implications
- Review results in context of other reviews
 - e.g. related reviews on diagnosis and treatment

Applicability of findings to review question

Applicability to your own objectives?

May bring in information from other sources (but remember it is not systematically reviewed)

- Reliability of test
- Direct harms and benefits of tests
- ***Consequences of false positives and negatives***
- Costs
- Other studies may indicate effects on diagnostic yield, changed decisions, patient outcome & cost-effectiveness

Applicability of findings to review question

Applicability to your own objectives?

This research assesses sensitivity and specificity in applied research settings. In the field, the quality of microscopy is likely to be lower and the RDTs may not be read so accurately (Hawkes 2009).

May bring in information from other sources (but remember it is not systematically reviewed)

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- Reliability of test
- Direct harms and benefits of tests
- The consequences of a false positive are that someone may be treated for malaria when they are not infected. The consequences of a false negative in an endemic area, particularly when related to low parasitaemia, means the patient is unlikely to die. The infection may clear by itself, as people living in endemic areas have partial immunity; if it does not, the illness will recur and they would seek care again.

Authors' conclusions

Implications for practice

- Implications for health care policy
- Implications for clinical practice

NB: present information rather than advice (review must be as relevant as possible to an international audience)

Implications for research

- “What” and “How”
- Avoid bland statements like “more research is needed”

Rapid diagnostic tests for diagnosing uncomplicated *P. falciparum* malaria in endemic countries (Review)

Abba K, Deeks JJ, Olliaro PL, Naing CM, Jackson SM, Takwoingi Y, Donegan S, Garner P

Implications for practice

The high sensitivity and specificity of RDTs means they can replace or augment microscopy for diagnosing *P. falciparum* malaria.

Rapid diagnostic tests for diagnosing uncomplicated *P. falciparum* malaria in endemic countries (Review)

Abba K, Deeks JJ, Olliaro PL, Naing CM, Jackson SM, Takwoingi Y, Donegan S, Garner P

Implications for Policy:

“Choice will depend on prevalence of malaria, and we provide data in this review to assist these decisions, although policy makers will also take into account other factors relating to cost and test stability.”

Take home message

- Present results in more accessible formats, such as frequencies, rather than percentages and false positive and false negative rates rather than just sensitivity and specificity
- Explicitly define the roles of the different tests in the review, such as 'index test' and 'reference standard'. This would prompt participants uncertain in their understanding of diagnostic accuracy terminology to look up the respective definitions.
- Careful wording of conclusions so readers with limited research experience understand what exactly can be concluded from the results.
- Emphasise limitations of the results in terms of validity, reliability and applicability.

Take home message



The reader should be able to understand!

References

- DTA Handbook Chapter 11 contains relevant information for this chapter. This is available at dta.cochrane.org
- See <http://dta.cochrane.org/dta-author-training-online-learning> for additional training materials

ACKNOWLEDGEMENTS

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