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ORIGINAL ARTICLE

Guidance was developed on how to write a plain language summary for diagnostic test accuracy reviews

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Abstract

Objective: To develop guidance for authors of diagnostic test accuracy (DTA) reviews to help them write a plain language summary of the results of their review.

Study Design and Setting: We used a combination of focus groups, user testing, and a web-based survey. Participants included patient representatives, media representatives, and health professionals.

Results: We present step-by-step guidance for authors of DTA reviews for writing a plain language summary. This guidance is illustrated with examples of reader-tested sentences, explanations, and a figure.

Conclusion: We hope this guidance will allow reviewers to present the findings of DTA reviews so that it is easier for readers to understand the results and conclusions. This will increase the accessibility of these reviews for various audiences. © 2018 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Keywords: Diagnostic test accuracy; Systematic review; Plain language summary; Sensitivity and specificity; Natural frequencies; Communicating research

1. Introduction

A plain language summary (PLS) is an easy-to-read summary of a systematic review and should provide rapid access to the content of the review [1]. Just like the abstract of an article, PLSs are generally made freely available on the internet, so will often be read as stand-alone documents.

A clear PLS is essential to ensure that systematic reviews are accessible to users who are not familiar with the more technical content of a review. Complexity of methods and understanding of diagnostic accuracy measures is likely to increase the diversity of the audience for PLS for diagnostic research. Thus, users of a PLS may not be limited to the public but may also include health care professionals, policy makers, and the media.

Explaining the results of a diagnostic test accuracy (DTA) review in plain language presents particular challenges. The review methodology and terminology are less familiar than reviews of interventions [2]. Commonly used measures of test accuracy such as sensitivity, specificity, positive and negative predictive values, and likelihood ratios are poorly understood by health professionals [3]. Research has shown that readers familiar with systematic review methods have difficulties understanding DTA reviews and that familiarity with intervention reviews may even be a disadvantage [4]. DTA reviews are concerned with evaluating test accuracy and do not directly evaluate whether introduction of a new test will result in better

Conflicts of interest: None of the authors have any conflicts of interest to declare.

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What is new?

Key findings

- This paper introduces new guidance for reviewers on how to write plain language summaries of diagnostic test accuracy reviews.

What this adds to what was known?

- Previous research has shown that understanding and application of test accuracy evidence is challenging.

What is the implication and what should change now?

- Improving the accessibility of test accuracy evidence has the potential to positively impact test use.
- Authors of DTA reviews should use our proposed guidance to present the results of their reviews to make them easier for readers to understand.

outcomes for patients. The potential benefits of improved test accuracy will only be realized if introduction of a new test results in a change in diagnostic yield, in other words, revision of a diagnosis leading to an appropriate change in patient management [5].

Reporting test accuracy using natural frequencies and visual aids rather than using probabilistic language may facilitate improved understanding and better estimation of the post-test probability of disease [3]. In addition, DTA reviews are characterized by a large degree of heterogeneity in results across studies, the reason for this variation is not always clear and explaining this to users is difficult [4]. Sources of bias in DTA studies differ from those of intervention studies, and implications of the impact of bias are not always clearly understood [6].

Here, we present step-by-step guidance for authors of DTA reviews for writing a PLS. This guidance is illustrated with examples of reader-tested sentences, explanations, and a figure.

2. Methods

We prepared this guidance based on the findings of research funded by the Cochrane Collaboration and drawing on the PLS guidance for Cochrane Intervention Reviews [1]. Although the template and guidance were developed primarily for Cochrane DTA reviews, they are equally relevant to any DTA review.

We used a mixed methods approach consisting of focus groups, user testing, web-based surveys and a public engagement event to develop this guidance (Fig. 1).

Initial focus groups were conducted with a range of potential end users: one with consumers (eight participants), one with journalists (nine participants), and one with clinicians (two participants). During the focus groups, we presented two example PLS for discussion—an existing PLS from a DTA review and a PLS that we rewrote based on guidance on how to structure a PLS for a Cochrane Intervention review [1], with some modifications to fit the template to DTA reviews (PLS 0.1). Some minor corrections to wording of the PLS were made following focus group 1 (PLS 0.2). We also included several alternative methods for presenting the numerical results of the review. Participants were asked about their general views on the two PLSs, what they liked and disliked about each, and how the two compared. We then asked them about their views on how numerical results should be presented and which of the four alternative suggestions presented they preferred. There was a clear preference for our new suggested structure, and to include a figure, there were also a number of suggestions for improvements. Based on the results of the focus group, we produced a revised PLS with substantial changes to wording and headings and inclusion of a figure to summarize numerical results [7]. This updated PLS (PLS 0.3) was used for the next stage of the development process—one-on-one user testing with potential stake holders: four clinicians, one journalist, one commissioner, one review author, and one patient representative. All supported the changes made following the focus groups with some additional changes suggested to the wording of some sections.

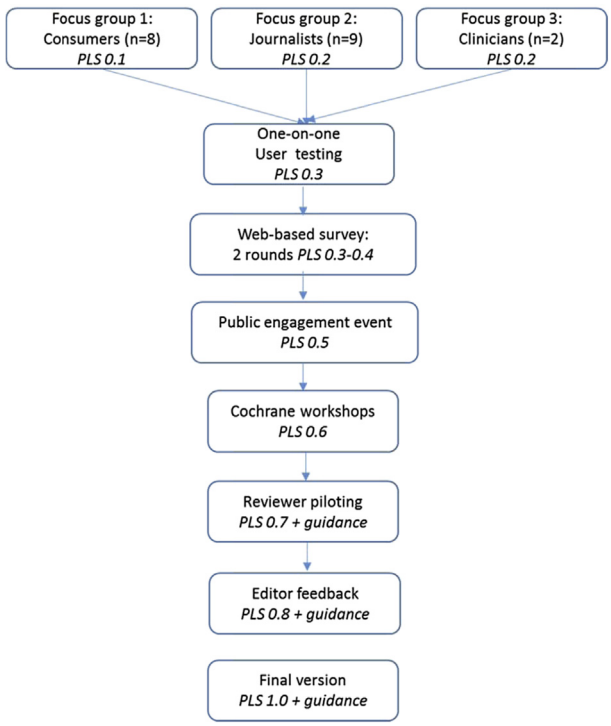

Fig. 1. Outline of process used to develop PLS guidance.

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