The STARD reporting guideline writing guide

For writing impactful diagnostic accuracy study articles that can be understood and used by a wide audience.

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| Note |
| If you have not used a writing guide before, read about our suggested [writing process](https:/jamesrharwood.github.io/equator-guidelines-website/about/writing-using-reporting-guidelines.html).  This guide is not a template. Don’t expect to fill it in and end up with a finished article. Instead, think of it as an exercise book.   1. Collate information and make notes in this guide; 2. Delete the prompts and headings, reorganise your notes into a narrative structure, moving content to tables, figures, or appendices when appropriate, thereby creating a writing outline. 3. Draft, revise, and edit your text in a separate file, referring to your outline throughout.   Before you begin, double check that STARD is the [most applicable reporting guideline](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/index.html?#applicability) for your work. Other reporting guidelines have their own writing guide.  The [UK EQUATOR Centre training](https:/jamesrharwood.github.io/equator-guidelines-website/training.html) helps researchers develop writing skills and to use reporting guidelines (like this one) to write research articles and applications that are complete, concise, and compelling. It covers many of the items of the STARD reporting guideline, including how to prepare effective abstracts, titles, introduction and discussion sections, as well as how to use writing guides to create writing outlines, how to turn outlines into drafts, and drafts into polished text. |

# Title or abstract

## [1. Identification as a study of diagnostic accuracy](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/identification.html)

|  |
| --- |
| Things To Consider |
| Identification as a study of diagnostic accuracy using at least one measure of accuracy (such as sensitivity, specificity, predictive values, or AUC). |

* Make notes here:
* …
* …

# Abstract

## [2. Abstract](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/abstract.html)

|  |
| --- |
| Things To Consider |
| Structured summary of study design, methods, results and conclusions (for specific guidance, see STARD for Abstracts). |

* Make notes here:
* …
* …

# Introduction

## [3. Background](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/background.html)

|  |
| --- |
| Things To Consider |
| Scientific and clinical background, including the intended use and clinical role of the index test. |

* Make notes here:
* …
* …

## [4. Objectives](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/objectives.html)

|  |
| --- |
| Things To Consider |
| Study objectives and hypotheses. |

* Make notes here:
* …
* …

# Methods

## [5. Study design](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/study-design.html)

|  |
| --- |
| Things To Consider |
| Whether data collection was planned before the index test and reference standard were performed (prospective study) or after (retrospective study). |

* Make notes here:
* …
* …

## Participants

### [6. Eligibility criteria](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/eligibility-criteria.html)

|  |
| --- |
| Things To Consider |
| Eligibility criteria. |

* Make notes here:
* …
* …

### [7. Identifying eligible participants](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/identifying-eligible-participants.html)

|  |
| --- |
| Things To Consider |
| On what basis potentially eligible participants were identified (such as symptoms, results from previous tests, inclusion in registry). |

* Make notes here:
* …
* …

### [8. Setting, location, and dates](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/setting-location-dates.html)

|  |
| --- |
| Things To Consider |
| Where and when potentially eligible participants were identified (setting, location and dates). |

* Make notes here:
* …
* …

### [9. Consecutive, random or convenience series](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/consecutive-random-convenience-series.html)

|  |
| --- |
| Things To Consider |
| Whether participants formed a consecutive, random or convenience series. |

* Make notes here:
* …
* …

## Test Methods

### [10a. Index test](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/index-test.html)

|  |
| --- |
| Things To Consider |
| Index test, in sufficient detail to allow replication. |

* Make notes here:
* …
* …

### [10b. Reference standard](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/reference-standard.html)

|  |
| --- |
| Things To Consider |
| Reference standard, in sufficient detail to allow replication. |

* Make notes here:
* …
* …

### [11. Reference standard rationale](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/reference-standard-rationale.html)

|  |
| --- |
| Things To Consider |
| Rationale for choosing the reference standard (if alternatives exist). |

* Make notes here:
* …
* …

### [12a. Index test cut-offs or categories](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/index-test-cut-offs-categories.html)

|  |
| --- |
| Things To Consider |
| Definition of and rationale for test positivity cut-offs or result categories of the index test, distinguishing prespecified from exploratory. |

* Make notes here:
* …
* …

### [12b. Reference standard cut-offs or categories](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/reference-standard-cut-offs-categories.html)

|  |
| --- |
| Things To Consider |
| Definition of and rationale for test positivity cut-offs or result categories of the reference standard, distinguishing prespecified from exploratory. |

* Make notes here:
* …
* …

### [13a. Information available to performers or readers of the index test](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/information-available-index.html)

|  |
| --- |
| Things To Consider |
| Whether clinical information and reference standard results were available to the performers or readers of the index test. |

* Make notes here:
* …
* …

### [13b. Information available to reference standard assessors](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/information-available-reference.html)

|  |
| --- |
| Things To Consider |
| Whether clinical information and index test results were available to the assessors of the reference standard. |

* Make notes here:
* …
* …

## Analysis

### [14. Analysis methods](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/analysis-methods.html)

|  |
| --- |
| Things To Consider |
| Methods for estimating or comparing measures of diagnostic accuracy. |

* Make notes here:
* …
* …

### [15. Indeterminate results](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/indeterminate-results.html)

|  |
| --- |
| Things To Consider |
| How indeterminate index test or reference standard results were handled. |

* Make notes here:
* …
* …

### [16. Missing data](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/missing-data.html)

|  |
| --- |
| Things To Consider |
| How missing data on the index test and reference standard were handled. |

* Make notes here:
* …
* …

### [17. Variability](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/variability.html)

|  |
| --- |
| Things To Consider |
| Any analyses of variability in diagnostic accuracy, distinguishing prespecified from exploratory. |

* Make notes here:
* …
* …

### [18. Intended sample size](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/intended-sample-size.html)

|  |
| --- |
| Things To Consider |
| Intended sample size and how it was determined. |

* Make notes here:
* …
* …

# Results

## Participants

### [19. Participant flow diagram](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/flow-diagram.html)

|  |
| --- |
| Things To Consider |
| Flow of participants, using a diagram. |

* Make notes here:
* …
* …

### [20. Baseline characteristics](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/baseline-characteristics.html)

|  |
| --- |
| Things To Consider |
| Baseline demographic and clinical characteristics of participants. |

* Make notes here:
* …
* …

### [21a. Participants with the target condition](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/participants-with-target-condition.html)

|  |
| --- |
| Things To Consider |
| Distribution of severity of disease in those with the target condition. |

* Make notes here:
* …
* …

### [21b. Participants without the target condition](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/participants-without-target-condition.html)

|  |
| --- |
| Things To Consider |
| Distribution of alternative diagnoses in those without the target condition. |

* Make notes here:
* …
* …

### [22. Time interval](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/time-interval.html)

|  |
| --- |
| Things To Consider |
| Time interval and any clinical interventions between index test and reference standard. |

* Make notes here:
* …
* …

## Test Results

### [23. Index test and reference standard results](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/index-reference-results.html)

|  |
| --- |
| Things To Consider |
| Cross tabulation of the index test results (or their distribution) by the results of the reference standard. |

* Make notes here:
* …
* …

### [24. Estimates of accuracy](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/estimates-of-accuracy.html)

|  |
| --- |
| Things To Consider |
| Estimates of diagnostic accuracy and their precision (such as 95% CIs). |

* Make notes here:
* …
* …

### [25. Adverse events](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/adverse-events.html)

|  |
| --- |
| Things To Consider |
| Any adverse events from performing the index test or the reference standard. |

* Make notes here:
* …
* …

# Discussion

## [26. Limitations](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/limitations.html)

|  |
| --- |
| Things To Consider |
| Study limitations, including sources of potential bias, statistical uncertainty and generalisability. |

* Make notes here:
* …
* …

## [27. Implications for Practice](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/implications-for-practice.html)

|  |
| --- |
| Things To Consider |
| Implications for practice, including the intended use and clinical role of the index test. |

* Make notes here:
* …
* …

# Other information

## [28. Registration](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/registration.html)

|  |
| --- |
| Things To Consider |
| Registration number and name of registry. |

* Make notes here:
* …
* …

## [29. Protocol](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/protocol.html)

|  |
| --- |
| Things To Consider |
| Where the full study protocol can be accessed. |

* Make notes here:
* …
* …

## [30. Funding](https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/items/funding.html)

|  |
| --- |
| Things To Consider |
| Sources of funding and other support; role of funders. |

* Make notes here:
* …
* …

## How to cite

Describe how you used STARD at the end of your Methods section, referencing the resources you used e.g.,

‘We used the STARD reporting guideline(1) to draft this manuscript, and the STARD reporting checklist(2) when editing, included in supplement A’

If you use a reporting checklist, remember to include it as a supplement when publishing so that readers can easily find information and see how you have interpreted the guidance.

1. Bossuyt PM, Reitsma JB, Bruns DE, Gatsonis CA, Glasziou PP, Irwig L, et al. STARD 2015: An updated list of essential items for reporting diagnostic accuracy studies. BMJ [Internet]. 2015 Oct;351:h5527. Available from: <https://www.bmj.com/content/351/bmj.h5527>

2. Bossuyt PM, Reitsma JB, Bruns DE, Gatsonis CA, Glasziou PP, Irwig L, et al. The STARD reporting checklist. In: Harwood J, Albury C, Beyer J de, Schlüssel M, Collins G, editors. The EQUATOR network reporting guideline platform [Internet]. The UK EQUATOR Centre; 2025. Available from: [https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/stard-checklist.docx](https://https:/jamesrharwood.github.io/equator-guidelines-website/guidelines/stard/stard-checklist.docx)