PROSPERO: an international prospective register of systematic review protocols

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Prospective registration of systematic review protocols

- PRISMA 2009 advocated registration
- CRD initiated development of PROSPERO

- PROSPERO launched 2011
- Until then no open access facility to formally register systematic review protocols
- Although publication of protocols is integral to Cochrane and Campbell Collaborations this is limited to their own organisations
Why register systematic reviews

• Widely accepted (& promoted) that systematic reviews provide best evidence for decision making

• Have the potential to impact on decisions that affect the care of many people and to have significant budgetary impact

• Associated responsibility to ensure best methods and conduct to ensure systematic reviews are robust and free from bias
Avoiding bias

- Detecting and mitigating bias in included studies is central to systematic review. Influences and pressures on reporting are the same for systematic reviews as for clinical trials.
- Systematic review protocols ensure review methods are transparent and reproducible. Adherence to the protocol should help avoid bias.
- Changes in emphasis between protocol and completed review have potential to bias review findings.
- Evidence that reviews change between protocol and final report (Silagy et al JAMA 2002) and of outcome reporting biases (Kirkham et al PLoS ONE 2010).
Registration can help

• Permanent public record of key elements of planned review including inclusion criteria and outcomes

• Allows amendments and maintains audit trail of changes (not unreasonable to make changes, but need to know why)

• Allows published results to be compared with what was planned at protocol registration and judgement of whether any discrepancies might have introduced bias
Avoiding bias

- Registration in PROSPERO takes place when the protocol is finalised but ideally before eligibility screening has started
- Reduces opportunity for post-hoc ‘tweaking’
- Recognise that it will not stop deliberate ‘cheating’
  - PROSPERO openly displays dates and amendments
  - Does not in itself prevent overt misuse
  - Falsification would be deliberate act of scientific misconduct with potentially serious and damaging consequences
Avoiding unintended duplication

- Systematic reviews can be time consuming and costly
- Often duplicate or very similar reviews are undertaken
- Unintended duplication is economically wasteful
- Commissioners and researchers may be unaware of ongoing reviews and/or unpublished reviews
How registration can help

• Registration should allow those planning reviews to check whether there are any reviews already in the ‘pipeline’ or completed but unpublished that address their topic of interest

• They can then decide whether or not to proceed
Benefits to stakeholders

Researchers
• Comply with PRISMA
• Provide a public record of their planned methods
• Raise awareness of their review
• Unique registration number may help track subsequent use of their review and monitor impact

Commissioners and funders
• Identify ongoing and unpublished reviews
• Avoid unplanned duplication and economic wastefulness
Benefits to stakeholders

Guideline developers
• Information about forthcoming reviews may assist in planning and timing of guideline development

Journal Editors
• Safeguard against reporting biases
• Access to key protocol features to utilise in peer review

Peer reviewers
• Comparison of manuscript findings with the review protocol
Benefits to stakeholders

Methodologists
• Provides opportunity for methods research

The public
• Helps ensure that health and social care decisions that may affect them are known to be based on good quality systematic review evidence
• Open access information about ongoing systematic reviews
• Encourages transparency in the systematic review process
• Helping to avoid wasting money on unintended duplication
**PROSPERO implementation**

Aimed to make registration as straightforward as possible:

- Web based
- Free to register, free to search
- Researchers create and **update** their own records
- Record content is responsibility of researcher/ review author
- Administrators check for “sense” **not** peer review
- Issues unique registration number
- An audit trail of amendments is maintained
- Registration record indexed by the PROSPERO team
- Based on data set agreed by international consultation:
  - 22 required fields 18 optional fields
Registering a review  www.crd.york.ac.uk/PROSPERO

Current scope

Systematic reviews of the effects of interventions and strategies to prevent, diagnose, treat, and monitor health conditions, for which there is a health related outcome.
PROSPERO

- Since launch almost 600 reviews registered undertaken in 34 different countries

- Over 15,000 visitors and over a million page views in first year
Registration makes sense

• Promotes transparency and helps identify and reduce risk of reporting bias

• Helps avoid unintended duplication and supports research funding to be used wisely and to best effect

• Requires modest additional effort and early success of PROSPERO indicates researchers are ready and willing to register their systematic review protocols

• Prospective registration should become standard best practice for those who commission, fund and conduct systematic reviews
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www.crd.york.ac.uk/PROSPERO
crd-register@york.ac.uk
Registration minimum dataset 22 required fields:

**Administrative**
- Review title
- Named contact(s)
- Contact e-mail
- Organisational affiliation
- Funding source/sponsors
- Conflict of interests
- Anticipated or actual start date
- Stage of review†
- Anticipated completion date
- Review status†

† these fields are updated as the review progresses

**Review design**
- Review question/objective
- Condition/domain studied
- Search details
- Participants/population
- Intervention/exposure
- Comparator/control
- Study types
- Primary outcomes
- Secondary outcomes
- Risk of bias/quality assessment
- Strategy for data synthesis
- Planned subgroup analyses
Registration dataset 18 optional fields:

**Administrative**
- Contact postal address
- Contact phone number
- Review team members & affiliations
- Collaborators
- Other registration details
- Organisational reference number
- Language
- Country
- Key words
- Any other information
- Existing review by same authors

**Review design**
- Type of review
- URL to search strategy
- URL to full protocol
- Context
- Data extraction methods
- Dissemination plan
- Link to final report/publication (added over time)

*Italics denote functional fields not decided by consultation exercise*