
Give the working title of the review, for example the one used for obtaining funding. Ideally the title should state succinctly the interventions or exposures being reviewed and the associated health or social problems. Where appropriate, the title should use the PI(E)COS structure to contain information on the Participants, Intervention (or Exposure) and Comparison groups, the Outcomes to be measured and Study designs to be included.

Percutaneous mechanical circulatory support devices in high-risk patients undergoing percutaneous coronary intervention

2. Original language title.

For reviews in languages other than English, this field should be used to enter the title in the language of the review. This will be displayed together with the English language title.

3. *Anticipated or actual start date.*

Give the date when the systematic review commenced, or is expected to commence.

01/12/2018

4. *Anticipated completion date.*

Give the date by which the review is expected to be completed.

01/04/2019

5. *Stage of review at time of this submission.*

Indicate the stage of progress of the review by ticking the relevant Started and Completed boxes. Additional information may be added in the free text box provided.

Please note: Reviews that have progressed beyond the point of completing data extraction at the time of initial registration are not eligible for inclusion in PROSPERO. Should evidence of incorrect status and/or completion date being supplied at the time of submission come to light, the content of the PROSPERO record will be removed leaving only the title and named contact details and a statement that inaccuracies in the stage of the review date had been identified.

This field should be updated when any amendments are made to a published record and on completion and publication of the review. If this field was pre-populated from the initial screening questions then you are not able to edit it until the record is published.

The review has not yet started: No
Review stage

<table>
<thead>
<tr>
<th>Stage</th>
<th>Started</th>
<th>Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary searches</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Piloting of the study selection process</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Formal screening of search results against eligibility criteria</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Data extraction</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Risk of bias (quality) assessment</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Data analysis</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Provide any other relevant information about the stage of the review here (e.g. Funded proposal, protocol not yet finalised).

6. * Named contact.
The named contact acts as the guarantor for the accuracy of the information presented in the register record.

Wenhai Shi

Email salutation (e.g. "Dr Smith" or "Joanne") for correspondence:

Dr Shi

7. * Named contact email.
Give the electronic mail address of the named contact.

1136705365@qq.com

8. Named contact address
Give the full postal address for the named contact.

No. 16 Jianshenan Road, Chengdu, 610031, China

9. Named contact phone number.
Give the telephone number for the named contact, including international dialling code.

15828554938

10. * Organisational affiliation of the review.
Full title of the organisational affiliations for this review and website address if available. This field may be completed as 'None' if the review is not affiliated to any organisation.

The Sixth People's Hospital of Chengdu

Give the title, first name, last name and the organisational affiliations of each member of the review team. Affiliation refers to groups or organisations to which review team members belong.

Dr Wenhai Shi. The Sixth People's Hospital of Chengdu
12. *Funding sources/sponsors.*

Give details of the individuals, organizations, groups or other legal entities who take responsibility for initiating, managing, sponsoring and/or financing the review. Include any unique identification numbers assigned to the review by the individuals or bodies listed.

The work was supported by the National Natural Science Foundation of China.

13. *Conflicts of interest.*

List any conditions that could lead to actual or perceived undue influence on judgements concerning the main topic investigated in the review.

None

14. **Collaborators.**

Give the name and affiliation of any individuals or organisations who are working on the review but who are not listed as review team members.


State the question(s) to be addressed by the review, clearly and precisely. Review questions may be specific or broad. It may be appropriate to break very broad questions down into a series of related more specific questions. Questions may be framed or refined using PI(E)COS where relevant.

Will percutaneous mechanical circulatory support devices (pMCSDs) improve prognosis of patients after high-risk percutaneous coronary intervention?


Give details of the sources to be searched, search dates (from and to), and any restrictions (e.g. language or publication period). The full search strategy is not required, but may be supplied as a link or attachment.

PubMed, EMBase, Cochrane Library, Clinical Trial.gov, CNKI, Wanfang, and VIP databases will be systematically searched in accordance with the PRISMA guidelines from January 1990 to August 2018.

Language limited to English and Chinese.

17. **URL to search strategy.**

Give a link to a published pdf/word document detailing either the search strategy or an example of a search strategy for a specific database if available (including the keywords that will be used in the search strategies), or upload your search strategy. Do NOT provide links to your search results.

Alternatively, upload your search strategy to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.

Do not make this file publicly available until the review is complete

18. *Condition or domain being studied.*

Give a short description of the disease, condition or healthcare domain being studied. This could include health and wellbeing outcomes.

Percutaneous coronary intervention (PCI) currently is the preferred method of revascularization according to
current guideline. On the other hand, pMCSDs are increasingly used on the assumption (but without solid proof) that their use will improve prognosis of patients after PCI.

Give summary criteria for the participants or populations being studied by the review. The preferred format includes details of both inclusion and exclusion criteria.
Patients undergoing high-risk PCI

20. * Intervention(s), exposure(s).
Give full and clear descriptions or definitions of the nature of the interventions or the exposures to be reviewed.
Percutaneous mechanical circulatory support devices (e.g. intra-aortic balloon pump, left ventricular assist devices)

21. * Comparator(s)/control.
Where relevant, give details of the alternatives against which the main subject/topic of the review will be compared (e.g. another intervention or a non-exposed control group). The preferred format includes details of both inclusion and exclusion criteria.
No use of pMCSDs

22. * Types of study to be included.
Give details of the types of study (study designs) eligible for inclusion in the review. If there are no restrictions on the types of study design eligible for inclusion, or certain study types are excluded, this should be stated. The preferred format includes details of both inclusion and exclusion criteria.
Randomized controlled trials (RCTs).

Give summary details of the setting and other relevant characteristics which help define the inclusion or exclusion criteria.

24. * Main outcome(s).
Give the pre-specified main (most important) outcomes of the review, including details of how the outcome is defined and measured and when these measurements are made, if these are part of the review inclusion criteria.
The primary end point will be all-cause mortality.

Timing and effect measures
30-days to 6-month follow-up

25. * Additional outcome(s).
List the pre-specified additional outcomes of the review, with a similar level of detail to that required for main outcomes. Where there are no additional outcomes please state ‘None’ or ‘Not applicable’ as appropriate to the review.
Secondary end points will be re-infarction, AKI, HF, stroke/ transient ischemic attack (TIA), embolization,
Timing and effect measures
30-days to 6-month follow-up

26. * Data extraction (selection and coding).
Give the procedure for selecting studies for the review and extracting data, including the number of researchers involved and how discrepancies will be resolved. List the data to be extracted.

Two reviewers will independently extract the data from original studies; disagreements were resolved by consultation with a third reviewer. The data we extracted included: 1) region and year of each trial, 2) sample size, 3) age distribution, 4) intervention measures, 5) follow-up duration, 6) all-cause mortality and other adverse events.

State whether and how risk of bias will be assessed (including the number of researchers involved and how discrepancies will be resolved), how the quality of individual studies will be assessed, and whether and how this will influence the planned synthesis.

The quality of each study will be assessed by two independent reviewers according to the guideline of the Cochrane collaboration's tool which is a domain-based evaluation system composed of six principles: selection bias, performance bias, detection bias, attrition bias, reporting bias, other bias. Each item is evaluated by “low risk of bias”, “unclear risk of bias” or “high risk of bias”.

Give the planned general approach to synthesis, e.g. whether aggregate or individual participant data will be used and whether a quantitative or narrative (descriptive) synthesis is planned. It is acceptable to state that a quantitative synthesis will be used if the included studies are sufficiently homogenous.

Stata 12.0 will be used. Relative risks (RRs) and 95% confidence intervals (CIs) will be used to describe the relationship between pMCSDs and the risk of all-cause mortality, re-infarction, bleeding and other adverse events for the pooled analysis. Heterogeneity will be examined using Cochran’s Q and the I² statistic.

29. * Analysis of subgroups or subsets.
Give details of any plans for the separate presentation, exploration or analysis of different types of participants (e.g. by age, disease status, ethnicity, socioeconomic status, presence or absence or co-morbidities); different types of intervention (e.g. drug dose, presence or absence of particular components of intervention); different settings (e.g. country, acute or primary care sector, professional or family care); or different types of study (e.g. randomised or non-randomised).

Considering that cardiogenic shock may have a negative effect on prognosis, we will do subgroup analyses on patients with and without shock.

30. * Type and method of review.
Select the type of review and the review method from the lists below. Select the health area(s) of interest for your review.
Type of review
Cost effectiveness  
No
Diagnostic  
No
Epidemiologic  
No
Individual patient data (IPD) meta-analysis  
No
Intervention  
Yes
Meta-analysis  
Yes
Methodology  
No
Narrative synthesis  
No
Network meta-analysis  
No
Pre-clinical  
No
Prevention  
No
Prognostic  
Yes
Prospective meta-analysis (PMA)  
No
Review of reviews  
No
Service delivery  
No
Synthesis of qualitative studies  
No
Systematic review  
Yes
Other  
No

Health area of the review
Alcohol/substance misuse/abuse  
No
Blood and immune system  
No
Cancer  
No
Cardiovascular  
Yes
Care of the elderly  
No
Child health
No
Complementary therapies
No
Crime and justice
No
Dental
No
Digestive system
No
Ear, nose and throat
No
Education
No
Endocrine and metabolic disorders
No
Eye disorders
No
General interest
No
Genetics
No
Health inequalities/health equity
No
Infections and infestations
No
International development
No
Mental health and behavioural conditions
No
Musculoskeletal
No
Neurological
No
Nursing
No
Obstetrics and gynaecology
No
Oral health
No
Palliative care
No
Perioperative care
No
Physiotherapy
No
Pregnancy and childbirth
No
Public health (including social determinants of health)
No
Rehabilitation
No
31. Language.
Select each language individually to add it to the list below, use the bin icon to remove any added in error.
Chinese-Simplified
English
There is an English language summary.

32. Country.
Select the country in which the review is being carried out from the drop down list. For multi-national collaborations select all the countries involved.
China

33. Other registration details.
Give the name of any organisation where the systematic review title or protocol is registered (such as with The Campbell Collaboration, or The Joanna Briggs Institute) together with any unique identification number assigned. (N.B. Registration details for Cochrane protocols will be automatically entered). If extracted data will be stored and made available through a repository such as the Systematic Review Data Repository (SRDR), details and a link should be included here. If none, leave blank.

34. Reference and/or URL for published protocol.
Give the citation and link for the published protocol, if there is one
Give the link to the published protocol.
Alternatively, upload your published protocol to CRD in pdf format. Please note that by doing so you are consenting to the file being made publicly accessible.
No I do not make this file publicly available until the review is complete
Please note that the information required in the PROSPERO registration form must be completed in full even if access to a protocol is given.

35. Dissemination plans.
Give brief details of plans for communicating essential messages from the review to the appropriate
Do you intend to publish the review on completion?
Yes

36. Keywords.
Give words or phrases that best describe the review. Separate keywords with a semicolon or new line. Keywords will help users find the review in the Register (the words do not appear in the public record but are included in searches). Be as specific and precise as possible. Avoid acronyms and abbreviations unless these are in wide use.

percutaneous coronary intervention, percutaneous mechanical circulatory support devices, intra-aortic balloon pump, left ventricular assist devices

37. Details of any existing review of the same topic by the same authors.
Give details of earlier versions of the systematic review if an update of an existing review is being registered, including full bibliographic reference if possible.

38. * Current review status.
Review status should be updated when the review is completed and when it is published. For new registrations the review must be Ongoing.
Please provide anticipated publication date
Review_Ongoing

39. Any additional information.
Provide any other information the review team feel is relevant to the registration of the review.

40. Details of final report/publication(s).
This field should be left empty until details of the completed review are available.
Give the link to the published review.