Protocol

We are carrying out a systematic review and narrative synthesis of interventions aiming at institutional research capacity strengthening in LMICs. The criteria for inclusion of articles in the review are:

1. Describes an intervention (articles describing only selection of recipients are excluded)
2. Intervention is implemented in LMIC
3. Intervention based in, or relevant to, university staff or post docs
4. Intervention aims to improve research capacity
5. Intervention aims for change at the group/institutional / systematic/ systemic level (intervention addressing only individuals are excluded)

Database searches

Searches will be run in a number of subject-specific and multidisciplinary bibliographic databases for the period 2011-2016 with a search strategy using both natural language (title/abstract) and controlled language (database index terms) strings adapted for each database (See Supplementary Table 1, Extended data). A search filter for LMICs (adapted from a Cochrane EPOC group filter based on World Bank definitions) will be used to restrict papers. The following databases will be searched: Medline (Ovid), Embase (Ovid), ERIC (education database - Ebsco), Scopus, International Bibliography of the Social Sciences (Proquest), Public Affairs Information Service (Proquest), Social Science Journals (Proquest), Higher Education Empirical Research (HEER - up to 2014). Results will be amalgamated within Endnote X6.0.1 and duplicates removed. This search will be further updated with the same databases (except HEER) to August 2018 and this retrieved a further 1503 citations after duplicates were removed. No language limits will be placed on the searches.

Other strategies to find relevant papers

Once we have the included studies from the initial searches, we will use them to extend our search. We will manually screen through the references of all included papers, search for other articles describing the included interventions, and perform a citation search of the included articles in Scopus.

Selection of papers

The titles obtained in the two searches will be read by one or two people to include any title with potential to meet the inclusion criteria. At the next stage, all selected titles and the relevant abstracts will be reviewed independently by two people and any conflicting decisions resolved by a third team member. Next, the full text of the papers will be reviewed independently by two people, with a third resolving any conflicts.

Data extraction

A data extraction form, will be developed in Redcap (1,2). Using the online form, data will be extracted by two members of the team independently and conflicts resolved by a third person. The extraction tool will allow us to extract information on the country and institution where
the intervention is implemented, the initiator of the intervention, the various inputs included in the intervention, the reported outcomes, and whether there is a direct reference to sustainability.

The full papers will be read by two people who will check for inclusion and extract the data. Extracted data will be merged with three people going over the available extracted data and referring to the full article in case of conflicting information coming from the two extractions.

**Quality appraisal**

The reviewers extracting the information from each article will assign them a score between 1 and 5 depending on the degree to which the data we are looking for is included in the paper and the scores will be averaged.

**Supplementary Table 1, Extended data**

Supplementary_Table_1_Search_Strategy_example.docx  
http://wiredspace.wits.ac.za/jspui/handle/10539/29290  
https://doi.org/10.17605/OSF.IO/8Q5ER