

Fabiano, Gianluca; Bustamante, Juana Paola; Codjia, Laurence; Siyam, Amani; Zurn, Pascal

Working Paper

Dimensions of health workforce performance: a scoping review

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Supplementary material A: Materials and methods

Table S1: Inclusion and exclusion criteria

Criteria	Inclusion	Exclusion
<i>Setting</i>	All countries, both public and private sectors.	
<i>Level of analysis (perspective)</i>	Individual, team, facility	Macro level, health systems, international comparisons
<i>Health setting</i>		No exclusion. Performance related to any health condition is acceptable.
<i>Population</i>	Health practitioners (ILO ISCO categories 22 and 32)	
<i>Study design</i>	Experimental, interventional analytic studies assessing the impact of strategies, interventions or programs with at least 1 component that aimed to influence performance (or any dimension). Non-experimental, observational, qualitative studies with clear causality relation between themes, or hypotheses and performance (or any dimension)	Studies in which the causality link between intervention, themes and performance dimensions was not clearly stated or addressed; narrative research
<i>Outcome</i>	Direct and indirect measures of performance or its dimensions. Factors, barriers (determinants)	Studies that only report on health outcomes (e.g., community health worker studies that only report the impact on child mortality)
<i>Language</i>	English and Spanish	
<i>Type of publications</i>	Articles published in peer-review journals.	Abstracts, reports, book chapters, proceedings to conferences.

Table S2. Process of selection of relevant keywords from previous systematic review studies and team discussion

Performance:

Performance	
<i>Keywords</i>	<i>Source</i>
Performance OR productivity OR availability OR competence	[5]

Quality OR budget performance OR equitable distribution OR incentives OR payment OR career development OR presenteeism OR absenteeism OR management OR governance OR team OR enabling factors	Team discussion HRH experts
Performance appraisal OR personnel selection OR personnel recruitment OR personnel turnover OR staff development OR workload OR remuneration OR motivation OR incentive OR incentives OR disincentive OR disincentives OR job satisfaction OR job performance OR retention OR supervision OR task+shifting OR task shifting	[14]
Self-esteem OR motivation OR attitudes OR competencies OR guideline adherence OR job satisfaction OR capacity to facilitate community agency OR utilization of services OR health-seeking behaviour OR adoption of practices promoting health OR community empowerment	[13]
Performance OR presenteeism OR absenteeism OR creat* OR product* OR commit* OR collegial* OR problem-solv* OR motivat* OR “goal set*” OR flexib* OR innovat* OR invent* OR original* OR ingenious* OR manage* OR attitude OR output OR “goal clarity” OR “work hours” OR engage* OR involve* OR satisf* OR fidel* OR devot* OR team* OR communicat* OR support* OR friendship OR relation* OR collabo* OR fellowship OR together* OR unit* OR solid* OR mutual* OR coopera* OR coordinat* OR reciproc* OR camarad* OR companionship OR comradeship OR harmon*	[12]
Mentor OR support OR train OR supervision OR advise	[16]
Personnel management OR performance management OR supervision OR recognition OR professional development OR continuing education OR training OR quality assurance OR quality improvement OR performance improvement OR performance appraisal OR incentives OR allowances OR guidelines OR tools OR support OR reward OR sanctions OR leadership OR participation OR integration of services OR remuneration OR payment OR performance-based incentives OR equipment OR technologies OR supplies OR workflow OR workload OR workplace safety OR medical care OR integration of services OR decentralisation OR teamwork OR contract OR performance contract.	[11]
Performance OR quality OR benchmark OR effectiv* OR efficien* OR appraisal* OR training OR education OR knowledge OR competen* OR evaluation OR cost OR skill OR patient satisfaction OR quality OR education	[44]
Intervention	
Tools OR checklist OR curriculum OR guideline OR evaluation OR appraisal OR validation OR delivery of health care OR quality of health care OR quality improvement OR quality assurance	[16]
Job descriptions OR Norms and codes of conduct OR Skills matched with needs OR Supervision OR Remuneration OR Information and communication OR Infrastructure and supplies OR Lifelong learning OR Teamwork OR Responsibility OR accountability	[5]
Impact OR intervention OR initiative OR rating OR report OR scorecard OR implementation OR intervention OR participatory action OR practice guidelines OR program evaluation OR quality assurance OR seminar OR standard management OR standard treatment OR standards OR structured care OR training OR treatment guidelines OR treatment practices OR utilization OR workshops	[44]

Table S3 – Final set of keywords for WoS and MEDLINE searches.

Web of Science
TI=((Health Practitioners OR Health Professionals OR Medical Doctors OR Generalist Medical Practitioners OR Specialist Medical Practitioners OR Nursing and Midwifery Professionals OR Nursing Professionals OR Midwifery Professionals OR Dentists OR Pharmacists) AND (Performance OR Productivity OR benchmark OR effectiveness OR efficacy OR budget

performance OR cost OR Availability OR distribution OR selection OR retention OR turnover OR presenteeism OR absenteeism OR availability of equipment OR supplies OR Competence OR career development OR professional development OR staff development OR mentor OR support OR train OR supervision OR advise OR continuing education OR training OR education OR attitude OR skills OR knowledge OR Responsiveness OR motivation OR attitudes OR self-esteem OR job satisfaction OR engagement OR goal clarity OR goal set OR creativity OR innovation OR quality of care OR quality OR quality improvement OR patient satisfaction OR accountability system OR Enabling factors OR Disabling factors OR determinants OR tools OR technologies OR incentives OR disincentive OR payment OR remuneration OR workload OR performance contract OR performance-based incentives OR workflow OR workload OR workplace safety OR working conditions OR allowances OR reward OR sanctions OR On-time payment OR equipment OR monitoring OR evaluation OR Pay for performance OR Guideline adherence OR management OR governance OR team OR teamwork OR supervision OR task-shifting OR collegiality OR problem-solving OR personnel management OR leadership OR cooperation OR task substitution OR task delegation OR communication OR Capacity to facilitate community agency OR utilization of services OR health-seeking behaviour OR adoption of practices promoting health OR community empowerment))
MEDLINE
MT=((Health Personnel) AND (Work Performance OR Employee performance appraisal OR Reimbursement-Incentive OR Task performance and analysis OR Efficiency OR Efficiency-Organizational OR Cost-benefit analysis OR Program Evaluation OR Cost and cost analysis OR Healthcare disparities OR Personnel turnover OR Presenteeism OR Absenteeism OR Equipment and supplies OR Staff Development OR Mentors OR Education OR Continuing OR Professional Competence OR Educational Status OR Attitude OR Knowledge OR Training support OR Interprofessional education OR Motivation OR Job Satisfaction OR Patient Satisfaction OR Quality Improvement OR Quality of Health care OR Total quality management OR Goals OR Self Concept OR Social Responsibility OR Attitude OR Reimbursement OR Incentive OR Motivation OR Remuneration OR Workload OR Workflow OR Workplace OR Reward OR Social Control OR Formal OR Financing OR Organized OR Technology OR Causality OR Equipment and supplies Leadership OR Guideline Adherence OR Personnel Management OR Communication OR Problem Solving OR Government OR Health Behavior OR Facilities and Services utilization))

Table S4 – Data extraction fields

Field	Description
Country	Country of study; this review included countries that were most represented.
Objectives	Aims and objectives of the study
Type of health workforce	Specific cadres, or professional figures if reported in detail
Study design	Type of study and research methodology
Performance output	Aspects of healthcare practice with a causal effect on performance (e.g. dependent variable or theme)
Performance outcome	Effects of outputs on population health
WHO dimension	Any of the WHO 2006 dimensions: availability, competence, responsiveness, productivity or their combination.
Element inside the dimension	Elements related to the performance dimension(s)
Main factors	Factors or determinants enabling or affecting productivity or dimensions

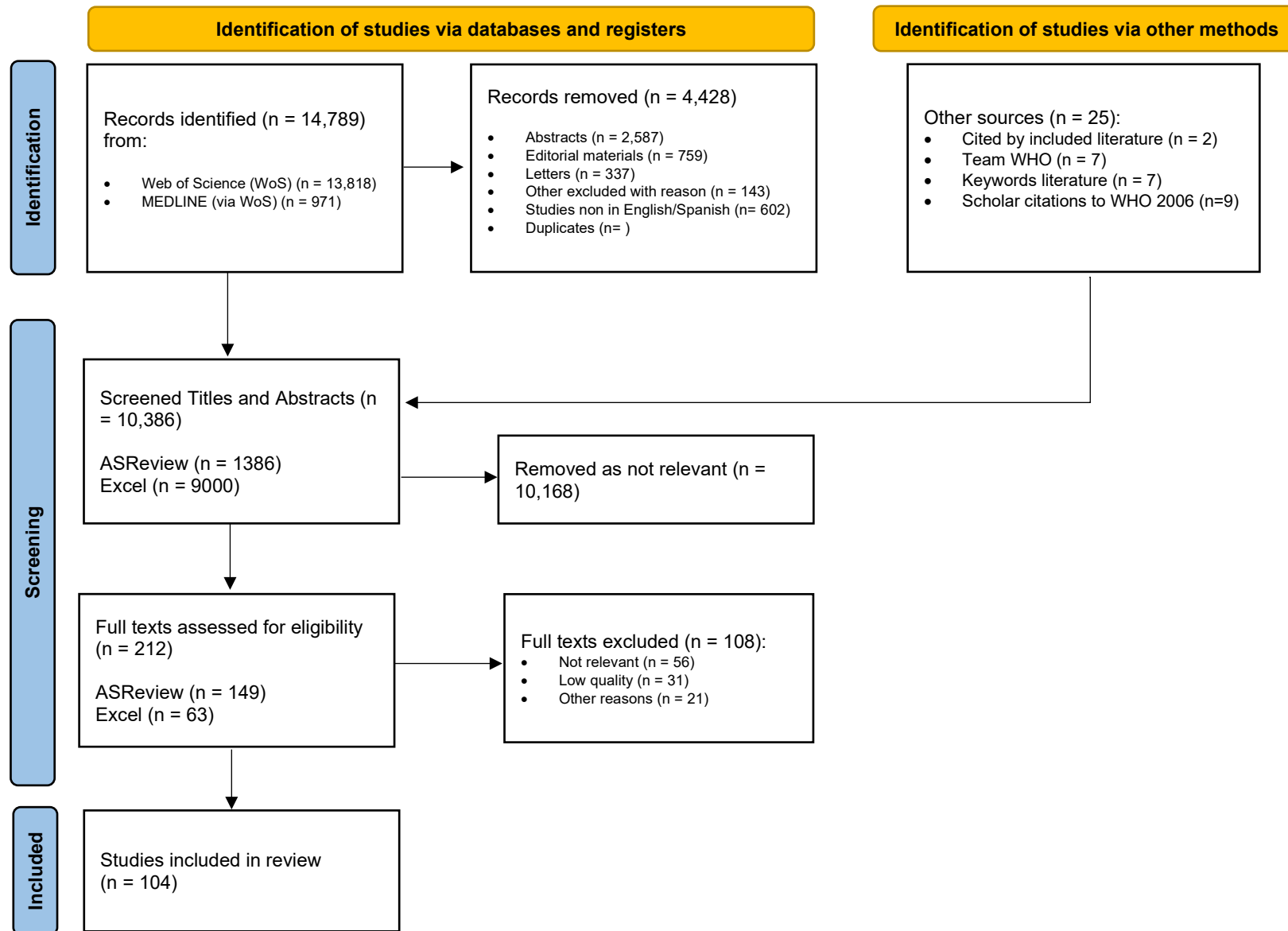


Figure S1: PRISMA diagram

Table S5 – Prisma-ScR checklist

Section	Item	PRISMA-ScR Checklist item	Page
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	3
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	NA
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	4 & Supplementary material A – table S1
Information sources	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	4
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	Supplementary material A – table S2, S3
Selection of sources of evidence	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	4-5

Data charting process	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	5
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	5
Critical appraisal of individual sources of evidence	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	NA
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	5
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Supplementary material A – figure S1
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	5-7
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	NA
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Supplementary material B
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	7-16
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	18-20
Limitations	20	Discuss the limitations of the scoping review process.	20
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	21

FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	NA

Figure S2. Process of collating, summarizing and reporting results

