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Title

Application of AI in community based primary health care: Systematic Review and critical appraisal

Priority 1 (Research Category)

Systematic review, meta-analysis, or scoping review

Presenters

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Abstract

Context: Despite the potential benefits and risks, we know little about the integration of artificial intelligence (AI) into community based primary health care (CBPHC). Objective: Identify and evaluate studies that have tested and/or implemented AI in CBPHC. Study design: We conduced a a systematic scoping review informed by Joanna Briggs Institute framework and reported our findings according to Preferred Reporting Items for Systematic reviews and Meta Analysis-Scoping reviews reporting guideline. Dataset: An information specialist performed a comprehensive search from date of inception until February 2020, on seven academic databases: Cochrane Library, MEDLINE, EMBASE, Web of Science, CINAHL, ScienceDirect, and IEEE Xplore.

Population studied: We included all studies about AI interventions, that were implemented or tested with participants who were either CBPHC health providers or recipients. Outcome measures: Outcomes of interest had to be related to patients, health care providers and CBPHC systems. Two authors independently screened the papers, extracted data using a validated extraction form and a third author resolved conflicts. We assessed the risk of bias for predictive models using the PROBAST risk of bias tool. Results: We retrieved 22,113 records. After removing duplicates, we screened 16,870, and selected 90 studies. Machine learning (46%), natural language processing (NLP) (27%) and expert systems (19%) were the most highly AI interventions studied in CBPHC. The AI systems were primarily tested and/or implemented for diagnosis, detection or surveillance purposes. Highest accuracy was reported for neural networks, considering the given database for the given clinical task. The risk of bias was the lowest for the participants category (4%) and the highest in the outcome category (34%). Conclusions: Further studies are needed to efficiently guide development and implementation of AI interventions in CBPHC setting.