International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

TMO Technology - A scoping review protocol

INPLASY202660113

doi: 10.37766/inplasy2026.6.0113

Received: 23 June 2026

Published: 23 June 2026

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ADMINISTRATIVE INFORMATION

Support - 2025 CEIH Scholarship.

Review Stage at time of this submission - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202660113

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 June 2026 and was last updated on 23 June 2026.

INTRODUCTION

Review question / Objective What is known from the existing literature about the technology that supports TMOs with their work?

Background A TMO is defined by SAMET [7] as a doctor who has finished medical school but has not yet entered into a training program. This includes PGY1 interns, PGY2 junior doctors, HMOs, RMOs and some locum doctors. Support technology refers to digital tools and systems designed to assist doctors with their daily work. The purpose of this support technology is for doctors to focus more directly on patient care [8].

TMOs need this technology because they are, at times, still learning [9]. Attention needs to be drawn to this issue because TMO errors cost the Australian public hospitals $1.4 billion AUD annually in extra treatments and extended hospital stays [10].

TMO burnout is of concern in Australia [2]. Since TMOs rarely work outside of the public hospital system, public health suffers from their burnout. Non-TMO doctors achieve greater workplace autonomy, reduced clinical hours, and better boundaries, avoiding some of this clinical burnout [11]. Allied health support technology is vital too because it expands access to care and enables better patient outcomes [12].

Rationale According to Arksey and O'Malley [1], there are four reasons why a scoping review study might be undertaken. This scoping review will be undertaken to identify research gaps in the existing literature about Trainee Medical Officer (TMO) technology. This scoping review will aim to identify TMO challenges and TMO support. TMOs do an important job with a heavy administrative burden but, at times, their job becomes challenging and they lack support. This is due to the pressure of hospital understaffing and high patient loads [2]. Technology can assist with summarising patient information and reducing the time physicians spend trying to make sense of exponential medical

data, leaving more room for direct patient care [3]. When TMOs are burnt out by exponential administrative data, patient care is proven to suffer [4]. By mapping out the sources of TMO burnout and the parts of their job that contribute most significantly to burnout, future targeted TMO support technology can be developed. Patient care may benefit from such technology.

METHODS

Strategy of data synthesis The study will follow the PRISMA-ScR checklist items [5]. The study will aim to be reproducible by its methodological framework. The scoping review will follow the stages of the framework outlined by Arksey and O'Malley [1] and the updates by Levac et al [6]. A search will be conducted in the four databases Scopus, Web of Science, CINAHL, PubMed. A PRISMA-ScR flowchart will be included in the study. The four databases include Scopus, CINAHL, Web of Science and PubMed.

In Scopus, within Article title, Abstract, Keywords, a search will be conducted and document type "Article" will be selected.
("Junior Doctor" OR "Resident Medical Officer" OR "Trainee Medical Officer" OR "Hospital Medical Officer" OR "PGY1" OR "PGY2" OR "PGY3" OR "Intern" OR "Interns" OR "locum") AND ("workload" OR "burnout" OR "administrative burden" OR "documentation" OR "workflow" OR "tasks" OR "error" OR "artificial intelligence" OR "AI" OR "CDSS" OR "CDST" OR "wearables" OR "apps" OR "AI scribe" OR "clinical decision support") AND "Australia" AND (PUBYEAR = 2022 OR PUBYEAR = 2023 OR PUBYEAR = 2024 OR PUBYEAR = 2025 OR PUBYEAR = 2026)

In CINAHL, an advanced search will be conducted.
("Junior Doctor" OR "Resident Medical Officer" OR "Trainee Medical Officer" OR "Hospital Medical Officer" OR "PGY1" OR "PGY2" OR "PGY3" OR "Intern" OR "Interns" OR "locum") AND ("workload" OR "burnout" OR "administrative burden" OR "documentation" OR "workflow" OR "tasks" OR "error" OR "artificial intelligence" OR "AI" OR "CDSS" OR "CDST" OR "wearables" OR "apps" OR "AI scribe" OR "clinical decision support") AND ("Australia") AND (PY 2022-2026)

In Web of Science, a fielded search will be conducted and a publication date "Last 5 Years" will be added to the filters.
(("Junior Doctor" OR "Resident Medical Officer" OR "Trainee Medical Officer" OR "Hospital Medical Officer" OR "PGY1" OR "PGY2" OR "PGY3" OR "Intern" OR "Interns" OR "locum") AND ("workload" OR "burnout" OR "administrative burden" OR "documentation" OR "workflow" OR "tasks" OR "error" OR "artificial intelligence" OR "AI" OR "CDSS" OR "CDST" OR "wearables" OR "apps" OR "AI scribe" OR "clinical decision support") AND "Australia")

In PubMed, an advanced search will be conducted.
("Junior Doctor"[TIAB] OR "Resident Medical Officer"[TIAB] OR "Trainee Medical Officer"[TIAB] OR "Hospital Medical Officer"[TIAB] OR "PGY1"[TIAB] OR "PGY2"[TIAB] OR "PGY3"[TIAB] OR "Intern"[TIAB] OR "Interns"[TIAB] OR "locum"[TIAB]) AND ("workload"[TIAB] OR "burnout"[TIAB] OR "administrative burden"[TIAB] OR "documentation"[TIAB] OR "workflow"[TIAB] OR "tasks"[TIAB] OR "error"[TIAB] OR "artificial intelligence"[MeSH] OR "artificial intelligence"[TIAB] OR "AI"[TIAB] OR "CDSS"[TIAB] OR "CDST"[TIAB] OR "wearables"[TIAB] OR "apps"[TIAB] OR "AI scribe"[TIAB] OR "clinical decision support"[TIAB]) AND ("Australia"[TIAB] OR "Australia"[AD]) AND ("2022/01/01"[PDAT] : "2026/12/31"[PDAT]).

Eligibility criteria The population will be TMOs, the concepts will be TMO burden and TMO technology, and the context will be Australian public hospitals. The population will include TMOs, PGY1, PGY2, Interns, Junior Doctors, RMOs, HMOs, Locum Doctors (assuming they meet SAMET criteria).

Source of evidence screening and selection A search strategy will be built using Boolean operators that satisfies the PCC and included both in this protocol and the final published study. Once the total papers are selected, they will be deduplicated. Then both reviewers will independently read the title and abstract and decide Yes (Y), No (N) or Unsure (U) based on the inclusion and exclusion criteria. Then, the papers which are not NN, will progress to stage two. In the second stage, both reviewers will independently review the papers at the full text level. They will decide either Yes (Y) or No (N). Disagreements will be resolved by mutual discussion.

Inclusion:
Research articles with an abstract published from 2022-2026 (last five years) written in English that contain Australian data and/or information about TMOs in public hospitals that address both concept A and concept B.
TMOs are doctors who have not yet entered into a training program [7].
Concept A is TMO burden.

Concept B is TMO support technology.

Exclusion:
Presents content about specialists, registrars, consultants, non-doctors, allied health workers, or students
Present partly or wholly non-Australian data
Magazine articles
Articles without an abstract
Published partly or wholly in a language other than English
Published prior to 2022
Articles that do not address either concept A or concept B or both
Articles about technology that supports patients.

Data management A table will include the finalised papers, first author names, year of publication, type of study, and the population, concepts and context. Both reviewers will discuss the finalised papers and, therefore, a collaborative approach will be used as per the recommendations of Levac et al [6].

Reporting results / Analysis of the evidence The results will be reported objectively with graphs and charts in the results section and discussed thematically in the discussion section.

Language restriction English.

Country(ies) involved Australia.

Keywords TMO; Technology; protocol.

Contributions of each author

Author 1 - Rishabh Bhargava - Author 1 authored the scoping review protocol.
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