

Use of Artificial Intelligence (AI) technologies by GPs in training and their educators: the ‘what, when, where, why and how’ of using AI and its implications for training

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Aims and Objectives: To map Australian General Practice registrars’ use of AI technologies and to explore General Practice registrars’, supervisors’ and medical educators’ (ME) perceptions regarding the impact of AI on registrars’ educational experience.

Methods: This mixed-methods study was conducted within the Royal Australian College of General Practitioners (RACGP) and included:

- i. Cross-sectional surveys (with closed and open-ended questions): Registrars enrolled in Australian general practice training programs during 2024, MEs employed by RACGP during 2023/2024, and supervisors who oversaw registrars during 2023/2024 were invited by email to complete a survey via Qualtrics.
- ii. Semi-structured interviews: Registrars who completed the survey and indicated using AI during training were invited to express their interest in participating in a semi-structured interview conducted via Zoom. Interviewees were purposively selected based on their regularity of AI use, the variety of tools they employed, and the contexts in which they applied AI (clinical or educational), with some consideration given to demographic diversity within the sample. A reflexive thematic analysis methodology was employed.

Results:

i) Survey: Responses rates were 19.5% for registrars (n=727), 12.5% for supervisors (n=406) and 20.5% for MEs (n=64).

Respectively, 12%, 27% and 19% of registrars, supervisors and MEs used AI several times a month or more to support clinical practice, while 14%, 8% and 8% used AI several times a month or more to support education/supervision.

Of registrars who reported using AI tools for clinical activities (n=234) and educational activities (n=220), the greatest proportions reported using Large Language Models, remote patient monitoring devices and note taking/voice-to-text/summarising tools. The three most commonly reported clinical uses of these tools were to maintain patient records, provide health education and in patient interactions. The three most commonly reported educational uses of these tools were for learning support, assessment support and preparation, and to simulate scenarios for practice of clinical skills.

Registrars’ AI knowledge was mostly derived from personal AI use or self-directed learning. Participants who did not use AI reported a lack of AI training/guidance/knowledge/experience as a key reason for not

using these tools. These registrars were unaware of tools available and their uses, and did not know how to use AI safely, ethically, effectively and appropriately. Participants also cited barriers to accessing medicine-specific tools (e.g., cost to subscribe and incompatibilities with clinical software), AI limitations (e.g., inaccurate, unreliable or biased outputs), ethical, medico-legal and moral concerns around AI use, a lack of interest/desire to engage with AI tools and concerns about patient acceptance of AI use.

Most registrars, supervisors and MEs were at least moderately concerned about ethical/legal issues of using AI in GP training, such as patient data security and privacy, legal liability for medical errors and cheating on assessments. Non-users were more concerned than regular users. Other concerns about AI included a lack of regulation of AI for medical use, professional ramifications from RACGP for AI use, loss of therapeutic relationships, and AI deskilling, downgrading and replacing GPs.

Despite this, majorities of registrars, supervisors and MEs agreed or strongly agreed that AI content should be included in medical degrees, GP training and GP Continuing Professional Development (CPD), and that supervisors, MEs and practice managers at placement clinics should be trained in using AI.

ii) Interviews: 15 registrars who reported using AI to support clinical and/or educational activities during training were interviewed. Qualitative exploration provided rich data about registrars' experiences of AI use during training. Interviewees reported using a range of AI tools to support their work in the clinical setting (e.g. to search for evidence-based guidelines, assist in creating management plans and patient education resources, and reduce administration burden) and in the educational setting (e.g. to generate study notes, mock examination question practice, and to support research activities). Interviewees also described using strategies to manage AI inaccuracies and bias, including reviewing and revising output and checking reliable sources.

Discussion: Our findings indicate that AI technologies are being used during Australian GP training and describe how registrars are currently using AI in clinical and educational practice. A small proportion of registrars, supervisors and MEs regularly used AI for education/supervision and clinical practice, consistent with an 'early adoption' phase of technological uptake. Registrars who are using AI most regularly are aware of the ethical and medico-legal implications of AI use and of AI limitations and are implementing strategies to minimise those issues.

Implications: Despite only a small proportion of participants reporting frequent use of AI tools, most believed these technologies have the potential to positively impact GP training. Most believed that training in AI was necessary for registrars, supervisors, MEs, practice managers and medical students. These findings demonstrate a need for the development and provision of timely and relevant AI policies and training by universities, the RACGP and training practices.

Future Research: Future research could involve tracking AI use and engagement over time, as tools are refined and improved, to determine whether GP registrars and their educators are progressing from the 'early adoption' phase of technological uptake to more widespread use. There would also be value in interviewing supervisors, medical educators, practice managers and medical students to explore their experiences with, and perceptions of, AI in general practice education and training.