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Family medicine and Artificial Intelligence: a human touch

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Family medicine is a discipline built on deep therapeutic relationships. As Francis Peabody observed in 1927, "the secret of taking care of patients is to take care of patients". However, significant administrative burdens and time constraints often leave physicians struggling to connect with patients.[1] The promise of artificial intelligence (AI) offers a path to revitalize this essential human touch.[2] AI tools that excel at pattern-based functions (such as interpreting medical images) can improve diagnostic accuracy and decision support in primary care.[3-4] At the same time, AI applications targeting non-pattern tasks, such as documenting patient encounters, can reduce the cognitive and administrative burdens on family physicians, optimize patient engagement, and free up doctors to deepen the therapeutic relationship.[5] This paper outlines a framework for how AI can enhance the human touch of family medicine, structured around the World Organization of Family Doctors (WONCA) Europe's definition of general practice/family medicine and its core competencies.[6]

- AI's most immediate impact is on **primary care management,** where it can serve as a 'silent assistant' in a 'manageable cockpit'.[7] Tools like 'smart triage' algorithms and 'ambient' AI scribes reduce patient wait times and doctors' documentation, directly addressing administrative overload.[8-9] Recent studies suggest that these applications can decrease workload, improve patient satisfaction, and alleviate physician burnout by allowing doctors to focus more on patients than on screens.[10] This shift enables clinicians to apply their high-level cognitive skills to complex decision-making.[5] Moreover, in our advocacy role as family physicians, we support the use of privacy-preserving AI, which aligns with the European Union (EU) AI Act's risk-based standards, thereby safeguarding data and patient privacy.[11]
- At the **community orientation** level, AI can enhance care through population health analytics, outbreak prediction, and telehealth access, making healthcare more accessible and equitable for all members of society by integrating social determinants of health.[7,12] AI-powered diagnostics for diabetic retinopathy in underserved regions exemplify this.[13] However, developers must be guided by equity, utilizing diverse datasets to avoid perpetuating biases or widening the digital divide.[14-15]
- In the **specific problem-solving** process, AI can act as a "second eye" by enhancing pre-diagnostic screening and aiding in the generation of differential diagnoses.[16-17] While models like the MAI Diagnostic Orchestrator show high accuracy in specific tasks,[18] they fall short in the complex, context-rich reasoning required for real-world medicine, especially in the primary care setting. To build trust, these systems must be explainable, avoiding opaque 'black-box' processes.[19]
- Within a **comprehensive approach,** AI can alleviate the data overload from electronic health records (EHRs)[20] by automating the early detection of chronic conditions, such as diabetes, cardiovascular disease, and depression.[21-24] Additionally, it can function as a virtual health coach, providing real-time guidance to patients.[25] Thus, by reducing clinician burden and combining these dynamic predictive analyses with cumulative physician-patient information, AI supports the well-being of both patients and physicians.
- Family doctors' most nuanced role is in **person-centred care** and empathy. Large language models (LLMs) can excel at 'cognitive empathy', recognizing and understanding emotions from text, and have even been rated as superior to physicians in chatbot responses. However, they lack genuine emotional, motivational, and bodily empathy, which are foundational to human connection and trust.[26-28] Indeed, recent studies show that empathic responses are va-

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lued less by patients when they are known to come from an AI.[29] The goal, therefore, is not to replace human empathy but to augment it. AI can draft personalized messages for clinician review or power interactive 'virtual patients' for training.[30-31]

- Ultimately, AI should be viewed as a partner that supports **holistic modeling** by integrating complex data[32] and reducing cognitive load, allowing physicians to focus on high-value reasoning and patient care.[5] Physicians who effectively incorporate AI into their practice will likely shape the future of medicine. To do so responsibly, healthcare must adopt 'human-in-the-loop' frameworks to mitigate automation bias[33] and invest in AI literacy and education for clinicians.[34]

In conclusion, by embracing AI as a partner, we can streamline routine tasks and improve diagnostic insight, allowing physicians to rededicate their time to listening, empathizing, and building therapeutic relationships that lie at the heart of family medicine.

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