McMaster University | Health Forum

Rapid Evidence Synthesis

Artificial intelligence tools for reducing administrative burden among front-line healthcare providers

15 January 2026

[MHF product code: RES 129 v2]

Box 1: Evidence and other types of information

+ Global evidence drawn upon

Evidence syntheses and single studies selected based on relevance, quality and recency of search

- No forms of domestic evidence used

+ Other types of information used

Jurisdictional scan (10 countries: AU, CA, DE, FI, IS, NO, NZ, SE, UK, US)

*** Additional notable features**

Prepared in 30 business days using an 'all hands on deck' approach

Context

Administrative burden among front-line healthcare providers has reached critical levels, significantly impacting healthcare delivery, provider well-being and patient care quality.(1) Some estimates suggest healthcare providers spend up to 50% of their time on documentation and administrative tasks, often extending work into personal hours and contributing to widespread burnout.(2)

In Canada, the situation is particularly concerning. The 2025 National Physician Health Survey (NPHS) found that 46% of physicians are burned out, with excessive administrative workload being a major contributing factor.(3) Canadian physicians and residents work an average of 53 hours per week, with 10 hours dedicated to administrative tasks alone, equivalent to more than a full extra workday. These numbers have remained unchanged since the 2021 NPHS, indicating persistent administrative burden. Additionally, 64% of physicians reported spending an excessive or moderately high amount of time on electronic medical records outside regular working hours, representing an increase from 49% in 2021.(3) The COVID-19 pandemic has further exacerbated these challenges, with healthcare workers facing unprecedented demands while managing increased documentation requirements, patient scheduling complexities, and communication needs.(4) This administrative burden reduces time available for direct patient care, contributes to provider dissatisfaction and early retirement, and exacerbates existing healthcare workforce shortages.(5; 6)

Artificial intelligence (AI) tools have emerged as a promising solution to address these challenges by automating routine administrative tasks and streamlining healthcare workflows. AI applications in healthcare administration include patient scheduling and triage supports, digital scribes and documentation systems, communication assistance platforms, and discharge support systems. These technologies utilize natural language processing (NLP), machine learning, automatic speech recognition, large language models (LLMs), and predictive analytics to reduce manual workload and improve operational efficiency.(7; 8)

Early experiences with implementing these solutions demonstrate significant potential, with time savings, improved documentation quality, enhanced workflow efficiency, and positive impacts on provider satisfaction all reported.(9) However, questions remain about optimal implementation strategies, effectiveness across different healthcare settings, long-term sustainability, and impacts on the quadruple aim of healthcare improvement.(10) Understanding barriers to AI tool adoption is equally critical, as successful implementation requires addressing technical, organizational, provider-level and patient-level challenges.(8)

Overall, the evidence base supporting AI administrative tools remains limited. As Terry et al. (2025) recently noted, "the evidence base is still limited" for AI administrative task tools in primary care, with healthcare providers needing to "demand both proper real-world testing and rigorous evaluation" of these technologies. This highlights the critical need for comprehensive evidence synthesis to inform implementation decisions.(11)

The objective of this living rapid evidence synthesis is to examine the available evidence on the effectiveness of AI tools for reducing administrative burden among front-line healthcare providers. We aim to evaluate various AI tools and applications across different healthcare settings, assess their impacts on provider experience and other equity-centred quadruple-aim metrics (i.e., patient care experiences, health outcomes, and costs), and identify key barriers and facilitators for successful implementation. Our findings will ideally be used as an input into evidence-based decision-making – alongside the views and experiences of a range of interest holders that include healthcare providers – regarding AI tool adoption, and support healthcare organizations in developing strategies to leverage AI technologies for administrative burden reduction while maintaining high-quality patient care. This synthesis addresses the call for more rigorous evaluation of AI administrative tools by reviewing available evidence and identifying gaps that require further research.

This synthesis is an update to the original evidence synthesis.(12) As a living rapid evidence synthesis, periodic updating is required as new evidence emerges in this rapidly evolving field. Since the original synthesis was completed, numerous new studies and evidence syntheses examining AI tools for administrative burden reduction have been published, warranting an updated search and analysis. The methodological approach for this update was largely consistent with the original synthesis, with the addition of new search terms to capture emerging AI technologies and applications (Appendix 1). Insights resulting from this update have been

Box 2: Approach and supporting materials

We identified evidence addressing the question by searching PubMed, Health Systems Evidence and HealthEvidence.org to identify evidence syntheses, protocols for evidence syntheses, and primary studies. We also retrieved candidate studies by searching PubMed. We limited the search date between 1 January 2017 and 22 April 2025 for Version 1. The search for this update (Version 2) is between 20 April 2025 and 5 November 2025. The search strategies used are included in Appendix 1.

We identified jurisdictional experiences by hand searching government and stakeholder websites for information relevant to the question from 10 countries, including: Australia, Canada, Denmark, Finland, Iceland, New Zealand, Norway, Sweden, the United Kingdon (U.K.) and the United States (U.S.).

In contrast to our rapid evidence profiles, which provides an overview and insights from relevant documents, this rapid evidence synthesis provides an in-depth understanding of the evidence.

We appraised the methodological quality of evidence syntheses that were deemed to be highly relevant using the first version of the AMSTAR tool. AMSTAR rates overall quality on a scale of 0 to 11, where 11/11 represents a review of the highest quality, medium-quality evidence syntheses are those with scores between four and seven, and low-quality evidence syntheses are those with scores less than four. The AMSTAR tool was developed to assess reviews focused on clinical interventions, so not all criteria apply to evidence syntheses pertaining to delivery, financial or governance arrangements within health systems or implementation strategies.

This rapid evidence synthesis was prepared in a 30-business-day timeline.

A separate appendix document includes:
1) methodological details (Appendix 1)
2) a summary table of evidence synthesis (Appendix 2)
3) a summary table of single studies (Appendix 3)
4) findings from a jurisdictional scan of Canadian provincial and territorial experiences (Appendix 4)
5) findings from a jurisdictional scan of international experiences (Appendix 5)
6) documents excluded at the final stage of reviewing (Appendix 6)
7) PRISMA diagram (Appendix 7)
8) references.

integrated throughout the findings, and where appropriate, we distinguish new insights that expand on what was learned from the first version of this synthesis.

Questions

This living evidence synthesis addresses three main questions:

1) What is known about the effectiveness of AI tools for reducing administrative burden among front-line healthcare providers (including physicians and non-physician providers), how does this vary across tools, disciplines/clinical environments and contexts, and what are the impacts on provider experiences and other equity-centred quadruple-aim metrics (i.e., improving care experiences and health outcomes at manageable per capita costs)?
2) What is known about potential barriers to and challenges with adopting AI tools among front-line healthcare providers?
3) What AI tools have been used in health systems in Canada and in select international jurisdictions (i.e., Australia, Denmark, Finland, Iceland, New Zealand, Norway, Sweden, the United Kingdom (U.K.), and the United States (U.S.)) to reduce administrative burden among front-line healthcare providers, and what has been learned about their adoption and impact?

This living evidence synthesis also sought to identify and document whether recommendations have been made related to the adoption and use of any specific AI tools for reducing administrative burden among front-line healthcare providers (including whether these recommendations were developed following a robust process such as GRADE).

High-level summary of key findings

Evidence identified

In the first version of this synthesis, we identified 1,035 records and, after undertaking eligibility assessments, included 51 evidence documents, of which we deemed 45 to be highly relevant and six to be of medium relevance. In this update, we identified an additional 970 records when conducting searches, and after undertaking eligibility assessments, included 58 new evidence documents, of which we deemed 48 to be highly relevant and 10 of medium to low relevance. This report only synthesizes findings from the 93 high-relevance studies identified across the original (version 1) and updated (version 2) searches. Insights and findings from the 16 medium-relevance studies can be found in the appendices (Appendix 3).

The highly relevant evidence documents include:

- 35 evidence syntheses, including systematic reviews and scoping reviews (of which 17 were identified in version 1 and 18 were identified in the updated searches conducted as part of version 2)
- 58 single studies, including randomized controlled trials, pilot studies and qualitative studies (of which 28 were identified in version 1 and 30 were identified in the updated searches conducted as part of version 2).

Key findings from evidence documents in relation to the research question

- In this update, we identified new evidence documents focused on patient scheduling and triage, which indicated that AI voice-based triage systems produced documentation 19% faster and lowered mis-triage rates by 0.3–8.9%.
- Our findings in the previous version of this report that AI tools demonstrated substantial administrative burden reduction across multiple healthcare domains were reinforced by the evidence documents identified and included in this update.
    - Digital scribes and documentation tools showed the most robust evidence for reducing administrative burden:

        - time savings ranged from 20.4% reduction in note-writing time per appointment to 30.0% decrease in after-hours work
        - widespread implementation demonstrated median daily documentation time reduction of 6.89 minutes and total daily electronic health record (EHR) time savings of 19.95 minutes, equivalent to approximately 83 hours annually per physician, helping address physician burnout from documentation burden
        - AI integration can automate up to 30% of nursing administrative tasks through intelligent documentation systems, automated scheduling and streamlined billing processes.
    - We also identified new evidence documents related to scribing and documentation when updating this version, which indicated ambient AI tools reduced documentation time by 14%, coding time by 46% and audit time by 69%, with hybrid clinician-AI approaches outperforming AI-only solutions (79% vs. 23% approval), though larger studies showed inconsistent objective improvements and implementation challenges persist (transcription errors, accuracy verification, costs, training, interoperability).
- Documentation quality improvements were consistently demonstrated alongside time savings (which was consistent with version 1 of this report):
    - 70% of AI-assisted letters and 100% of AI-assisted notes scored above quality thresholds compared to 29% and 43%, respectively, with standard EHR systems
        - speech recognition accuracy improved progressively from 86.80% to 94.57% across multiple sessions
    - clinicians reported 6.91 times higher odds of finding documentation workflows easy and 4.95 times higher odds of completing notes before next patient visit.
- Communication support systems enhanced patient-clinician interactions (a finding that was further reinforced through our updated searches in this version of the report).
    - AI-enabled communication tools improved various aspects of clinical communication:
        - an emergency department AI symptom-taking tool used by patients collected medical history and symptoms in the waiting room and generated structured handover reports for clinicians that facilitated conversation according to 75% of patients, 73% of physicians and 100% of nurses
        - AI-supported behavioural interventions achieved superior clinical outcomes with 34% depression symptom reduction versus 20% with standard care
        - updated searches for evidence found:
            - LLMs improved the readability and completeness of communication with families, leading to clearer informed-consent documents, higher-quality postoperative instructions, and more empathetic responses in patient-facing chatbots
            - emerging technologies included AI-powered smart glasses (Ray-Ban Meta) for real-time tele-monitoring and remote consultation during surgery, providing hands-free, low-impact communication with minimal workflow disruption
            - multilingual, real-time translation platforms (e.g., Life Concerto) facilitated an average of 5.5 weekly interactions between care teams and patients.
- Patient discharge support systems showed early promise (which was also reinforced through our updated searches in this version of the report).
    - Limited evidence suggests potential for improving discharge documentation efficiency:
        - AI-generated discharge summaries achieved comparable quality scores compared to physician-generated reports
        - AI-generated informed consent forms were significantly more readable while maintaining clinical accuracy
        - Updated searches for evidence found:
            - ambient AI reduced discharge documentation time by up to 70% (e.g., from ~20 minutes to six minutes in palliative care; from 459 to 114 seconds in other settings), with LLM-assisted and generative AI notes achieving comparable or better quality than manual notes in terms of completeness, correctness and conciseness
            - AI-generated informed consent forms were significantly shorter (1,023 vs. 2,901 words) and more readable (grade level 11.2 vs. 15.2) while maintaining clinical accuracy, though clinical review and human oversight remain critical for complex cases.

- AI diagnostic and decision-support tools may also contribute to outcomes associated with reducing administrative burden (which was also reinforced through our updated searches in this version of the report).
  - AI-powered clinical decision support systems improved diagnostic accuracy, early disease detection, and error reduction while streamlining administrative tasks and optimizing workflows across healthcare settings, with particular promise in emergency medicine.
  - LLMs enhanced interdisciplinary understanding of complex clinical notes and improve diagnostic comprehension among non-specialist clinicians, serving as augmentation tools that enhance rather than replace clinical judgment.
  - Updated searches for evidence showed AI improved diagnostic rates in some contexts (e.g., colorectal surgery), but one randomized trial found a multi-agent AI system did not improve electrodiagnostic report quality or meaningfully reduce workload, highlighting variability in AI effectiveness across applications.
- Significant barriers exist across multiple levels that must be addressed for successful implementation (a finding that was reinforced through our updated searches).
  - System-level barriers included data quality concerns, accuracy limitations and potential biases affecting underrepresented populations in training datasets, with updated searches for evidence also showing uncertain real-world applicability due to limited long-term and multi-institution studies, and disparities in AI infrastructure access driven by financial and technological limitations.
  - Organizational barriers centred on technical integration difficulties with existing EHR systems, substantial training requirements, and funding constraints, with updated searches for evidence showing that standardized guidelines identified are necessary for consistency across organizations.
  - Provider-level barriers encompassed concerns about reduced patient empathy, fear of AI replacement, loss of clinical autonomy, and insufficient AI experience.
  - Patient-level barriers related to safety concerns from AI biases and lack of patient-specific context in AI-generated care.
- Facilitators for successful AI tool adoption are well-defined (a finding that was reinforced by our updated searches).
  - Strong organizational leadership, management support and interdisciplinary collaboration between healthcare providers, policymakers and AI companies emerged as essential facilitators.
  - Investment in comprehensive AI training sessions and programs significantly increased tool adoption rates.
  - Including healthcare providers in AI tool development processes enhanced clinical functionality and increased willingness to use tools.
  - Increased exposure to AI tools reduced provider hesitation and improved acceptance in clinical practice.
  - Updated searches for evidence found:
    - incremental rollout approaches reduced stress across organizational, provider and patient levels, while improved system integration supported broader adoption and scaling
    - balancing generalizability with customization of AI tools across specialties increased accuracy and reliability, and building patient trust supported successful implementation.
- The evidence included predominantly emerged from academic and research-oriented care settings, with a notable absence of studies conducted in rural or remote communities, representing a significant gap in the literature.
- Most of the included evidence focussed on specialty care (evenly distributed across emergency, inpatient and outpatient settings), followed by primary care and home and community care, with limited evidence on public health, rehabilitation and long-term care settings.
  - Updated searches for evidence identified similar trends, with most evidence remaining concentrated in specialty care (with an increased focus on inpatient settings) followed by primary care.

Key Findings from jurisdictional scans documents in relation to the research question

- AI scribing and documentation tools have shown promise for reducing administrative burden in Canada and internationally (which was further reinforced by our updated jurisdictional scan).
  - Most documented effectiveness comes from pilot projects rather than sustained implementation.

- The updated jurisdictional scan reinforced original findings that AI scribing and documentation tools demonstrate the strongest evidence for reducing administrative burden. Canada Health Infoway launched the AI Scribe Program in June 2025, providing 10,000 primary care providers with fully funded one-year licenses, with preliminary findings showing active use among more than half of registrants who report reduced documentation burden, improved work-life balance and enhanced presence with patients.
- Canadian provinces demonstrated substantial time savings: B.C. achieved 2.7–5.7 hours per week reduction in administrative tasks; Ontario reported 70% reduction in documentation time saving up to four hours weekly; Alberta recorded over 6,700 clinical sessions across 10 emergency facilities; and Saskatchewan reports approximately 3,300 members now using AI scribe software.
- Several provinces expanded or launched new AI scribe pilots, including B.C.'s free six-week AI Scribe BC Trial (July–December 2025), New Brunswick's Vitalité Health Network implementing AutoScribe with approximately 130 clinicians, and new pilots in Nova Scotia, Prince Edward Island and Quebec.
- There were high satisfaction rates, with 97% of BC clinicians recommending AI scribes and 78% of patients feeling they received increased physician attention.
- International evidence supports these findings: Finland projects 30% savings in nurses' working hours, Denmark achieved 25% staff workload reduction, U.K.'s NHS Copilot pilot showed 43 minutes saved daily per staff with full rollout expected to save 400,000 hours monthly, U.K. Ambient Voice Technology reduced documentation time by 51.7%, and U.S. Veterans Affairs reported two to eight hours saved weekly per employee.

- Patient scheduling and triage support has been used in several jurisdictions in Canada to improve accuracy, discharge capacity, scheduling time and nurse assignment time (which was also reinforced by our updated jurisdictional scan).
  - Fraser Health Authority's AI discharge prediction tool achieved 86% accuracy (four times better than human predictions), potentially tripling daily discharge capacity from 250–300 to 600 patients.
  - Quebec's CHUM reduced radiologist appointment scheduling time by half, freeing 11 additional treatment hours daily.
  - Unity Health Toronto reduced nurse assignment time from three hours to 15 minutes per shift.
  - In our updated jurisdictional scan for Nova Scotia, we found that the province collaborated with Google Cloud to implement AI healthcare tools by fall 2025, including natural-language search functions enabling clinicians to quickly find relevant details in patient health records.
- Communication and documentation support has been used in some Canadian jurisdictions, showing promise for improving cost savings, and supporting both administrative and clinical tasks (which was also reinforced by our updated jurisdictional scan).
  - Quebec's AI surgical instrument tracking achieved 24.5% cost reduction with $4.5–8.4 million potential annual savings.
  - Newfoundland and Labrador supported an AI platform for medical document sorting and claim complexity prediction, with an additional $652,295 investment in July 2025 and establishment of a "Living Lab" innovation environment in November 2025 to scale healthcare AI technologies.
  - Northwest Territories (NWT) implemented AI for automated polyp detection, reducing manual interpretation tasks, and the NWT legislature intends to lead practitioner-driven exploration of AI-powered tools, e-consult options and expanded virtual care.
- Facilitators to overcome barriers and challenges to AI tool adoption were found in Canada and internationally (which was reinforced by our updated jurisdictional scan).
  - Multiple Canadian provinces established comprehensive resources to help facilitate the adoption of AI tools, including Doctors of BC policy statements, the Alberta Medical Association's principles, policy and privacy impact assessment guidelines, Saskatchewan's AI scribe product assessment spreadsheet, and Ontario's AI Knowledge Zone.
  - Additional provinces published new AI guidance documents, including Manitoba, New Brunswick and Prince Edward Island.
  - Canada Health Infoway developed implementation and procurement toolkits for regulatory compliance.

    - International jurisdictions mirror these approaches, including Australia's multi-association statements, clinical AI resources and educational courses; Denmark's specialized AI centres and new Digital Health Denmark agency; New Zealand's AI Expert Advisory Group; U.K. NHS England's guidance on AI ambient scribing tools; U.S. Agency for Healthcare Research and Quality funding for AI scribe research; and Norway's cross-agency initiatives.
- Implementation support and funding challenges were also identified (with most of these challenges being reinforced by our updated jurisdictional scan).
    - Most documented effectiveness comes from pilot projects rather than sustained implementation.
    - There is a need for comprehensive long-term evaluation of health outcomes, cost-effectiveness and equity impacts across diverse settings.
    - Despite substantial provincial investments, scaling from pilot to system-wide implementation remains a challenge, requiring sustained evaluation studies.
    - Additional investments were made, including Sweden's commitment of approximately $620,000 CAD through AI Sweden's partnership with Unity Health Toronto to develop AI-driven collaboration platforms.

Framework to organize what we looked for

- Types of AI tools for reducing administrative burden
    - Patient-scheduling and triage supports
    - Scribing and documentation tools
    - Communication supports
    - Prior authorization supports
    - Patient-discharge supports
- Sectors
    - Home and community care
    - Primary care
    - Specialty care
        - Emergency care
        - Outpatient specialty care
        - Inpatient specialty care
    - Rehabilitation care
    - Long-term care
    - Public health
- Healthcare providers
    - Physicians
        - Generalists
        - Specialists
    - Nurses
    - Pharmacists
    - Allied health professionals
- Settings
    - Rural/remote communities (vs. urban communities)
    - Academic- or research-oriented care settings (vs. community settings)
- Outcomes
    - Provider experiences
        - Time spent on administrative tasks (e.g., documentation)
        - After-hours work reduction decreases in work outside standard hours
        - Time available for patient care
        - Physician wellness or retention

- Accuracy of outputs
  - Other equity-centred quadruple aim metrics
    - Patient experience
    - Provider experience
    - Health outcomes
    - Costs
- Barriers to adoption and scaling up
  - System-level barriers
  - Organizational-level barriers
  - Provider-level barriers
  - Patient-level barriers
- Facilitators of adoption and scaling up
  - System-level facilitators
  - Organizational-level facilitators
  - Provider-level facilitators
  - Patient-level facilitators

What we found

We identified 51 evidence documents relevant to the question, of which we deemed 45 to be highly relevant and six of medium relevance for the first version. In this update, we identified 58 evidence documents, of which we deemed 48 to be highly relevant and 10 of medium to low relevance. Only the high-relevance studies were included in the report, and the medium-relevance studies can be found in the appendices.

The highly relevant evidence documents include:

- 35 evidence syntheses, including systematic reviews and scoping reviews (of which 17 were identified in version 1 and 18 were identified in the updated searches conducted as part of version 2)
- 58 single studies, including randomized controlled trials, pilot studies and qualitative studies (of which 28 were identified in version 1 and 30 were identified in the updated searches conducted as part of version 2).

Key findings from highly relevant evidence sources

What is known about the effectiveness of AI tools for reducing administrative burden among front-line healthcare providers (including physicians and non-physician providers), how does this vary across tools, disciplines/clinical environments and contexts, and what are the impacts on provider experiences and other equity-centred quadruple-aim metrics (i.e., improving care experiences and health outcomes at manageable per capita costs)?

We outline in narrative form below our key findings related to the questions from highly relevant evidence documents in five domains: patient scheduling and triage support systems, scribing and documentation tools, communication supports, patient discharge support systems, and AI diagnostic and decision support tools. In each domain, we first present findings from evidence syntheses and then focus on what was learned from single studies. These studies were conducted across diverse healthcare sectors, such as outpatient specialty care encompassing subspecialties including dermatology, ophthalmology, plastic surgery, and mental health services; emergency care settings focusing on triage optimization and clinical decision support; inpatient specialty care examining intensive care and hospital-based applications; and nursing environments addressing workflow optimization and clinical documentation. The evidence predominantly emerged from academic and research-oriented care settings, with a notable absence of studies conducted in rural or remote communities, representing a significant gap in the literature. Studies encompassed diverse

provider types including physicians, clinical specialists, nursing staff and multidisciplinary healthcare teams across Canadian healthcare settings with supplementary international evidence.

The evidence base expanded substantially between completing version 1 and updating version 2 of this evidence synthesis, particularly in the areas of scribing and documentation. New studies identified demonstrate that AI tools such as ambient scribes and LLMs can reduce documentation time by 14%, coding time by 46% and audit time by 69%, decrease after-hours work, and improve documentation quality, though transcription errors, accuracy verification concerns, and the need for clinician oversight remain important considerations. New evidence also highlights the value of hybrid clinician-AI approaches, which consistently outperformed AI-only or clinician-only documentation.

Patient scheduling and triage support systems

A few evidence syntheses demonstrate that artificial intelligence applications in patient scheduling and triage support systems show significant potential for improving emergency department operations and patient flow management. AI exhibits considerable promise in emergency patient triage, particularly in optimizing resource allocation and reducing both under-triage and over-triage, while enhancing emergency department flow and patient outcomes, though evidence for completely substituting human involvement has not yet been established.(13) AI-applied triage systems play a crucial role in patient classification, especially in settings where triage experience or workforce capacity is limited.(13) In patient flow applications, AI demonstrates capability to improve patient flow by streamlining administrative tasks and optimizing resource allocation, with measurable outcomes including reductions in length of stay and risk of readmission, though predictive variables for these outcomes remain inconsistent across studies.(14) A recent evidence synthesis identified through the updated version 2 of this report found that AI voice-based triage systems in emergency departments across multiple countries produced documentation 19% faster than manual methods and machine-learning models lowered mis-triage rates by approximately 0.3–8.9%.(15) LLMs have shown potential to transform emergency medicine through four major application areas: clinical decision-making and support, efficiency and workflow management, risk management and ethics, and education and communication, with particular emphasis on enhancing decision-making, optimizing workflows, and improving patient outcomes.(9) Additionally, AI integration has demonstrated improvements in operational efficiency by shortening consultation and treatment wait times, increasing diagnosis speed and accuracy, and facilitating clinical decision-making processes.(7) The technology further supports healthcare management through enhanced resource management, risk assessment and decision-making capabilities, while optimizing administrative tasks and improving overall workflow efficiency.(16; 17)

However, single studies in this domain are limited, with only one investigation specifically examining AI applications for patient scheduling and triage support. Li et al. (2022) conducted a randomized clinical trial using artificial intelligence to reduce queuing time and improve satisfaction in pediatric outpatient services, reporting remarkable improvements across multiple operational metrics.(18) The AI-assisted group achieved significantly shorter median queuing times of 8.78 minutes (IQR 3.97, 33.88) compared to 21.81 minutes (IQR 6.66, 73.10) in the conventional group, representing a 60% reduction in patient waiting time. Additionally, the AI system reduced pre-consultation processing time, defined as the time required for initial assessment and test ordering, reduced from 2.68 minutes (IQR 1.82, 3.80) in the conventional group to just 0.35 minutes (IQR 0.18, 0.99) in the AI-assisted group. This dramatic reduction reflects the AI system's ability to rapidly process patient information and recommend appropriate diagnostic tests before the actual physician consultation, rather than representing the duration of doctor-patient interaction. Total service time decreased from 110.40 minutes to 40.20 minutes, indicating comprehensive workflow optimization. Patient satisfaction increased by 17.53% in the AI-assisted group, with the AI system also demonstrating cost-effectiveness through reduced unnecessary tests and examinations. However, it's important to note that while this study demonstrated significant efficiency gains, it did not specifically report on diagnostic accuracy or safety outcomes related to AI-assisted triage decisions, representing a gap in current evidence regarding the clinical reliability of AI systems in pediatric outpatient settings. No new single studies that assessed AI applications for patient scheduling and triage support were identified through the searches conducted to update version 2 of this report.

Scribing and documentation tools

Multiple evidence syntheses demonstrate that artificial intelligence-powered scribing and documentation tools show promising but variable results across clinical settings. An evidence synthesis shows AI tools can improve clinical documentation by structuring data, annotating notes, evaluating quality, identifying trends and detecting errors, though highly accurate end-to-end AI documentation assistants remain unavailable due to moderately high error rates.(19) Digital scribes utilizing context-sensitive word embeddings and attention-based neural networks represent the most promising technological approaches, yet most studies remain in early phases lacking comprehensive evaluation of clinical validity, usability and utility.(20) LLMs have shown potential for enhancing healthcare delivery through assistance with documentation, surgical planning and administrative tasks in both clinical and surgical settings.(21) Machine learning applications to administrative tasks in general practice demonstrate under-researched potential for automation, though there is a lack of open-source data and prioritization of diagnostic tasks over administrative support functions.(22) A scoping review by Lee et al. (2024) reported significant improvements in clinical documentation efficiency, with AI tools reducing clinician workload and allowing more time for patient care.(23) A 2023 literature review indicated that AI tools for predictive modelling and NLP can be used to support supportive and palliative care (SPC) clinicians in decision-making and reduce manual workload, leading to potentially improved care and outcomes for cancer patients.(24)

The searches conducted as part of updating version 2 of this report identified several evidence syntheses published in recent months that described the impacts of AI tools for scribing and documentation. Generally speaking, AI tools like machine learning, predictive analytics, robotic processes and NLP vary in their usability, efficiency and accuracy, but have been reported to improve document completeness for structured and direct conversations.(25-27) One evidence synthesis reported that AI-powered voice-to-text tools produced documentation that matched or outperformed conventional documentation methods,(28) and another synthesis highlighted the improved time management and reduced burnout among physicians due to the use of AI tools to reduce documentation time per patient encounter.(29) Similar benefits of using AI tools have been found in syntheses assessing nurses' use of these tools in clinical care,(30; 31) including AI-enabled intensive care unit (ICU) command centres that can automate surveillance tasks, organize patient information, and decrease the need for manual chart review.(32) In all of these evidence syntheses, healthcare providers were able to benefit from automating tasks for patient care and engage more with patients during clinical visits. A few evidence syntheses explored the impacts of AI scribes and found that while they can streamline clinical documentation and reduce documentation, the effects of AI scribes on physician burnout and productivity were still limited.(33; 34) When implementing AI scribes in clinical settings, one evidence synthesis highlighted the need to consider the upfront costs, time for training users of the tools, linguistic variation across digital scribes, medico-legal compliance, and interoperability issues with existing computer systems.(35)

While there were noted improvements in document efficiency resulting from these AI tools for documentation, issues with the technology were also highlighted in the evidence syntheses, including transcription errors, particularly with medication names,(28) lack of verification for accuracy of AI-generated information,(29) and the ethical aspects of using AI applications.(30) LLMs like ChatGPT showed strong potential to reduce administrative burden in pediatric care by improving documentation efficiency, but their safe use requires clinician oversight due to persistent variation in accuracy in clinical decision-making.(36; 37) Similar conclusions were drawn about ambient clinical documentation systems.(38)

Single studies provide additional evidence supporting these evidence synthesis findings, with AI scribes and ambient scribing technologies demonstrating the most consistent evidence for reducing administrative burden across multiple healthcare settings. The most significant time savings were reported by Duggan et al. (2025), who found a 20.4% reduction in time spent on notes per appointment (from 10.3 to 8.2 minutes), a 30.0% decrease in after-hours work time per day (from 50.6 to 35.4 minutes per day), and a 9.3% increase in same-day appointment closure rates (from 66.2% to 72.4%), indicating improved clinician ability to complete all visit documentation and administrative tasks within the same workday rather than requiring after-hours completion.(39) Ma et al. (2025) demonstrated widespread adoption with 55.25% utilization across encounters, resulting in median daily documentation time reduction of 6.89 minutes, after-

hours EHR time reduction of 5.17 minutes per day, and total daily EHR time savings of 19.95 minutes.(40) Albrecht et al. (2025) provided evidence for AI documentation benefits, reporting 6.91 times higher odds of finding documentation workflow easy (95% CI: 3.90–12.56) and 4.95 times higher odds of completing notes before the next patient visit (95% CI: 2.87–8.69), with 77% of clinicians reporting decreased documentation burden and 73% experiencing reduced after-hours work.(41) Cao et al. (2024) found that AI-driven digital scribes reduced dermatologists' daily EHR time from 90.1 to 70.3 minutes while increasing note length by 30–50 words and decreasing clinician note contribution by nearly half.(6)

Our searches conducted as part of updating version 2 of this report also identified several single studies published in recent months exploring the use of AI scribes and ambient AI documentation tools. One study's observations indicated a 14% relative reduction (about seven minutes each day) in clinical documentation time after the DAX Copilot and Abridge ambient listening tools were implemented.(42) Physicians in this study also identified areas for improvement of the clinical documentation tools including improved customization for individual staff needs, minimizing workflow disruptions, and ensuring content accuracy. Similarly, a study evaluating the impact of Nuance DAX ambient clinical intelligence on documentation workload found that early adopters who used the software for 20–40% of visits experienced a 26-minute per day reduction in after-hours documentation time compared to only 0.2 minutes for late implementers. Software use was also correlated with reductions in provider burnout and frustration.(43) Another study evaluating the impacts of the DAX Copilot and Abridge documentation tools on physician documentation workload found that a significant reduction in total daily documentation time per provider, decreasing from an average of 63.99 minutes at baseline to 53.33 minutes after three months.(44) Findings of an increase in note length also suggested that physicians produced longer, more detailed notes in less time.(44)

However, one study (preprint) found that prior evidence for ambient AI scribe systems (Microsoft DAX© and Nabla©) was inconsistent, with smaller pilot studies showing reductions in documentation time and burnout, while larger cohort studies showed no significant objective improvements despite physicians reporting subjective benefits.(45) Other studies that assessed ambient AI documentation tools had similar results in terms of reduced documentation time and clinician workload but also highlighted longer and more detailed clinical notes that sometimes did not capture nuances of more complex patients.(46; 47) AI scribes in particular were found to effectively produce clinical notes in a timely manner and improve the quality of clinical documentation while reducing burnout among different clinicians (e.g. ambulatory care physicians, junior doctors).(48-50) One study comparing six different AI scribes in terms of effectiveness, usability, accuracy and quality in documentation found that the majority of scribes were accessible on multiple electronic devices and demonstrated some integration with electronic medical records, but each AI scribe demonstrated varying abilities to manage background noise as well as grammatical, syntactical or omission errors in transcriptions.(48) Another study assessing an ambient scribe tool called Scribeberry in a palliative outpatient care setting highlighted inconclusive results on the accuracy, organization and usefulness of the tool.(51)

Documentation quality improvements were consistently demonstrated, with Balloch et al. (2024) showing 70% of AI-assisted letters and 100% of notes scoring above 25 on the Sheffield Assessment Instrument for Letters (SAIL) quality measures compared to 29% and 43%, respectively, with standard EHR systems, alongside 26.3% shorter consultation times.(5) Liu et al. (2024) conducted a nonrandomized clinical trial evaluating AI-powered clinical documentation, demonstrating significant improvements in clinicians' EHR experiences and time efficiency through systematic implementation of AI documentation tools.(52) Speech recognition technologies showed progressive accuracy improvements, with Lee et al. (2023) reporting nursing documentation accuracy increasing from 86.80% to 94.57% across four sessions,(53) while Langdon et al. (2025) achieved 96.50% BERTScore, a metric evaluating semantic similarity between AI-generated and reference text using contextual embeddings, for pediatric ear, nose and throat (ENT) documentation with 4.64/5 clinician satisfaction on speech recognition technology (Speaknosis).(54) Peine et al. (2023) conducted a crossover study comparing voice-based information and documentation systems in intensive care, finding statistically significant advantages over traditional patient data management systems (PDMS) and paper documentation in terms of performance (Cohen d = 1.61), accuracy and user experience, with tasks completed significantly faster using voice-based systems.(55) Clinician well-being outcomes showed remarkable improvements, as Shah et al. (2024) reported significant reductions in physician task load (–24.42) and burnout (–1.94), with usability

improvements (+10.9) and perceived time savings of 20 minutes per half-day clinic.(56) However, implementation challenges were noted by Afshar et al. (2024), who reported initial documentation accuracy decreases from 79% to 35% due to workflow integration issues before returning to baseline levels after targeted interventions.(57)

Other types of AI-enabled documentation tools explored in the single studies identified included a customized EHR-integrated LLM, the Life Concerto® platform, a cross-language transformation tool called GPT-40, an AI-augmented closed-loop system, PEACH (PErioperative AI CHatbot), the easy-ICD AI tool, and a multi-agent AI system called INSPIRE. Following implementation, the automated summaries generated by the customized EHR-integrated LLM in the Netherlands,(58) the Life Concerto® platform based in Taiwan,(59) and GPT-40 in China (60; 61) all demonstrated good accuracy and completeness and led to reduced documentation time for clinicians. Similar findings were generated from U.S.-based studies of AI-assisted summary tools for ambulatory clinicians (62) and pharmacists.(63) One study assessing an LLM-based clinical support system called PEACH (PErioperative AI CHatbot) implemented at a Singapore hospital found that while PEACH did not significantly reduce overall documentation time for resident physicians, there were time savings for moderate-complexity cases and experienced physicians.(64) Notably, per-case time efficiency gains, though limited, aggregated into considerable institutional savings.

The Easy-ICD tool developed in Scandinavia for enhancing clinical coding demonstrated positive results by reducing median coding time for long clinical notes by 46% and modestly improved accuracy.(65) A pilot study evaluating an AI-based documentation system among advanced practice providers, physicians and podiatrists in outpatient orthopedic clinics found that average daily note-writing time decreased by 3.1 minutes, with after-hours documentation time reduced by 61% (23.6 minutes) and time on unscheduled days reduced by 31% (22.3 minutes).(66) Similarly, the AI-powered closed-loop system developed to improve quality control in electronic nursing documentation led to a reduction in documentation errors and audit time from 238 seconds to 74 seconds while improving nurses' efficiency and satisfaction.(67) On the other hand, INSPIRE, a multi-agent AI system that integrated physician and AI interpretation into electrodiagnostic reporting for neuromuscular disorders, did not improve report quality compared to physician-only interpretation, and physicians using the tool reported low usability and minimal workload reduction despite having moderate trust in INSPIRE's diagnostic suggestions.(68) A similar study approach was taken in one study exploring the quality, accuracy and efficiency of clinical documentation authored by ChatGPT, which found that collaboration with a clinician is needed to reduce the likelihood of frequent omissions and exaggerations.(69) After comparing notes written by a surgical resident or surgeon alone, ChatGPT alone, and a hybrid of clinician and ChatGPT, the study found that notes written in the hybrid scenario received the highest approval rate (79%) and ChatGPT-alone notes received the lowest approval rate (23%). Similar findings were generated from studies focused on AI-generated neurology consultation summaries (70) and AI-supported documentation in palliative care.(71)

In terms of clinical documentation analysis, one pre-print study that evaluated the performance of SPELL (Snippet-Primed rEgex LLM Pipeline), a scalable NLP workflow that analyzes targeted snippets of clinical data found that the platform processed 31 million clinical reports between 1976 and 2024 from eight affiliated hospitals resulting in a processing time reduction by 68% compared to traditional full-document analysis, and by more than 95% compared to manual physician annotation.(72) Another study assessing AI scribes and EHR efficiency among ambulatory clinicians found a two-minute reduction in appointment time, which could approximate one hour of savings per day, though no significant differences were observed in after-hours EHR use or time to close cases.(73) Finally, a few studies considered the perspectives of clinicians and patients on the use of documentation tools supported by generative AI and found that these tools are generally well-received and valuable for reducing documentation and improving workflow, but having the means to ensure human oversight and the opt out option if patients are uncomfortable with the use of AI-supported tools during their interactions with clinicians was preferred.(48; 74)

Communication support systems

Multiple evidence syntheses demonstrate that AI-powered communication support systems – digital tools that use AI to facilitate, enhance or optimize information exchange between patients and healthcare providers – show promising but

varied results across clinical settings, with particular strength in language translation and patient education applications. AI medical translation systems show promise for brief communications but often require human intervention for accuracy and acceptability, with accuracy scores varying significantly depending on translation direction and achieving higher accuracy when translating from English, though AI serves primarily as a supplementary tool when human translators are unavailable rather than a replacement for human translation.(75) LLMs have demonstrated potential for transforming emergency medicine through four major application themes, including education and communication, enhancing decision-making, optimizing workflows, and improving patient outcomes.(9) In a more recently published evidence synthesis identified as part of updated searches for version 2 of this report, LLMs were found to improve the readability and completeness of communication with families, leading to clearer informed-consent documents, higher-quality postoperative instructions, and more empathetic and understandable responses in patient-facing chatbots.(37) However, the synthesis noted that their accuracy limitations require clinician oversight to ensure safety. In nursing management contexts, AI technologies enhance communication optimization alongside resource management, risk assessment and decision-making, supporting nurse managers in leading changes and optimizing administrative tasks with measurable outcomes including leadership enhancement and communication optimization.(16) Automatic speech recognition systems with NLP capabilities have emerged as key components for documenting professional health interactions, though challenges remain in recognizing complex medical terminology and adapting to different languages or accents.(76) The successful adoption of AI-driven communication systems requires ongoing investment in AI education, ethical frameworks and infrastructure development, with outcomes demonstrating improvements in patient care, nursing efficiency, workflow optimization, and AI-driven education initiatives.(17)

Individual studies provide additional evidence supporting these systematic findings, with AI-enabled communication support tools demonstrating significant improvements in patient-clinician interactions, rapport building and therapeutic engagement across diverse healthcare settings. The most compelling evidence came from Scheder-Bieschin et al. (2022),(77) who evaluated a patient-facing AI symptom-taking tool used in emergency department waiting rooms, where patients independently completed a digital assessment on tablet computers that collected demographic information, medical history and symptoms using Bayesian probabilistic reasoning with an adaptive question flow. The system generated detailed handover reports that were automatically made available to physicians and nurses through a secure web-interface dashboard. The study found that an AI symptom-taking tool in emergency departments facilitated conversation according to 75% of patients, 73% of physicians and 100% of nurses, with high usability scores (84% of patients) and comprehension rates (86% of patients), while 78% of patients, 53% of physicians and 76% of nurses would recommend the system. Tailor et al. (2025) evaluated AI-generated plain language summaries for improving interdisciplinary understanding of ophthalmology notes, finding significant improvements in diagnostic understanding (increased by 9.0 percentage points, 95% CI 0.3–18.2), note detail satisfaction (increased by 21.5 percentage points, 95% CI 11.4–31.5), and explanation clarity (improved by 23.0 percentage points, 95% CI 12.0–33.1), with 90% of summaries reported as accurate by ophthalmologists despite some errors requiring oversight.(10) Bundy et al. (2024) reported that AI-facilitated documentation improved engagement during patient encounters by reducing cognitive burden and allowing physicians to focus more on personalized patient interactions.(78) Sadeh-Sharvit et al. (2023) demonstrated superior clinical outcomes with AI-supported behavioral interventions, reporting 34% depression symptom reduction compared to 20% with treatment as usual (effect size d = 0.82 vs. d = 0.34), 29% anxiety symptom reduction versus 8% with standard care (effect size d = 0.78 vs. d = 0.14), and significantly improved session attendance (mean 5.24 vs. 3.14 sessions).(79)

In version 2 of this report, we identified two recently published studies that described different AI-enabled tools to support communication between healthcare providers and with patients. One study assessed the use of AI-powered Ray-Ban Meta consumer-grade smart glasses to enable real-time streaming for tele-monitoring and remote consultation during foot and ankle limb preservation surgery.(80) Early findings indicate that the smart glasses were a low-impact, hands-free intervention for interoperative communication during surgery that caused minimal disruption to the operative workflow of staff. The second study assessing the Life Concerto platform previously mentioned described communication support features of the platform, including AI-assisted care summaries based on automated extractions

of clinical notes and multilingual, real-time translation of information from patients and caregivers, that facilitated an average of 5.5 weekly interactions between care teams and patients.(59)

Patient-discharge support systems

Multiple evidence syntheses provide limited but meaningful evidence regarding AI applications in patient discharge support, with findings primarily focused on length of stay optimization and readmission risk reduction. AI applications in patient flow management demonstrate potential for improving discharge-related outcomes, with studies showing that AI can improve patient flow by streamlining administrative tasks and optimizing resource allocation, though predictive variables for length-of-stay and readmission rates remain inconsistent across the literature.(14) In nursing care settings, AI systems show promise for supporting discharge-related processes through measurable outcomes including length of stay reduction, decreased emergency department visits, reduced ICU transfers, and fewer medical emergency team calls, alongside improvements in the number of revisions of care plans.(81) The integration of AI in nursing care has demonstrated potential for enhancing patient outcomes through early disease detection and minimizing diagnostic errors, which may contribute to more appropriate discharge timing and post-discharge care planning.(17) While digital phenotyping represents a potential long-term solution for transforming care into a more preventative and personalized model that could support post-discharge monitoring, the current evidence base remains limited, with researchers emphasizing the need for more empirical studies focusing specifically on discharge support applications and their clinical effectiveness in real-world healthcare settings.(14; 81)

Single studies demonstrate significant potential for improving the quality and efficiency of discharge documentation across different clinical specialties. Ali et al. (2025) investigated LLMs for generating neurosurgical operative notes, finding that AI-generated notes were comparable to surgeon notes in accuracy (4.44 vs. 4.33) but had lower content quality scores, used more advanced reading levels, and could be generated significantly faster, though requiring human oversight for clinical depth and nuanced observations.(82) Janota and Janota (2025) evaluated AI-generated psychiatric discharge summaries using a comprehensive scoring system across multiple quality dimensions, finding that AI-generated reports achieved competitive scores with Case 2 receiving the highest overall score of 103 points compared to 98 points for physician-generated reports, while Case 1 showed human superiority (101 vs. 97 points), with AI excelling particularly in medical terminology accuracy and understandability for outpatient physicians receiving the discharge summaries.(83) Patel et al. (2024) compared ChatGPT versus surgeon-generated informed consent documentation for plastic surgery procedures, finding that AI-generated forms were significantly shorter (1,023 vs. 2,901 words), more readable (11.2 vs. 15.2 Flesch-Kincaid grade level), with no significant differences in accuracy and completeness, suggesting potential for standardizing routine consent documentation while maintaining clinical quality.(84) Koh et al. (2025) provided additional case perspective evidence on ChatGPT use in discharge summaries, demonstrating practical applications and workflow integration considerations for AI-assisted discharge documentation in real-world clinical settings.(85) A study evaluating the effectiveness of ambient AI for reducing documentation time (including for discharge summaries) found that the median time spent was 114 seconds with AI compared to 459 seconds without AI, while achieving markedly high-quality scores across comprehensibility, organization, consistency and synthesis domains, even as case complexity increased.(49) Junior doctors also reported lower perceived workload when using ambient AI, highlighting the potential reduction of cognitive and administrative burden. Another study on AI-assisted documentation in palliative care found that discharge summaries completion times reduced discharge times from around 20 minutes to just six minutes, representing approximately a 70% time reduction.(71) Similarly, a study evaluating LLM-assisted discharge notes found that they were better than manual notes for completeness, correctness, conciseness and clinical utility while reducing effort.(86) Another study evaluating generative AI in a psychiatry setting found that discharge summaries were similar in quality to those manually produced, but done in less time and with greater conciseness.(83) However, these studies emphasized the critical need for careful clinical review and human oversight, with AI-generated discharge summaries serving as effective initial frameworks that require physician validation to ensure clinical accuracy and completeness, particularly for complex cases requiring nuanced clinical judgment and specialty-specific considerations.

AI diagnostic and decision support tools

This evidence synthesis focuses mainly on AI tools for administrative burdens, and we included these terms in our search strategy (see Appendix 1 for details) and excluded studies that focus primarily on diagnostics/clinical decision-making with no administrative components. However, from the studies we included, we also identified helpful information about diagnostic/clinical decision-making tools under the theme of 'reducing burden and improving efficiency.'

Across multiple healthcare settings, AI-powered clinical decision support systems demonstrate measurable improvements in diagnostic accuracy, comprehension and workflow optimization. Two medium-quality evidence syntheses found that AI enhances early disease detection, minimizes diagnostic errors, and automates documentation, improving efficiency while streamlining administrative tasks that consume valuable clinical time.(7; 17) Additionally, one low-quality evidence synthesis found that LLMs demonstrate potential to enhance healthcare delivery by assisting in diagnosis, treatment guidance, and patient triage across both clinical and surgical settings.(21)

One low-quality evidence synthesis of AI shows particular promise in emergency medicine, where AI improves clinical decision-making, optimizes workflows, and supports better patient outcomes in time-critical situations.(9) Furthermore, a single study found that LLMs can enhance interdisciplinary understanding of complex clinical notes, improve diagnostic comprehension among non-specialist clinicians, and assist in clinical reasoning tasks.(10) Only one included single study also evaluated AI for diagnostic aid. A prospective randomized controlled trial found that a multi-agent AI system did not improve electrodiagnostic report quality compared to physician-only interpretation, and only minimal workload reductions were achieved despite moderate trust in the AI's diagnostic suggestions.(68) Overall, AI serves as an effective augmentation tool that enhances rather than replaces clinical judgment, supporting clinicians in complex decision-making processes while maintaining the essential human element of care.

Q2: What is known about potential barriers to and challenges with adopting AI tools among front-line healthcare providers?

We identified 27 evidence syntheses that addressed barriers and challenges to the adoption of AI tools among front-line healthcare providers. There are several common barriers identified across the evidence, which can be summarized into the following categories: system-level, organizational-level, provider-level and patient-level barriers. At the system level, one of the common barriers identified was the size, quality, accuracy and reliability of the datasets used to train AI tools. AI tools can have potential introduced biases depending on the scope and nature of the dataset used to create and train the tool. These biases can have negative implications on the accuracy of outputs, specifically for groups underrepresented in the training dataset. The lack of datasets including underrepresented populations was highlighted as a barrier and source of error for current AI tools.(30) Nine of the evidence syntheses focused on language models, ChatGPT-4, and AI tools more generally identified bias as a barrier.(8; 9; 17; 21; 23; 75; 81; 87) Bias and accuracy errors and the need for human oversight was identified as a barrier that impacted all levels (system, organization, provider and patient) experiences of AI tool integration.(20; 22) Liability and regulatory concerns were another common barrier across the evidence for implementation of AI tools. Ensuring data privacy, patient information security, ethical considerations, and possible legal implications were mentioned in many of the syntheses, highlighting the need for AI use regulations prior to full adoption of AI tools by healthcare providers and systems.(8; 9; 14; 17; 21; 23; 30; 76; 81; 88-90) Uncertain real-world applicability of AI tools and the lack of long-term impact studies examining these system-level barriers further limits the widespread implementation of AI tools.(15) An additional identified barrier is the disparity in access to AI tool infrastructure and integration in different areas due to financial burden and general lack of digital infrastructure.(30; 91)

At the organizational level, there were three main barriers for AI tool adoption (integrating into EHR systems, training and funding). The first identified barrier is the difficulty of the technical integration of AI tools into existing EHR systems and healthcare infrastructure. Three evidence syntheses highlighted this barrier, noting the unique logistical problems that may arise from individual health systems but suggesting the use of organizational technical support can help

mitigate these issues.(23; 30; 35) Overcoming this barrier would also require cooperation between healthcare organizations, AI companies, and EHR system companies. A second organizational barrier is the training required for healthcare providers to use AI tools in practice, which was identified in five evidence syntheses. (23; 26; 31; 32; 38) Training usually occurs at an organization level, with standardized guidelines necessary to ensure consistent training across the healthcare organization.(30) A related identified barrier is the funding required for both the training and implementation of AI tools in healthcare organizations, which can lead to resistance to adopt AI tools. High cost of AI training and implementation was identified in five recent systematic reviews (one low, three medium and one high quality).(16; 17; 35; 38; 81)

For providers, barriers and challenges to AI tool adoption surrounded themes of provider experience and knowledge in the use of AI, willingness to use the tools, and concerns relating to reduced patient empathy and connection when using AI tools instead of traditional physician communication. One recent high-quality evidence synthesis of AI translation tools found that healthcare providers prefer to use human interpreters over AI translators for more detailed or emotional conversations, as a sign of respect and empathy, suggesting that AI lacks patient connection and understanding that healthcare providers provide.(75) Three evidence syntheses (one recent medium quality and two recent low quality) also reported a barrier to the uptake of AI tools amongst healthcare professionals is resistance to technology acceptance and the fear of replacement by AI.(8; 81; 87) These provider-level barriers need to be taken into consideration in order to increase the adoption of AI tools by healthcare providers.

At the patient-level, the evidence identified barriers relating to patient safety, comfort and respect. Concerns of patient safety relate to the biases introduced into AI training datasets mentioned under system-level barriers affecting outcomes on the patient-level. These biases can potentially impact patient care and should be addressed before further adoption of AI tools, as suggested by a recent evidence synthesis.(8) Relating to this issue, patient tools can often lack patient-specific context, empathy and privacy assurance that traditional healthcare provider care takes into consideration and provides, which can lead to patient uncertainty and discomfort, as described in two medium-quality and one low-quality evidence syntheses.(21; 38; 91)

There were 24 single studies that evaluated the barriers of AI tool adoption by front-line healthcare professionals. Many of the study's findings on barriers to AI tool adoption echoed the findings of the evidence syntheses. There were 10 studies that addressed accuracy and technical issues as a barrier for increased implementation of AI tools, with many of the AI tools producing documentation or reporting errors.(5; 54; 74; 78; 86; 92-96) One study on the use of AI chatbots to reduce administration burden found that the chatbots performed least accurately for new patient encounters compared to returning patient visits.(97) Another study found that AI chatbots used for intricate documentation tasks often included interpretation outside the scope and not specific to the patient and used strange, convoluted wording.(98) A key challenge highlighted in the included studies was the loss of healthcare provider control and autonomy when using AI tools, with several studies suggesting that AI tools should be adapted to meet physician preferences as well as developed in collaboration with healthcare providers from different specialities to ensure both provider autonomy and speciality individualization in AI tools.(5; 99) A related barrier identified in two studies was the hesitation towards the use of AI tools by both providers and patients because of ethical and privacy reasons.(48) One study noted that as automation of documentation tasks using AI increased, provider trust in the safety of the tools decreased.(74) These findings highlight the need for cooperation and collaboration between AI companies and healthcare providers to develop AI tools specific to the clinical workplace. A final notable finding from the single studies was the hesitation to use AI in order to preserve human connection and interaction with patients to prevent emotional disconnect and isolation in healthcare settings, as noted by a study on AI tools in ICU settings and by a study of healthcare stakeholders including physicians, patients and healthcare managers.(100)

Overall, few evidence syntheses studied the facilitators of adopting AI tools among front-line healthcare providers. Of the five identified syntheses, three recent syntheses (two low quality and one high quality) highlighted the need for investment in AI training sessions and/or programs for healthcare providers as a strong facilitator for tool adoption.(14; 16; 91) Strong organizational leadership, management and interdisciplinary collaboration between healthcare providers,

policymakers and AI companies were common facilitators amongst all five evidence syntheses.(14; 16; 30; 90; 91) One low-quality evidence synthesis identified the use of incremental roll-outs was another facilitator of successful AI language model implementation.(90)

There were few single studies that evaluated the facilitators of AI tool adoption. As mentioned above, a facilitator identified in several studies was the inclusion of healthcare providers in AI tool development to ensure clinical functionality of tools. A related identified facilitator is improved system integration of AI tools.(58; 64) This will allow for increased willingness of tool use and easier integration into workflow. Another facilitator common amongst the included studies was AI exposure and training for healthcare providers. One study on using AI to assist writing clinical notes found that increased exposure to the AI tool reduced hesitation in using the tool in practice.(5) Healthcare systems interested in increasing AI tool adoption within their systems should focus on provider exposure and training to increase acceptance and use of tools, as mentioned in one study.(64) Two studies highlighted the importance of both generalizability and customization of AI tools for their use across specialities within healthcare.(58; 86) This can increase both accuracy and reliability of implemented tools. Similar to evidence from the above syntheses, patient trust in tool utilization was also discussed as a patient-level facilitator in one study.(48)

There were 14 new evidence syntheses identified in the updated search that underpinned the preparation of version 2 of this report. Many of the syntheses highlighted themes similar to those identified in version 1 of this report, relating to barriers and facilitators of AI tool implementation. A key finding from the evidence syntheses in the updated search was the need for more multi-institution studies and long-term impact studies, as several syntheses reported an uncertain real-world applicability of AI tool adoption. Inequity was another identified theme in the updated search, with syntheses noting the need for both larger high-quality datasets that include data for underrepresented populations, and the current disparities that exist in terms of accessing AI tools in terms of technological, infrastructure and financial barriers. The updated search also identified another unique facilitator, which is the use of an incremental roll out plan for AI tool adoption, which would alleviate stress across the organization, provider and patient levels.

There were also 10 new single studies identified in the updated search that addressed barriers and facilitators to AI tool adoption. Many of these studies reflected the themes identified in version 1 of this report, with accuracy and reliability of AI tools continuing to be a key barrier across healthcare settings. The studies in the updated search highlighted the need for both ethics and privacy precautions to alleviate provider and patient discomfort and increase satisfaction. Improved system integration as well as the generalizability and customization of AI tools within healthcare settings were also identified as facilitators to adoption and scaling up of AI tool use in the updated search.

Key findings from jurisdictional scans

Q3: What AI tools have been used in health systems in Canada and in select international jurisdictions (i.e., Australia, Denmark, Finland, Iceland, New Zealand, Norway, Sweden, the United Kingdom (U.K.), and the United States (U.S.)) to reduce administrative burden among front-line healthcare providers, and what has been learned about their adoption and impact?

What is known from Canadian and international jurisdictions about the effectiveness of AI tools for reducing administrative burden among front-line healthcare providers?

Jurisdictional evidence was collected through environmental scanning of government reports, healthcare system case studies, professional association publications, and health technology assessments (see Appendix 4 and 5 for details). Sample sizes and detailed methodologies were often unavailable in jurisdictional sources, as these typically represented policy documents rather than formal research studies.

We found AI scribing and documentation tools have demonstrated the most substantial documented effectiveness. At the federal level, Canada Health Infoway is a federally funded not-for-profit organization working to increase use of AI in healthcare by partnering with industry and public partners for adoption of AI technologies including AI scribes, scheduling tools, and analytic planning decision support systems. In June 2025, Canada Health Infoway launched the AI Scribe Program to provide 10,000 primary care providers with a one-year, fully funded license from one of nine AI scribe vendors. Preliminary findings from an evaluation of the program indicate that more than half of program registrants (mostly family physicians) demonstrated active AI scribe use, with survey respondents saying that AI scribes reduced their documentation burden and mental load and improved their work-life balance. AI scribes also reportedly enhanced the structure of their medical notes and helped primary care providers to be more present with their patients and use appointment times more efficiently. Scale AI, a federally funded AI global innovator based in Montreal, aims to improve Canada's AI supports in healthcare to streamline processes, improve service delivery, and optimize hospital operations. CareWay, a Canadian-based AI medical assistant scribe, has partnered with CAN Health Network to streamline physician workflows by generating medical documentation and completing medical forms during consultations, with collaboration aiming to improve workflow, increase efficiency, reduce clinician burnout and increase patient care.

At the provincial level, our jurisdictional scan found that several provinces have piloted AI scribe technologies with notable results. British Columbia shows the strongest documented effectiveness evidence. An AI Scribe program piloted by Doctors of BC found that participating physicians experienced a reduction of 2.7 hours per week of administrative tasks, with projections of 5.7 hours saved weekly on post-appointment documentation. Notably, 97% of participating physicians said they would recommend an AI scribe to their colleagues, and 78% felt they would be more efficient with the tool. Additionally, 78% of participating patients felt they received increased attention from their physician. Another AI scribe pilot program – the AI Scribe BC Trial – ran from 21 July to 1 December 2025 and allowed physicians, nurse practitioners, midwives, and dentists in ambulatory or outpatient settings to participate in a free six-week trial of an ambient AI scribe. In partnership with Alberta Health Services, the University of Alberta piloted an AI scribe technology for emergency departments beginning in late 2024. Preliminary data reported that it had been used in over 6,700 clinical sessions by 58 physicians in 10 emergency facilities representing up to 85% of patient encounters. In Ontario, clinicians using AI scribes in a 2024 pilot study reported a 70% reduction in documentation time, saving up to four hours per week, with over 80% of providers expressing interest in continuing to use AI scribes beyond the pilot phase. The tool enabled 79% of participants to spend more time on patient care, while 76% experienced a reduction in cognitive burden during clinical encounters. Saskatchewan provides AI Scribe Resources through the Saskatchewan Medical Association to help physicians identify appropriate tools considering functionality needs, requirements and privacy. The organization provides guidance for conducting AI scribe product assessments to assist with selecting a vendor, and threat assessments to identify potential security threats and vulnerabilities, and privacy impact assessments. The organization also noted some benefits of using AI including reduced burden, enhanced patient experience, reduced time, increased patient care time, reduced cognitive load and improved workflow. Approximately 3,300 members now use AI scribe software to create and edit patient records.

Additionally, several provinces are in the process of launching or have already launched AI scribe pilot programs. Both Nova Scotia and Prince Edward Island have partnered with Canada Health Infoway to pilot AI scribe programs with select eligible primary care providers to inform broader rollouts in the future. The Government of Quebec, in partnership with Plume IA, a Montreal-based health-tech company, has plans to launch a pilot of AI-powered medical note transcription and summarization tools in 2026 that will test speech-to-text and automated summary technologies that generate clinical documentation directly from patient-physician conversations. Implementation of this technology will allow clinicians to validate and finalize notes within seconds rather than typing them manually and will position Quebec as one of the first Canadian provinces to introduce a government-led AI documentation program. Finally, the Vitalité Health Network in New Brunswick has begun implementing AutoScribe, an AI-enabled transcription tool that will allow clinicians to review and validate clinical notes before finalizing documentation, across its primary care sites. Approximately 130 family physicians and nurse practitioners are participating in the rollout, which forms part of the broader Canada Health Infoway AI Scribe Program.

Patient scheduling and triage support tools have shown significant operational efficiency gains across multiple jurisdictions. Fraser Health Authority in British Columbia developed AI tools that helped staff better understand trends in patient arrivals and optimize scheduling in emergency departments. Additionally, their AI discharge prediction tool demonstrated 86% accuracy, four times more accurate than traditional human predictions, potentially increasing discharge capacity from 250–300 patients to 600 patients per day. A similar tool is being developed for hospitalists to predict surges and proactively adjust clinician workflow. Quebec's Centre hospitalier de l'Université de Montréal (CHUM) achieved substantial operational gains using AI tools for predictive analytics to develop AI scheduling models that reduced radiologists' appointment times by half and freed up 11 additional hours of treatment per day without increasing staff. AI applications for predicting patient treatment times achieved a 5% increase in efficiency in infusion clinics, equating to 11 extra hours of treatment capacity daily. Finally, Nova Scotia has collaborated with Google Cloud to implement AI healthcare tools by fall 2025, including natural-language search functions that enable clinicians to quickly find relevant details in patient health records, saving time in navigating files and enhancing decision-making.

Predictive and discharge support systems have demonstrated measurable accuracy improvements and workflow optimization. Fraser Health Authority's AI discharge prediction tool showed 86% accuracy in predicting when patients are ready for discharge, which is four times more accurate than traditional human predictions. With this tool, 600 patients might be discharged in a day, compared to 250–300 without it. At Unity Health Toronto in Ontario, the Emergency Department Nurse Assignment Tool reduced the time to assign up to 27 nurses per shift from three hours to 15 minutes or less, while also decreasing the repeat rate of nurses being assigned to the same role in consecutive shifts from over 20% to 5%. St. Michael's Hospital's CHARTWatch Surgical AI tool monitors patient data in real-time to predict deterioration risks, resulting in a 26% reduction in unexpected deaths in units where the tool is active since its October 2020 implementation.

Communication and documentation support tools show promise in streamlining administrative processes. Quebec's CHUM collaborated with AssistIQ to implement AIQ Capture for tracking single-use surgical instruments in real-time, leading to a 24.5% cost reduction and potential annual savings between $4.5 million and $8.4 million. The Government of Newfoundland and Labrador has provided SiftMed with $553,693 to enhance its AI-driven platform that sorts medical documents and predicts claim complexities, improving risk assessment and triage. An additional $652,295 was invested in SiftMed in July 2025 to advance its platform that automates the organization and summation of complex medical records. NL Health Services has also established a "Living Lab" innovation environment in November 2025 to further scale the province's healthcare technologies, including AI, across acute, community and long-term care. Finally, the Northwest Territories has implemented Fujifilm endoscopy systems with CADEYE AI software in hospitals, supporting front-line providers by automating polyp detection and characterization, allowing clinicians to focus more on patient care rather than manual interpretation and administrative tasks. The NWT legislature intends to lead a practitioner-driven exploration of AI-powered tools, e-consult options, and expanded virtual care.

Provincial investment and development initiatives demonstrate commitment to AI effectiveness research. Alberta is investing $9.5 million through Alberta Innovates in research projects aimed at integrating AI into healthcare spaces, including the development of AI scribe technology and improving Alberta 811 Health Link efficiency. The University of Alberta is developing and piloting AI scribe technology for emergency departments in partnership with Alberta Health Services. Quebec announced an $8 million investment in IVADO (Institute for Data Valorization) to strengthen the province's AI ecosystem. Nova Scotia plans to invest $42 million over five years in its Google Cloud partnership for AI healthcare tools.

Outside of Canada, international evidence supports these effectiveness findings. In Finland, research projects indicate that AI solutions could potentially save more than 30% of nurses' working hours by automating tasks such as patient registration and information review, allowing them to focus more on patient care. Similarly, the U.K. piloted Microsoft 365 Copilot across 90 NHS organizations and found that NHS staff saved on average 43 minutes per staff per day or more, with full rollout expecting to save up to 400,000 hours a month across all NHS staff. Another U.K. evaluation of Ambient Voice Technology used in combination with LLMs to produce automatic transcriptions and generate structured clinical

notes and letters found that direct care time increased from 70% to 86.5%, while documentation time was reduced by 51.7% or roughly 47 minutes per shift. In the U.S., the Department of Veterans Affairs (VA) is using generative AI assistants to reduce administrative overload using tools like document automation and ambient scribing, and has shown around two to three hours saved per week for each employee using VA-wide generative assistant and eight hours a week per employees using AI-assisted software. Denmark's Teton.ai's AI-powered nurse assistant uses sensor and camera technology to monitor patient movements and automate routine checks and documentation, reducing staff workload by 25% during nights while improving patient safety. Emergency departments in North Denmark Region implemented AI tools to automatically read X-rays and identify fractures, processing nearly 30,000 scans since June 2023 without missed significant fractures or complaints. Sweden has committed SEK 4,351,390 (approx. $620,000 CAD) through AI Sweden's partnership with Unity Health Toronto to develop AI-driven collaboration platforms that improve diagnostics, treatment, and resource utilization, with expected long-term outcomes to improve patient care, decrease administrative burden for healthcare staff, and enable more efficient use of resources. New Zealand's Health Research Council invested NZ $5 million in AI research specifically targeting administrative burden reduction, identifying 'low-hanging fruit' including automating scheduling for visits and procedures, as well as typing up notes and routine patient communications. Australia's National Science Agency reported that AI can be used at a systems level to identify areas needing improvement, reduce administrative burden, and allow more time for patient care, while at a clinician level enabling more time for patient care, reducing cognitive demand, and streamlining diagnostic planning. Iceland developed AI systems for automating medical record coding in Icelandic aligned with international International Classification of Diseases (ICD) standards, with pilot projects successfully reducing workload for healthcare staff through AI-handled patient interactions covering over 1,200 medical issues.

While the evidence from jurisdictional scans demonstrates clear effectiveness potential for AI tools in reducing administrative burden, with documented time savings ranging from 25% to 70% across different applications, most findings come from pilot projects or early implementation phases. The evidence shows positive impacts on provider experience and some patients experience metrics, though comprehensive data on long-term health outcomes, cost-effectiveness, and equity impacts across diverse healthcare settings and provider populations remains limited, indicating a need for sustained evaluation studies.

What is known from Canadian and international jurisdictions about potential barriers to and facilitators of adopting AI tools among front-line healthcare providers?

There are several jurisdictions that have introduced programs and products to help facilitate the adoption of AI tools by front-line healthcare providers. Within Canada, Canada Health Infoway, a federally funded not-for-profit organization that works to increase digital health innovation and secure information sharing, has developed a toolkit to assist healthcare systems across Canada to understand and implement AI and a procurement toolkit to ensure compliance to AI regulations, ethics, and safety. The Canadian government also developed The AI Strategy for the Federal Public Service 2025–2027 to ensure AI adoption and use by public servants aligns with government values, delivers the greatest benefits, and is efficiently and collaborative developed, and that risks and harms are mitigated.

Several provinces have developed documents or tools with guiding principles for the development and use of AI in healthcare settings. In British Columbia, Doctors of BC published a policy statement outlining the measures they believe are important to successfully integrating AI technology into healthcare spaces. Some of the recommendations published in the statement include involving physicians in AI leadership and governance, establishing risk mitigation, ensuring continuous monitoring and evaluation of AI use in healthcare spaces, prioritizing privacy protections, transparency, and training for clinicians, and ensuring consideration of ethical implications. Also in B.C., the BC Scribe Trial Program offers a free six-week trial of ambient AI scribe tools for medical staff and discounted pricing for enrollees post-trial, with the latest trial running from July to December 2025, mitigating provider experience and cost barriers. In Alberta, the Alberta Medical Association developed a Principles and Policy document outlining their position on the use of AI in healthcare. This document includes their stance on ethics, patient care, physician education, implementation processes, medical accountability, privacy and data management, environmental impact, and governance and regulation in relation to AI

use in healthcare settings. Recently, the Office of the Information and Privacy Commissioner of Alberta released similar guidelines for providers intending to use AI scribes in their practice to assess the impact of these tools on patient privacy in accordance with the *Health Information Act*. Similarly in Saskatchewan, the College of Physicians and Surgeons of Saskatchewan created a guidance document for AI in medical practice and an AI scribe product assessment spreadsheet, which aims to assist in conversations with AI scribe vendors to ensure privacy and security. In Manitoba the College of Physicians and Surgeons of Manitoba, the College of Physiotherapists of Manitoba and the College of Registered Nurses of Manitoba created guidelines for the use of AI in clinical practice. In New Brunswick, the New Brunswick Medical Society (NBMS) has also released an AI Scribe Toolkit providing guidance for best practices for local adoption. In P.E.I., the College of Physicians and Surgeons of Prince Edward Island released its policy on Artificial Intelligence (AI) Scribes in Clinical Care in October 2025, which outlines provider responsibilities for AI Scribe use including consent, privacy and proper documentation. In Ontario, OntarioMD launched the AI Knowledge Zone to support clinicians in adopting and utilizing AI tools, particularly AI scribes, within primary care settings. This tool includes resources on privacy and legal guidance for AI use in clinical settings.

Several provinces have committed to funding AI projects and companies for the purpose of AI tools in healthcare settings. For example, in Alberta, Alberta Innovates has given $9.5 million in funding to research projects aimed at integrating AI into healthcare spaces. Also in Quebec, the Quebec government recently announced an $8 million investment in IVADO (Institute for Data Valorization) to strengthen the province's AI ecosystem. In Newfoundland and Labrador, the provincial government is supporting a 13-month research and development project focused on enhancing its AI-driven platform that sorts medical documents and predicts claim complexities, improving risk assessment and triage in healthcare systems. In July 2025, the provincial government announced an additional $652,295 investment to advance the developed AI-powered platform for medical record organization and summarization automation.

Outside of Canada, several countries have also introduced programs and products to help facilitate the adoption of AI tools by front-line healthcare providers. In Australia, the Australian Medical Association, the Australian Alliance for Artificial Intelligence in Healthcare, the Royal Australian College of General Practitioners, and the Australian College of Nursing have released statements regarding the responsible use of AI in healthcare settings. The Royal Australian College of General Practitioners has recently developed a resource to assist general practitioners in deciding on how to best use conversational artificial intelligence. The Australian Commission on Safety and Quality in Health Care provides a guideline on AI steps clinicians should consider before using AI. The University of Melbourne in Australia has recently developed a six-week-long online micro-credential course regarding the foundations of AI in healthcare, which aims to instruct healthcare personnel on how to design and implement AI healthcare solutions. In Denmark, three key centres have been established for AI development including the Centre for Clinical Artificial Intelligence (CAI-X), which aims to drive the responsible development and integration of AI in healthcare by fostering interdisciplinary collaboration, aligning solutions with real clinical needs. A newly formed national agency, Digital Health Denmark, to be fully operational in 2027, aims to unify digital health and support development across local regions, providing a stronger foundation for AI systems within Danish healthcare. In Norway, a coordinated cross-agency initiative was implemented led by the Directorate of Health that aims to strategically guide the safe and effective implementation of AI into the health system, including AI tools that aim to reduce administrative burden. A recent study published in Finland identifying barriers to AI adoption in the public social and healthcare sectors found that financial resources and lack of AI expertise were the greatest barriers for AI implementation. In New Zealand, the Artificial Intelligence and Algorithm Expert Advisory Group provides advice on safe, effective, ethical and legal use of artificial intelligence in the healthcare sector and helps assess proposed AI tools for required standards for healthcare delivery, equity, data sovereignty and consumer rights. In the U.K., the NHS England and the Department of Health and Social Care developed guidance on the use of AI ambient scribing tools in healthcare settings, which offers advice for adopting scribing tools to reduce administrative burden.

Several international jurisdictions have committed to funding healthcare-focused AI projects and companies including in New Zealand, where New Zealand's Health Research Council invested $5 million NZD in health research focused on the use of AI, including in applications of AI designed to reduce administrative burden. Also, Sweden, in partnership with Unity Health Toronto, have committed approximately $620,000 CAD to better manage missed patient appointments

through AI-driven collaboration platforms for healthcare leaders and data scientists that improve diagnostics, treatment and resource utilization. In the U.S., the Agency for Healthcare Research and Quality is offering funding for research on AI ambient scribe tools in primary care to reduce documentation burden among medical staff.

While there are no new programs and products to help facilitate the adoption of AI tools by front-line healthcare providers identified through the updated searches on a federal level in Canada, several provinces have published guidance products to assist in successful and responsible AI tool implementation within their local regions (Alberta, Manitoba, New Brunswick, P.E.I.). Two provinces (B.C., P.E.I.) have also started to go beyond policy and guidance products and begun to create educational assessment tools and programs for AI adoption and decision-making. The provincial government in Newfoundland and Labrador has also provided additional funding for its medical record automation tool developed using previous funding.

On the international level, several jurisdictions (Australia, New Zealand, the U.K.) have recently published guidance products to facilitate the adoption of AI tools in healthcare settings. Denmark has also instituted a new federal agency to guide the development and implementation of digital health solutions, including AI tools, across the country. Similar to Canadian jurisdictions, countries (Australia, New Zealand) are beginning to develop tools for health system AI tool adoption and decision making in the form of educational courses and assessment tools. Finland has also begun to conduct studies to identify barriers and solutions for AI tool adoption within the country. In the U.S., the government has begun funding research on AI tools targeting the reduction of administration burden within primary care settings.

Next steps based on the identified evidence

The following are potential next steps that could be considered by government policymakers, system and organizational leaders, professional leaders, and citizen leaders based on the findings outlined above. We place a particular emphasis on addressing major gaps in our understanding, as well as overcoming barriers and building on facilitators that can lead to the successful adoption of AI tools to reduce administrative burden.

Research priorities that could be considered as next steps:

- Conduct longitudinal effectiveness studies that extend beyond pilot phases to evaluate sustained impact of AI tools on administrative burden reduction, provider satisfaction, and patient outcomes over two- to five-year periods. Findings reported in version 2 of this report provided additional support for this conclusion from version 1, given newly identified evidence showed that smaller pilot studies report reductions in documentation time and burnout, while larger cohort studies show no significant objective improvements despite subjective benefits. This suggests these discrepancies.
- Evaluate the effectiveness of AI tools in underrepresented settings, particularly rural and remote healthcare environments where evidence is currently absent despite significant potential for impact.
- Examine the differential effectiveness of AI tools across diverse provider populations and patient demographics to identify potential equity impacts and optimization opportunities.
- Assess long-term cost-effectiveness of AI implementations, moving beyond initial time savings to evaluate comprehensive return on investment including reduced burnout, improved retention and enhanced care quality.
- Based on the evidence, barriers to adoption, such as lack of experience with AI tools and reluctance to use tools, should be addressed with organizational training of AI tools.
- Evaluate 'collaboration' models, given new evidence found hybrid clinician-ChatGPT notes received highest approval (79%) versus AI-alone notes (23%), suggesting these models are promising and warrant further investigation.
- Ensure underrepresented populations are included in future studies, given newly identified evidence documents in version 2 of this report highlighted a lack of datasets that include underrepresented populations as a source of bias and error in current AI tools.
- Expand research into underrepresented sectors, including public health, long-term care and rehabilitation settings to support balanced implementation.

Next steps that are relevant to policymakers, system and organizational leaders, and professional leaders to support successful adoption of AI tools to reduce administrative burden:

- Increase collaboration between healthcare providers, AI companies and policymakers to allow for better integration of AI tools into healthcare-specific settings.
- Increase research on AI tools for front-line healthcare providers to allow for more robust effectiveness findings, which in turn will assist in reducing provider reluctance to engaging with the tools.
- Exercise caution when using AI tools in healthcare settings in order to protect provider autonomy, patient respect and patient-specific needs.
- Coordinate learning from expanding provincial AI scribe initiatives, including Canada Health Infoway's AI Scribe Program (10,000 primary care providers with preliminary findings showing reduced burden and improved work-life balance), new pilots in Nova Scotia, P.E.I., Quebec and New Brunswick, and growing uptake in Alberta (6,700+ clinical sessions) and Saskatchewan (3,300 members)
- Address infrastructure, financial and training barriers by learning from models like B.C.'s free AI Scribe Trial, harmonizing implementation guidelines across provinces (building on recent guidance from Alberta, New Brunswick and P.E.I.), and planning for EHR interoperability challenges.
- Embed human oversight mechanisms to address transcription errors (especially medication names) and missed nuances in complex patients, and include patient opt-out provisions, as new evidence indicates patients prefer the option to decline AI-supported tools.
- Draw lessons from international successes including the U.K.'s NHS Copilot pilot (43 minutes saved per staff daily) and Ambient Voice Technology (direct care time increased from 70% to 86.5%), the U.S. VA's generative AI assistants (two to three hours saved weekly), Denmark's unified Digital Health Denmark agency, and Australia's AI micro-credential courses and clinical use guides.

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