Policy Brief

International Network of Health Promoting Hospitals & Health Services

What are the Potential Benefits and Risks of Artificial Intelligence for Health Promoting Hospitals and Health Services?

Contributors:

Oliver Groene, Sasha Milbeck, Sally Fawkes, Diane Lewin-Zamir, Katarzyna Sejbuk-Rozbicka, Giacomo Scaioli

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Prof Dr Oliver Groene

Key Messages

- AI will fundamentally transform healthcare systems, but turning technological potential into everyday practice remains a major challenge requiring clarity, evidence, and trust-building.

- This discussion is urgent: while health promotion has traditionally relied on labour-intensive, time-demanding interventions, the growing workforce crisis makes it increasingly difficult for staff to provide the necessary time for patient engagement, education, and counselling. This is just one area of health promotion, but an area where AI could possibly have an impact.

- To harness AI responsibly, its promised **benefits** must be made transparent and balanced with realistic expectations and careful management of risks. Some of the key findings of this review are:
  - **AI can strengthen core HPH principles** by enhancing health literacy, supporting shared decision-making, and providing accessible, tailored information to patients.
  - **AI-based communication tools, including translation systems and therapeutic chatbots**, can reduce language and access barriers when used to complement human professionals.

- **AI optimizes clinical pathways and preventive care**, enabling earlier detection, proactive management, freeing up providers' time and supporting greater person-centred service delivery.
  - **AI can improve staff well-being** by reducing administrative burden, optimizing workflows, and monitoring environmental and ergonomic risks in the workplace.
  - **At the community and systems level, AI enhances population health management**, identifies inequities, and supports collaboration between hospitals and community resources, including social prescribing.

- However, AI also poses **risks** for health promotion. AI cannot and should not replace the relational and participatory foundations of health promotion—trust, empowerment, dialogue, and co-production remain core human functions. Other risks include:
  - **Poorly governed AI risks reinforcing existing inequities** through biased datasets, digital exclusion, and reduced access to human support for vulnerable groups.
  - **Overreliance on AI may shift focus back to biomedical risk management**, undermining the settings-based, participatory, and salutogenic orientation of HPH.

- **AI must not obscure structural determinants of health**, such as living conditions, social support, or environmental factors, which require policy and organisational action beyond technology.

- **Privacy, transparency, and ethical data governance are essential** to prevent loss of trust and ensure safe, equitable AI deployment in health-promoting organisations.

- **Building digital (health) literacy among staff is critical**, ensuring clinicians can evaluate, use, and co-design AI systems safely, especially as AI becomes integrated into EHRs and routine care processes.

› AI holds significant promise for advancing health promotion within hospitals and health services, particularly at a time when workforce shortages challenge traditional, labour-intensive approaches.

› If its benefits are transparently communicated, appropriately governed, and aligned with core HPH values, AI can enhance health literacy, strengthen prevention, support staff, and improve population health.

› Yet its adoption must be grounded in real-life contexts, and AI cannot replace the relational, ethical, and structural dimensions that have defined the work of Health Promoting Hospitals and Health Services over the last decades.

Introduction

AI will fundamentally transform healthcare systems. Numerous studies highlight the potential of AI for health, yet translating these innovations into everyday practice remains a major challenge. A central question is how the benefits of AI can be made more transparent and how trust in AI can be effectively built. At the same time, the promise of AI needs to be weighed against its potential risks.

The integration of AI into healthcare practice presents both opportunities and challenges. A key question is how trust in AI can be established whilst ensuring its safe, effective, and timely application. Building confidence among healthcare professionals, patients, and policymakers is essential for accelerating adoption while safeguarding ethical standards and quality of care.

First defined by John McCarthy in the 1950s as "the science and engineering of making intelligent machines," [1], early AI applications relied on simple "if–then" rules. Today, enhanced data availability combined with rapid advances in computing power bring AI systems closer to replicating aspects of human intelligence through computational processes.

While the prospects of AI have been widely discussed for clinical investigations and decision-making (such as in the field of radiology), the implications for Health Promoting Hospitals and Health Services need further articulation.

This discussion couldn't be timelier. Health promotion interventions have traditionally been personnel-intensive, requiring extensive staff time for consultation, counselling, education and the development of inter-organisation and interdisciplinary collaborations.

At the same time, the growing workforce crisis makes it increasingly difficult for staff to dedicate sufficient time to patient contact, let alone to the more demanding work of information, education, and health promotion.

This policy brief examines how AI can support health promotion in healthcare.

Key applications of AI in healthcare: what AI can already deliver today?

AI offers the prospect of transforming healthcare by improving patient care and working conditions for healthcare professionals. It streamlines administrative processes, synthesizes various sources of data, and offers round-the-clock support, making healthcare systems potentially more efficient and accessible.

Reducing the burden of non-clinical activities

Clinical staff often spend 10-20% of their time on non-clinical activities (documentation, coding, billing, sharing information). According to the Oxford Internet Institute, nearly half of administrative tasks can be automated, helping reduce burnout caused by excessive documentation, limited training on electronic health records (EHR), and repetitive tasks [2].

These burdens are well-documented contributors to healthcare worker burnout and cause tension between the dual demands of delivering high-quality patient care and meeting bureaucratic demands [3]. In the United Kingdom, ambient voice technology is being piloted to support clinical documentation [4], potentially freeing staff time for other activities.

Clinical activities

AI has already **outperformed humans in predicting emergency room admissions, improving triage and waiting times** [5].
AI is also supporting diagnosis and clinical decision-making, with a successful example being medical imaging and its analysis. AI can integrate diverse datasets and rapidly process images, optimizing tasks such as detecting lung nodules in chest scans, eye diseases in ophthalmology images, and breast cancer in mammograms [6]. This capability not only supports clinicians in making more accurate diagnoses but also enables more targeted and quicker treatment.

In addition to imaging, AI is offering other personalized approaches to healthcare.
By mining extensive biomedical data, AI is redefining drug development and uncovering hidden relationships between diseases and treatments. It helps personalize medicine, improve drug efficacy, reduce adverse effects, and address rare diseases that have been historically underserved [7].

Key areas where Health Promoting Hospitals and Health Services can benefit from increasing AI capability

While the rapid growth of AI presents many opportunities, it is important to consider how access to the internet, digital literacy, data bias, and proximity to large research centres also affect health outcomes. These digital determinants of health can influence how care is delivered, interact with existing social determinants, or create new ways to influence individual or population health [8].

Recognizing and addressing these factors is essential to ensure that AI adoption does not deepen inequities or create "two-tier health systems of digital-haves and digital-have-nots [9]. By aligning AI innovation with equity-oriented strategies, HPH can advance their mission of promoting inclusive, people-centred care.

Use AI agents to facilitate communication

Health promoting hospitals and health services emphasize **empowerment**, **shared decision-making and health-literate communication** as foundations for better outcomes. AI can support this by:

- Translating complex medical information into personalized, understandable formats.
- Providing conversational support (chatbots, symptom checkers) aligned with literacy levels and cultural contexts (such as WHO's recent chatbot) [10].
- Guiding patients through navigation tasks (appointments, pathways) and improving self-management support.

This directly reinforces the mandate for health-literate organisations, an essential component of HPH standards and empowerment strategies.

AI offers concrete ways to support healthcare communication, especially in resource-constrained and multilingual settings. In an increasingly globalized world, many patients receive care in languages other than their own. AI-driven translation tools are now being used in clinical settings to identify patients with language barriers and complex medical needs, enabling providers to proactively arrange interpreters or offer automatic translation support [11]. While AI is not yet a substitute for human interpreters, studies show that it can provide adequate translations

for short consultations in English and other European languages when human support is not available [12]. Despite concerns about accuracy and cultural nuance, AI is anticipated to reduce language-related barriers and improve equity in healthcare.

AI has also been used in therapeutic communication through chatbots and conversational agents that work in parallel with, rather than replace, human clinicians. A recent study found that an AI chatbot effectively reduced anxiety among women in crisis settings. While it did not perform as well as traditional (non-AI-supported) psychotherapy, the study showed that combining AI support with human interaction could optimize mental healthcare, especially in underserved areas or during emergencies [13].

Using AI to strengthen prevention

The HPH concept emphasizes a shift from treating illness to preventing it, and AI can significantly strengthen this preventive orientation. By analysing clinical, behavioural, and environmental data, AI can predict individual risk for noncommunicable diseases and prompt timely screenings or preventive interventions [14]. It can support clinicians through advanced risk stratification tools and early-warning systems that identify emerging health problems before they escalate. Moreover, AI can help scale up integrated brief interventions for modifiable risk factors—such as smoking, inactivity, or unhealthy diet—ensuring that the right preventive actions are delivered consistently and at the right time, in the right place, for the right patient.

AI to streamline work systems and processes

Health promoting hospitals and health services emphasize a **supportive workplace and staff health**.

AI may contribute by:

- Automating administrative workload to reduce burnout.
- Supporting safe staffing by predicting workload peaks and improving scheduling.
- Offering digital mental-health support tools for healthcare workers.
- Monitoring occupational health risks.

These contributions are especially important given the widespread adoption of electronic health record (EHR) systems. EHR-related documentation burdens are already well-recognised contributors to clinician burnout. A study of nearly 9,000 hospital staff found that insufficient EHR training was associated with greater dissatisfaction among physicians, lower usability perceptions, and higher reports of potential safety risks [15]. While AI integration into EHRs offers promising opportunities to optimize workflows and support clinical decision-making, it also raises concerns about transparency, data quality, and bias. Without strong training and governance, AI-enabled EHRs could risk increasing clinician workload and worsening inequalities in healthcare delivery.

Focus on ensuring benefit for the most vulnerable groups

AI can help marginalised populations that face barriers to healthcare. Rural and remote communities often have worse health outcomes due to geographical isolation, specialist shortages, and resource constraints. AI-powered telemedicine and remote patient monitoring can help bridge these gaps.

Telehealth has already reduced disparities for patients in remote areas with long travel times to hospitals. A study of over 1.6 million hospital admissions in New York and Florida found that telehealth adoption was linked to shorter hospital stays, especially for those living furthest from care facilities [16]. While this study did not focus explicitly on AI, it shows the value of remote care in improving access. AI can further support telehealth through real-time monitoring, predictive analytics, and personalized virtual consultations. Specifically, it can improve patient engagement and connectivity, addressing challenges such as delayed interventions and limited specialist availability in isolated areas [17]. In low- and middle-income countries, AI may provide the first (and in some cases only) contact with the healthcare system that patients have, provided they have the means to access AI.

AI tools can also benefit elderly and mobility-limited populations by reducing their need for travel. Wearable AI technologies, such as smart sensors, support early risk detection and promote patient independence while keeping care teams informed. At MIT, researchers co-designed MemPal, an AI-powered voice-based memory assistant that promotes autonomy and safety at home for elderly populations and aids clinicians in detecting early signs of dementia and Alzheimer's [18]. Importantly, co-designing MemPal with patients helped ensure that the tool was relevant, accessible, and responsive to community needs. AI thus has the potential to help patients remain at home longer before institutional care is required.

Risks associated with the use of AI in health promotion

However, while there are benefits, there are also risks associated with AI. These risks potentially harm the foundation for health promotion and need to be critically assessed.

Data bias

A major challenge that AI needs to address for its full deployment in healthcare is that of data bias. While AI tools are often described as unbiased machines, they have been found to "perpetuate or amplify existing biases in the source data" [19]. AI relies on big datasets to learn from, but several groups of people have been historically absent or misrepresented in existing biomedical datasets. Specifically, health data bias relatively excludes people of non-white European descent, older adults, women, and individuals with pre-existing health conditions [20]. This underrepresentation has serious consequences for the equity and clinical usability of AI tools.

Example: racial bias in AI tools

African American patients have the highest mortality rate for melanoma, yet AI tools for skin lesion classification are often trained on datasets where the estimated proportion of Black patients is merely 5-10%. Consequently, when these AI tools were tested with images of Black patients, their diagnostic accuracy was approximately half the accuracy achieved with White patients [21].

Disinformation

As AI continues to evolve, the technology's potential to spread disinformation remains a concern. Without appropriate safeguards and warnings, AI can generate responses that are authoritative and plausible to end-users but contain incorrect or serious errors [22].

Example: AI and disinformation

In just 65 minutes, a large language model generated 102 blog posts containing false claims about vaccines and vaping, each tailored to specific groups such as young parents, pregnant women, and older adults with chronic conditions. These posts included fabricated patient and clinician testimonials, scientific-style references, and realistic images, highlighting how easily AI can produce targeted disinformation when safeguards are lacking [23].

Privacy and Data Sharing

As AI tools become increasingly embedded in healthcare, they introduce significant privacy and consent risks that require careful oversight. Many AI systems are trained on health data without explicit patient consent, leaving individuals unaware that their information contributes to model development [24]. Many AI tools also use an opt-out model, where data are automatically shared unless individuals explicitly decline. While this can improve data diversity and model performance, it raises ethical concerns, particularly regarding transparency and informed consent, principles that are at the core of health promotion [25].

Broader limitations of AI in Health Promotion

AI exhibits broader limitations when it comes to supporting a settings-based approach to health promotion. While it can analyse data or enhance communication, **AI alone cannot create the cultural or organisational transformation needed to reorient health services toward health promotion**. Such change requires leadership, participatory governance, and a shared organisational vision—elements fundamentally rooted in human relationships, not technology.

Similarly, **AI cannot and must not replace the interpersonal trust, dialogue, and empowerment processes that are central to health promotion**; these depend on human interaction and engagement. Moreover, AI risks reinforcing social and health inequities through biased data or unequal access, which conflicts with the equity focus of settings-based strategies. Although AI can map social determinants of health, it cannot address the structural, political, or environmental conditions that shape health, such as working environments, food systems, or community infrastructures.

If used narrowly for individual risk prediction or behavioural nudging, **AI may inadvertently push health promotion back toward a medicalised, individual-level model** and away from the holistic, community-centred perspective that the settings approach requires [26].

How can AI contribute to the implementation of the HPH Standards?

Standard	AI example
Demonstrating organizational commitment for HPH	**Q: Can AI help to foster a health promoting culture?** AI is emerging as a practical enabler of health promoting hospitals by strengthening governance, transparency, and data-informed decision-making. One key opportunity lies in AI-supported dashboards that integrate clinical, social, and environmental data. These tools allow organisations to monitor population health needs and health equity in real time, making health promotion more visible and actionable at the system level [28]. Predictive analytics further support a shift toward prevention. By identifying high-risk patient groups — for example, those at risk of falls or infections — AI enables earlier, targeted interventions aligned with HPH principles [29]. AI's potential to foster a health promoting organisational culture lies in better prioritisation, more proactive care, and stronger alignment with population health needs. However, impact depends on data quality, trust, and effective integration into governance and care processes.
Ensuring access to the service	**Q: Can AI help improve access to and accessibility of health services?** Language barriers remain one of the most persistent obstacles to equitable access to healthcare. For patients with limited proficiency in the local language, a simple consultation can become a frustrating – even dangerous – experience. AI translation tools are increasingly being explored as a practical solution [12]. The evidence so far is promising; however, in some language settings accuracy of AI-enabled translation is not yet sufficient [30]. AI translation or chatbots offer many opportunities to improve navigation and access to healthcare. Patients tend to embrace technology more readily than clinicians, who may remain hesitant [31]. Still, for health promotion and accessibility, the potential is clear. AI tools can extend the reach of healthcare systems into underserved, multilingual communities — reducing costs, cutting wait times, and enabling communication in settings where professional interpreters are simply not an option.

Standard	AI example
Enhancing people-centred healthcare and user involvement	**Q: Can AI support user involvement, representation and people-centred care?** AI is also increasingly being explored as a tool to support shared decision-making and more active patient involvement in care. Emerging evidence shows that AI can help present treatment options, risks, and outcomes in a more structured and personalised way — making complex information easier for patients to understand and compare. This supports more informed choices and more meaningful participation in care decisions. Beyond individual decisions, AI can also enhance patient engagement more broadly. Tools such as chatbots, digital assistants, and personalized health recommendations can encourage ongoing interaction, improve adherence, and support self-management. The opportunity lies in shifting patients from passive recipients of care to active partners. However, this depends on ensuring transparency, avoiding bias, and maintaining the central role of clinician–patient dialogue [32]. Another key application is the use of generative AI to create personalised visit or discharge summaries in plain language. These summaries can be adapted to the patient's level of health literacy and translated into their preferred language, helping patients better understand their condition, treatment, and next steps [33]. This directly supports people-centred care by improving communication, enabling shared decision-making, and empowering patients to take a more active role in managing their health. It also helps address common barriers such as medical jargon and language differences.
Creating a healthy workplace and healthy setting	**Q: Can AI support the development of a healthy workplace?** AI is increasingly seen as a tool to improve working conditions in healthcare, particularly by reducing administrative burden — a key driver of staff burnout. One promising application is AI-powered voice-to-text technology for clinical documentation. Evidence from recent studies suggests that these tools can automate routine documentation tasks, save time, and allow healthcare professionals to focus more on patient care. The potential benefits are significant: reduced workload, improved efficiency, and better job satisfaction. Healthcare organisations must ensure that new types of digital burden do not emerge, and that time freed up is invested in a more sustainable work environment [34].

Standard	AI example
	Q: Can AI contribute to better understanding community health needs and increasing the health impact of health services? AI can significantly improve how health systems identify and respond to community health needs by analysing large, integrated datasets. For example, AI-enabled analytics platforms combine clinical, social, and environmental data to identify patterns in population health and health inequalities, supporting more targeted interventions. For many non-communicable diseases, up to half of cases (e.g. diabetes or hypertension) remain undetected, particularly in underserved populations, and AI -enabled analytics could lead to improvements.
Promoting health in the wider society	AI can also strengthen understanding of upstream and environmental determinants of health, which are often underused in routine healthcare planning. By integrating data on factors such as air quality, temperature, housing conditions, and socioeconomic context, AI can identify how environmental exposures shape health risks at the community level. For example, AI models combining environmental and health data have been used to predict respiratory disease patterns or heat-related risks, enabling more targeted public health responses. This is particularly relevant for health promoting hospitals, as it shifts the focus beyond clinical care toward the broader determinants of health. It allows services to anticipate needs (e.g. during heatwaves or pollution peaks) and align interventions with real-world living conditions. The key added value is that AI makes these complex, multi-sectoral data usable — supporting more preventive, place-based, and equity-oriented health strategies [35].

Conclusions

Artificial intelligence offers powerful opportunities to advance the mission of Health Promoting Hospitals and Health Services (HPH), while also introducing important risks that require careful governance. The use of AI can strengthen implementation of key HPH principles by enhancing measures to increase health literacy, empower patients, and support shared decision-making through tailored, comprehensible information and continuous digital guidance.

AI can also be used to optimise the design and implementation of clinical pathways, predict health risks, and support early detection and prevention, thus reinforcing the shift toward proactive, person-centred care. Within organisations, AI can improve working conditions by reducing administrative burden, supporting safe staffing, and monitoring environmental and ergonomic factors that contribute to healthy workplaces. At the community and system level, AI can contribute to population health management, identify inequities, and facilitate stronger links between hospitals and community resources, including social prescribing.

However, AI carries significant risks for HPH implementation. It cannot replace the cultural, relational, and participatory foundations of health promotion, which depend on trust, empowerment, and dialogue. If poorly governed, AI can reinforce social inequities through algorithmic bias in data, inequitable access to digital technologies and skills to use them, or reduced access to person-to-person support among vulnerable groups in the community. There is also a danger that AI shifts attention back toward individualized biomedical risk management, undermining the broader settings-based and salutogenic principles at the heart of HPH. Moreover, an overreliance on AI, may obscure insights into structural determinants of health, such as living conditions, workplace environments, or community resources. Finally, issues of privacy, transparency, and ethical data use pose significant challenges to maintaining trust, which is essential for any health-promoting organisation.

AI can be a powerful enabler for achieving HPH goals if it is used to support – not replace – the human, relational, participatory, and structural dimensions of health promotion. The transformative potential lies not in the technology itself, but in how it is embedded within health-promoting governance, culture, and practice. Realising that potential requires governance that ensures transparency, accountability, and alignment with the public interest through meaningful community oversight.

Recommendations

1. Establish strong governance frameworks for AI in HPH

› Develop clear standards for transparency, accountability, and ethical AI use aligned with HPH values.

› Require routine auditing for bias, equity impact, and unintended consequences.

2. Prioritise equity and inclusion by design

› Ensure AI systems are trained on representative, population-specific data.

› Combine digital tools with non-digital alternatives to avoid excluding vulnerable groups.

› Invest in digital and health literacy for patients and communities.

3. Embed AI into people-centred care pathways—not replace them

› Use AI to support (not substitute) clinician–patient communication and shared decision-making.

› Ensure human oversight in all critical decisions and maintain relational continuity of care.

4. Strengthen the focus on prevention and community health

› Deploy AI for early detection, risk stratification, and outreach to underserved populations.

› Integrate AI insights with community services, including public health and social prescribing networks.

5. Safeguard a holistic, salutogenic perspective

› Complement AI-driven risk prediction with data on social, environmental, and behavioural determinants.

› Avoid overreliance on biomedical indicators by embedding broader health promotion goals in AI design.

6. Improve workforce conditions through responsible AI use

› Prioritise AI applications that reduce administrative burden and improve workflow.

› Monitor potential new digital burdens and ensure staff training and acceptance.

7. Ensure data governance, privacy, and trust

› Implement strict data protection standards and transparent communication with patients about data use.

› Involve patients and communities in governance structures and decision-making on AI deployment.

8. Invest in implementation and evaluation

› Support pilot projects with clear pathways to scale (avoiding “pilotitis”).

› Evaluate impact not only on efficiency, but on equity, empowerment, and health outcomes.

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The International Network of Health Promoting Hospitals and Health Services

The International Network of Health Promoting Hospitals and Health Services (HPH) is a network of over 600 hospitals and health services from over 30 countries that support the implementation of health promotion into the core organizational structure, culture, and decision-making processes of organizations. Initiated by the WHO in 1988, the institutions in our network advocate and assist the advancement of health promotion by collaborating to develop structures, decisions, and policies that aim to obtain positive health outcomes for patients, staff and populations served, and to support sustainable societies. The HPH network is a non-profit, non-governmental organization.