

How clinicians should prioritise the use of artificial intelligence in Singapore's healthcare system: Correspondence

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Dear Editor,

The readers writing this letter read with interest Hwang et al.'s article on augmented intelligence in healthcare,¹ and agree that it would be most responsible for artificial intelligence (AI) to enhance, rather than replace clinical judgment. The more urgent question for Singapore's clinicians today is therefore not whether to use AI, but where to prioritise its deployment for responsible, meaningful impact.

AI is already embedded in several parts of Singapore's healthcare system, including triaging, community screening, and operational management.²⁻⁵ As adoption grows, the challenge shifts from experimentation to disciplined scaling. Poorly chosen deployments risk inefficiency and erode trust, whereas well-targeted applications can improve clinical outcomes, reduce administrative load, and enhance system resilience.

Singapore's integrated public healthcare clusters, robust data infrastructure such as the National Electronic Health Record, and strong governmental support create favourable conditions for AI implementation.⁶ However, this also raises expectations for disciplined governance. Past data breaches and rapid digitisation have heightened public sensitivity to privacy and accountability, underscoring that technical feasibility alone cannot justify adoption.⁷

Population health needs further sharpen the focus. With an ageing population, rising chronic disease burden, and a national emphasis on preventive and community-based care under Healthier SG, AI that supports early detection, longitudinal risk management, and continuity of care offers the highest value.

To guide responsible adoption, the readers recommend that clinicians assess AI initiatives across 5 dimensions: (1) clinical value: demonstrable improvements in outcomes, safety, or clinician capacity; (2) workflow integration: minimal disruption and seamless

incorporation into existing routines; (3) data readiness: reliable, representative data suited to the intended task; (4) ethics and governance: clear accountability, transparency, and safeguards for patient trust; (5) scalability and sustainability: capacity for long-term support and system-wide implementation.²² Applications scoring strongly across these dimensions merit prioritisation; those driven mainly by novelty or vendor interest should be approached cautiously.

AI will increasingly influence healthcare delivery in Singapore. The key question is whether this evolution occurs reactively or under deliberate clinical leadership. Clinicians play a central role in identifying where AI truly adds value, where it distracts, and where it may inadvertently harm. By emphasising augmentation over automation, prevention over reaction, and integration over fragmentation, clinicians can ensure AI strengthens the core values of Singapore's healthcare system. The future of AI in healthcare should be defined not by technical capability, but by clinical relevance.

Declaration

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Ethics statement

Not applicable, as no human or animal participants were involved.

Keywords: AI adoption, augmented intelligence, clinical domains, healthcare transformation, operational domains

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Table 1. Clinical and operational domains where AI should be prioritised to further value-add to Singapore's healthcare system.

Clinical domains	
Diagnostics	AI's maturity is the strongest in pattern-recognition tasks such as radiology, ophthalmology, and pathology. Singapore already uses validated tools for chest radiography triage and diabetic retinopathy screening. ^{3-5,8-9} The most appropriate use cases are those that triage or augment clinical review rather than make autonomous decisions. Clinicians should prioritise diagnostic AI where disease burden is high, early detection improves outcomes, workload is variable, and outputs are explainable. In contrast, areas with limited data, subjective labels, or unclear downstream pathways should be deprioritised.
Decision support	Chronic disease management is well suited for AI-enabled risk stratification and treatment optimisation due to its structured data and stable guidelines. ⁹⁻¹¹ Assistive, not prescriptive tools that surface options or flag deviations support clinical judgment while improving consistency. Prioritisation should focus on domains with well-defined pathways, high variability driven by workload constraints, and transparent, contestable recommendations.
Longitudinal monitoring and preventive care	As care shifts upstream, predictive models that identify patients at risk of deterioration or poor adherence align directly with national preventive care priorities. ¹²⁻¹⁴ AI is most valuable when paired with primary care ownership, digital engagement tools, and clear escalation pathways. Priority should be given to systems enabling anticipatory action rather than retrospective insight.
Operational domains	
Clinical documentation and administrative work	Among all applications, AI-assisted documentation offers the most immediate, broad-based benefits. It directly reduces administrative burden, a major contributor to clinician burnout, without altering clinical decisions. ¹⁵⁻¹⁶ Singapore's strong interest in generative AI for documentation reflects its potential to transfer time and attention to patient care. ^{3,17}
Resource allocation and capacity management	AI that improves bed assignment, operating theatre scheduling, and patient flow addresses bottlenecks that contribute to crowding and delays. ^{2-3,18} Such systems are particularly beneficial where demand is predictable, decisions are time-sensitive, and coordination is complex.
Patient engagement and access	Chatbots, appointment optimisation tools, and digital triage platforms can improve access and promote appropriate self-care. ^{2-4,9,19-21} Clinicians should prioritise solutions integrated with trusted national platforms and aligned with established guidelines, while ensuring they complement but not replace human interaction.
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Authors' reply

Dear Editor,

The authors thank the readers for their thoughtful response to the article on augmented intelligence in healthcare.¹ The authors agree that the key question is not whether to use artificial intelligence (AI), but how to prioritise its deployment responsibly within the health system. Their proposed domains and evaluation criteria are well aligned with the current evidence that AI performs best in structured, high-volume tasks such as imaging triage, chronic disease risk stratification, and documentation. These support our 3-fold considerations for augmented intelligence in healthcare.² First, AI in healthcare requires humans (including the AI company or hospital management) to take final responsibility. Second, engagement and involvement are required in AI implementation. Third, the future is not about whether AI is used but why AI is not being used.

In reply to the readers responding to the paper, the authors offer 3 additional considerations. First, technical validation must be coupled with implementation science. Prospective accuracy does not guarantee clinical impact. Real-world studies show that effectiveness depends on workflow integration, clinician behaviour, and continuous monitoring for performance decay or dataset shift.³⁻⁵ Post-deployment audit and recalibration should therefore be mandatory components of scaling.

Second, augmentation requires safeguards against automation bias. Human-AI interaction research demonstrates that clinicians may over-rely on algorithmic outputs, particularly under time pressure.^{6,7} Systems should incorporate calibrated uncertainty, transparent outputs proportional to clinical risk, and clear override mechanisms to preserve clinical judgment and patient safety.

Third, prioritisation must explicitly address equity and longitudinal value. Algorithmic bias and differential performance across demographic groups are well-documented.^{8,9} In a multi-ethnic population, validation across strata and fairness audits are essential. Beyond efficiency, AI should be evaluated for measurable impact on preventive care, continuity, and patient-centred outcomes.

Singapore's integrated clusters and national data infrastructure position it well for disciplined scaling. The appropriate paradigm remains augmentation: AI should extend human capacity while preserving accountability, equity, and professional judgment.

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