

Reimagining Healthcare Delivery: Lessons from Kaiser Permanente's Virtual Medical Centre by Dr Kristine Lee, The Permanente Medical Group

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Photo of CHI 24th Masterclass. Dr Kristine Lee explaining how Kaiser Permanente developed its Virtual Medical Centre by dismantling silos, reworking workflows, and leveraging AI to streamline clinicians' workload.

The 24th CHI Masterclass, co-organised by the Centre for Healthcare Innovation (CHI) and NHG Population Health, featured Dr Kristine Lee, Associate Executive Director for Virtual Medicine, Technology, Research and Innovation, and the Chief Transformation Officer at The Permanente Medical Group. The session focused on a critical challenge facing healthcare systems in the post-COVID-19 era – the significant strain caused by rising patient demand, accumulated care backlogs, and widespread clinician burnout.

Clinicians are facing growing administrative burdens, particularly around documentation and messaging, with patient email volumes to doctors nearly doubling since the pandemic. Fragmented systems have also made care delivery less efficient and harder for patients to navigate. To address these issues, key priorities include shifting to patient-centred, multi-channel care integrating siloed services into a unified Virtual Medical Centre, and leveraging technology and artificial intelligence (AI) to reduce workload and scale care delivery. These efforts are underpinned by pilot initiatives, evaluation frameworks, and strong governance to ensure safe and effective implementation.

Build a Patient-Centred, Multi Channel Care Model

Dr Lee's approach to redesigning healthcare delivery is built on a simple but powerful idea: healthcare should meet patients where they already are.

Rather than expecting patients to follow fixed pathways, the model accepts that different patients will engage differently and ensures that the quality of care remains consistent regardless of how they choose to connect.

“We are just going to accept that the patients are going to do it the way that the patients want to do it. - Dr Kristine Lee

The pandemic also accelerated patient adoption of telecommunication channels such as the phone, video, or messaging, and the shift has proven permanent. Opening multiple channels introduced new challenges. Fragmented entry points risked concerns about overutilisation, with patients potentially calling, messaging and booking appointments all for the same issue. To address this, standardised care protocols and structured triaging, ensured that no matter how a patient entered the system, they were routed to the right level of care.

Inclusivity was also a priority. Recognising that not all patients are equally comfortable with digital tools, the model maintained a hybrid system that preserved traditional options alongside newer digital ones. No patient was left behind simply because they preferred a phone call over a video consultation.

The results speak for themselves – the COVID-19 e-visit pathway achieved a Net Promoter Score of 94, a testament to what happens when patients are given the choice of how to engage with their care.



Left to right: Ms Ong Jing Fang (Chief Operating Officer, NHG Population Health), Dr Kristine Lee (Associate Executive Director, Virtual Medicine, Technology, Research and Innovation and Chief Transformation Officer, The Permanente Medical Group), Dr Valerie Teo (Deputy Director, Clinical Services, NHG Polyclinics) during the Q&A segment of CHI's 24th Masterclass.

Create an Integrated Virtual Medical Centre

At the heart of Dr Lee's operational model is the Virtual Medical Centre (VMC), integrating previously siloed services such as call centres and virtual clinicians into one coordinated system.

The goal was to resolve patient issues at the first point of contact, every time. This concept, known as Point of Contact Resolution (POCR), eliminated unnecessary handoffs, reduced patient frustration, and lightened the load on clinical teams. This integration was not just structural, it also required a cultural shift. Before VMC, teams operated in silos so entrenched that staff needed permission from senior leaders simply to speak to colleagues in other departments. Dr Lee dismantled this culture, making clear that no such permission was required and rallying peers to model open, cross-team collaboration.

The VMC ultimately delivered coordinated, efficient care, mirroring the goals of Singapore's Regional Health System (RHS) in bridging hospitals, polyclinics, and community care.



“ *Congratulations, you are now the virtual medical centre... you are now one team.*
- Dr Kristine Lee

Reduce Clinician Burden with AI and Technology

A central theme was harnessing AI to reduce administrative workload to give clinicians more time to focus on quality patient care.

“ *The number one thing that we are the most unhappy about is the clerical burden.*
- Dr Kristine Lee

The scale of the problem was stark. Clinicians were spending two hours on documentation for every one hour of direct patient care, a ratio that Dr Lee described as fundamentally at odds with the spirit of medicine. Burnout was not a wellbeing concern; it was a systemic inefficiency.

To address this issue, tools like ambient AI scribes, which automatically generate clinical notes during consultations, significantly reduced after-hours work. A deliberate choice in the pilot was to include clinicians who were sceptical or uncomfortable with technology. Not surprisingly, these individuals ultimately became the strongest advocates, driving word-of-mouth adoption across the organisation.

Following the pilot, scaling was swift, with the ambient AI scribe rolled out to 10,000 physicians within a month. Adoption was further accelerated once the tool was integrated into the Electronic Health Records (EHR), removing the friction of manual copy-and-paste steps.

By reducing administrative load, clinicians reported greater job satisfaction and patient interactions, making the system more productive and sustainable.

Rapid Pilots with Clear Evaluation and Scaling

Dr Lee's approach is built on speed and discipline, with every pilot designed with a fixed timeframe, clear goals, and measurable outcomes from the outset.

She was candid about a trap many healthcare systems fall into, what she termed "pilotitis", pilots that continue indefinitely, consuming resources without producing actionable results.

Pilots that show strong results are scaled up quickly, and those that do not are stopped, with lessons carried forward to other initiatives. This approach avoids wasted time and resources, encourages faster innovation, and ensures that only effective solutions are expanded.



Redesign Workflows Around “Top-of-License” Practice

Workflows were redesigned so that each team member focuses on tasks that match their skills and training. Rather than routing all queries to physicians, work is routed to the most appropriate staff, such as nurses, pharmacists, or administrative personnel. The example Dr Lee shared was telling patient messages asking where to park were landing directly in physicians' inboxes simply because of how the messaging system had been designed.

In addressing this, healthcare professionals were actively involved in redesigning workflows and work processes for laypersons, who then follow endorsed scripts and workflows in practice. This ensures that the clinical expertise shapes the system without being consumed by it.

The result is an efficient and sustainable workforce where clinicians are freed up for complex care, staff are engaged in meaningful work, and patients are better served.

Strong Governance and Responsible AI Adoption

Adopting AI responsibly means having clear guardrails, ensuring each tool is safe, accurate, and genuinely improves care before it is rolled out.

Data protection is non-negotiable. Vendors whose tools require patient data for training are ruled out. Patient data stays within the organisation's firewall, and cybersecurity is treated as a primary concern. Review committees and evaluations are also set up to assess risks before any AI tool is adopted.

Contrary to belief, strong governance does not slow innovation but enables it. With clear criteria in place, teams can make faster, more confident decisions about what to adopt.



Professor Eugene Fidelis Soh presenting a 'Healthier Together' box to Dr Kristine Lee



24th CHI Masterclass marking a shared commitment to advancing virtual care through meaningful transformation and innovation.

Conclusion

Rising demand, clinician burnout, and fragmented care cannot be solved by technology alone. It requires a system-wide transformation, one that redesigns care around patients, integrates siloed services, and empowers the workforce through smarter use of resources.

Dr Lee's multi-channel care model, Virtual Medical Centre, and leveraging AI tools, collectively addresses the key inefficiencies that affect traditional healthcare systems. What ties it all together, however, is a deeper cultural shift — moving from rigid, provider-driven models to flexible, patient-centred and digitally enabled ecosystems where strong governance and a willingness to experiment go hand in hand.

As Dr Lee noted, while some things take 20 years to change, most things should not. With the right framework, meaningful transformation can happen quickly.

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