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TAKING A RISK-BASED APPROACH IN ADAPTING CLINICAL GOVERNANCE SYSTEMS TO VIRTUAL CARE SETTINGS

Margaret Way[*1], *Sue Thomson*[2], *Sarah Dring*[2], *Sandeep Reddy*[3]

1. Deakin University, Victoria Australia
2. iAgeHealth, Australia
3. Queensland University of Technology, Queensland, Australia

Correspondence: marg@margwayconsulting.com.au; Margaret.way@deakin.edu.au

ABSTRACT

Virtual care is often assumed to be a straightforward substitute for in-person care, but this overlooks the unique risks and governance challenges associated with it. This paper examines how a risk-based approach can strengthen clinical governance in virtual care settings. Using established quality and risk management standards, we developed a tailored governance framework for a not-for-profit aged care provider. Key adaptations included modifying existing policies, creating a virtual care practice framework, and introducing clinical guidelines specific to remote delivery. A capability framework was designed to support clinicians, and a monitoring and evaluation system was implemented to ensure safety, quality, and accountability. These measures assure the governing body and demonstrate how structured governance can mitigate risks and improve outcomes in virtual care.

KEYWORDS

Virtual care, clinical governance, risk management, aged care

INTRODUCTION

The rapid expansion of telemedicine and remote patient monitoring during the COVID-19 pandemic transformed healthcare delivery, enabling access while reducing the risk of infection. It provided an alternative to patients who had difficulty in attending in person due to physical or geographical barriers. [1] Virtual care has also been associated with reduced healthcare costs and lower hospital admission rates in certain population groups, such as older adults. [2] However, virtual care is often perceived as a direct substitute for in-person care—a misconception that can lead to complacency in addressing its unique risks. Unlike traditional models, virtual care introduces challenges such as limited non-verbal communication, reduced opportunities for patient engagement, and potential breakdowns in clinical decision-making and data security. Research shows that patients frequently view remote consultations as less safe, citing concerns about interaction quality and continuity of care [3,4]

These issues highlight the need for robust clinical governance tailored to virtual environments. Governance frameworks must account for technology-driven risks, adapt clinical guidelines, and ensure accountability across diverse care settings. This paper explores how a risk-based approach, grounded in established quality and safety standards, can be applied to design and implement a customised clinical governance system for virtual care. Using the case of iAgeHealth, a virtual

platform developed by a not-for-profit aged care provider, this analysis demonstrates practical strategies for mitigating risk, supporting clinicians, and assuring safety and quality in virtual service delivery.

SETTING

McLean Care is a not-for-profit organisation delivering home and community care, residential care and independent living options to older Australians. McLean Care initiated the design and development of a clinical and allied health workforce solution, which was trademarked as iAgeHealth in 2023. The solution was co-designed with a range of experts, including the Aged & Community Care Providers Association, the CADET Virtual Reality Laboratory at Deakin University and Australian software development partners, Antero. The platform enables a virtual hub of clinicians, located anywhere in Australia, to receive immediate referrals to assess, diagnose, and monitor consumers in real-time. Consumer information is stored securely on the platform and is accessible to all treating clinicians. This supports a single longitudinal record for residents and shared care planning between the resident, GP, iAgeHealth clinicians, external specialists and aged care workers.

ANALYSIS OF THE ISSUE

The approach taken to assess the impact of virtual care in this setting involved applying known quality and risk standards and guidance. Standards and guidance for telehealth and virtual care services include ISO9001 (Quality management), ISO13131 (Telehealth quality guidelines), ISO7101 (Healthcare organisation management) and ISO3100 (Risk management). In this case study, the steps in the AS/NZS 3100:2018 risk management standard were applied as shown in Figure 1.

FIGURE 1. COMPONENTS OF THE AS/NZS RISK MANAGEMENT STANDARD 3100:2018 (STANDARDS AUSTRALIA)

The first step often overlooked in assessing a new or novel service is considering the scope and context of the service. A PESTLE analysis, adapted in healthcare to include a clinical domain (PESTLEC), was used to evaluate the context in all domains: Political, Economic, Social, Technological, Legal, Environmental, and Clinical. These risks were contextualised for the setting of this case study as shown in Table 1.

TABLE 1. RISK IDENTIFICATION IN VIRTUAL CARE (PESTLEC FRAMEWORK)

Domain	Risk Issue
Political	Aged Care reforms requiring mandatory 24/7 Registered Nurse coverage
Economic	Redistribution of travel and waiting costs

Domain	Risk Issue
Social	Older population, often with sensory loss and technology adoption challenges
	Consumer expectations for transparency and quality of care.
Technological	Advances in technology affecting usability and service delivery.
	Virtual environment restricting clinical assessment and interaction quality.
	Altered multidisciplinary team dynamics affecting care coordination.
Legal	Regulatory requirements for accountability and safety
	Clinical decision support requiring adaptation and escalation criteria
	Scope of practice creep related to professional boundaries
Environmental	Connectivity in rural and remote areas
Clinical	Dependence on clinical judgment and empathy
	Shifts in service models with care delivered by consumers and non-clinicians

Following further quantification of the risks in terms of frequency and likelihood, risk treatment and controls were applied in the development phases of iAgeHealth. To ensure a more systematic and proactive approach to managing these risks, iAgeHealth again engaged with Deakin University to develop and implement a clinical governance framework. Clinical governance approaches have been widely applied to cover the spectrum of risks that occur in healthcare delivery. In the iAgeHealth context, the starting point was the national model clinical governance framework produced by the Australian Commission on Safety and Quality in Health Care[i]. The codesign process between Deakin and iAgeHealth worked through each element of the framework to determine how it could be adapted to ensure the quality, safety, and effectiveness of healthcare delivered through the virtual platform. Each of these domains is explored in the following sections.

GOVERNANCE, LEADERSHIP AND CULTURE

For iAgeHealth it was essential to distinguish between the staff employed by the facility receiving virtual care, family or caregivers at home, and the staff at iAgeHealth. It required clear articulation of roles and accountability. Table 2 outlines the various categories of staff and consumers who form part of the iAgeHealth delivery system.

TABLE 2. ROLES AND RESPONSIBILITIES FOR CLINICAL GOVERNANCE IN IAGEHEALTH

Role	Context	Scope and accountability
Consumers	Consumers and their families receiving virtual care	Consumers participate as partners to the extent that they choose and are able to engage. Consumers may be at home in in a facility.
Support Workers	Staff employed by facilities, or family or carers at home for consumers receiving virtual care from iAgeHealth	Support workers work within the parameters defined within the clinical governance framework, according to their scope of practice, appropriate credentials and appropriate supervision.
iAgeHealth Support staff	Staff employed by iAgeHealth to support the delivery of virtual care	This includes staff who maintain the IT platforms, electronic medical records and manage any remote monitoring devices
iAgeHealth Clinicians	Clinicians employed by iAgeHealth to deliver virtual care	Registered Nurse 24/7, Nurse Practitioner, Physiotherapy, Occupational Therapy, Dietetics, Wound Care Consultant Clinician, Mental health worker.

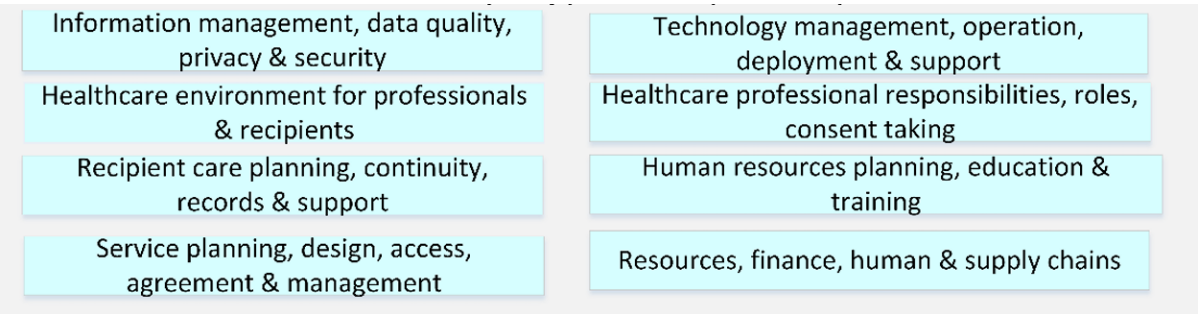
Non iAgeHealth Clinicians	Including GPs, pharmacists, community staff	Clinicians are responsible for liaising with iAgeHealth clinicians to support the provision of virtual care and to provide continuity of care
iAgeHealth Manager/ clinical lead	Responsible for ensuring that the systems that support the delivery of care are well designed and perform well	Clinical Nurse Consultant employed as clinical project lead and Nurse Practitioner as senior clinician to advise and inform the governing body, and to operate within the strategic and policy parameters endorsed by the governing body.
Governing Body	The governing body is ultimately responsible for ensuring that the iAgeHealth service is run well and delivers safe, high-quality care.	It does this by establishing a strong safety culture through an effective clinical governance system, satisfying itself that this system operates effectively, and ensuring that there is an ongoing focus on quality improvement

This accountability approach was operationalised through publication of the framework, incorporation into position descriptions and staff training.

CONSUMER SAFETY AND QUALITY SYSTEMS

Best practice policy and procedures that clearly detailed roles and responsibilities were formalised and adapted from McLean Care guidance. Virtual care quality procedures were adapted to cover the elements covered in ISO 13131 as described in the guidance framework for telehealth and virtual care services produced by the International Medical Informatics Association (IMIA) [6] as shown in Figure 2.

FIGURE 2. VIRTUAL CARE QUALITY PROCEDURES (ISO 13131)



These included clinical risk management processes, incident management and complaints policies, information and security management policies and a range of human resources polices.

Critical to measuring and evaluating the impact of virtual care delivery was ensuring data could be easily collected, analysed, and reported. iAgeHealth had defined the information to be included in the consumer clinical record for the purposes of continuity of care, legislative requirements, accountability, research, education, evaluation, reporting, and funding. iAgeHealth can integrate with My Health Records and care management systems as well as electronic prescription and charting systems, creating a single source of accurate health information for each client. Being able to integrate this information in one place reduces the likelihood of duplication errors and their associated risks.

The reporting functionality of the Antero system was critical. During the initial development of the platform, several clinical pathway templates were integrated to provide guidance and documentation, particularly in the areas of falls and wound management. As the number and variety of consultations increased, episodes of care outside these pathways were classified as 'general' and included narrative text. Working outside a public health care system became challenging in terms of capturing meaningful clinical coding data. The Clinical Care Classification (CCC) System emerged from a research project conducted by a research team from 1988 to 1991 at Georgetown University School of Nursing [7] The

CCC System Framework links nursing diagnoses, nursing interventions, and nursing outcomes to describe a patient encounter. The terminologies are classified by 21 care components that link the diagnoses to interventions, to outcomes and to each other, as well as map their concepts to other health-related terminologies including SNOMED-CT, LOINC, ICNP and ICD-10. Building this clinical coding system into Antero resulted in iAgeHealth clinicians using defined clinical terms and diagnoses that could then be assigned to individual episodes of care.

iAgeHealth in collaboration with staff from Deakin University also developed a Monitoring and Evaluation framework based on earlier work [8] that contains a suite of safety and quality indicators covering qualitative and quantitative data to compare performance over time. Using the components of STEEEP, developed by the Institute of Medicine [9], routine KPIs and evaluation metrics were identified in the 6 safety and quality domains shown in Table 3.

TABLE 3. IAGEHEALTH SAFETY AND QUALITY INDICATORS

Domains	indicator	Measures
Safe	Number SAC1, SAC2, SAC3 Incidents resulting in harm	Issues with clinical assessment, diagnosis and treatment/handover/ communication/ documentation/ incorrect instruction provided, failure to followup, failure to escalate, missed consult, scheduling issue, delay, instructions not followed by service
	Number of transfers to higher level care	Detail of facility and reason for transfer
Timely	Timely access to MDT care	Time from referral to EOC – by facility and by professional group
	Time of treatment	Total EOC time by facility and by professional group
Effective	Care provided according to guidelines	EOC by clinical coding classification – total and by facility
	Clinical outcomes per procedure	Clinical outcomes by clinical coding classification – total and by facility
Efficient	Staff costs	Number of clinicians recruited Time and cost to recruit Time and cost to onboard iAgeHealth practitioners
	System performance / technical support	Number and types of technical issues Complexity and Time/ resources taken to resolve
Equitable	Gaps in service offering	Services requested not met by iAgeHealth Number of referrals escalated out Number of referrals not supported by iAgeHealth system due to the complexity of clinical need
Person-centred	Consumer experience	PREMS PROMS

This data is compiled for reporting to the McLean Care governing body as part of a monthly clinical governance report by facility and for the entire iAgeHealth service.

CLINICAL PERFORMANCE AND EFFECTIVENESS

MacLean Care has an extensive library of policies and procedures that can be accessed by iAgeHealth clinicians. A number have been modified specifically for the virtual care environment. These include:

- Falls assessment and management
- Wound assessment and management
- Infection prevention and management

- Clinical Deterioration detection and response
- Emergency clinical response
- Escalation to primary care provider
- Referral and transfer of care
- Nurse initiated Medication management
- Clinical handover

Additionally, a range of resources is available as part of the adapted Virtual Care capability framework. The Clinical Care Standards published by the Commission on Safety and Quality in Healthcare also assist IAgeHealth to deliver appropriate evidence-based care and reduce unwarranted variation. Relevant standards include antimicrobial prescribing and the prevention and management of delirium. The Queensland Health Residential Aged Care Clinical Pathways [10] have also proved valuable in supplementing local guidance, particularly with respect to escalation of care.

The scope of virtual practice is currently limited to encounters that require only a history, gross inspection, and/or data that can be gathered with cameras and standard devices (e.g., glucometers, home blood pressure machines, thermometers, and scales). In practical terms, virtual care can be safely used in iAgeHealth to:

- assess and treat mental health issues
- assess and treat many skin problems using onsite cameras, including wound assessments
- assess and treat urinary, sinus and minor skin infections
- assess and treat conditions monitored with home devices and/or lab tests (e.g., hypertension, lipid management, thyroid conditions and some diabetes care
- conduct any other assessments that do not require palpation or auscultation, including falls and frailty assessments.

The problems that are currently not amenable to virtual care include any new and significant emergency symptoms such as chest pain, shortness of breath and loss of neurologic function. [11] In this circumstance, the iAgeHealth clinician would escalate and enact the emergency clinical response protocol.

In terms of workforce capability and training, iAgeHealth employees have access to education and training programs to fulfil their role and responsibilities. This includes orientation to the organisation that is inclusive of mandatory training modules and training that is specific to the delivery of virtual care. This also includes ICT issue escalation protocols. The scope of clinical practice is monitored through daily handover meetings and service delivery records.

Additional guidance has been developed to strengthen workforce confidence and capability in delivering safe, high-quality virtual care. Building on the Skills for Health framework [12] commissioned by NHS England in 2022, iAgeHealth has adapted this model to create a streamlined set of capabilities tailored to the Australian context.

PARTNERING WITH CONSUMERS

A range of patient/ consumer outcomes are collected by iAgeHealth clinicians as part of assessment and treatment. Parameters such as blood pressure levels, cholesterol levels, and disease-specific markers are tracked to assess the impact of clinical interventions on the consumer's physiological health. Functional outcomes that measure the consumer's ability to perform daily activities are recorded in the clinical record. These include mobility, pain levels, and overall physical functioning.

iAgeHealth has also initiated the use of Patient-Reported Outcome Measures (PROMs) in obtaining direct feedback from patients regarding their symptoms, quality of life, and overall well-being. The EQ- 3D [13] was chosen as a tool, based on prior clinician experience and simplicity. This tool is used for consumers with long-term care needs who require multiple episodes of care. It allows self-assessment in the 5 domains of mobility, self-care, usual activities, pain/discomfort and anxiety/ depression.

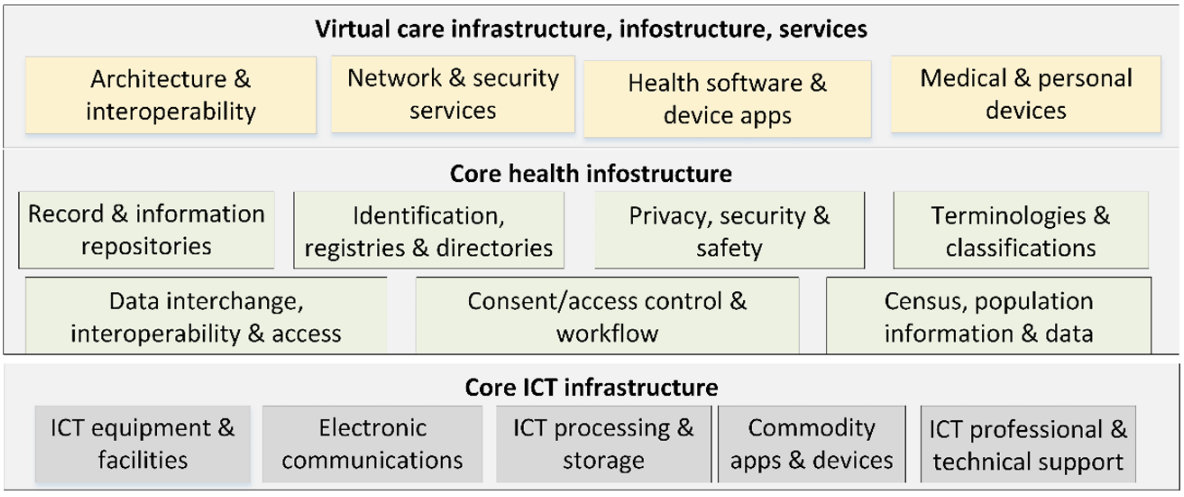
In terms of Patient-Reported Experience Measures (PREMs), iAgeHealth has adapted the Australian Hospital Patient Experience Questionnaire Set (AHPEQS), developed by the Australian Commission on Safety and Quality in Health Care.[14] The AHPEQS questions ask patients to consider short statements about events that occur during health care. The survey is provided by QR code at the end of the consultation and is shown in Table 4.

TABLE 4. IAGEHEALTH PREMS SURVEY

Survey Question	Never	Sometimes	Often	Always
Were iAgeHealth staff polite and welcoming?				
Did iAgeHealth staff explain things to you?				
Did you feel confident in your treatment and virtual care?				
Were you involved in decisions about your virtual care?				
Were your cultural or religious beliefs respected by iAgehealth staff?				

SAFE PRACTICE AND ENVIRONMENT

Many of the elements for safe practice and environment were covered in the design of the architecture for the iAgeHealth platform as shown in Figure 2. (Adapted from International Medical Informatics Association (IMIA)) [15]



DISCUSSION

Adopting a risk-based approach and tailoring a clinical governance framework for virtual care has proven effective in addressing the unique challenges of technology-enabled service delivery. The mapping of risks identified through the PESTLEC analysis to the adapted governance domains (Table 5) demonstrates that this framework provides comprehensive coverage across political, economic, social, technological, legal, environmental, and clinical dimensions. By aligning governance principles with these risk categories, the system ensures that accountability, safety, and quality are embedded at every level of care.

TABLE 5. MITIGATION OF RISKS USING A CLINICAL GOVERNANCE FRAMEWORK AND SYSTEM.

Domain	Risk Issue	Clinical governance domain
Political	Aged Care reforms requiring mandatory 24/7 Registered Nurse coverage	Governance, leadership and culture
Economic	Redistribution of travel and waiting costs	Safe practice and environment

Domain	Risk Issue	Clinical governance domain
Social	Older population, often with sensory loss and technology adoption challenges	Partnering with consumers
	Consumer expectations for transparency and quality of care.	Partnering with consumers
Technological	Advances in technology affecting usability and service delivery.	Safe practice and environment
	Virtual environment restricting clinical assessment and interaction quality.	Safe practice and environment
	Altered multidisciplinary team dynamics affecting care coordination.	Safe practice and environment
Legal	Regulatory requirements for accountability and safety	Governance, leadership and culture
	Clinical decision support requiring adaptation and escalation criteria	Clinical performance and effectiveness
	Scope of practice creep related to professional boundaries	Clinical performance and effectiveness
Environmental	Connectivity in rural and remote areas	Safe practice and environment
Clinical	Dependence on clinical judgment and empathy	Clinical performance and effectiveness
	Shifts in service models with care delivered by consumers and non-clinicians	Partnering with consumers

This approach highlights several key insights. First, governance and leadership structures must clearly define roles and responsibilities to maintain accountability in a distributed care model. Second, robust safety and quality systems, including incident management, complaints handling, and integrated information systems, are essential to mitigate risks associated with communication breakdowns and fragmented data. Third, adapting clinical guidelines and escalation protocols for virtual contexts safeguards clinical performance and effectiveness, while capability frameworks support workforce confidence and competence. Finally, partnering with consumers through tools such as PROMS and PREMS strengthens person-centred care and ensures that consumer expectations for transparency and engagement are met.

Overall, the adapted governance framework demonstrates that virtual care can be delivered safely and effectively when risk management principles are integrated into system design. This model provides a scalable solution for organisations seeking to integrate quality and safety into virtual care environments, while ensuring compliance with regulatory standards and promoting continuous improvement.

CONCLUSION

Designing a practical clinical governance framework for virtual care involves more than simply migrating existing procedures into a digital platform. This case study demonstrates that a risk-based approach, grounded in established quality and safety standards, can successfully address the distinctive challenges associated with virtual care delivery. Through the adaptation of relevant policies, the creation of a dedicated virtual care practice framework, and the implementation of robust capability and monitoring systems, iAgeHealth has developed a model that upholds safety, quality, and accountability across all tiers of care.

Looking to the future, the achievements of this framework point to opportunities for wider adoption. Key priorities moving forward include continually refining evaluation metrics, embracing emerging technologies, and adapting the model for use in various care environments. As virtual care becomes an integral part of healthcare delivery, it will be essential to embed robust governance systems. Doing so will be critical to maintaining trust, enhancing outcomes, and fostering sustainable innovation within the sector.

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