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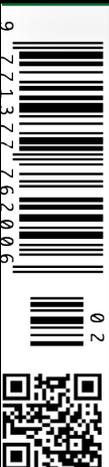
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# The Care Algorithm: Accreditation, Quality Management System and AI for Organisational Learning



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Digital health makes care quality an outcome of sociotechnical systems, not individual actions. The ‘care algorithm’ frames how accreditation, embedded in a quality management system and enhanced by AI, can shift from episodic compliance to continuous organisational learning. Strong governance, security and continuity underpin safety, reliable information flows and better patient experience.

## key points

- Digital health quality depends on sociotechnical systems and governance.
- Accreditation works best when embedded in a QMS and daily decisions.
- The care algorithm captures the implicit logic of processes, data flows and feedback.
- AI can support evaluation through monitoring, pattern detection and early risk signals.
- Patient experience reflects reliable, secure information and continuity of care.

The healthcare sector is undergoing a structural transformation: care is no longer exclusively relational and face-to-face, but is increasingly mediated by digital systems, data and algorithms. This transition not only reshapes clinical practice, but also reconfigures how quality is produced, monitored and sustained over time. In Brazil, the Digital Health Strategy 2020–2028 and the institutionalisation of governance for SUS Digital have accelerated this movement, expanding telehealth and pressuring organisations to integrate clinical practices, digital workflows and ethical-legal requirements within highly complex environments (Ministry of Health 2020).

In this context, accreditation faces an inflection point: it may either remain focused on the pursuit of compliance or evolve into a strategic instrument for organisational

development. This article argues for the latter path, proposing the concept of the care algorithm as a lens through which to understand how accreditation, structured through the quality management system and supported by artificial intelligence, can sustain institutional learning, mature governance and an improved patient experience.

## Quality in Digital Health: No Longer a Strictly Operational Responsibility

Historically, the assessment of healthcare quality has been structured around the model of structure, process and outcome proposed by Donabedian (1988). This model remains highly relevant, but its application must be reinterpreted considering digital health. Today, “structure” is no longer limited to facilities



and teams; it includes technological infrastructure, interoperability, information security and governance. “Process” now encompasses digital workflows, electronic records, decision-support algorithms and automated mechanisms. “Outcome” incorporates, in addition to clinical results, the patient experience in technology-mediated environments.

Artificial intelligence intensifies this transformation. Algorithms influence triage, prioritisation, alerts and operational decisions, shifting part of care production toward sociotechnical systems. As a result, quality ceases to be merely a consequence of individual professional competence and becomes dependent on organisational maturity, that is, the institution’s ability to govern processes, risks, information and learning (ISO 7101:2023).

### Accreditation as a Catalyst for Transformation: Beyond Formal Compliance

Accreditation programmes have contributed significantly to standardisation and the culture of safety. However, their impacts vary. According to the World Health Organization (2022), accreditation tends to generate greater value when integrated into structured quality management systems and organisational decision-making routines, rather than when treated as an isolated intervention.

When an accreditation model is predominantly normative, it may generate formal compliance without institutional learning. Organisations learn how to “pass” the assessment, but not necessarily how to

sustain improvements once the evaluation cycle ends. In digital environments, this risk increases: failures rarely result from a single error, but from interactions among technology, people and processes.

“The Care Algorithm represents the implicit logic through which healthcare organisations structure decisions, processes, data flows and feedback mechanisms.”

In the Brazilian context, the National Accreditation Organization (ONA) stands out as a pivotal methodology. Founded in 1999, ONA has been a primary driver for the growth and professionalisation of the healthcare sector over the last 26 years. Its evolution reflects a shift from purely prescriptive checklists to a model deeply rooted in organisational practice. By incorporating the patient journey and ESG (Environmental, Social and Governance) principles into its standards, ONA has moved beyond technical compliance to foster a holistic view of healthcare management that aligns with global sustainability and patient-centric trends.

This maturation of the ONA model has been essential in transforming the Brazilian healthcare landscape. Rather than focusing solely on administrative processes, the current standards encourage a culture where quality is intrinsic to care delivery. This approach mitigates the risk of “formal compliance,” where organisations might learn how to pass an assessment without achieving genuine institutional learning. Instead, it promotes a continuous development cycle where technology, people and processes interact to create safer and more efficient digital and physical environments.

The field of organisational development (OD) provides a decisive framework for rethinking accreditation. According to Schein (2017), organisational culture shapes how decisions are made and how problems are interpreted; therefore, sustainable change requires cultural transformation, not merely normative adjustment. Complementarily, Argyris and Schön (1978) demonstrate that organisations evolve when they develop learning mechanisms that challenge mental models, rather than merely correcting isolated deviations.

Applied to accreditation, this logic implies viewing it as a planned intervention within the organisational system. As discussed by Gerolamo, Bertassini and Ponce (2023), lasting change requires leadership sponsorship, resistance management, continuous communication and clear metrics, all critical elements in digital health transformation.

Thus, accreditation ceases to be a purely evaluative event and becomes a learning journey capable of aligning strategy, governance, culture and care delivery.



**Work as Imagined**

- is evaluated by reviewing documented policies, procedures, guidelines and instructions;
- through interviews with responsible leaders, but not directly involved in the care process itself;
- assumptions, explicit or implicit, that people have about how their or others' work should be done;
- include assumptions embedded in an organisation's culture or in the minds of individual people.

**The work performed**

- it is evaluated by observations during tracers;
- through interviews with leaders and teams directly involved in the actual care processes;
- by reviewing the records of how care was actually provided;
- or by reviewing numerical process indicators, preferably generated as a natural part of the process (rather than documenting only for external evaluation purposes).

**The Service Experience**

- is assessed by interviews with clients and their family members or client focus groups; or by reviewing numerical data collected from questionnaires, including workforce, safety culture and staff engagement surveys.
- Experience is not just about satisfaction or outcome, but also about what actually happened from the customer's perspective throughout the service delivery process.

enhances safety, efficiency and value generation for patients and professionals, as discussed in quality management and patient safety models (Donabedian, 1988; ISO 9001:2015; ISO 7101:2023).

From this perspective, accreditation can be understood as a structured way of making this organisational logic explicit and testing it. Standards define expectations and quality criteria; the assessment method functions as a feedback

“As a result, quality ceases to be merely a consequence of individual professional competence and becomes dependent on organisational maturity.”

### The Care Algorithm: How Organisations Truly Produce Quality

Although the term “Care Algorithm” is not formally established in the literature, it is grounded in well-recognised theoretical frameworks that conceptualise care as an emergent property of sociotechnical systems, organisational learning and governance structures (Suchman, 1987; Hollnagel, 2014; Weick, 1995; WHO, 2021). In this sense, the care algorithm represents the implicit logic through which healthcare organisations structure decisions, processes, data flows and feedback mechanisms that ultimately shape the quality and safety of care.

In healthcare organisations increasingly mediated by digital technologies, care is not produced solely by

individual clinical action, but by how the organisation structures its rules, designs processes, governs decisions, manages information and learns its own results. The quality of care therefore emerges from an organisational logic that articulates standards, care pathways, data, documentation and feedback mechanisms, operating explicitly or implicitly in everyday institutional practice.

When this organisational logic is fragile, characterised by low process integration, incipient governance, unreliable information and limited learning, the incorporation of technology tends to amplify noise, risks and inconsistencies. Conversely, when an organisation demonstrates maturity in its management systems, a strong quality culture and continuous learning capacity, technology

mechanism; and successive improvement cycles sustain in stitutional learning processes. As highlighted by van Vliet, Stewart and Engel (2021), when external evaluation is conceived in this way, it ceases to be a control instrument and becomes a catalyst for organisational development and systemic maturity.

A central element of this approach is evaluative triangulation, which goes beyond document review and connects:

- work as imagined,
- work as done,
- the experience of users and professionals.

This triangulation is particularly powerful in digital health, as it reveals discrepancies between intention, practice and experience – precisely where real risks and opportunities for improvement arise.

## Quality Management System and AI in Accreditation

The primary contribution of artificial Intelligence to accreditation does not lie in automating the evaluative act, but in its ability to reposition external evaluation within the logic of the quality management system (QMS), bringing it closer to everyday organisational practice. When integrated into management systems, AI expands institutional capacity to identify risks early, analyse patterns, prioritise critical actions and continuously monitor performance, reinforcing evaluation as a learning mechanism rather than an isolated event.

This perspective directly aligns with the proposal presented by Ellen Joan van Vliet, Jacqui Stewart and Carsten Engel (2021). By clarifying the concept of external evaluation, the authors propose understanding it as a structured intervention in complex organisational systems, aligned with the classical phases of the QMS: planning, control, assurance and improvement.

Within this logic, external evaluation is no longer a parallel or fragmented mechanism but becomes part of a continuous organisational maturity journey. The

ISQua model articulates this trajectory progressively, beginning with structure, advancing through processes, achieving outcomes and ultimately consolidating within organisational culture, exactly as occurs in well-institutionalised quality management systems.

“Patient experience reflects system reliability: continuity of care, information coherence, data protection and predictability of workflows.”

- **Plan:** the organisation defines standards, objectives, risks and performance expectations, aligning strategy, governance and accreditation requirements.
- **Control:** processes are monitored, indicators tracked and deviations identified, connecting external evaluation to daily operational control.
- **Assure:** evidence is critically analysed not only to verify compliance, but to ensure coherence between planned work, executed work and achieved results.
- **Improve:** evaluative feedback fuels learning cycles, promoting innovation, adaptation and strengthening of the quality culture.



By embedding external evaluation within this QMS logic, accreditation becomes more meaningful for organisations, as it is no longer perceived as an episodic requirement but as an intrinsic part of the management approach. This alignment reduces fragmentation between evaluation, management and care delivery, favouring the institutionalisation of continuous improvement.

In this context, AI acts as a co-pilot for both the evaluator and the organisation itself. In the evaluative process, it can support critical analysis of evidence, identify relevant gaps, signal inconsistencies between structure, process and outcome, and suggest areas for deeper exploration. For management, it helps transform large volumes of data and documented information into actionable insights, reducing the distance between diagnosis and decision-making.

This approach directly addresses classic critiques of external evaluation. As argued by Tanaka and Tamaki (2012), evaluation fully fulfils its role only when it moves beyond abstraction and effectively influences decision-making. Similarly, Schiesari (2014) emphasises that accreditation produces real impact only when it translates into concrete changes in organisational practices and healthcare management.

When integrated into the QMS and enhanced by AI, external evaluation ceases to be a moment of verification and becomes a continuous journey of



### Conclusion

Digital transformation in healthcare imposes a profound conceptual shift in how quality is understood, produced and sustained. In environments increasingly mediated by data, systems and algorithms, care ceases to be the exclusive result of individual clinical action and instead emerges from a complex organisational logic in which processes, governance, technology, culture and learning interact continuously. It is within this context that the concept of the care algorithm emerges as an analytical framework capable of making visible the implicit logic that guides decisions, flows and outcomes within healthcare organisations.

organisational learning, in which planning, control, assurance and improvement mutually reinforce one another. In doing so, accreditation draws closer to everyday organisational practice, strengthens quality governance and sustains the maturity required to address the challenges of digital health over time.

### Governance, Safety and Continuity: A Trusted infrastructure Required for Quality

Patient experience reflects system reliability: continuity of care, information coherence, data protection and predictability of workflows. When these elements fail, trust is lost. For this reason, patient experience can be understood as a direct outcome of the care algorithm. Organisations with mature governance tend to deliver safer and more consistent experiences.

This discussion is inseparable from ethics. As stated by the World Medical Association (2018), technological mediation does not alter the

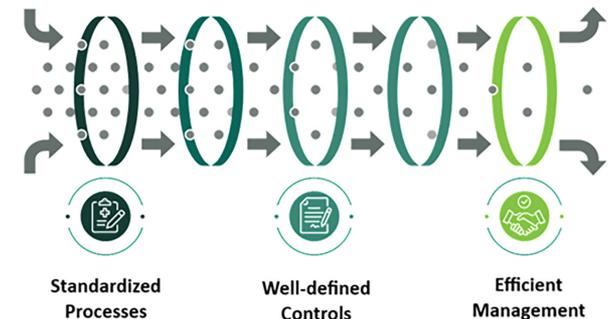
fundamental ethical principles of care. In Brazil, this responsibility is reinforced by regulatory frameworks such as the General Data Protection Law (LGPD), the Internet Civil Rights Framework, the Telehealth Law and Federal Medical Council Resolution No. 2,314/2022.

When care depends on systems, availability failures and security incidents become clinical risks. Therefore, digital quality governance requires information security and business continuity.

ISO 7101:2023 consolidates this vision by integrating quality, patient safety, leadership and governance into a single reference framework for healthcare organisations. It reinforces the central argument of this article: quality is not an isolated requirement, but the outcome of an integrated organisational system.

In the era of artificial intelligence, healthcare quality will not be defined by those who best comply with standards, but by those who build organisations capable of learning, adapting and delivering care intelligently.

Throughout this article, it has been argued that accreditation, when restricted to compliance verification, reveals significant limitations, particularly in digital environments, where risks and failures arise less from isolated deviations and more from interactions among sociotechnical components. Conversely, when integrated into the logic of the quality management system, accreditation can function as a powerful mechanism of organisational learning, promoting alignment between strategy, governance, culture and care delivery. In this





context, external evaluation ceases to be an episodic event and becomes part of a continuous journey of institutional maturity.

Artificial intelligence amplifies this potential by bringing evaluation closer to everyday organisational practice, enabling continuous pattern analysis, early risk identification and the transformation of data into actionable insights. Rather than merely automating processes, AI helps reposition accreditation as a decision-support instrument, reinforcing the cycles of planning, control, assurance and improvement that sustain the QMS. Evaluators and organisations thus share an expanded space for critical reflection on coherence, effectiveness and value in care delivery.

Governance of quality, patient safety and information therefore emerges as an indispensable condition for reliable care in digital environments. Patient experience, understood as continuity, predictability, safety and ethical integrity, directly reflects the robustness of each organisation’s care algorithm. Fragile governance structures tend to amplify risks, while mature systems enable technology to function as an ally in safety, efficiency and value generation.

It can be concluded that, in the era of artificial intelligence, healthcare quality will not be defined solely by the ability to comply with standards or meet formal requirements, but by the capacity of

organisations to learn continuously, adapt to complex contexts and govern care intelligently and ethically. By making the care algorithm explicit and strengthening it through the integration of accreditation, QMS and AI, healthcare organisations expand their ability to deliver sustainable quality, patient safety and better experiences over time.

## Conflict of interests

None.

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