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The formula for success in Dentistry: Quality management models enhancing clinical services

A fórmula do sucesso na Odontologia: Modelos de gestão da qualidade para aprimorar os serviços clínicos

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Abstract
The provision of high-quality services is a central concern in contemporary dentistry. This article aims to analyze the main management models applied in dentistry and their impact on the administration and quality of clinical services. Among the most widely applied frameworks are Donabedian's model, emphasizing structure, process, and outcomes, and SERVQUAL, which evaluates patient perceptions of environment, safety, empathy, and staff performance. The ISO 9001:2015 standard reinforces continuous improvement, risk management, and strategic human resource involvement. Evidence shows that clinics with adequately trained personnel achieve higher levels of patient satisfaction, highlighting the critical role of human talent in clinical outcomes. Key Performance Indicators (KPIs) and systematic audits, both internal and external, are essential for assessing clinical, administrative, and patient-centered processes, supporting evidence-based decision-making and compliance with established standards. The adoption of standardized protocols for infection prevention, adverse event management, and continuous professional training consolidates patient safety and ethical clinical practice. This review demonstrates that the synergistic application of structured management models, skilled human resources, and advanced technologies constitutes a comprehensive strategy to achieve clinical excellence. Integrative approaches improve patient satisfaction and safety, optimize resources, reduce operational costs, and strengthen the competitive position of dental clinics.
Keywords: Quality Assurance, Dental Care, Patient Satisfaction, Risk Management, Total Quality Management.

Resumo
A prestação de serviços de alta qualidade é uma preocupação central na odontologia contemporânea. Este artigo tem como objetivo analisar os principais modelos de gestão aplicados na odontologia e seu impacto na administração e na qualidade dos serviços clínicos. Entre os frameworks mais utilizados estão o modelo de Donabedian, que enfatiza estrutura, processo e resultados, e o SERVQUAL, que avalia a percepção dos pacientes sobre ambiente, segurança, empatia e desempenho da equipe. A norma ISO 9001:2015 reforça a melhoria contínua, a gestão de riscos e o envolvimento estratégico de recursos humanos. Evidências mostram que clínicas com profissionais adequadamente treinados alcançam maiores níveis de satisfação do paciente, destacando o papel crítico do capital humano nos resultados clínicos. Indicadores-chave de desempenho (KPIs) e auditorias sistemáticas, internas e externas, são essenciais para

avaliar processos clínicos, administrativos e centrados no paciente, apoiando a tomada de decisões baseada em evidências e a conformidade com padrões estabelecidos. A adoção de protocolos padronizados para prevenção de infecções, gestão de eventos adversos e treinamento contínuo de profissionais consolida a segurança do paciente e a prática clínica ética. Esta revisão demonstra que a aplicação sinérgica de modelos de gestão estruturados, recursos humanos qualificados e tecnologias avançadas constitui uma estratégia abrangente para alcançar a excelência clínica. Abordagens integrativas melhoram a satisfação e a segurança dos pacientes, otimizam recursos, reduzem custos operacionais e fortalecem a posição competitiva das clínicas odontológicas.
Palavras-chave: Garantia da Qualidade, Cuidados Odontológicos, Satisfação do Paciente, Gestão de Riscos, Gestão da Qualidade Total.

1. Introduction

In contemporary dentistry, delivering high-quality services has become not only a differentiating factor but an essential requirement to ensure patient satisfaction, promote loyalty, and support the sustainable growth of dental clinics. In the face of an increasingly competitive market with more informed and demanding patients, professionals must implement management strategies that optimize operational efficiency, reduce clinical risks, and enhance the patient care experience.

In this context, quality management models have emerged as fundamental tools to systematize and improve clinical processes to foster continuous improvement, and to ensure the alignment of services with international standards grounded in scientific evidence. The adoption of these models allows dental clinics to enhance patient safety, increase treatment effectiveness, and foster an organizational culture focused on excellence.

According to Crisan et al. (2021), management models implemented in dental clinics can be grouped into five main mechanisms: overall quality, patient satisfaction, service quality, internal process improvement, and business outcomes. While there is no universal formula for success, various best practices are recognized and should be adapted to the specific context, organization, and objectives of each clinic. Among the most relevant models are Donabedian's framework, based on structure, process, and outcomes, and the SERVQUAL model, which assesses user perceptions regarding aspects such as the appearance of the environment, trust, staff readiness, safety, and empathy (Donabedian, 2003).

Additionally, the ISO 9001:2015 standard reinforces the need for continuous improvement focused on active human talent participation, risk management, and a sustained customer orientation (ISO, 2015). From this perspective, human talent management is positioned as a fundamental pillar for the success of clinical services. The competence and training of the team, including specialists and support staff, directly impact care quality and clinical outcomes. Aldossary (2023) demonstrate that clinics with qualified personnel exhibit higher satisfaction levels, highlighting factors such as interpersonal treatment, punctuality, and clinical environment.

Furthermore, the implementation of models like Total Quality Management (TQM) has facilitated the development of institutional dynamics centered on continuous training, internal cooperation, and ongoing care improvement (Silva, 2001). Additional studies agree that leadership, education, and effective communication are key elements for a clinic to excel in a highly competitive environment (Franco, 2021).

While the popular saying goes, "If you want something done right, do it yourself" (of uncertain attribution), it is essential to assess whether the inclusion of a management specialist can provide significant added value. This article aims to analyze the main management models applied in dentistry and their impact on the administration and quality of clinical services.

2. Methodology

A qualitative bibliographic research was conducted, specifically of the narrative literature review type, which is the simplest type with fewer requirements (Pereira et al., 2018). The study involved searches in the Google Scholar, EBSCOhost,

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and ScienceDirect databases using keywords such as Quality Assurance, Dental Care, Patient Satisfaction, Risk Management, and Total Quality Management, combined with Boolean operators. Publications in English and Spanish from the last five years (2019–2024) were considered.

Inclusion criteria comprised original articles, systematic reviews, narrative reviews, and regulatory documents directly addressing the application of quality management models in dental services. Exclusion criteria included case reports, letters to the editor, studies older than five years, and publications without full-text availability.

The selected information was organized into three main axes: (1) theoretical models (Donabedian, SERVQUAL), (2) international standards (ISO 9001:2015), and (3) technological innovation strategies (teledentistry, artificial intelligence, and clinical information systems). A qualitative comparative analysis was then conducted to identify the benefits, limitations, and potential applications of these models in dental practice.

3. Results and Discussion

3.1 Quality Management Models Applied in Dentistry

3.1.1 Quality management model based on ISO 9001 standards

This model is based on the Plan-Do-Check-Act (PDCA) cycle to implement continuous improvement in dental clinics. It provides the necessary infrastructure, procedures, processes, and resources to help organizations control and improve their performance, focusing on efficiency, customer service, and excellence in outcomes. In this context, quality management in dentistry relates to the overall quality of the clinic or dental system. Patient satisfaction is a fundamental component, so service quality must be optimal, considering the use of advanced materials and technologies. Improving internal processes is key to achieving professional success, as are business outcomes, which enable greater impact and recognition of a high-quality dental service (Idrovo., 2023).

3.1.2 Quality management model based on patient satisfaction

This model focuses on the relationship between the adoption of new technologies and patient satisfaction, initially in urban settings with potential application in rural areas. Continuous training and technological modernization play key roles in enhancing the patient experience, as they increase service efficiency and positive quality perception (Lopez., 2024).

3.1.3 Quality management model based on continuous improvement

Implementing effective communication strategies is essential to increase patient satisfaction, as clear and empathetic communication enhances the overall experience. Alongside infrastructure strengthening, especially in rural areas, these factors transform the perception of dental services from outdated to modern and efficient. These findings are significant as they confirm that improving service quality is critical to raising care standards and patient experience. Moreover, these interventions are directly linked to increased satisfaction, demonstrating the effectiveness of adapting strategies to the specific needs of each population. Thus, implementing service quality improvements is an effective means to optimize dental care, particularly in resource-limited settings, highlighting the importance of ongoing evaluation in rural areas (Emani et al., 2022).

3.2 Quality Assessment and Audit Tools in Dental Clinics

3.2.1 Key Performance Indicators (KPIs) in Dentistry

In the context of modern dentistry, Key Performance Indicators (KPIs) are essential tools within strategic and quality management models, as they allow the measurement, evaluation, and improvement of clinical, administrative, and patient care

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processes. The implementation of these indicators responds to dental clinics' need to ensure sustainability, efficiency, and competitiveness in an increasingly demanding environment. The use of KPIs in dentistry is part of a business logic grounded in strategic management, where measuring is synonymous with managing. This involves aligning operational, tactical, and strategic objectives around clear and measurable goals, facilitating decision-making based on accurate and timely information. As noted by authors such as (Parmenter., 2020), not all indicators carry the same weight; only a select group of metrics should be considered truly key to organizational success.

3.2.2 Key Performance Indicators in Dental Quality Management

Quality management models, such as the Balanced Scorecard proposed by Kaplan and Norton, suggest measuring organizational performance through four fundamental dimensions: finance, customers, internal processes, and organizational learning. In the context of a dental clinic, these dimensions translate into key indicators such as:

- Percentage of satisfied patients.
- Appointment compliance rate.
- Average time from initial consultation to treatment initiation.
- Ratio of successful treatments versus rework.
- Profitability per operator or unit.
- Monthly production per square meter.

The proper formulation of a KPI must ensure essential characteristics such as representativeness, reliability, sensitivity, profitability, and temporal comparability, enabling the monitoring of progress toward strategic objectives. Furthermore, the implementation of these indicators must be adapted to the specificities of the healthcare sector, taking into account intangible factors such as patient experience and professional ethics. In this regard, business intelligence and information technologies have become strategic allies in transforming data into effective decisions. Ultimately, well-defined KPIs not only contribute to continuous improvement and clinical excellence but also strengthen the competitive advantage of the dental clinic, enhancing its responsiveness in a dynamic market. Indicator-based management, combined with a strong organizational culture and a committed human team, constitutes the true formula for success in modern dentistry (Kaplan & Norton., 1996)

3.3 Impact of Technology on Quality Management

3.3.1 Electronic Patient Management Systems (Clinical Software)

The use of clinical software and electronic health records has proven to be a key factor in improving efficiency and quality in dental services. According to (Valencia et al., 2021), these systems help reduce administrative burdens and improve treatment continuity: "Information and Communication Technologies are key tools to achieve advances in the health sector through Electronic Clinical Records (ECR), allowing for improved performance of healthcare personnel by reducing administrative workload and focusing on quality patient care". These platforms ensure precise traceability of patient information, minimize errors, and optimize institutional management, thereby consolidating a comprehensive quality approach. It is important to note that these systems must be operated by trained personnel to guarantee that the entered information is clear, accurate, and processable by the software.

3.3.2 Quality Control in Remote Dental Services and Thematic Integration

Quality control in remote dental services requires the implementation of robust strategies that go beyond video-assisted consultations. In a documentary review, emphasize the importance of applying the ISO 9001 standard in dental clinics, both on-

site and remote, to ensure standardized and systematic processes: “A Quality Management System is the part of the management system focused on achieving related results” (Armijos Idrovo et al., 2023). Although ISO 9001 is not explicitly mentioned in every section of the article, the overall analysis highlights how adopting international standards facilitates process control, quality indicator measurement, and operational consistency in both digital and face-to-face environments. Integrating these models with tele-dentistry and artificial intelligence tools strengthens a robust framework for standardized, measurable, and continuously improving remote clinical care.

3.3.3 Teledentistry and quality control in remote services

Teledentistry has emerged as an efficient solution to overcome barriers to accessing dental services, especially in rural areas or populations with limited mobility. However, its rapid adoption has exposed conceptual gaps that hinder the establishment of solid quality standards. (Talla et al., 2023) note that teledentistry was implemented hastily, resulting in a lack of consensus on its definition and application, which affects service uniformity and quality control

To achieve effective quality management in remote settings, it is essential to establish clear regulatory frameworks, train personnel in digital platform use, and develop specific evaluation protocols. During the COVID-19 pandemic and the post-pandemic era, internet access and digital technologies reached rural areas, facilitating telemedicine and teledentistry deployment (Gurup et al, 2022).

Te COVID-19 pandemic posed a significant challenge to the continuity of dental services, especially in rural areas with limited in-person care access. In this context, teledentistry emerged as an essential tool to ensure remote care, overcoming geographic and mobility barriers, addressing a critical need given that dental hygiene is not always prioritized in these regions.

A study published in Odontología Sanmarquina states: “Teledentistry emerged as an alternative to continue dental care during the COVID-19 pandemic due to restrictions on face-to-face consultations, limiting them to emergency and urgent care only” (Hung et al., 2022). This approach allowed the continuity of dental care in rural areas during the health crisis.

Additionally, a narrative review in Research, Society and Development notes: “Education and training in teledentistry during the pandemic enabled dental health professionals to expand their digital competencies, optimizing care in rural areas and strengthening quality control” (Filho et al., 2021, p. 1). This training was crucial to ensure service quality even in remote modalities.

These findings show that teledentistry was not merely a temporary solution but a strategy with the potential to transform dental quality management, improving access and efficiency in rural and remote areas in the future.

3.4 Patient Quality and Safety in Dentistry: Protocols, Risk Management, and Continuous Training

Patient quality and safety are fundamental pillars in contemporary dental care systems, becoming a strategic priority within clinical management frameworks, as they ensure not only treatment effectiveness and efficiency but also respect for patient rights, professional bioethics, and institutional sustainability World Health Organization (World Health Organization [WHO], 2021). In this context, the implementation of standardized protocols for infection prevention, risk control, proper management of adverse events and complaints, as well as continuous education and training of clinical staff, is essential.

3.4.1 Protocols for infection prevention and risk control

A key element to safeguard patient safety in dentistry is the rigorous establishment of biosafety protocols. These include measures such as instrument sterilization, proper use of personal protective equipment (PPE), asepsis chain control, adequate ventilation of clinical environments, and correct disposal of biohazardous waste (Ministry of Public Health of Ecuador [MSP],

2022). Additionally, systematic practices such as surface disinfection, clinical and surgical handwashing, and compliance monitoring through periodic internal audits must be incorporated (Escudero-Cantacheff et al., 2023).

Risk control encompasses not only biological factors but also ergonomic, chemical, radiological, and organizational risks that may compromise the safety of patients or healthcare teams. Risk identification and classification, frequency and impact analysis, and the implementation of preventive and corrective measures must be properly documented within the quality management system (Donabedian, 2003; Gonzales and Lopez, 2024).

3.4.2 Management of adverse events and complaints

The recording, analysis, and management of adverse events and patient complaints are integral to the continuous improvement approach. An adverse event, defined as unintended harm resulting from care, must be managed transparently, empathetically, and systematically, including internal notification, root cause analysis, corrective action implementation, and feedback to the involved team (WHO, 2021).

Regarding complaints or grievances, these represent valuable opportunities to identify failures in care, deficient processes, or communication weaknesses. Therefore, they must be addressed promptly, confidentially, and respectfully, following defined procedures that enable conflict resolution and strengthen the patient relationship (González-Salvador et al., 2021; Antonopoulou et al, 2024; Wang et al, 2023).

3.4.3 Continuous education and training of clinical staff

Ongoing training of the dental team is an essential component of any quality and safety improvement strategy. This training should focus not only on scientific and technical updates but also on developing soft skills such as empathetic communication, emotional management, teamwork, and ethical decision-making (Efthymiou., 2024).

Training programs must be designed based on needs identified through audits, reports of adverse events, and new national and international regulations. Implementation may include in-person workshops, clinical simulations, online training, virtual scenario exercises, and competency-based certifications (Pan American Health Organization [PAHO], 2020). As demonstrated during the COVID-19 pandemic, virtual modalities and immersive technologies ensure the continuity and quality of the training process even under adverse conditions.

Patient quality and safety in dentistry should not be viewed as isolated aspects but as part of an integrated clinical management system based on evidence, prevention, and continuous improvement. Proper implementation of biosafety protocols, active risk control, structured management of adverse events, and ongoing clinical staff training are key practices to provide safe, ethical, and patient-centered care. In an environment where user expectations and regulatory requirements are increasingly demanding, these actions represent not only an ethical responsibility but also a competitive strategy for 21st-century dental clinics.

3.5 Internal and External Audits: Methodology and Benefits

In the ongoing pursuit of clinical excellence, internal and external audits constitute essential tools within contemporary quality management models in dentistry. These audits not only ensure compliance with regulations and protocols but also generate objective evidence that supports strategic decision-making aimed at continuous service improvement. Audits are systematic processes of evaluation and analysis through which an organization’s conformity with established standards is assessed across structural, procedural, and outcome-related aspects.

The study by (Escudero-Cantacheff et al.,2023) presents an innovative model of dental structure auditing conducted entirely virtually in the context of the COVID-19 pandemic. This methodological approach, based on remote observations and the use of synchronous and asynchronous technological resources, demonstrated that audits can be carried out with technical rigor even during health emergencies, ensuring continuity of quality control in oral health services. Through online interviews, structured questionnaires, virtual tours, documentary analysis, and visualization of facilities using augmented reality tools, a comprehensive verification of the evaluated clinic's conditions was achieved.

Dental auditing is grounded in the evaluation of structure, process, and outcome. Structure audits examine the physical, regulatory, and functional context prior to clinical care, including infrastructure, equipment, human resources, documentation, and current regulations. Process audits focus on the actions performed during clinical procedures, while outcome audits analyze the effects of treatment on patient health. Information from these three dimensions enables the assessment of compliance with quality standards, the formulation of specific recommendations, and the promotion of safer and more efficient clinical practices (Donabedian, 2003; Hodgson et al, 2023;).

Methodologically, internal audits are conducted by the organization's own personnel to self-assess operations, correct deviations, and strengthen a culture of continuous improvement. In contrast, external audits are performed by independent entities such as regulatory bodies, insurers, or accrediting institutions, providing an objective and impartial perspective on service quality. Both modalities are complementary, and their coordinated implementation strengthens institutional management systems.

4. Conclusion

The findings propose an original model that facilitates a deeper understanding of the factors influencing patients' intention to return to dental centers within an educational context. Additionally, specific aspects were identified that the quality management of the center should address and prioritize to improve the patient experience.

Internal and external audits should not be viewed merely as oversight mechanisms but as integral components of modern dentistry grounded in evidence, ethics, and continuous improvement. Their methodical and adaptive application allows clinical practice to align with the highest quality standards, consolidating sustainable management focused on patient safety, organizational efficiency, and professional excellence. Proper implementation of these tools undoubtedly represents one of the fundamental pillars in the formula for success in 21st-century dental services.

Finally, convolutional neural networks (CNN) show promise in detecting periapical lesions. The pre-trained CNN model obtained in this study can be used for further training with larger sample sizes or clinical radiographs, expanding its clinical applicability.

References

Aldossary, M. S. (2023). Exploring predictors of patient satisfaction in dental services. *International Journal of Environmental Research and Public Health, 20*(7), 1789. https://doi.org/10.3390/ijerph20071789

Antonopoulou, V., et al. (2024). Understanding healthcare professionals' responses to patient complaints: A systematic review. *Health Policy and Systems, 22*(1), 1–12.

Armijos Idrovo, S. G., Lazo Gómez, E. O., Serrano Piña, P. A., León Loja, E. J., & Bravo Calderón, M. E. (2023). Revisión documental para la implementación de normas ISO 9001 en clínicas dentales ecuatorianas. *Research, Society and Development, 12*(6), 42331. https://rsdjournal.org/rsd/article/view/42331

Crisan, E. L., Covaliu, B. F., & Chis, D. M. (2021). A systematic literature review of quality management initiatives in dental clinics. *International Journal of Environmental Research and Public Health, 18*(21), 11084. https://doi.org/10.3390/ijerph182111084

Donabedian, A. (2003). *An introduction to quality assurance in health care*. Oxford University Press.

Efthymiou, I. P. (2024). The importance of soft skills in healthcare: The impact of communication, empathy, and teamwork on doctor–nurse interactions. *International Case Studies Journal, 13*(11), 6–11.

Emami, E., Harnagea, H., Shrivastava, R., Ahmadi, M., & Giraudeau, N. (2022). Patient satisfaction with e-oral health care in rural and remote settings: A systematic review. *Systematic Reviews, 11*(234). https://doi.org/10.1186/s13643-022-02103-2

Escudero-Cantacheff, C., Rugani de Cravero, M., & López de Rosales, H. (2023). Auditoría de estructura odontológica realizada de manera íntegramente virtual en contexto de pandemia. *Revista de la Facultad de Odontología (UNC), 33*(2), 23–30.

González-Salvador, T., et al. (2021). La comunicación en el ámbito sanitario: Herramientas para mejorar la relación con el paciente. *Revista Española de Comunicación en Salud, 11*(2), 45–52.

Gonzalez, M., & López, F. (2024). Integrating process, structure, and outcome audits in clinical governance: Insights from hospital settings. *International Journal for Quality in Health Care, 36*(1), 25–34.

Gurupur, V. P., et al. (2022). A brief analysis of challenges in implementing telehealth in rural areas. *Journal of Telemedicine and Telecare, 28*(3), 147–158.

Franco, E. J. V. (2022). Comunicación organizacional y felicidad en el trabajo. *Revista Latinoamericana de Estudios de Trabajo, 28*(2), 1–22. https://www.redalyc.org/journal/268/26876172007/html/

Hodgson, C., et al. (2023). Clinical audit as a tool for improving quality in healthcare: A systematic review. *BMJ Open Quality, 12*(2), e002345.

Hung, M., et al. (2022). Teledentistry implementation during the COVID-19 pandemic: A scoping review. *JMIR Medical Education, 8*(2), e39955.

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action*. Harvard Business School Press.

Idrovo, S. G. A. (2023). Revisión documental para la implementación de la norma ISO 9001 en clínicas odontológicas ecuatorianas. *Research, Society and Development, 12*(4), 42331. https://rsdjournal.org/rsd/article/view/42331

López, Á. G. (2024). Estudio de satisfacción del usuario de los servicios odontológicos del municipio de Ixtlahuaca de Juárez, Estado de México. *Revista Odontológica UCC, 16*(1), 1–14. https://revistas.ucc.edu.co/index.php/od/article/download/3638/3060/

Parmenter, D. (2020). *Key performance indicators: Developing, implementing, and using winning KPIs* (4th ed.). Wiley.

Silva, E. N. C. (2001). Management and application of TQM principles and tools as a source of information in daily dentistry. *POMS*. https://www.pomsmeetings.org/ConfProceedings/001/Papers/QM-03.1.pdf

Talla, P. K., et al. (2023). Barriers and enablers to implementing teledentistry from the perspectives of dental and health care professionals: A systematic review. *BMC Oral Health, 23*(1), 1–13.

Valencia Ramón, L. Y., & Corona Ferreira, A. (2021). El expediente clínico electrónico. *Revista Científica de Salud UNITEPC, 8*(1), 24–34. https://doi.org/10.36716/unitepc.v8i1.74

Wang, S.-C., Chu, N.-F., Tang, P.-L., & Pan, L.-F. (2023). Using healthcare complaints analysis tool to evaluate patient complaints during the COVID-19 pandemic at a medical center in Taiwan. *International Journal of Environmental Research and Public Health, 20*(1), 310.

World Health Organization. (2021). *Clinical management frameworks*. Geneva: World Health Organization.