

Evaluation Of the Quadruple Aim as A Model of Strategic Direction in A Clinic During the First Period Of 2022

Charliette Paulina Ariza Ahumada¹, Mario Iván Maza Rosales², Sasha Shalome Janna Diaz³, Luz Ángela Morales Danies⁴, Roberto Jesús Antonio Tarud Ayud⁵, Gloria Lastre Amell⁶ and Jorge Rodríguez López⁷

Abstract

Objective: To evaluate the quadruple aim (QA) as a model of strategic direction in a clinic in 2022. *Methodology:* Observational, descriptive, cross-sectional study using a quantitative method based on the components of the QA obtained from the data model of a clinic. *The following strategy indicators were considered:* health outcomes, experience in care, team satisfaction, and financial sustainability. *Results:* Regarding health outcomes, the percentage of compliance was good, experience in care and team satisfaction was satisfactory, and financial sustainability had a good average. *Conclusion:* The QA strategy helped improve the quality of care in the different units.

Keywords: Quadruple Aim, Strategy, Indicators, Model, Satisfaction, Trend

INTRODUCTION

With the global recognition of health as a human right guaranteed to citizens, the World Health Organization defines health as “a fundamental value of universal health coverage, to be promoted and protected without distinction” (World Health Organization, 2010). Since then, pursuing strategies to achieve high-value healthcare has been a growing priority for healthcare organizations. This approach has materialized in adopting strategic health models for optimizing healthcare, aimed at improving populational health and user experience while ensuring quality service and reducing the per capita cost of healthcare (Berwick, Nolan, & Whittington, 2008).

Among these models, the triple aim was launched by the Institute for Healthcare Improvement in 2008 as a framework to guide the transformation of the health system. However, it was not until 2014 that a fourth element was added to this formula, focused on the well-being of the care team. Thus, the quadruple aim (QA) was born: a strategic set that seeks to reduce costs, improve populational health and patient experience, and ensure healthcare professionals' satisfaction and well-being (Bodenheimer & Sinsky, 2014). Although this concept was initially proposed to improve the US health system, it has been adopted as a set of principles for health system reform in many parts of the world (Sikka, Morath, & Leape, 2015).

Strategic management models in Colombia tend to vary according to each health organization's needs and characteristics. However, only models that constantly evolve to improve their capacity to address the complex needs of the health system manage to offer a quality service (Ministry of Health and Social Protection, 2020). In this context, equal care is a fundamental pillar of health services. This emphasizes the need to implement new management models that articulate key aspects such as improving health outcomes, patient and care teams' experience, and financial sustainability (World Bank, 2021).

¹ Universidad Simón Bolívar, Colombia. <https://orcid.org/0009-0002-0144-2196> E-mail: Charliette.ariza@unisimon.edu.co

² Universidad Simón Bolívar, Colombia. <https://orcid.org/0000-0001-5653-3752> E-mail: mario.maza@unisimon.edu.co

³ Universidad Simón Bolívar, Colombia. E-mail: sasha.janna@unisimon.edu.co

⁴ Universidad Simón Bolívar, Colombia. <https://orcid.org/0009-0004-3084-5407> E-mail: luz.morales@unisimon.edu.co

⁵ Universidad Simón Bolívar, Colombia. <https://orcid.org/0000-0001-7027-4259> E-mail: roberto.tarud@unisimon.edu.co

⁶ Universidad Simón Bolívar, Colombia. <https://orcid.org/0000-0002-8855-393> E-mail: gloria.lastre@unisimon.edu.co

⁷ Universidad Simón Bolívar, Colombia. <https://orcid.org/0000-0002-7739-6029>

Implementing health models such as the QA in Colombia is crucial for addressing the unique challenges of its health system. Colombia, like many other countries in Latin America, faces a dual burden of disease, where public health problems associated with infectious and emerging diseases coexist with an increase in the prevalence of chronic noncommunicable diseases (World Bank, 2021). This context requires a comprehensive care approach that addresses quality and efficiency in healthcare and considers the patient experience and the well-being of healthcare professionals. The QA model provides a framework that can guide healthcare organizations in improving clinical outcomes and patient satisfaction while promoting a sustainable work environment for healthcare workers. This is vital in a system where overload and burnout are growing concerns (Bodenheimer & Sinsky, 2014; Pan American Health Organization, 2017).

Furthermore, the focus on financial sustainability, one of the QA's pillars, is particularly relevant in Colombia, where budget constraints and inefficient resource allocation have been persistent challenges (Ministry of Health and Social Protection, 2020). Adopting this model may facilitate resource optimization, thus allowing health institutions to offer high-quality services at a sustainable cost. This is essential for ensuring equity in access to health care across all regions of the country (World Bank, 2021). Therefore, this paper aimed to evaluate the QA as a strategic management model in a private clinic in Barranquilla from January to June 2022.

METHODS

An observational, descriptive, cross-sectional, and ambispective study was conducted using a quantitative method based on the analysis of each of the QA components obtained from the data model of a fourth-level private clinic in the city of Barranquilla (Colombia) during the first semester (January–June) of 2022.

As inclusion criteria, only information from the data model of a private clinic in the city of Barranquilla was included, excluding the other clinics of the institution. Additionally, a census sample was implemented with the universe of the clinic's data (allowing for the specific estimation of the parameters of interest), and the sample was selected consecutively with the data of indicators by cluster and period (cluster sampling).

The information was collected through the business intelligence model (planning and control area), which systematically collects the necessary monthly metrics to calculate indicators and assess goals. Furthermore, the strategy indicators were considered, consisting of four axes: health results, care experience, team satisfaction, and financial sustainability. Measures of frequency, central tendency, and dispersion were used for the analysis of quantitative variables, as well as proportions for categorical data. An analysis of variance will be carried out with the monthly compliance goals, using Friedman's test for the monthly QA indicators, to detect evidence of seasonality. In the second step, the data were evaluated using time series analysis techniques, and a time series was constructed with the mean values of the percentage of compliance for each QA indicator calculated per month.

RESULTS

To assess the overall trend for each component of the QA (health outcomes, experience of care, team satisfaction, and financial sustainability) by month.

The following results were obtained for the evaluation of the global trend per month of each of the QA components:

The results obtained regarding the four concepts evaluated using the QA are analyzed in a green (satisfactory), yellow (good), and red (deficient) traffic-light format with a global measurement for the time studied.

Regarding the health outcomes component, the overall trend by month for the first period of 2022 remained at a good compliance percentage. The percentage was satisfactory for the experience of the care component. The percentage of the team satisfaction component remained the same, i.e., it was satisfactory and good. Similarly, the average for the financial sustainability component was good at 85.79%. The overall values demonstrate a good and satisfactory compliance percentage in private health institutions during the first period of 2022 (Table 1).

Table 1. Overall trend for each component of the quadruple aim.

Aim	Compliance range (green) %	Compliance range (yellow) %	Compliance range (red) %	January %	February %	March %	April %	May %	June %	Average 2022–2021 %
Health outcomes	90–100	75–90	<75	87.70	83.74	87.36	89.52	90.27	84.12	87.12
Experience in care	90–100	75–90	<75	93.42	92.75	91.34	91.98	94.42	93.35	92.88
Team satisfaction	90–100	75–90	<75	94.09	96.07	88.53	95.42	96.10	96.65	94.48
Financial sustainability	90–100	75–90	<75	83.50	99.00	75.75	82.20	75.78	98.50	85.79
Monthly global trend	90–100	75–90	<75	89.68	92.84	85.75	89.78	89.14	93.15	90.06

Source: Drafted by the authors.

To identify the monthly trend of the indicators included in each component of the QA.

The incidence rate of the health outcomes component's compliance percentage was satisfactory, with an accumulated rate of 0.94%. Implementing these strategies for 2022 is important (Table 2).

Table 2. Monthly trends of the health outcome indicator for 2022.

Health outcomes	Aim	January	February	March	April	May	June
Incidence rate of catheter-related bloodstream infection	1.5	0	3.47	0	0	0	4.48
Adverse event surveillance ratio	90	100	96.97	96.97	100	100	96.67
Mortality at the healthcare institution / Mortality under hospital-at-home programs	4	1.32	1.47	0.87	0.77	0.99	1.15
% surgical and anesthetic complications	25	0.11	0.09	0	0	0.08	0.08
% hospital readmissions	2.4	0.89	0.7	2.49	0.8	1.49	0.63
% emergency room readmissions	1.5	0.81	1.22	1.07	0.71	0.94	0.96
Hospital occupation/Outpatient occupation	90	80.04	85.63	81.84	84.14	81.37	86.5

Source: Drafted by the authors.

The percentage of compliance remained satisfactory, thus demonstrating that the health institution maintains good care for the population. Despite this, the only indicator that failed to improve was “compliance in the time for reading diagnostic images” (Table 3).

Table 3. Monthly trends of the health outcome indicator for 2022.

Experience in care	Aim	January	February	March	April	May	June
Net recommendation ratio	90	96.28	95.38	91.17	96.59	97.5	96.78
Total complaint rate x 1000 users / active activities	4.5	2.69	2.74	3.11	2.37	2.36	3.04
Satisfaction as per international standards	96	99.17	97.98	95.68	98.84	99.30	97.95
% compliance in timely completion of scheduled surgeries	95	100	100	99.91	100	99.91	99.91
% compliance in timely care in emergency/priority consultations	90	93.80	99.58	97.84	98.33	95.50	95.02
% compliance in service-level agreement with third parties (food, hygiene, and clothing)	96	99.64	99.40	98.08	98.84	99.40	98.95

% compliance in timely assignment of outpatient services appointments	85	92.07	98.33	86.47	86.54	85.66	85.22
% compliance in results delivery in hospital and emergency units by support services	95	87.58	87.61	86.31	87.20	91.28	93.44
% compliance in timely response to complaints	85	97.30	81.40	83.02	84.62	97.73	85.45
% compliance in timely reading of diagnostic imaging	95	61.82	60.96	61.27	66.87	72.44	79.68

Source: Drafted by the authors.

For 2022, results were maintained with satisfactory compliance for personnel turnover rate and proportion of temporary staff. There was significant variation in the percentage of compliance of scientific publications with an accumulated 100%. As for absenteeism, it decreased in deficient compliance with an accumulated 4.37%, representing good compliance (Table 4).

Table 4. Monthly trends of the team satisfaction indicator for 2022.

Team satisfaction	Aim	January	February	March	April	May	June
Staff turnover rate	2	0.44	0.44	1.47	0.88	0.74	1.01
Proportion of temporary staff	10	11.69	8.60	7.86	9.55	6.37	5.72
% compliance in scientific publications*	85			66.67			100
Global absenteeism	4	5.59	2.75	3.20	3.31	4.59	6.66

*Observation carried out quarterly.

Source: Drafted by the authors.

For 2022, the financial sustainability component maintained a satisfactory compliance percentage, with an accumulated 565.25, above the established goal (Table 5).

Table 5. Monthly trends of the financial sustainability indicator for 2022.

Financial sustainability	Aim	January	February	March	April	May	June
% compliance in the earnings before taxes budget	100	233.86	153.41	11.73	485.07	66.93	675
% compliance in the earnings before interest, taxes, depreciation, and amortization) budget	100	143.05	111.78	143.22	34.82	5.18	115.07
% to be billed by month	4	10.39	3.47	13.38	3.38	4.35	5.39

Source: Drafted by the authors.

DISCUSSION

In the findings, the health outcomes component obtained an adequate compliance percentage for 6 months, similar to that established by Rincón, Tarud, and Velásquez (2021), who reported that all their indicators met the goals set for this component. Specifically, the incidence rate of catheter-related bloodstream infection showed the most significant progress, with figures well below the limit indicator. This fact is significantly related to the findings of Lapaine et al. (2020), who demonstrated that a correct implementation of this strategy could significantly lower the rate of complications, such as device-associated infections, as well as readmissions due to chronic diseases, hospital stay, and bed transition time, with a parallel improvement in patient's hospital experience (Lapaine et al., 2020).

Despite the importance of these findings in both in-hospital and out-of-hospital settings, investigations focused on health outcomes through the application of the QA are scarce. However, Roth et al. (2020) show how some investigations focused on home health visiting programs have demonstrated positive health outcomes for

diverse patient populations. This is closely related to our low mortality rates in hospital-at-home (Roth et al., 2020). These findings highlight the need for further research and documentation of the impact of the QA in diverse settings and populations to optimize implementation and tailor strategies to local needs.

Regarding the experience of care, it is clear that the health services demanded by a society vary according to its level of development and well-being. Although patient satisfaction depends largely on the available resources, other variables influence this outcome (Alonso, 2018). This becomes extremely important because of the prominence that citizens have acquired as active agents in the management of their health since a large part of patients have access to medical information available on the web and have a completely different standard of living and well-being than 20 or 40 years ago. This has raised expectations toward health services (Jiménez & Rodríguez, 2019), which could explain the moderate results in indicators such as compliance in delivering results in hospitalization and emergency units by support services and compliance in the timely reading of diagnostic imaging. To address this issue, improvement committees supported by the diagnostic imaging and clinical laboratory services were implemented, thus establishing preliminary reports and assertive communication of care staff as a strategy.

Furthermore, during the period analyzed, aspects such as the performance of the assistant and administrative personnel and the production of scientific publications were evaluated every 3 months. This made it possible to identify gaps in the results, with a notable increase in absenteeism in January and June and low production of scientific publications, which was not a strength of the institution evaluated. This could be directly related to factors such as intrinsic motivation, workforce engagement, and work morale (Deci & Ryan, 2000; Roth et al., 2020). Intrinsic motivation is particularly evident among physicians who, in providing quality care, demonstrate the ability to understand the circumstances that triggered or exacerbated the disease process, an essential component of strong work engagement (Gagné & Deci, 2005). This engagement is closely linked to the experience of joy and meaning at work, which is fundamental for performance in healthcare not being synonymous with happiness but with all workforce members sharing a sense of accomplishment and meaning in their contributions (Shanafelt & Noseworthy, 2017).

In terms of scientific publications, maintaining a principle of academia and a focus on creating scientific content is crucial in the health field. The institution's motivation, commitment, and encouragement directly favor institutional academic production. Rebecca Karb et al. (2019) mention that in a US survey, 60% of workers indicated they were considering leaving academic and professional practice, and 70% knew at least one colleague who left their practice due to poor work morale. These data underline the importance of creating a work environment that fosters engagement and motivation and actively supports the academic development of healthcare professionals.

CONCLUSION

With previous investigations in a clinic during previous years, the analysis during 2022 showed that the QA strategy achieved the modifications in favor of better quality of care in the different services. At the international level, since its inception in the US, it has been considered a great strategy to improve quality systems in hospital health services, consultation, imaging, and laboratories to decrease adverse events. The important thing is that documenting by service brings continuity of QA by updating and evaluating previous years.

Supplementary material: (an additional folder can be prepared with the tables in PDF format)

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