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FACULDADE DE MEDICINA

Aline Yuri Chibana

Análise do conhecimento do anestesiologista brasileiro sobre assistência à saúde baseada em valor: estudo transversal baseado em um questionário eletrônico nacional

Tese apresentada à Faculdade de Medicina, Universidade Estadual Paulista "Júlio de Mesquita Filho", Câmpus de Botucatu, para obtenção do título de Doutora em Anestesiologia.

Orientadora: Profa. Dra. Lais Helena Navarro e Lima

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ATA DA DEFESA PÚBLICA DA TESE DE DOUTORADO DE ALINE YURI CHIBANA, DISCENTE DO PROGRAMA DE PÓS-GRADUAÇÃO EM ANESTESIOLOGIA, DA FACULDADE DE MEDICINA - CÂMPUS DE BOTUCATU.

Aos 04 dias do mês de abril do ano de 2025, às 16h, no(a) Via sistemas de videoconferência e outras ferramentas para comunicação a distância (Google Meet), realizou-se a defesa de TESE DE DOUTORADO de ALINE YURI CHIBANA, intitulada **ANÁLISE DO CONHECIMENTO DO ANESTESIOLOGISTA BRASILEIRO SOBRE ASSISTÊNCIA À SAÚDE BASEADA EM VALOR: ESTUDO TRANSVERSAL BASEADO EM UM QUESTIONÁRIO ELETRÔNICO NACIONAL**. A Comissão Examinadora foi constituída pelos seguintes membros: Profa. Dra. LAIS HELENA NAVARRO E LIMA (Orientador(a) - Participação Virtual) do(a) Especialidades Cirúrgicas e Anestesiologia / FM/Botucatu - Unesp, Profa. Dra. FERNANDA B FUKUSHIMA (Participação Virtual) do(a) Depto. de Anestesiologia / FM/Botucatu - Unesp, Prof. Dr. GUILHERME ANTONIO MOREIRA DE BARROS (Participação Virtual) do(a) Depto. de Especialidades Cirúrgicas e Anestesiologia / FM/Botucatu - Unesp, Prof. Dr. LEOPOLDO MUNIZ DA SILVA (Participação Virtual) do(a) Serviço de Anestesiologia CMA - Hospital São Luiz - Rede D'Or, Profa. Dra. WAYNICE NEIVA DE PAULA GARCIA (Participação Virtual) do(a) A.C.Camargo Cancer Center. Após a exposição pela doutoranda e arguição pelos membros da Comissão Examinadora que participaram do ato, de forma presencial e/ou virtual, a discente recebeu o conceito final: Aprovada . Nada mais havendo, foi lavrada a presente ata, que após lida e aprovada, foi assinada pelo(a) Presidente(a) da Comissão Examinadora.

Profa. Dra. LAIS HELENA NAVARRO E LIMA

À Frida, minha fiel companheira, que esteve ao meu lado em cada etapa deste doutorado, iluminando minhas noites, madrugadas e finais de semana com sua presença incondicional.

À minha esposa, Monica, meu alicerce e maior incentivadora, cujo amor e apoio são a base de todas as minhas conquistas.

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Aos meus pais, Jorge e Lucia, por me darem os valores, o exemplo e a base sólida que me permitiram chegar até aqui.

Aos meus amigos e familiares, por acreditarem em mim, me incentivarem e me lembrarem do meu potencial, mesmo quando eu mesma duvidei.

Com amor e gratidão, dedico esta jornada a vocês.

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À minha esposa, Monica, pelo companheirismo inabalável, pelo apoio incondicional e por me lembrar, sempre, que a jornada precisa de leveza e diversão para ser menos penosa e mais significativa.

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“Não é o crítico que importa; nem aquele que aponta onde foi que o homem tropeçou ou como o autor das façanhas poderia ter feito melhor.

O crédito pertence ao homem que está por inteiro na arena da vida, cujo rosto está manchado de poeira, suor e sangue; que luta bravamente. que erra, que decepciona, porque não há esforço sem erros e decepções; mas que, na verdade, se empenha em seus feitos; que conhece o entusiasmo, as grandes paixões; que se entrega a uma causa digna; que, na melhor das hipóteses, conhece no final o triunfo da grande conquista e que, na pior, se fracassar, ao menos fracassa ousando grandemente.”

(Theodore Roosevelt)

RESUMO

Introdução e Objetivos: O aumento dos custos, ineficiências operacionais e modelos de remuneração baseados em volume ameaçam a sustentabilidade dos sistemas de saúde. A Assistência à Saúde Baseada em Valor (Value-Based Health Care – VBHC) busca melhorar os desfechos clínicos em relação aos custos, promovendo eficiência e transparência. No entanto, sua adoção ainda é limitada, especialmente entre anestesiologistas, profissionais essenciais no manejo perioperatório. Este estudo investiga a confiança dos anestesiologistas brasileiros na VBHC, sua preparação e percepções sobre modelos de pagamento, analisando fatores como autopercepção do conhecimento, satisfação com a remuneração atual e abertura para modelos alternativos em diferentes grupos sociodemográficos.

Métodos: Estudo transversal baseado em um questionário eletrônico distribuído entre 1º de outubro e 28 de novembro de 2023. A amostra incluiu anestesiologistas de diferentes regiões do Brasil, recrutados por meio de redes sociais, e-mails e WhatsApp®. Foram excluídas respostas incompletas ou duplicadas. O questionário abordou características profissionais e sociodemográficas, conhecimento sobre VBHC, percepção sobre o atual modelo de remuneração e interesse em modelos alternativos. A análise estatística incluiu testes de normalidade (Shapiro-Wilk), comparações de proporções (Qui-quadrado), testes não paramétricos (Mann-Whitney) e regressão logística para identificar fatores associados ao conhecimento sobre VBHC.

Resultados: Foram coletadas 435 respostas, com 269 incluídas na análise final, resultando em uma taxa de conclusão de 66,6%. A maioria dos participantes tinha entre 35 e 49 anos (54,4%) e mais de 10 anos de experiência profissional (61%). Quanto ao conhecimento sobre VBHC, 62,7% relataram baixa familiaridade, e 83% desconheciam a equação de valor de Porter e Teisberg. O estudo revelou uma notável superconfiança entre os anestesiologistas, com uma taxa geral de 38%. Maior familiaridade com VBHC esteve associada a mais experiência, possuir MBA e atuar no setor privado ($p < 0,05$). Em relação aos modelos de remuneração, 66,2% dos anestesiologistas eram pagos por Fee-for-Service, enquanto apenas 6% participavam de contratos Fee-for-Value. No entanto, 47,6% demonstraram interesse em aprender mais sobre pagamentos baseados em valor, e 38,1% estavam abertos à adoção desse modelo.

Conclusão: Este estudo identificou lacunas significativas no entendimento dos anestesiologistas brasileiros sobre VBHC. Embora 89,7% reconhecessem o conceito, apenas

37,3% tinham alta familiaridade, e 83% desconheciam a equação de valor. A taxa de superconfiança de 38% sugere um desalinhamento entre conhecimento percebido e real, dificultando a implementação. Apesar do reconhecimento da necessidade de medir desfechos e reduzir a variabilidade clínica, a adoção da VBHC ainda é limitada. A insatisfação com o modelo Fee-for-Service foi evidente, com maior interesse em estruturas de pagamento alternativas entre anestesiologistas experientes, com MBA e atuantes no setor privado. Os achados destacam a necessidade urgente de capacitação direcionada para reduzir a lacuna entre conhecimento e confiança, facilitando a transição para a VBHC.

Palavras-chave: Assistência à Saúde Baseado em Valor, anestesiologia, Fee-for-Service, Fee-for-Value, calibração, modelos de remuneração**,** questionário

ABSTRACT

Introduction and Objectives: Rising healthcare costs and operational inefficiencies threaten health system sustainability. Value-Based Health Care (VBHC) seeks to improve clinical outcomes relative to costs, promoting efficiency and transparency. Uptake remains limited, particularly among anesthesiologists, crucial for perioperative management. This study investigates Brazilian anesthesiologists' confidence in VBHC, their preparedness, and views on payment structures, examining factors such as self-perceived knowledge, satisfaction with current compensation, and openness to alternative models across various sociodemographic groups.

Methods: This cross-sectional study utilized a survey distributed from October 1 to November 28, 2023. The participants included anesthesiologists from various regions of Brazil, who were recruited through social media, email, and WhatsApp®. Responses that were incomplete or duplicated were removed. The questionnaire assessed professional and sociodemographic traits, knowledge regarding VBHC, views on the current compensation system, and interest in alternative payment methods. Statistical analysis involved normality tests (Shapiro-Wilk), comparisons of proportions (Chi-square), non-parametric methods (Mann-Whitney), and logistic regression to uncover factors linked to VBHC knowledge.

Results: We collected a total of 435 responses, with 269 included in the final analysis, yielding a completion rate of 66.6%. Most participants were between the ages of 35 and 49 (54.4%) and had more than 10 years of professional experience (61%). Regarding knowledge about VBHC, 62.7% reported low familiarity, and 83% were unaware of Porter and Teisberg's value equation. The study revealed a notable overconfidence among anesthesiologists, with an overall rate of 38%. Higher familiarity with VBHC was linked to more experience, an MBA, and employment in the private sector ($p < 0.05$). Concerning reimbursement models, 66.2% of anesthesiologists were compensated through Fee-for-Service, whereas only 6% were involved in Fee-for-Value contracts. Nonetheless, 47.6% expressed interest in learning more about value-based payments, and 38.1% were open to adopting this model.

Conclusion: This study found significant gaps in Brazilian anesthesiologists' understanding of VBHC. Although 89.7% recognized the concept, just 37.3% were highly familiar, and 83% lacked knowledge of the value equation. A 38% overconfidence rate suggests a disconnect between perceived and actual knowledge, hindering implementation. While participants saw the need for outcome measurement and reducing clinical variability, VBHC adoption remains

limited. Dissatisfaction with the Fee-for-Service model was evident, with greater interest in alternative payment structures among experienced anesthesiologists, MBAs, and private sector professionals. The findings underscore the urgent need for targeted training to bridge the knowledge-confidence gap and facilitate the shift to VBHC.

Keywords: Value-Based Health Care, anesthesiology, Fee-for-Service, Fee-for-Value, calibration, payment models, survey

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LISTA DE ABREVIATURAS

CHERRIES	The Checklist for Reporting Results of Internet E-Surveys
EMR	Electronic Medical Records
MBA	Master of Business Administration
VBHC	Value-Based Health Care

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INTRODUCTION

The global healthcare system faces major challenges, including rising costs, inefficiencies, and unequal access. Aon's 2024 Global Medical Trend Rates Report forecasted a $10.059 trillion healthcare bill by 2022, with an average cost trend of 10.1% in 2024, up from 9.2% in 2023, the highest since 2015(AON, 2024). These trends are particularly severe in middle-income countries like Brazil, which experience significant disparities in healthcare quality and costs(DIEGOLI et al., 2023). In Latin America and the Caribbean, the projected medical trend rate for 2024 was 11.7%, slightly up from 11.6% in 2023, underscoring the growing strain on healthcare systems in the region (AON, 2024).

This challenge is exacerbated by rising life expectancy, an increasing prevalence of chronic diseases, and the continual emergence of new technologies and medications—all of which put further strain on the sustainability of healthcare systems. Additionally, the dominant "fee-for-service" reimbursement model promotes service overuse and inefficiency, incentivizing prolonged hospital stays regardless of their impact on care quality or overall system performance(ESPOSTI; BANFI, 2020).

Porter and Teisberg proposed the concept of Value-Based Health Care (VBHC) to address these challenges in 2006 (PORTER; TEISBERG, 2006). This framework focuses on attaining favorable patient outcomes while minimizing costs, which requires a significant overhaul of payment systems to enhance transparency and optimize resource utilization.

Despite ongoing pressure from payers and an institutional push for the VBHC model by Porter and Teisberg(TEISBERG; WALLACE; O'HARA, 2020), healthcare professionals remain largely unaware. This issue is worsened by varying levels of understanding and inconsistent implementation (THE ECONOMIST INTELLIGENCE UNIT, 2016; VAN STAALDUINEN et al., 2022; ZANOTTO et al., 2021). A study of 70 hospital executives in Latin America found that only 24% accurately recognized the value equation (outcomes divided by costs), with many misinterpreting its definition (MAKDISSE et al., 2022). Similarly, a Brazilian hospital's clinical staff survey revealed that just 25% could correctly explain Porter's value equation(MAKDISSE et al., 2020). This widespread lack of knowledge across all levels risks hindering the necessary transformation of the healthcare system.

Anesthesiology, renowned for its significant impact on patient safety and decreasing intraoperative risks, is a vital specialty in promoting the transition to the VBHC model (MAHAJAN et al., 2021). Recent research highlights anesthesiologists' crucial roles in

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View rate (Ratio of unique survey visitors/unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1 % if the survey is voluntary.	NA
Participation rate (Ratio of unique visitors who agreed to participate/unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called "recruitment" rate.	NA
Completion rate (Ratio of users who finished the survey/users who agreed to participate)	The number of people submitting the last questionnaire page, divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure for attrition. Note that "completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate".)	18
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (eg, the first entry or the most recent)?	NA
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period of time for which no two entries from the same IP address were allowed (eg, 24 hours). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period of time eliminated before analysis? If the latter, which entries were kept	16

	for analysis (eg, the first entry or the most recent)?	
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	NA
Registration	In "closed" (non-open) surveys, users need to login first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (eg, the first entry or the most recent)?	NA
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires which terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	18
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point, and describe how this point was determined.	NA
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	NA

This checklist has been modified from Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES). J Med Internet Res. 2004 Sep 29;6(3):e34 [erratum in J Med Internet Res. 2012; 14(1): e8.]. Article available at https://www.jmir.org/2004/3/e34/; erratum available https://www.jmir.org/2012/1/e8/.