



## Original Article

# Rotator cuff repair in the Brazilian Unified Health System: Brazilian trends from 2003 to 2015<sup>☆</sup>

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### ABSTRACT

**Objective:** To assess the historical trend of rotator cuff repairs in Brazil between 2003 and 2015, using the database of the Brazilian Unified Health System's (Sistema Único de Saúde [SUS]) Department of Informatics (DataSUS).

**Methods:** Historical series using DataSUS. Surgeries performed between 2003 and 2015 were included and data relating to cuff tear repair were assessed, including decompression procedures were included. The numerator was the total number of rotator cuff repair and the denominator, the total population of the assessed locality. Population data were based on information from the Instituto Brasileiro de Geografia e Estatística (IBGE).

**Results:** During the period, 50,207 surgeries were performed. The rate was presented as number of procedures per 100,000 inhabitants, and increased from 0.83 to 2.81, a growth of 238%. In 2015, the South region had the highest rate, 6.32, followed by the Southeast, 3.62, while the North had the lowest rate, 0.13. The growing trend can be observed in the Southeast, South, and Midwest, while the rate is stable in the North and Northeast.

**Conclusion:** The rate of rotator cuff repairs in Brazil performed through the SUS increased from 0.83 to 2.81 between 2003 and 2015, representing a growth of 238%, but remains lower than that of developed countries. A trend of growth can be observed in the Southeast, South, and Midwest, while the rate is stable in the North and Northeast.

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<sup>☆</sup> Study conducted at the Universidade de São Paulo, Faculdade de Medicina, Hospital das Clínicas, Instituto de Ortopedia e Traumatologia, Grupo de Ombro e Cotovelo, São Paulo, SP, Brazil.

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## Reparo do manguito rotador no Sistema Único de Saúde: tendência brasileira de 2003 a 2015

### R E S U M O

*Palavras-chave:*  
Manguito rotador  
Ombro  
Saúde pública  
Política de saúde

*Objetivo:* Avaliar a tendência histórica de reparos do manguito rotador no Brasil, entre 2003 e 2015, com o uso do banco de dados do Departamento de Informática do SUS (DataSUS).

*Métodos:* Série histórica com o uso do DataSUS. Foram incluídas cirurgias feitas entre 2003 e 2015 e coletados os dados referentes ao reparo de rotura do manguito, incluindo procedimentos descompressivos. Usamos como numerador o total de reparos do manguito rotador e como denominador a população total da localidade avaliada. Dados populacionais foram baseados nas informações do Instituto Brasileiro de Geografia e Estatística (IBGE). As taxas foram apresentadas por grupo de 100.000 habitantes.

*Resultados:* Durante o período, foram registradas 50.207 cirurgias. A taxa aumentou de 0,83 para 2,81, um acréscimo de 238%. Em 2015, a Região Sul apresentou a maior taxa, 6,32, seguida da Sudeste, 3,62, enquanto a Norte apresentou a menor taxa, 0,13. A tendência crescente pode ser observada nas regiões Sudeste, Sul e Centro-Oeste, enquanto o índice é estável nas regiões Norte e Nordeste.

*Conclusão:* A taxa de reparos do manguito rotador no Brasil feitos pelo Sistema Único de Saúde aumentou de 0,83 para 2,81 entre 2003 e 2015, um aumento de 238%, mas permanece inferior à dos países desenvolvidos. Uma tendência crescente pode ser observada nas regiões Sudeste, Sul e Centro-Oeste, enquanto a taxa é estável nas regiões Norte e Nordeste.

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## Introduction

Shoulder pain has a high prevalence in the population, ranging from 7% to 26%.<sup>1</sup> Rotator cuff disorders, the main cause of pain in the shoulder girdle, affects 20% of the general population and up to 50% of individuals older than 80 years.<sup>2</sup> Rotator cuff repair is the main reason for shoulder surgery.<sup>3</sup>

This surgery provides satisfactory clinical results in more than 85% of patients.<sup>4-8</sup> However, the trend of increase in the number of rotator cuff repairs, from 31% to 238% in published historical series,<sup>9-14</sup> increases expenses of the healthcare system.<sup>14</sup> Thus, it is necessary to outline the Brazilian panorama to determine public policies that best serve the population. In Brazil, there have been no evaluations of the number of surgeries performed for the repair of rotator cuff tears.

The primary objective of this study was to evaluate the historical trend of rotator cuff repairs performed by the Brazilian Public Health System (Sistema Único de Saúde [SUS]) between 2003 and 2015, using the database of the Department of Information Technology of SUS (DataSUS). The secondary objective was to describe the rate of accredited services and associate members of the Brazilian Society of Shoulder and Elbow Surgery (Sociedade Brasileira de Cirurgia do Ombro e Cotovelo [SBCOC]) by region in 2015 and to correlate this data with that of the rates of surgeries.

## Methods

A historical series was made using the database of the DataSUS, an agency of the Department of Strategic and

Participatory Management of the Ministry of Health responsible for collecting, processing, and disseminating health information. All data collected are freely available on the DataSUS website.<sup>15</sup> Surgeries performed between 2003 and 2015 were included, and data for the cuff tear repair procedure, including decompression procedures, were collected. This study was approved by the institution's Research Ethics Committee under No. 1193.

The primary objective of the study was to describe the incidence of rotator cuff repairs per 100,000 inhabitants/year, in national terms and stratified by region and state of the federation. The data were stratified by year, from 2003 to 2015. To calculate the incidence, the total number of rotator cuff repairs was used as numerator; the total national population, region, or state for the period studied was used as the denominator. Population data from the 2010 National Census were collected on the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística [IBGE]) website,<sup>16</sup> as well as the population projections for the remaining years.<sup>17</sup> The rate of accredited services and associate members of SBCOC was based on the information from the Society's website,<sup>18</sup> and confirmed by the official sector. For this analysis, the denominator used was the population in 2015 and the rates were presented per 10,000,000 inhabitants.

## Statistical analysis

The number of rotator cuff repairs was presented in absolute values and percentage, for Brazil and for the different regions and states, as well as for the year of the surgery. The rate of surgeries was presented per 100,000 inhabitants. The rate of accredited services and associate members of the SBCOC

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