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## Original article

## Impact of rheumatoid arthritis in the public health system in Santa Catarina, Brazil: a descriptive and temporal trend analysis in the period from 1996 to 2009

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#### ABSTRACT

Introduction: There are few studies that carried out a descriptive and trend analysis based on available data from the Unified Health System (SUS) between pre- and post-free dispensing of pharmacological treatment of rheumatoid arthritis (RA) from the perspective of the public health system, in terms of the direct cost of the disease among adults and elderly residents of the State of Santa Catarina, Brazil. This study aims to characterize the direct cost of medical and surgical procedures before and after the dispensing of drugs in this state.

Methods: This is a time series-type study with a cross-sectional survey of data from the Hospital (SIH) and Outpatient (SIA) Information System of SUS during the period from 1996

to 2009.

Results: Between 1996 and 2009, the total expenditure for hospital- and outpatient pharmacological treatment of rheumatoid arthritis was R\$ 26,659,127.20. After the dispensing of drug treatment by SUS a decrease of 36% in the number of hospital admissions was observed; however, an increase of 19% in clinical procedures was noted.

Conclusion: During the observed period, a reduction in the number of hospital admissions for both clinical and orthopedic surgical procedures related to this disease was observed. Nevertheless, there was an increase in the cost of medical admissions.

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## **ARTICLE IN PRESS**

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Impacto da artrite reumatoide no sistema público de saúde em Santa Catarina, Brasil: análise descritiva e de tendência temporal no período de 1996 a 2009

RESUMO

Palavras-chave: Artrite reumatoide Custo direto Brasil Sistema Único de Saúde Introdução: Poucos estudos fizeram uma análise descritiva e de tendência dos dados disponíveis do Sistema Único de Saúde (SUS) entre os períodos pré e pós-dispensação gratuita do tratamento medicamentoso da artrite reumatoide (AR) sob a perspectiva do sistema público de saúde em termos de custo direto da doença entre adultos e idosos moradores do Estado de Santa Catarina, Brasil. O presente trabalho tem o objetivo de caracterizar o custo direto de procedimentos clínicos e cirúrgicos antes e após o fornecimento de medicamentos no estado.

Métodos: Estudo do tipo série temporal com levantamentos transversais entre 1996 e 2009 dos dados do Sistema de Informação Hospitalar (SIH) e Ambulatorial (SIA) do SUS.

Resultados: Entre 1996 a 2009, o gasto total para o tratamento hospitalar e medicamentoso ambulatorial da artrite reumatoide foi de R\$ 26.659.127,20. Após a dispensação do tratamento medicamentoso pelo SUS observou-se queda de 36% do número de internações hospitalares. Entretanto notou-se um aumento de 19% nos procedimentos clínicos.

Conclusão: No período observado notou-se uma redução do número de internações hospitalares tanto para procedimentos clínicos quanto cirúrgicos ortopédicos relacionadas a essa doença. Apesar disso, ocorreu um aumento do custo das internações clínicas.

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#### Introduction

The World Health Organization (WHO) called the period 2000–2010 the "decade of bone and joint" due to the increasing prevalence of rheumatic diseases and consequent socioeconomic impact triggered by this situation. Rheumatoid arthritis (RA) is a systemic inflammatory disease that affects joints, lungs, heart and other organs. In Brazil, it is estimated that the prevalence of RA ranges from 0.2 to 1.0% and has a worldwide distribution. New options for RA treatment have emerged in order to minimize the damage attributed to the disease, including a faster and more resolutive intervention, the combination of drugs, and innovations in pharmacological formulations.

The interest in estimating the economic consequences and the impact on public health stemmed by these new therapies emerged from the relationship between the high cost of medications and the direct and indirect clinical benefits achieved with treatment.<sup>7</sup> A bibliographic search on direct costs of rheumatoid arthritis in Brazil for our public health, held in major databases, found a limited number of publications on this subject.<sup>8–12</sup>

The Brazilian public health system (SUS) provides free access to treatment of RA, such as disease-modifying antirheumatic drugs (DMARDs) and the immunobiological agent, tumor necrosis factor-alpha blocker (anti-TNF-alpha) – which are high-cost drugs. Ordonnances of 2002 and 2006 from the Brazilian Ministry of Health (MOH) established that the patient should have been in use of at least two combinations of DMARDs without success as a precondition for the provision of an anti-TNF blocker. More recently, new biopharmaceuticals were included in the list of drugs available for the treatment of RA. 14

In most of the times, the treatment of RA is carried out on an outpatient basis. Nevertheless, studies show that the cost generated by hospital treatment is the most significant part of the expenses with this disease, ranging from 55 to 68% of the total cost, although only 10% of patients are hospitalized annually. Pharmaceuticals represent a significant expense, especially early in the disease, when hospitalizations are less frequent, being the second largest component of expenses related to RA, accounting for over 25% of the total. Brazilian studies using administrative databases covering the direct costs of outpatient and drug treatment of RA indicate that pharmaceuticals accounted for 68.72% of the total amount spent. 16

From a survey of available data from Hospital (SIH) and Outpatient (SIA) Information System for the State of Santa Catarina (SC), Brazil, we conducted a descriptive analysis of the economic impact of RA in this state; Furthermore, we also evaluated the trend of costs of the disease during the years 1996–2009. Finally, we analyzed the direct costs of the disease, from the perspective of the public health system.

#### Materials and methods

This is a time series-type study conducted to evaluate the costs of rheumatoid arthritis among adults and elderly people living in the State of Santa Catarina, Southern Region of Brazil, whose survey data cover the period from 1996 to 2009. Information on outpatient and hospital and drug treatment of RA was obtained searching the website of the Computer Department of SUS – DATASUS from MOH, which is freely accessible, public domain documents. Older adults of both genders and with a primary diagnosis of rheumatoid arthritis according to

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