Systemic lupus erythematosus: an international perspective on healthcare costs and health status outcomes

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Over the past few decades, advances in the management and treatment of systemic lupus erythematosus have resulted in improved prognosis and greater survival rates. This period has also seen substantial increases in healthcare expenditure. Although improved outcomes offer some justification for an increase in costs, it remains important to examine whether limited healthcare resources are being used in a manner that is efficient and that provides the greatest benefit. The debate over how to organize, deliver and finance healthcare services is of great interest in many countries. Escalating costs, and the realization that existing healthcare systems may not be sustainable if current practices continue, have lent an increased urgency to this debate.

Survival rates from systemic lupus erythematosus (SLE) have increased over the past few decades as a result of advancements in the management and treatment of this disease [1,2]. In an effort to identify ways to contain costs without compromising outcomes, and to learn from the lessons of one another's experiences, policymakers often rely on international comparisons of healthcare systems. The largest international comparisons have been those made among countries belonging to the Organization for Economic Co-operation and Development (OECD), an organization comprising 30 developed countries that share a commitment to democratic government and the market economy [3]. A number of studies have assessed healthcare utilization, costs, quality of care and health outcomes among the OECD countries and, in many instances, it appears that the health of the population correlates poorly with the intensity of health resource utilization and with overall costs. In fact, the USA, with considerably higher healthcare expenditure than any of the other OECD countries, experiences disability-free life expectancy and infant mortality rates that fall below the median of OECD countries [3].

Further information about the performance of healthcare systems has been gained by assessing the management and outcomes for specific conditions. Over the years, there has been a particular interest in comparing outcomes between the USA and Canada, two countries that have similar economies but that vary considerably in the organization and financing of healthcare [4]. One systematic review of studies comparing health outcomes in both countries showed superior outcomes more often in Canada than in the USA; however, there were some apparent advantages for the USA [5]. American women with breast cancer appear to have better survival rates than Canadian women, and American outcomes appear superior after hip fracture and cataract surgery [6–8]. American patients who have had a myocardial infarction (MI) are more likely to undergo invasive procedures than their Canadian counterparts [9,10]. This more aggressive treatment appears to be associated with improved functional status, at least in the early post-MI period, but not in rates of recurrent MI or mortality [11,12]. The only condition in which results consistently favored one country was end-stage renal failure, in which Canadian patients fared better [13,14].

The SLE Tri-Nation Study was the first to compare health resource utilization, costs and outcomes for a musculoskeletal condition that is chronic and complex, and that is treated predominantly through noninvasive means. Comparisons were made of healthcare resource utilization and health outcomes among persons with SLE from three developed countries that have considerably different healthcare systems: Canada, the UK and the USA. In Canada and the UK, healthcare services are primarily publicly funded and universally accessible to all citizens. By contrast, in the USA, most citizens require private insurance to cover medical expenses, most often purchased by employers. Publicly funded insurance is provided for certain individuals, such as the elderly and the disabled (Medicare) and the poor (Medicaid); however, a proportion of the population (15%) remains uninsured [15]. Despite a lack of universal coverage for all citizens, the USA spends a considerably higher percentage of its gross domestic product on healthcare (13.9%), compared with 9.7% in Canada and 7.6% in the UK. In absolute

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dollar figures, the USA spends US$4887 per capita on healthcare, approximately twice the amount spent in both Canada (US$2792) and the UK (US$1992) [16].

The first of the Tri-Nation Studies assessed healthcare resource utilization over a 1-year period in relation to health status (as assessed by the Medical Outcomes Study Short Form-36) and patient satisfaction [17]. After adjustment for important baseline patient covariates (including demographics, disease characteristics and health status), Canadian patients reported better health status than their American and British counterparts. This first study did not reveal any significant difference in the intensity of overall resource utilization among the three countries; however, certain patterns were observed. American and Canadian patients had a greater number of visits to specialist physicians (13–15 visits per year) than their counterparts in the UK, who had only eight visits per year. However, British patients were more likely to see a generalist physician, reporting seven visits per year versus two to three visits per year for the American and Canadian patients. More frequent use of generalist physician services may explain the significantly lower use of emergency department services among the British patients: only 10% of patients from the UK visited an emergency department, compared with 24% of American patients and 28% of Canadian patients. Lack of access to generalist physician care may be an important cause of increased or inappropriate use of the emergency department [18]. Rheumatologists and other specialists often assume the role of primary care provider for their patients with SLE, and patients often rely on these specialists for their primary care needs. Generalist physicians, however, may provide services and may have access to resources not available to specialist physicians. The roles of generalist and specialist physicians, and other healthcare professionals, in the care of patients with SLE warrants further evaluation. However, it is likely that patients will benefit most from a team approach, in which care is carefully coordinated among various specialists and in which a generalist physician plays an integral role.

In a follow-up study, healthcare costs and disease outcomes of subjects participating in the Tri-Nation Study were assessed longitudinally over a 4-year interval [19]. At the conclusion of the study, in Canada, the UK and the USA, respectively, mean cumulative direct costs per patient were $15,845, $17,647 and $20,244 (expressed in 2002 Canadian dollars). Canadian patients, on average, incurred 20% lower costs than American patients and British patients incurred 13% lower costs than American patients. Despite Canadian and British patients incurring lower health costs, on average, there were no differences in health outcomes expressed as accumulation of disease damage. Further assessment showed that, over a 4-year period, health status remained stable among patients from the three countries [20]. Thus, despite patients in the USA incurring higher healthcare costs, they did not experience superior health outcomes.

An important caveat regarding cost estimations in the Tri-Nation Study is that costs were estimated using unit prices from a single country (Canada). This allowed for a more accurate comparison of actual resource utilization; however, actual costs in the USA and the UK may have been over or underestimated. For example, given that prices of healthcare services in the USA are considerably higher than prices in other countries [21], the estimated costs in the USA are likely higher than those estimated in the Tri-Nation Study.

In addition to the direct costs of healthcare services, the indirect costs of lost productivity were also estimated. A variety of methods were used to estimate the costs associated with diminished productivity. These methods, which differ in their valuation of labor and nonlabor market activity, produced strikingly different results. Since SLE most frequently affects women, who are more likely to participate in nonlabor market activities such as housework and childcare, the value placed on these activities is particularly important. Depending on the method used, average annual indirect costs ranged from $1424 to $22,604 (in 1997 Canadian dollars), a more than 15-fold difference [22]. These results demonstrate how indirect cost estimates that fail to account for long-term work loss and decreases in nonlabor market activity may underestimate the economic burden of conditions that are chronic and predominantly affect a female population. Cumulative indirect costs over a 4-year period in Canada, the UK and the USA were $44,097, $50,785 and $61,994, respectively (in 2002 Canadian dollars) [23]. After adjustment, differences in cumulative indirect costs were due largely to decreases in labor market activity: indirect costs due to diminished labor market activity in the USA were $6750 greater than in Canada and $10,430 greater than in the UK. Thus, despite American patients incurring greater direct medical costs, they did not experience improved productivity in either the labor or nonlabor market.

Efficient management of chronic rheumatic conditions, such as SLE, is of great importance. These conditions represent a large economic burden to society, owing to both the expenditure of healthcare resources that are consumed in their management, and the loss of productivity due to work disability. As with other conditions, a number of rheumatic diseases have seen costs increase considerably in recent years due to the advent of newer technologies and more costly pharmaceuticals. More expensive medications are already being used in the treatment of SLE, and further medications are on the horizon, so costs are likely to increase. Therefore, identifying ways to offset these ever-increasing costs is increasingly important.

The primary goal in the management of SLE should be to improve patient outcomes, which can be best accomplished by minimizing disease flares and disease damage and preventing adverse drug events. In our opinion, given the complexity of this condition, with its chronic and unpredictable course, optimal outcomes will likely be achieved within a comprehensive healthcare system in which care is coordinated and integrated. Each of the countries examined in the Tri-Nation Study faces its own challenges in providing such accessible care. The hope is that by learning from each other's successes and failures, we can improve the medical care offered to our patients and, ultimately, enhance their well-being.

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Executive summary

- The systemic lupus erythematosus Tri-Nation Study was the first to compare health resource utilization, costs and outcomes for a musculoskeletal condition that is chronic and complex, and that is treated predominantly through noninvasive means.
- Despite Canadian and British patients incurring, respectively, 20% and 13% lower costs than their American counterparts, there was no difference in outcomes as expressed by disease damage, quality of life or work productivity.
- With the advent of newer technologies and more costly pharmaceuticals, costs will likely increase. Identifying ways to offset these ever-increasing costs will become increasingly important.

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