

# Optimizing Treatment for Rheumatoid Arthritis in the Kingdom of Saudi Arabia (OPTRA)

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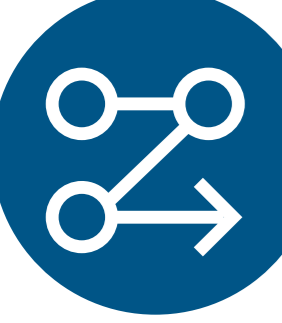
## INTRODUCTION

- Rheumatoid arthritis (RA) is a chronic inflammatory disease characterized by joint swelling, joint tenderness, and destruction of synovial joints, leading to severe disability and premature mortality.<sup>1-3</sup> In some people, RA causes damage to the skin, eyes, lungs, heart and blood vessels as well.<sup>4</sup> According to the Global burden of Disease study of 2010, the global prevalence of RA was 0.24%<sup>5</sup>
- Studies assessing the prevalence of RA in Kingdom of Saudi Arabia (KSA), reported a prevalence that ranged from 0.22 to 0.30%<sup>6,7</sup>
- Current RA management guidelines recommend initial treatment with conventional synthetic disease-modifying antirheumatic drugs (csDMARDs), such as methotrexate (MTX). Patients with an inadequate response or intolerance to csDMARDs are generally prescribed bDMARDs (mostly TNFi) or oral targeted synthetic disease-modifying antirheumatic drugs (tsDMARDs, JAK inhibitors like Tofacitinib) as a monotherapy or in combination with methotrexate<sup>8,9,10,11</sup>
- RA has a substantial impact on patients and their families with regards to both, direct and indirect costs.<sup>12</sup> Direct costs include those of drug acquisition, hospital visits and physician fees for managing the disease and physical disability, while indirect costs include loss of income due to lost productivity, work disability or unemployment. In addition, RA patients also suffer from disease-related quality of life impairment, the cost of which is difficult to estimate<sup>12</sup>
- As the main healthcare provider in KSA, accounting for about 60% of the total healthcare spending in the country,<sup>13</sup> the Saudi Ministry of Health (MoH) aimed to estimate the direct medical and non medical costs associated with the use of biologics and advanced orals for the treatment of adult RA patients in the ministry of health facilities



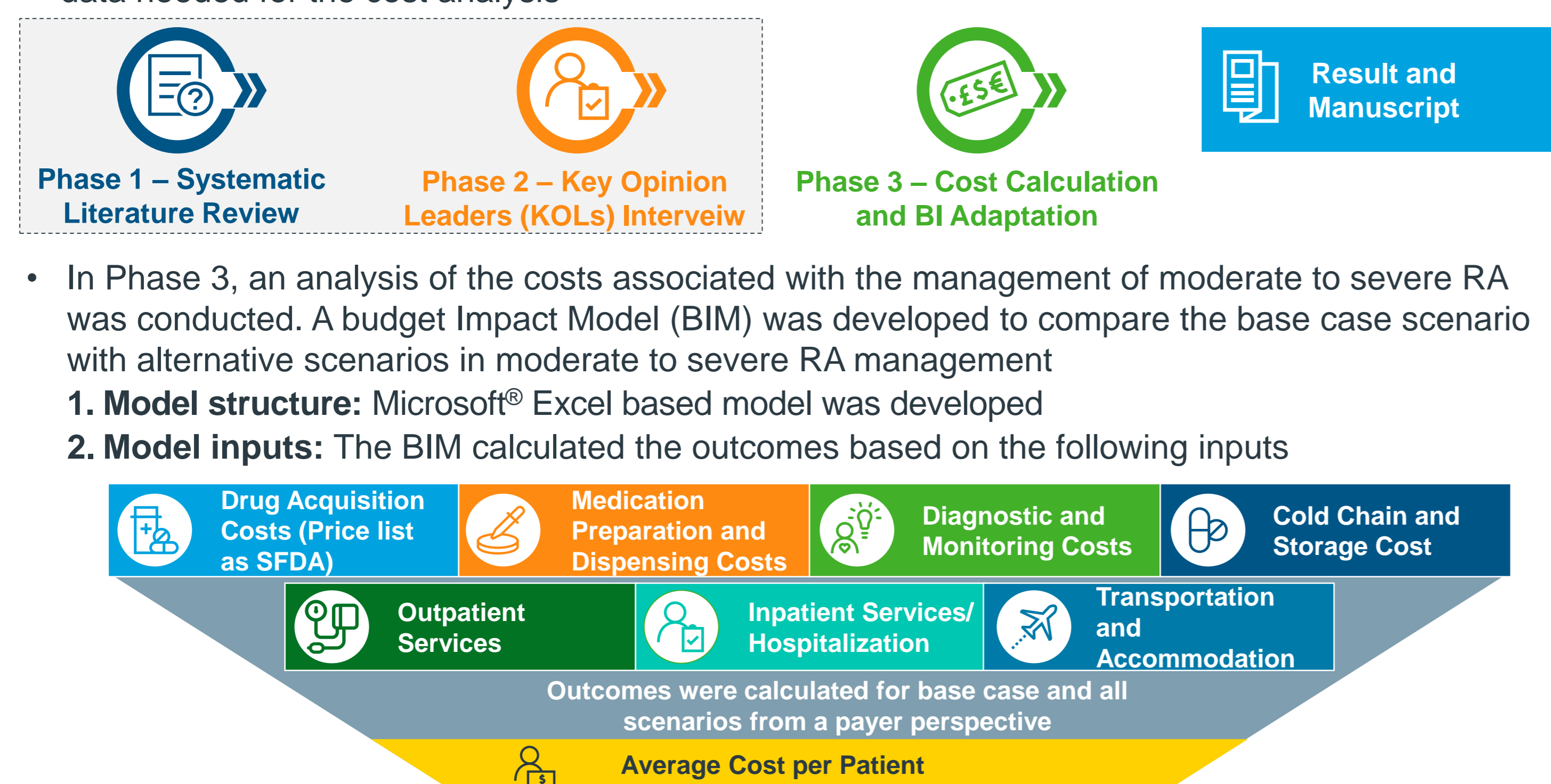
## OBJECTIVE

- The study aimed to assess the economic burden of moderate to severe rheumatoid arthritis (sRA) management in Kingdom of Saudi Arabia (KSA) and the cost impact of introducing tsDMARDs.



## METHODOLOGY

- The study was done in three phases. In Phase 1, a systematic literature review was conducted to identify journal articles, reports, guidelines, conference abstracts, posters, and presentations containing relevant data on the disease background, treatment patterns and efficacy, persistence, and cold chain and storage system in KSA
- Interviews with key opinion leaders were conducted in Phase 2 to understand the local RA management practices in KSA. Phase 1 and 2 provided background information and identified the data needed for the cost analysis



- Model outputs:** Average cost per patient and total cost was calculated for the base case and alternative scenario's

- Base case:** Based on the KOL's inputs, the current practice involved treating moderate to severe RA patients with biologics and advanced orals. Biologics were administered as SC injections (83%) and IV infusions (16%) while advanced orals were prescribed to 1% of moderate to severe RA patients
- Alternative scenarios:**
  - Alternative Scenario 1 (AS1)** assumed that all RA patients on biologics (SC and IV) would switch to oral tsDMARDs over 1 year
  - Alternative Scenario 2 (AS2)** assumed that 30% of RA patients on IV or SC biologics would switch to oral tsDMARDs due to perceived lower efficacy. In addition, it assumed that 50% of new RA cases would be treated oral tsDMARDs. Costs were assessed over three years
  - Alternative Scenario 3 (AS3)** assumed that 30% of RA patients on IV or SC biologics would switch to oral tsDMARDs due to perceived lower efficacy. In addition, it assumed that 100% of new RA cases would be treated with oral tsDMARDs. Costs were assessed over three years



## RESULTS

- Currently, the high cost of RA management is due to the drug acquisition, monitoring, travel and accommodation costs for the parenterally-administered biologics. (Fig 1)
- Switching from SC to oral tsDMARDs would reduce the average cost per patient by 27% (from SAR 62,193 to SAR 45,351) and by 45% (from SAR 82,619 to SAR 45,351) for switch from IV biologics. The average cost per patient on oral oral tsDMARDs was found to be ~60% of the average cost per patient on SC and IV biologics. (Fig 2)
- Introduction of oral tsDMARDs in Saudi MOH is expected to lead to average per patient cost savings of 28%, 15% and 15% in AS1, AS2 and AS3 compared to the base case respectively. (Fig 3). The total reduction in average cost per patient for different parameters across all three scenarios (AS1, AS2, AS3) in comparison to base case scenario is highlighted in Fig 4



## RESULTS (contd.)

Figure 1: Total Cost Categories of RA Management (base case)

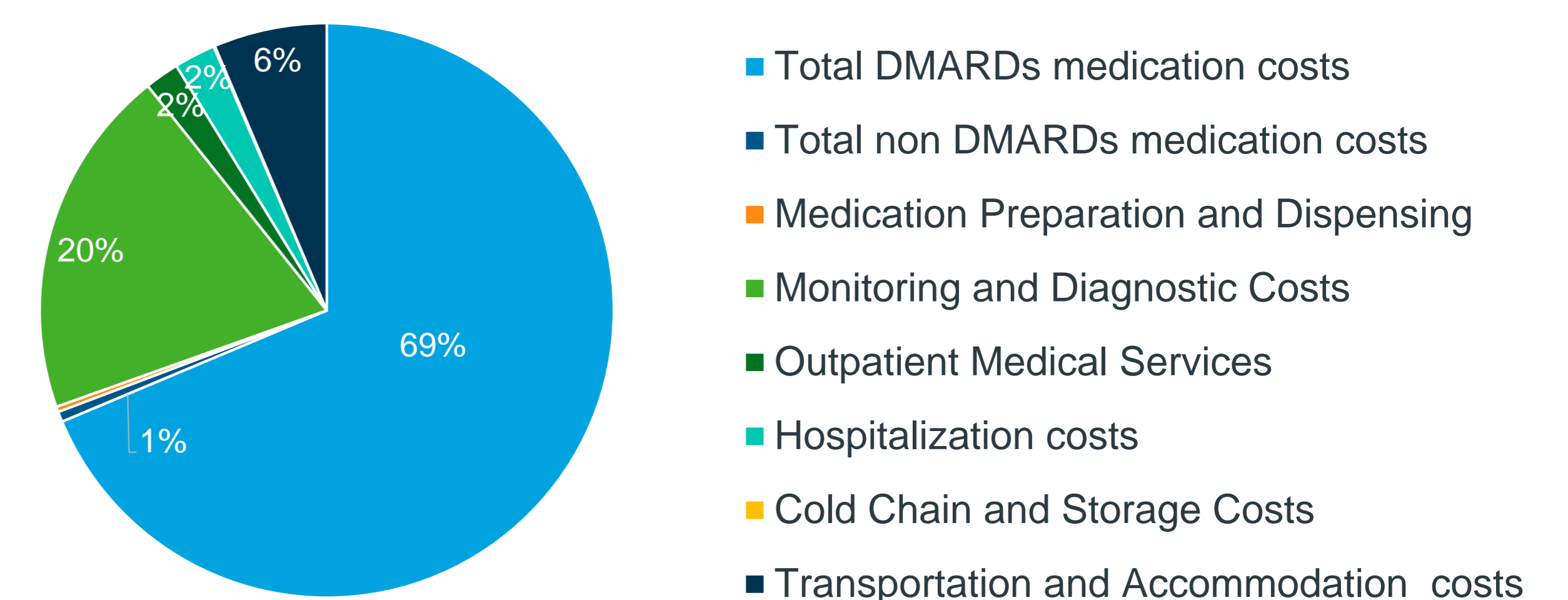


Figure 2: Average Cost Per Patient by Route of Administration (base case)

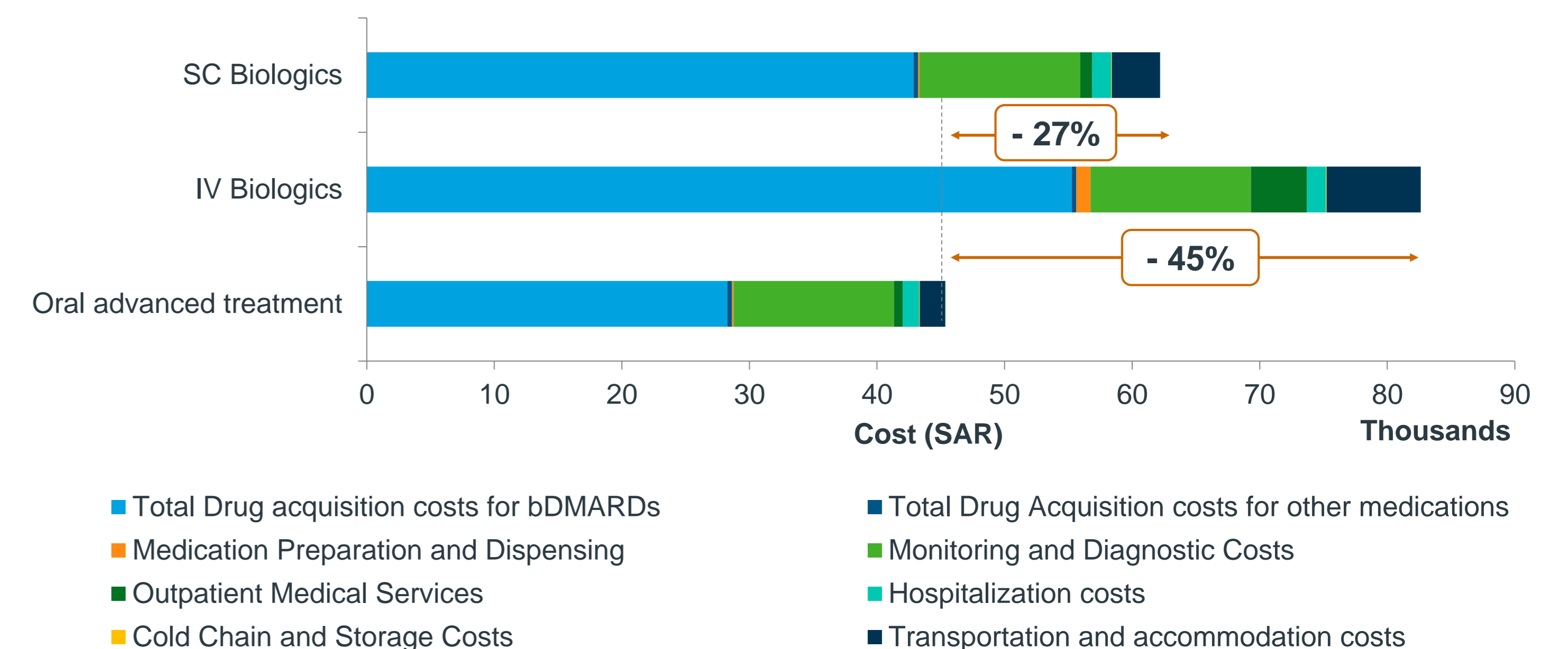


Figure 3: Average Cost Per Patient (base case, AS1, AS2 and AS3)

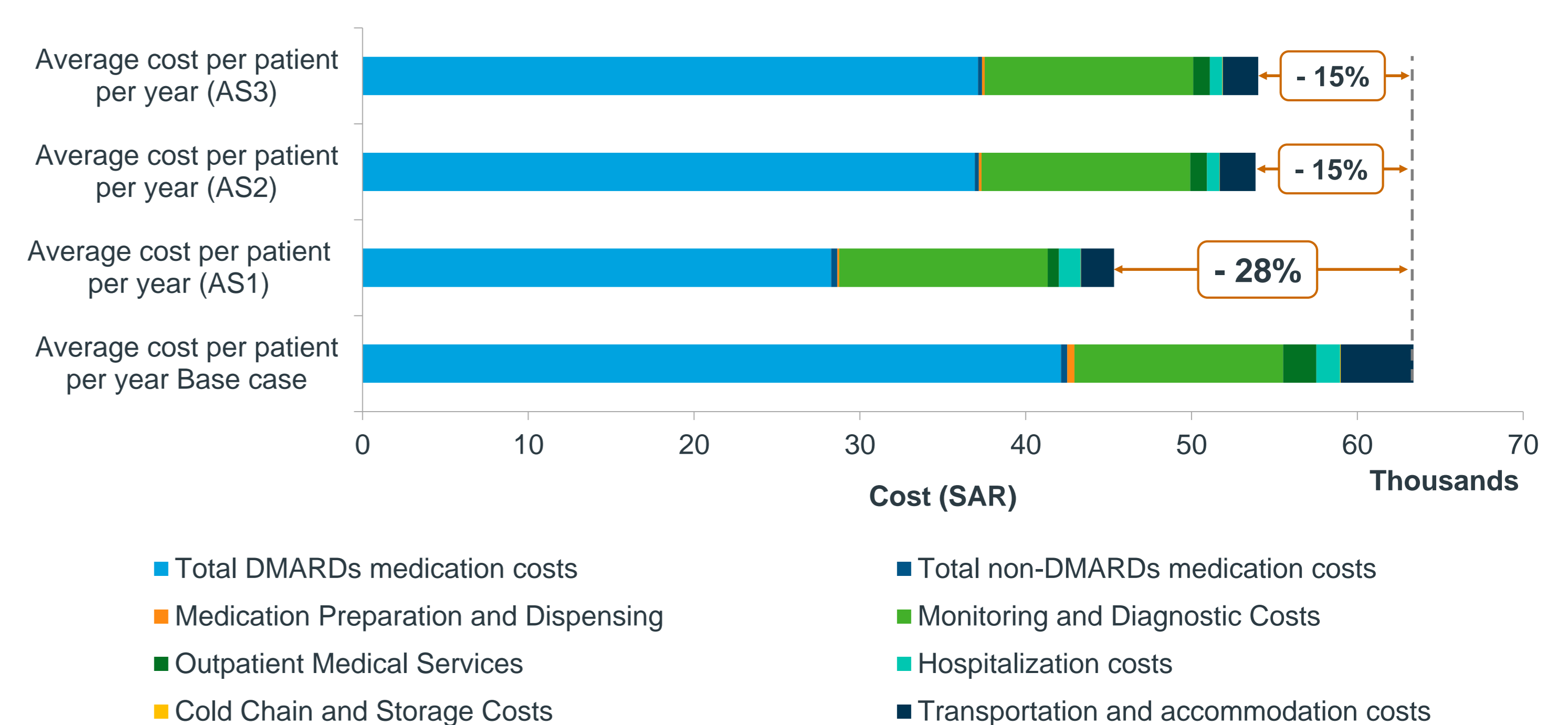
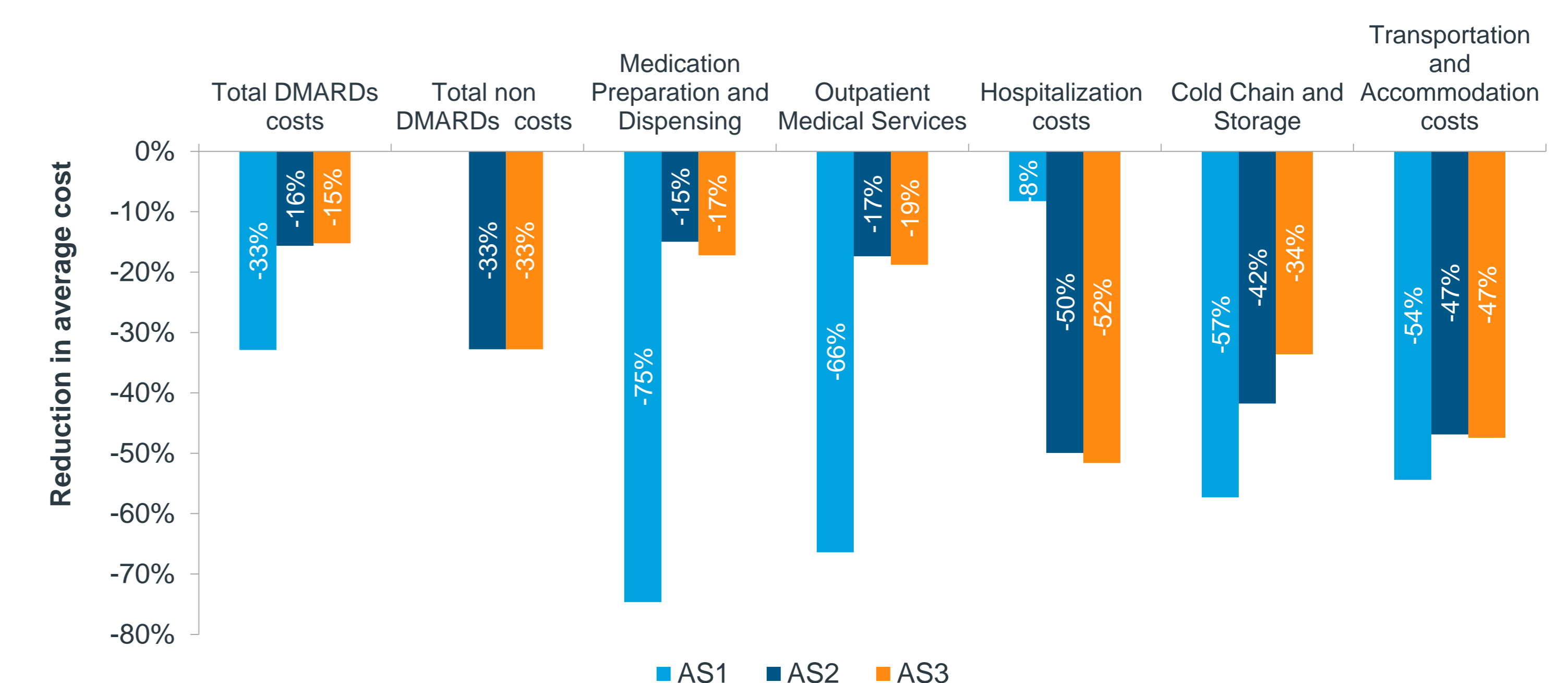


Figure 4: Reduction in average cost per patient (AS1, AS2 & AS3 vs. base case)



## CONCLUSION

- Switching moderate to severe RA patients on bDMARDs to oral tsDMARDs would reduce the cost of moderate to severe RA management in KSA
- The use of oral tsDMARDs will reduce the costs associated with parenteral and subcutaneous RA drug administration (travel, accommodation, hospital visits for drug infusion and outpatient visits) for both the patients and the health systems, freeing-up healthcare resources for other medical needs
- These findings provide evidence that switching to oral tsDMARDs would reduce the costs associated with the drug for both the patients and the health systems, improving quality of life for the patients and free-up available healthcare resources

### References:

- Aletaha D, et al. (2010) Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. *Arthritis Rheum.* ;62(9):2569-2581
- Halabi H, et al. (2015) Challenges and opportunities in the early diagnosis and optimal management of rheumatoid arthritis in Africa and the Middle East. *Int J Rheum Dis.*;18(3):268-275
- Kourilovitch M, et al. (2014) Diagnosis and classification of rheumatoid arthritis. *J Autoimmun.*;48-49:26-30
- Verma MK, et al. (2015) Understanding the major risk factors in the beginning and the progression of rheumatoid arthritis: current scenario and future prospects. *Inflamm Res.*;64(9):647-659
- Cross M, et al. (2014) The global burden of rheumatoid arthritis: estimates from the global burden of disease 2010 study. *Ann Rheum Dis.*;73(7):1316-1322
- Al-Dalaan A, et al. (1998) The prevalence of rheumatoid arthritis in the Qassim region of Saudi Arabia. *Ann Saudi Med.*;18(5):396-7
- Albishi J, et al. (2015) Prevalence of RA and SLE in Saudi Arabia. *Sch. J. App. Med. Sci.*; 3(5D):2096-2099
- Singh JA, et al. (2016) American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis. *Arthritis Rheumatol.*;68(1):1-26
- National Institute for Health and Clinical Excellence (NICE). National Collaborating Centre for Chronic Conditions. Rheumatoid arthritis: the management of rheumatoid arthritis in adults. London (UK): NICE Clin Guide; 2009
- Ledingham J, et al. (2005) Update on the British Society for Rheumatology guidelines for prescribing TNFalpha blockers in adults with rheumatoid arthritis (update of previous guidelines of April 2001). *Rheumatology (Oxford)*;44:157-163
- Smolen JS, et al. (2017) EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. *Ann Rheum Dis.*;76(6):960-977
- Fazal SA, et al. (2018) A Clinical Update and Global Economic Burden of Rheumatoid Arthritis. *Endocr Metab Immune Disord Drug Targets.* 2018;18(2):98-109
- M. Almkali, et al. (2011) Healthcare system in Saudi Arabia: an overview. *Eastern Mediterranean Health Journal.* 17(10): 784-794