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# Barriers to Access Multiple Sclerosis Disease-Modifying Therapies in Middle East and North Africa: A Regional Survey-Based Study

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## Background

- Multiple Sclerosis International Federation (MSIF) Atlas recorded an increase in the prevalence of multiple sclerosis (MS) in Middle-Eastern countries from 24 per 100,000 to 33 per 100,000 between 2013 and 2020.
- Moreover, epidemiological studies from the Middle East and North Africa (MENA) region showed a rising MS prevalence during the first two decades of the 21<sup>st</sup> Century.
- Despite shifting of the MENA region from low to moderately-high risk zone for MS, the management of the disease still varies markedly between different countries based on disease-modifying therapies (DMTs) availability, accessibility, and reimbursement.
- In general, introduction of novel DMTs in most MENA countries is usually delayed, as drug approval can take several months to years once approved for use by the Food and Drug Administration (FDA) or European Medicines Agency (EMA), depending on the country.

## Objective

In order to gain better understanding of treatment accessibility and explore potential common areas of need in our MENA region, we carried an in-depth analysis of the Arab region Atlas of MS data, compiled by the MSIF, focusing on accessibility to originators and off-label DMTs in each country and identifying barriers to MS treatment.

## Methods

- This is a descriptive, survey-based study whereby we extracted data collected between October 2019 and April 2020 for countries in the MENA region by the MSIF through their Atlas of MS online survey.

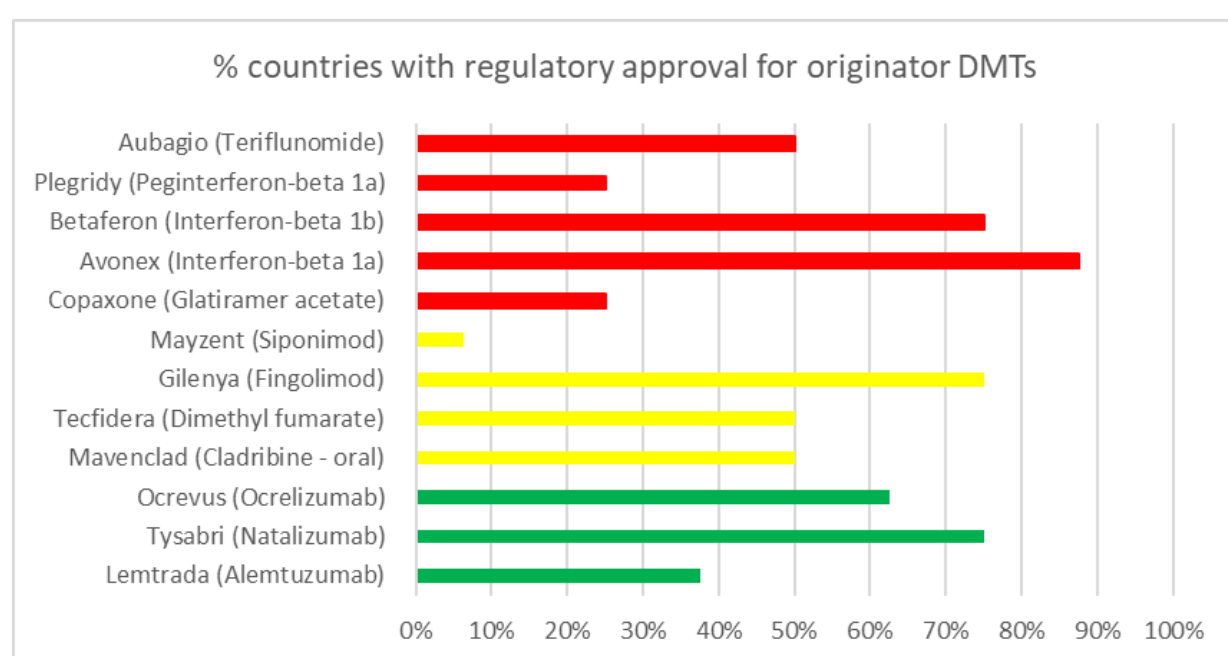
## Results

- 16 out of 19 countries in the MENA region were included in this study: Algeria, Egypt, Iraq, Lebanon, Libya, Morocco, Palestine Sudan, Syria, Tunisia, Yemen, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates (UAE).

### Regulatory Approval of DMTs in the MENA region

Figure 1. Percentage of MENA countries with regulatory approval for originator DMTs.

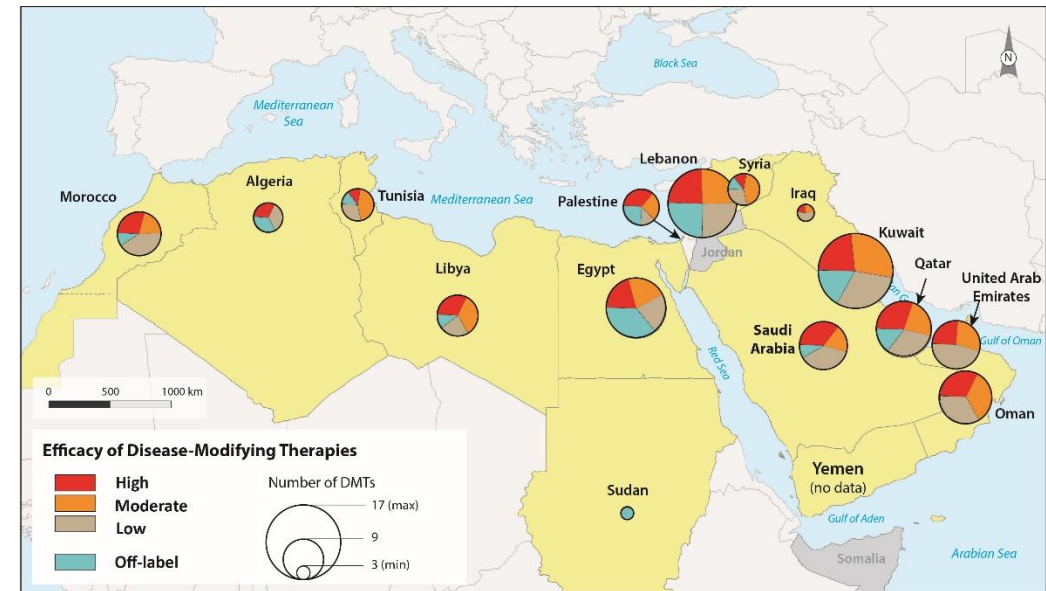
Green = High efficacy; Yellow = Moderate efficacy; Red = Low efficacy



## Conclusion

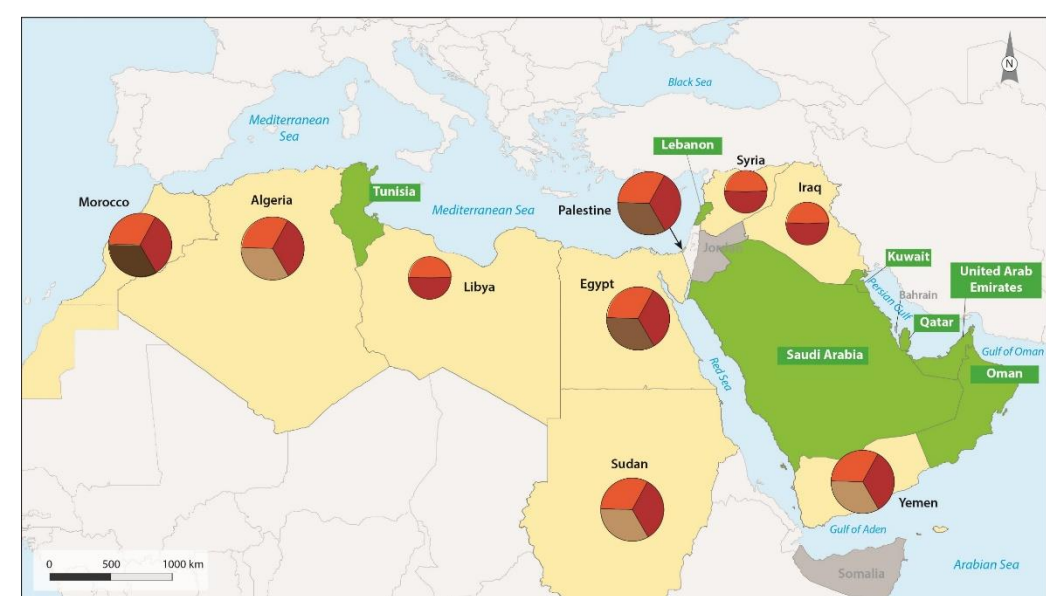
- Most MENA countries have access to DMTs, including high-efficacy DMTs.
- More than half of MENA countries report problems with treatment continuation with cost being the major barrier to treatment.
- The number of barriers to treatment correlates with the Gross National Income (GNI) per capita – richer countries have fewer barriers to treatment.
- This study highlights unequal access to treatment across the MENA region; therefore, there is an urgent need to improve access to DMTs in lower resource settings where there are barriers to improve health outcomes for patients with MS.

### Use of On- and Off-Label DMTs in the MENA region



DMTs	Alentuzumab	Natalizumab	Ocrelizumab	Ribavirin	Cladribine (IV)	Cladribine (oral)	Dimethyl fumarate	Fingolimod	Siponimod	Glatiramer acetate	Interferon-beta 1a	Interferon-beta 1b	Peginterferon-beta 1a	Teriflunomide	Asatropine	Cyclophosphamide	Fludrocortisone	Fumaderm	Leflunomide	Methotrexate	Minocycline	Mitomycin	
Algeria	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Egypt	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Iraq	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Lebanon	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Libya	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Morocco	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Palestine	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Sudan	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Syria	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Tunisia	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Kuwait	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Oman	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Qatar	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
Saudi Arabia	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High
United Arab Emirates	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High	High

### Continuous Access to DMTs after Treatment Initiation



### Barriers to Treatment

