



# Medical tourism in western Germany – review of Arab and Russian patients and their MRSA- and MRGN-status at a tertiary care facility in North Rhine-Westphalia

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### Background

International patients, potentially carrying various pathogens, travel to Germany seeking medical treatment (medical tourism). The German Commission for Hospital Hygiene and Infection Prevention (KRINKO) recommends MRSA- (*Methicillin-resistant Staphylococcus aureus*) and MRGN- (*Multi-resistant Gram-negative bacteria*) screenings for patients from risk regions upon hospital admission. In a multi-centre retrospective study we aimed to describe the risk of importing multiresistant pathogens among medical tourists from the Arabian Peninsula and the Russian Federation and the risk factors underlying colonization or infection with such pathogens.

### Methods

We analysed patient data, MRSA- and MRGN-screening rates and outcomes of Arab and Russian patients admitted to a tertiary care facility (study site 1) from 2019 to 2022 and compared them to previous results from another study site (study site 2).

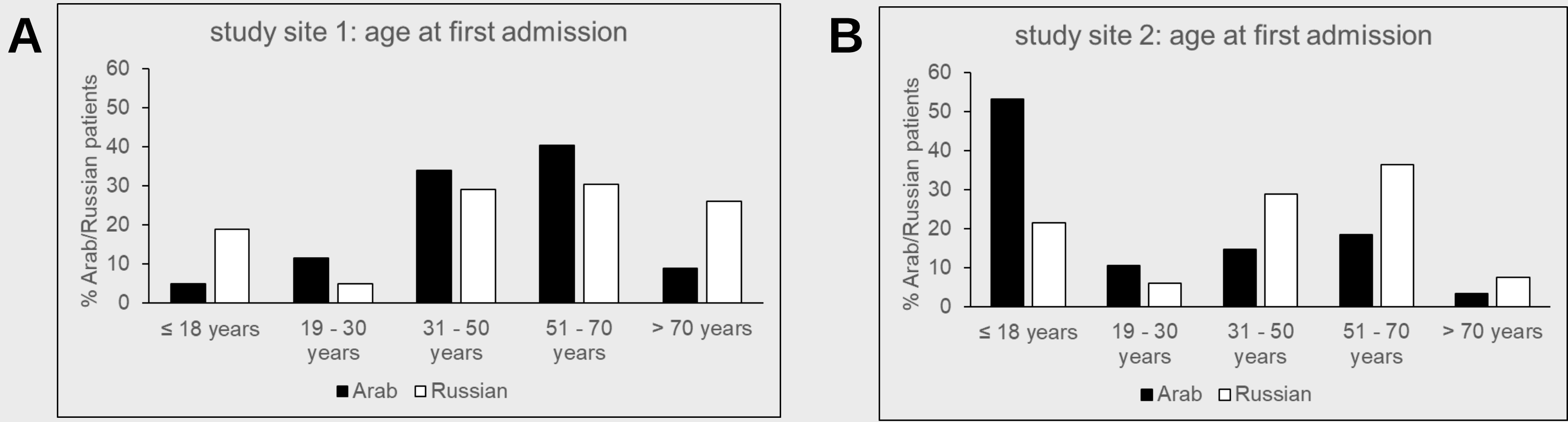
### Results

#### Patient characteristics



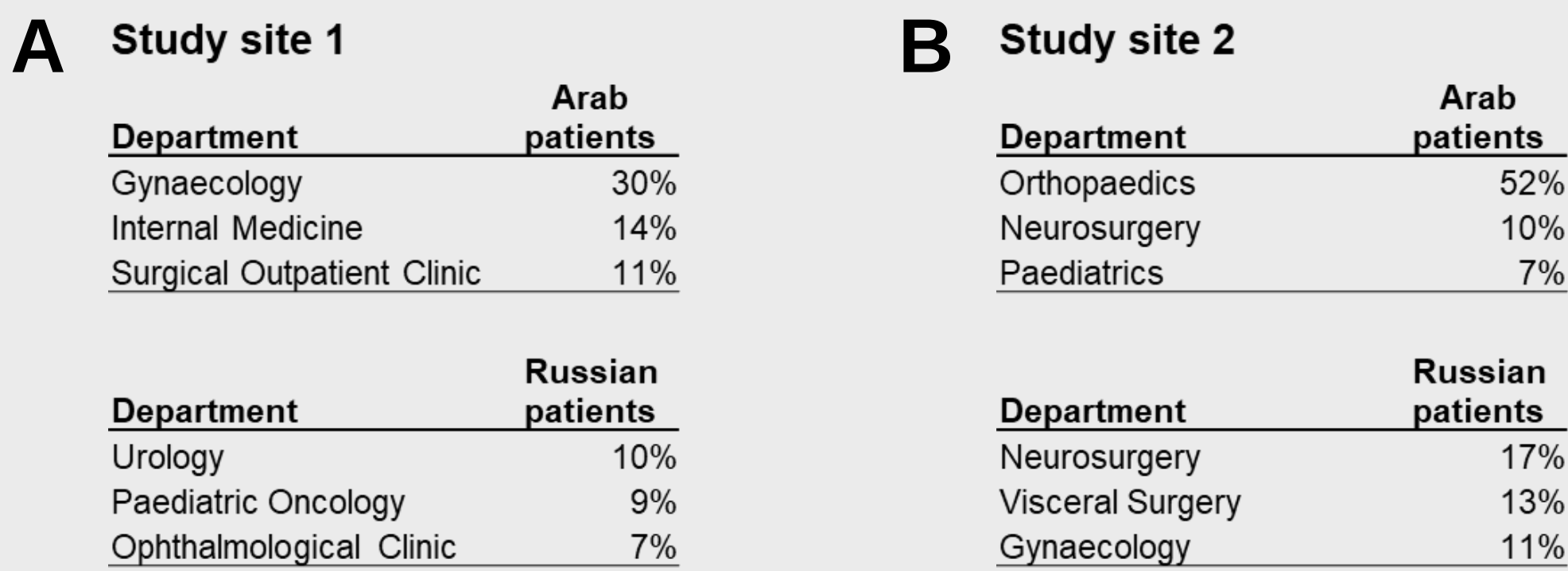
**Figure 1.** Patient characteristics of Arab and Russian patients admitted to study site 1 from 2019 to 2022 (A) and to study site 2 from 2017 to 2021 (B).

#### The age distribution of Russian patients was similar at both sites, but study site 2 treated remarkably more Arab minors than study site 1



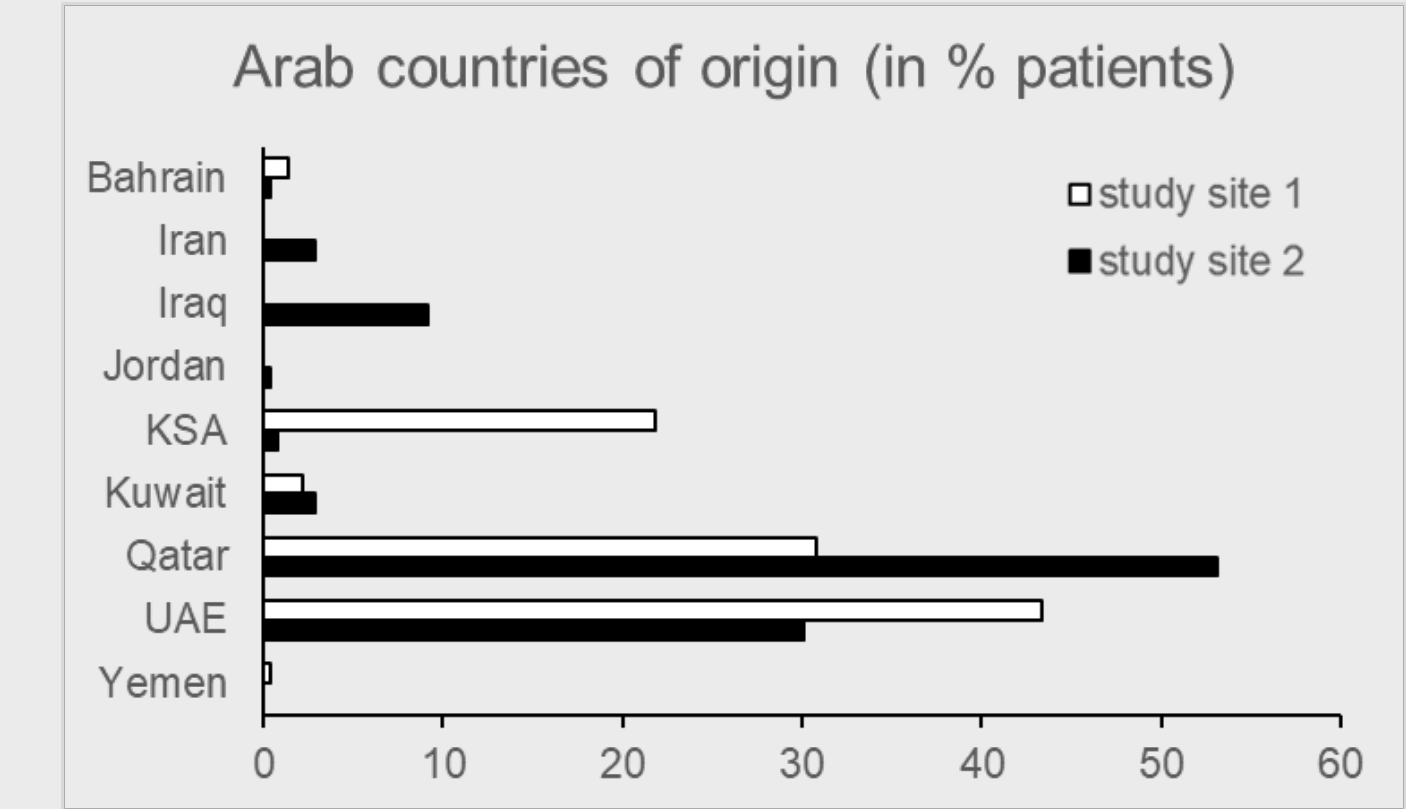
**Figure 2.** Age distribution of Arab and Russian patients at first admission to study site 1 (A) and study site 2 (B).

#### Arab and Russian patients had different treatment priorities at both facilities



**Figure 3.** Distribution of Arab and Russian patients by specialty at study site 1 (A) and study site 2 (B).

#### Most Arab patients came from Qatar and the United Arab Emirates (UAE) at both sides

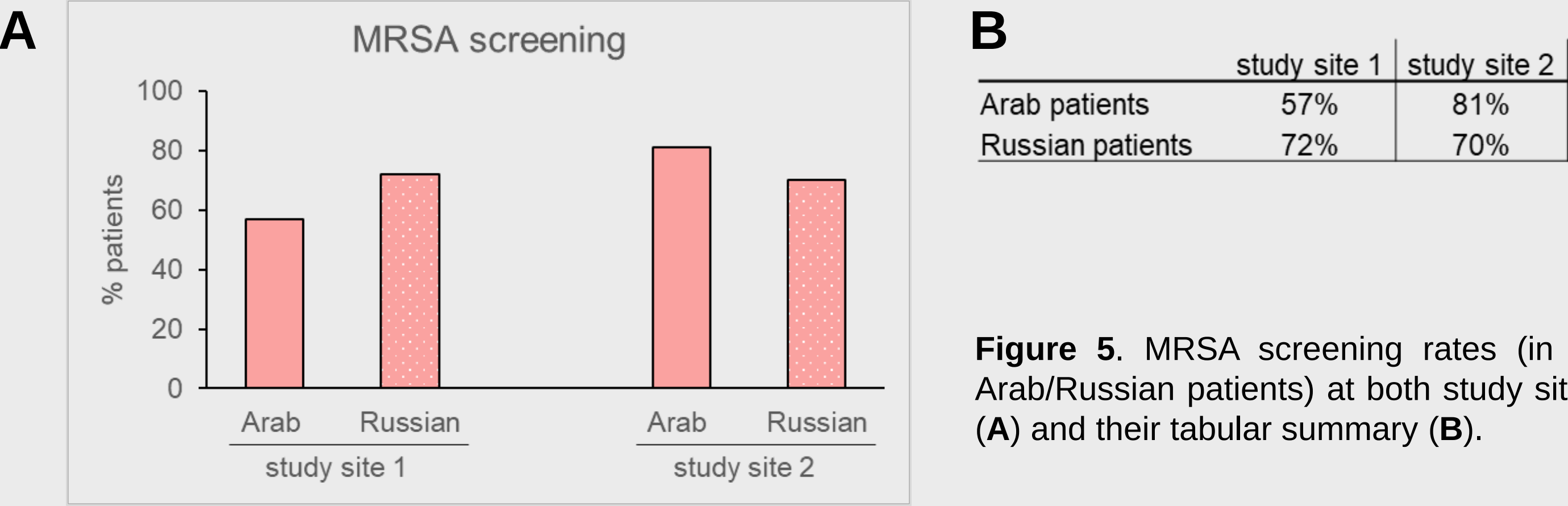


**Figure 4.** Arab countries of origin (in % patients per study site); Abbreviations: KSA: Kingdom of Saudi Arabia, UAE: United Arab Emirates.

### Conclusions

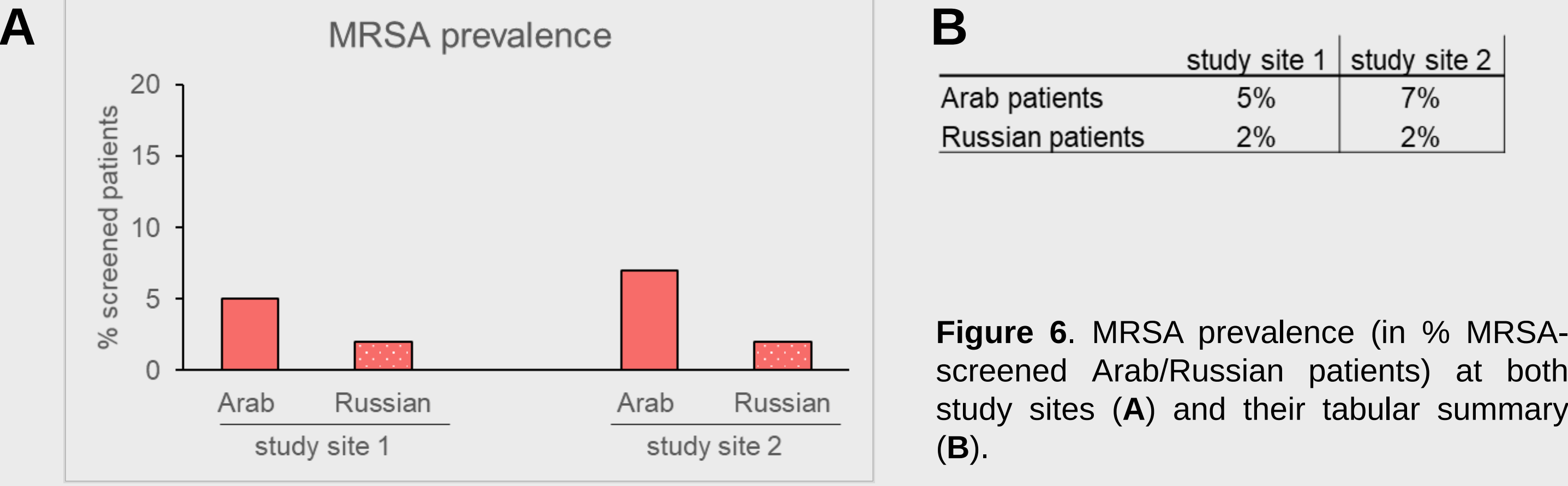
Patient characteristics differed between study sites in terms of number of patients, countries of origin, distribution of patients by specialty and risk factors such as age distribution. Nevertheless, our data show high MRSA and MRGN prevalences among international patients at both study sites, underlining the importance of routine screenings for MRSA and MRGN in international patients.

#### MRSA screening rates were notably higher than MRGN screening rates in both sites



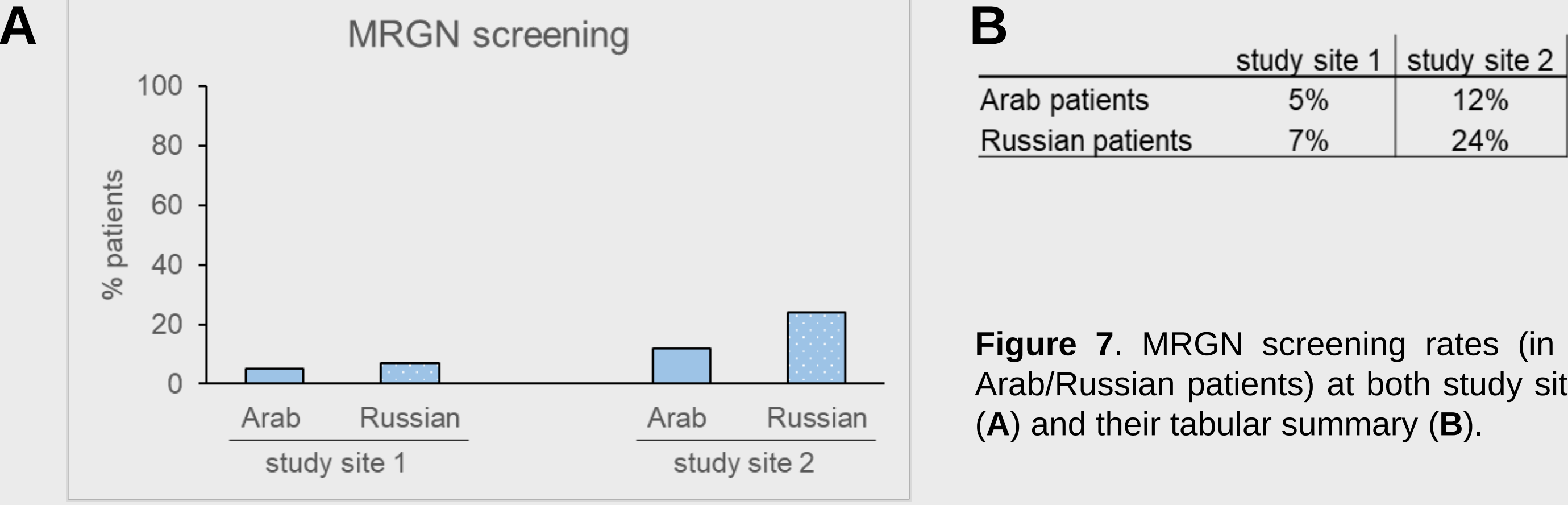
**Figure 5.** MRSA screening rates (in % Arab/Russian patients) at both study sites (A) and their tabular summary (B).

#### MRSA prevalences were comparable in both sites with slightly higher MRSA prevalences in Arab than in Russian patients



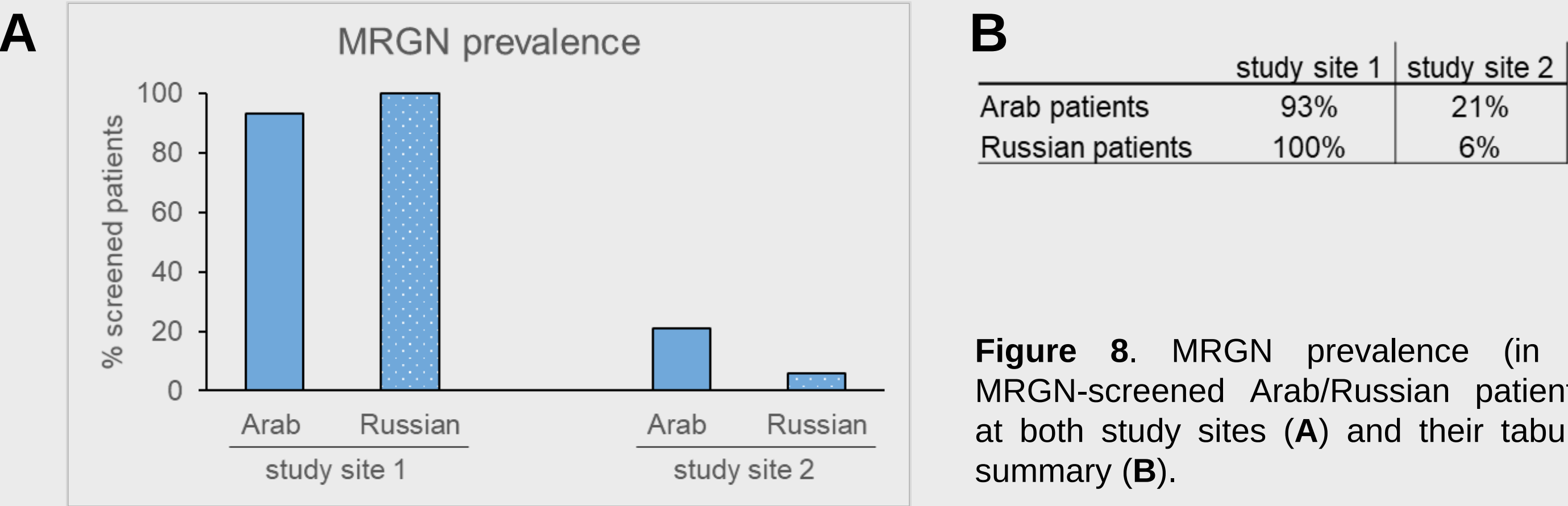
**Figure 6.** MRSA prevalence (in % MRSA-screened Arab/Russian patients) at both study sites (A) and their tabular summary (B).

#### Russian patients were screened more frequently than Arab patients at both sites



**Figure 7.** MRGN screening rates (in % Arab/Russian patients) at both study sites (A) and their tabular summary (B).

#### While almost all MRGN-tested international patients at study site 1 were MRGN-positive, Arab patients at study site 2 showed higher MRGN prevalences than Russian patients



**Figure 8.** MRGN prevalence (in % MRGN-screened Arab/Russian patients) at both study sites (A) and their tabular summary (B).