

The metrics of Syrian physicians' brain drain to the United States

Brain drain phenomenon is defined as the large-scale emigration of a group of intellectuals and professionals with high qualifications and unique technical skills and knowledge. This phenomenon results in significant socioeconomic consequences as a result of the continuous loss of practitioners and trainees as well as losing their social value and financial support to their country of origin. Many countries suffered from brain drain to variable extents particularly during the second half of the 20th century, following World War II. In contrast, many countries have markedly gained from this movement leading to remarkable development of their economy and educational systems due to the significant contributions made by the immigrating professionals to their respective fields.

Physicians' brain drain had a substantial burden on developing countries over the past few decades due to the significant loss of medical professionals and health care providers in both clinical care and medical education fields. For example, the number of international medical graduates (IMGs) in the United States is estimated at 245,000 according to the American Medical Association (AMA) statistics in 2007, representing an approximately 25% of the entire health workforce in the nation^[1,2] where physicians immigrating from lower income countries constitute 60% of all practicing IMGs. India occupies the first rank among the source countries of IMGs in the United States with an emigration factor of 10.6%. (Emigration factor is defined as the number of physicians from a source nation practicing in a recipient country divided by the total number of physicians practicing in the source country.)^[1,2] This is followed by a number of countries such as Philippines, Pakistan, and some Latin America and Middle East countries such as Egypt, Syria, and Lebanon.^[1,2] Between 2004 and 2008, the data from the AMA records indicated that the total numbers of Syrian physicians practicing in the United States has increased from approximately 3200 to 3900 representing 0.4% of the

health workforce and 1.6% of IMGs.^[1,2] The Global Health Observatory data repository reported that the total number of physicians in Syria was estimated at 31,000, according to the 2008 statistics, with an approximately 15 physicians per 10,000 capita.^[3] This renders the emigration factor of Syrian physicians to the United States to be around 13%. A study published in *Health Policy* in 2007 analyzed the dynamics of international immigration patterns of physicians to the United States and found that Syria has a higher-than-expected physicians immigration rates.^[4] In fact, Syria was the sixth country among the top eight countries which have a higher-than-expected rate and the second Arab country after Lebanon when adjusting for the population size.^[4,5] Recently, the Educational Commission for Foreign Medical Graduates (ECFMG) indicated in its 2010 annual report that a total of 140 certificates were issued to medical students who graduated from Syrian medical schools representing 1.5% of the total certificates issued in 2010. Also, a total of 240 exchange visiting student visas were issued for Syrian medical graduates in the 2009–2010 academic year.^[6]

This data, summarized in Table 1, indicates the latitude of the physicians' brain drain from Syria, especially when taking into consideration the number of Syrian physicians immigrating to other geographic regions other than United States such as Europe and Arab Gulf countries.

Major factors contribute to this trend on physicians' immigration from Syria including the large differences in incomes and standards of living, the scarcity and instability of professional and academic opportunities, and the "culture of emigration" among physicians in training. The majority of the recipient countries provide a proper professional

Table 1: Summary of the metrics of Syrian physicians' brain drain to the United States

Total number of physicians in Syria (2008)	31,000
Number of Syrian physicians in the United States (2008)	3900; 0.4% of US health workforce; 1.6% of IMGs in the United States
Emigration factor to the United States	13%
Syria's rank among IMGs in the United States	16
ECFMG Certificates issued to Syrian medical graduates 2010	140 (1.5% of all ECFMG certificates)
Exchange visiting student visas issued in 2009–2010	240

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atmosphere, better academic freedom, and flexibility with much better overall living conditions. Unfortunately, some of these factors are difficult to counteract in a short-term intervention. Nevertheless, several measures can be done to increase the retention of practicing and graduating physicians or minimize the effect of brain drain on the health and medical education systems. Core modifications in health and education policy and professional atmosphere are essential to achieve broad societal changes and to reduce the rates of physicians' emigration. Providing better academic and professional opportunities, allowing more flexibility to the health and education systems, promoting research and its infrastructure, establishing networks between professionals inside and outside the country, as well as encouraging the return of the emigrant physicians will minimize the effects of physicians' brain drain which will ultimately improve the overall rating of the Syrian health and medical education systems.

Mohammad Arabi, Abdul Ghani Sankri-Tarbichi¹

*University of Michigan Health System, Ann Arbor, MI,
¹Detroit Medical Center, Wayne State University, Detroit, MI, USA
 E-mail: marabi@med.umich.edu*

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