Mahboubeh Bayat, 1,2 Azad Shokri, 3 Roghayeh Khalilnezhad, 4 Elmina Mirbahaeddin, 5 Mahmoud Khodadost, 6,7 Hamed Fattahi, 8 Gholamhossein Salehi Zalani, 2 Iraq Harirchi, 9 Mehdi Yaser, 10 Ebrahim Jaafaripooyan 11 and Ali Akbari-Sari. 11

1 Gerash University of Medical Sciences, Gerash, Islamic Republic of Iran. 2 Center for Health Human Resources Research & Studies, Ministry of Health and Medical Education, Tehran, Islamic Republic of Iran. 3 Social Determinants of Health Research Center, Kurdistan University of Medical Sciences, Sanandaj, Islamic Republic of Iran.
4 Health Management and Economics Research Center, Iran University of Medical Sciences, Tehran, Islamic Republic of Iran.
5 Telfer School of Management, University of Ottawa, Ontario, Canada.
6 Department of Epidemiology, School of Public Health, Shahid Beheshti University of Medical Sciences, Tehran, Islamic Republic of Iran.
7 Department of Epidemiology, School of Public Health, Iran University of Medical Sciences, Tehran, Islamic Republic of Iran.
8 Department of Health Services Management, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Islamic Republic of Iran.
9 Department of Surgery, School of Medicine, Tehran University of Medical Sciences, Tehran, Islamic Republic of Iran.
10 Department of Epidemiology, School of Public Health, Tehran University of Medical Sciences, Tehran, Islamic Republic of Iran.
11 Department of Health Management and Economics, School of Public Health, Tehran University of Medical Sciences, Tehran, Islamic Republic of Iran. (Correspondence to: Ali Ali Akbari-Sari: akbarisari@tums.ac.ir).

Abstract

Background: One of the work patterns which affects the supply of specialists is the phenomenon of dual practice (DP), i.e., working simultaneously in the public and private sectors. Uncontrolled DP in the surgery health workforce can have adverse effects on access to surgeons, efficiency, effectiveness and quality of surgery services.

Aims: The aim of this article is to examine the impact of DP on service delivery time by surgeons.
**Methods:** We used a prestructured form to collect data on surgery specialists in all 925 Iranian hospitals. National medical ID codes, council ID codes, first name, surname and father's name were used for data matching. Multilevel linear regression was used to assess the association between DP and study variables, which were recruitment type, faculty status, experience, sex and age.

**Results:** The 4642 surgery specialists in this study, representing 31.08% of the total number of surgeons identified, spent mean 1.09 (standard deviation 0.33) hours full-time equivalent (FTE) on health care service delivery. Specialists with DP had long service delivery time (β = 0.427). Female specialists (β = –0.049) and full-time specialists (β = –0.082) spent less time on health care service delivery. Permanent specialists had higher FTE (P