

Primary healthcare physicians' adherence to acute lower back pain referral guidelines in Riyadh, Saudi Arabia

Jarallah M. Albahlal, MI, Ali A. Albandi, MBBS, MD,
Khalid A. Aldihan, MI, Odai H. Alsultan, MI,
Faisal A. Alhusain, MI, Hanadi M. Alqahtani, RC,
Sami I. Aleissa, MD.

ABSTRACT

Objectives: To assess the primary healthcare physicians' adherence to referral guidelines for acute low back pain and if there is any association with experience level.

Methods: A cross-sectional study held in Tertiary care hospital, Riyadh, Kingdom of Saudi Arabia. Questionnaires were distributed in-person between October 2017 and January 2018 among 100 primary healthcare physicians, with a 79% response rate.

Results: The distribution between male to female was 43%-57%. Twenty-five percent of physicians encounter 1-5 patients weekly, while 28% encounter more than 15 patients. The physicians included had a higher than expected adherence to referral guidelines with percentages ranging between 63-94% referral rates for back pain related red flags. A trend was noted where there was an increase in referral decisions with increased experience when encountering red flags. More experienced physicians were more likely to refer when encountering; pain worse after prolonged sitting, limited mobility, and pain worse while coughing or sneezing ($p < 0.05$).

Conclusion: Primary healthcare physicians working in one health system in Riyadh had a higher than expected adherence to referral guidelines for back pain related red flags.

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Back pain is a common disorder involving multiple structures such as bones, joints, muscles or nerve roots of the back.¹ It remains one of the most common causes of primary care visits, with a peak presentation age between 15-52 years.¹ Back pain is associated with various risk factors including habitual, physical and psychosocial factors. Back pain is estimated to affect 70-85% of the United States population at one point in their life, with 15-45% annual prevalence. While

lifetime prevalence is 60-70% in developed countries.^{1,2,3} Saudi population is especially at-risk due to widespread vitamin D deficiency with a prevalence ranging between 53%-79%.^{1,4} Al-Faraj et al⁴ conducted a study about vitamin D deficiency and chronic back pain in Saudi Arabia, showed that 83% of the patients have low vitamin D. In Alqaseem province, Saudi Arabia, a study conducted about back pain prevalence that showed 1085 among the 5,900 participants reported back pain at the time of the study.²

Back pain has numerous negative effects on the patient's life; increased work absence rate and social isolation were reported in the literature.⁵ Furthermore, associations with mental disorders were reported.⁶ In addition to patient health, back pain exerts a heavy financial burden on the health system. In the United State alone, low back pain costs more than \$100 billion a year.⁷ This was not only found to be true in the United States. Worldwide, physical therapy has the highest average cost and primary care has the 4th highest. While surgery came in 8th.⁸

Primary healthcare physicians play a major role in diagnosing and managing acute back pain, they acquire their role by keeping the balance between easy and early access to healthcare service for the patient and reduce the unnecessary workload on the specialist services. Since the low back pain causes can vary from simple lumbar strain or sprain or psychological stressors to serious infection, metastatic carcinoma or cauda equina syndrome, current guidelines strongly recommend primary healthcare physicians performing a careful history taking and physical examination to exclude red flags of back pain.^{9,10} Which include presence of cauda equina syndrome features (urinary retention, progressive motor weakness, fecal incontinence, loss of sphincter contraction, bilateral leg pain or perianal anesthesia), progressive neurological deficit, significant trauma, suspected serious spinal pathology, patients over 65 years old with first episode of severe back pain, steroid using, IV drug using, history of HIV infection or cancer. In the presence of any one of these red flags, the primary healthcare physician should refer the patient to specialized service.^{9,11} What we know is the implementing of the clinical guidelines for back pain has a significant positive impact on the patient and the health system medically and economically, but what we do not know are these guidelines adhered to in our area or not. This study aimed to assess the primary healthcare physicians' adherence to referral guidelines for acute low back pain and if there is any association with experience level.

Methods. *Inclusion and exclusion criteria.* All family medicine physicians including consultants, specialists and residents and all general practitioners who are working in King Abdul-Aziz medical city and its primary care centers in Riyadh, Saudi Arabia. There are no exclusion criteria.

Questionnaire Development. A questionnaire was developed to assess physicians' behavior and adherence toward back pain red flags in newly diagnosed patients consisting of three parts: a) demographics and occupational data, b) routine practice and physical examinations, and c) adherence to back pain referral guidelines as per The National Institute for Health and Care Excellence (NICE) and Institution of Health Economics (IHS) guidelines.^{10, 11} The questionnaire has been piloted and presented to experts in the field and edited as per their comments.

Data collection. Through convenience sampling technique, one hundred physicians were selected within primary healthcare physicians including family medicine consultants, specialists and residents along with the general practitioners who work in one primary care health system in Riyadh. The self-administered questionnaire was distributed among physicians and collected manually.

Data analysis. Microsoft Excel was used for data entry and data management, and a version 23.0. SPSS Statistics (IBM Corp., Armonk, NY, USA) was used for data analysis. Baseline demographics were presented as frequencies and percentages. Basic descriptive analysis of each professional group behavior towards red flags was carried out. Pearson's chi-squared test was used to obtain associations between lower back pain red flags and population demographics. A regression analysis was not carried out due to the small sample size. All tests were considered significant if the *p*-value was less than 0.05.

Ethical approval. The study was approved by the Institutional Review Board, King Abdullah International Medical Research Centre, Ministry of National Guard Health Affairs, Riyadh, Saudi Arabia.

Results. Of the 100 primary care physicians who received the questionnaire, 79 responded and returned it, with a final response rate of 79%. Male to female distribution was 34-45 (43%-57%), and the

distribution among the professional level was 28 family medicine consultants (35%), 15 specialists (19%), 9 residents (11%) and 27 general practitioners (34%). The study looked at patient encounters per week, 24% of physicians encounter 1-5 patients weekly, 25% of physicians encounter 6-10, 23% of physicians encounter 11-15, and 28% of physicians encounter more than 15 patients a week (Table 1). The majority will do a straight leg raise test (92%), palpate the spine (94%) and perform a sensory exam (82%), while two-thirds will do muscle strength of ankle plantar flexion (68%) and back x-ray (68%), more than half will do muscle strength of first toe dorsiflexion (61%) and examine the reflexes (62%) in the first visit for the patient. Most physicians will immediately seek hospital advice and referral if the patient presented with neurological signs at multiple levels (94%), urinary retention (92%), trauma (87%), loss of reflex at one level (82%), elderly with first episode of severe back pain (82%), saddle anesthesia (81%), fever (79%) or night sweats (73%). On the other hand, only 2/3 will refer if the patient presented with bilateral leg signs (63%) (Table 2). In addition, the results showed no statistically significant correlations between red flags requiring immediate referral and professional level, however, a trend was noted in the study where there was an increase in referral decisions with increased experience when encountering red flags (Figure 1). This trend continues when looking at the 4 "red flag distractors" included in the questionnaire (diffuse dull back pain, pain worse

Table 1 - The baseline characteristics of the demographics for the participants.

Variable	n (%)
<i>Gender</i>	
Male	34 43
Female	45 57
<i>Professional level</i>	
Resident	9 11
Specialist	15 19
Consultant	28 35
General practitioner	27 34
<i>Years of practice</i>	
1-5	11 14
6-10	17 22
11-15	25 32
>15	26 33
<i>Number of patients with back pain encountered in the clinic per week</i>	
1-5	19 24
6-10	20 25
11-15	18 23
>15	22 28

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after prolonged sitting, limited mobility, pain worse while coughing or sneezing). Three out of four had significant p -values when plotted for increasing years of experience, as more experienced physicians were more

likely to refer when encountering these symptoms; pain worse after prolonged sitting, limited mobility, and pain worse while coughing or sneezing $p < 0.05$.

Table 2 - The percentage of the physicians who consider these red flags require an immediate hospital advice and referral.

Category	n (%)
Constant night pain.	57 (72)
Diffuse dull back pain.	23 (29)
Fever.	62 (79)
Unilateral sciatic symptoms below the knee.	40 (51)
Urinary retention.	73 (92)
Pain worse after prolonged sitting.	22 (28)
Severe local back pain.	56 (71)
Limited mobility.	46 (58)
Neurological signs at multiple levels.	74 (94)
≥50 years old with first episode of sever back pain.	65 (82)
Bilateral leg signs.	50 (63)
Pain worse while coughing or sneezing.	45 (57)
Saddle anesthesia.	64 (81)
Loss of reflex at one level.	65 (82)
Trauma.	69 (87)
Night sweats.	58 (73)

Discussion. The study offers some insight into the current behavior of primary care physicians in Saudi Arabia. The sample included all primary care physicians in one health system in Riyadh, with an excellent 79% response rate. The physicians included had a higher than expected adherence to referral guidelines with percentages ranging between 63-94% referral rates for back pain related red flags. It was very interesting to see, however, physicians with longer years of experience were also more likely to refer to a specialist service when encountering symptoms that were not considered as red flags for back pain, with 3 out of the 4 distractors included had a significant association with increased level of experience. This trend is in line with what the literature reported on many occasions.¹²⁻¹⁴ The questionnaire used was developed to encompass current published guidelines, and the research team opted for a direct question format with a likert scale instead of a clinical vignette; as it would be time consuming and would reduce the response rate to the questionnaire due to multiple red flags and distractors tested.

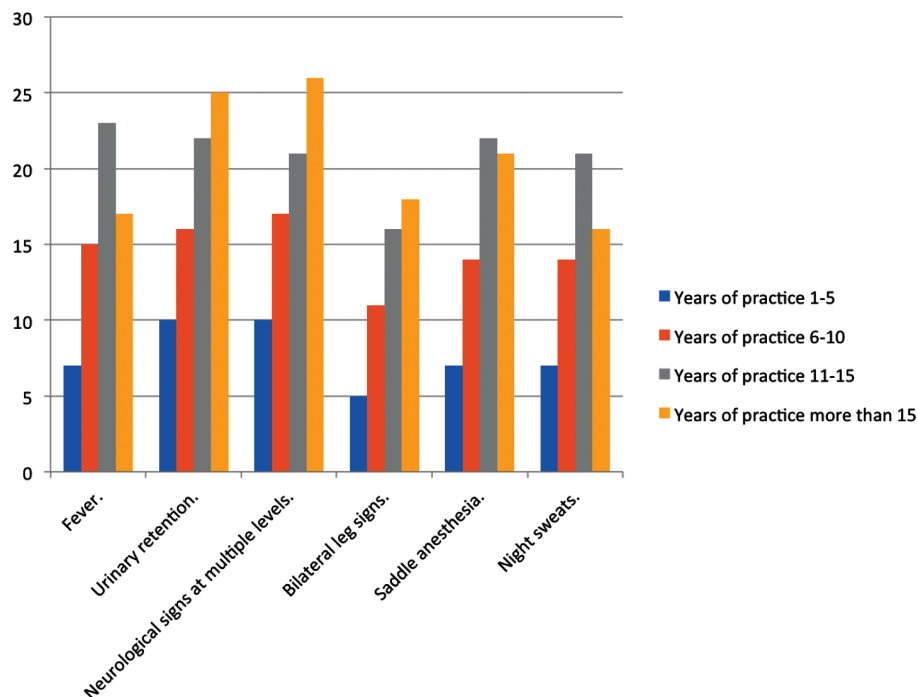


Figure 1 - The trend of the red flags that require immediate hospital advice and referral among the years of practice of all physicians.

The study sample might not be representative of the national distribution of professional levels included, which might skew the data unfairly against the “resident” group, this limitation, however, is unfortunately manpower related at this time. To account for this limitation, each group was looked at separately and total red flags recognition was calculated. Resident groups came in lowest in total red flags recognition at 67% and consultants came in highest at 83% total recognition rate, although consultants fall in the highest experience category which scored poorly in distractor recognition.

With more than 2 decades of evidence-based-medicine, we still have no clear indication if primary care physicians have all the tools needed to succeed in treating their patients.¹⁵ Further studies on a national or regional scale are highly recommended to accurately assess the adherence to specialty referral guidelines when encountering red flags in said specialty, and test if the information is flowing adequately between the numerous disciplines in the medical field.

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From the College of Medicine (Albahlal, Aldihan, Alsultan, Alhusain), King Saud bin Abdulaziz University for Health Sciences, Riyadh, Kingdom of Saudi Arabia.

Address correspondence and reprints request to: Dr. Sami I. Aleissa, Orthopedic Surgery Department, King Abdulaziz Medical City, Ar Rimayah, Riyadh, Kingdom of Saudi Arabia. E-mail: saleissa@yahoo.com
ORCID ID: orcid.org/0000-0002-7095-9650

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