

# Outcome of low back pain patients referred to orthopaedic outpatient clinic

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## Abstract

**Background:** Musculoskeletal complaints are the commonest encounters in primary care. Low back pain management is commonly initiated by the family practitioner. Guidelines are limited as to when patients should be referred for specialist treatment by the orthopaedic department.

**Objectives:** Evaluate the justification of low back pain referrals to Orthopaedic outpatients (OOP), Mater Dei Hospital, Malta and assess whether these merited specialist consultation.

**Method:** Anonymous data was collected over a 3-month period, where 100 low back pain new case referrals were evaluated during OOP. Data collection was based on routine questions normally brought forward during a consultation and a management plan which was documented in a spreadsheet. Data was analyzed using the same software.

**Results:** Out of the total number of patients reviewed, 57 had been referred for the first time to OOP. Out of these, only 10 required an MRI with a scheduled follow up appointment. The remainder were referred for physiotherapy or pain clinic and discharged to follow-up in the community by the primary care physician. Out of 43 patients who had had previous OOP appointments complaining of lower back pain, 5 patients required an MRI and follow up appointment, remainder were discharged with physiotherapy or pain clinic appointments.

**Conclusion:** The majority of patients seen at OOP could have been managed in primary care. It reflects the importance of developing local management guidelines for low back pain, which would assist general practitioners. It is indicative that referral to OOP should only be triggered when all treatment options available in the primary care are exhausted. This would lead to patients achieving targeted treatment timely within the community, resulting in shorter waiting time for outpatient visits.

## Keywords

Back pain, Spine, Orthopedics, Primary Health Care, Referral and Consultation.

## Background

Musculoskeletal complaints including low back pain are among the commonest encountered in the primary health sector throughout the world. Malta is no exception with confirmation following a recent study.<sup>1</sup> The majority of patients that present with mechanical low back pain or disability, often have a short lived episode of low back pain and return back to their normal daily activities within 6 weeks, irrespective of any treatment administered.<sup>2</sup> It is not uncommon for patients that have undergone complete recovery from back pain to experience recurrence in the following 12 months.<sup>3</sup> On the other hand, a small number of patients go on to develop chronic back pain and disability that does not resolve within 12 weeks.<sup>4</sup>

It is common practice around the world that management of low back pain is initiated in primary healthcare. In order to assist the general practitioners, clinical practical guidelines have been issued internationally.<sup>4</sup> Guidelines are however limited when it comes to outline when patients should be referred to the orthopaedic specialists.<sup>5</sup> This might lead to inappropriate referrals to the orthopaedic outpatients.

Our study assessed the first successive 100 patients referred by their general practitioner in view of low back pain to Orthopaedic outpatients, Mater Dei Hospital, Malta over a period of 3 months. The management these patients received in the primary health sector was evaluated in order to see whether these patients could have been managed in the primary healthcare or a referral for specialist consultation was justified.

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## Method

The study was performed over a period of 3 months between June 2013 & September 2013. A total of 100 successive new case patient referrals with low back pain and lower limb radiculopathy referred by general practitioners to the orthopaedics outpatients at Mater Dei Hospital were taken in consideration. The data collected was gathered in an anonymous manner by the orthopaedic team who performed all the consultations of the patients in the study.

Data collection for this study was based on routine set of questions that are normally brought forward to all patients presenting with low back pain during an orthopaedic consultation. The management plan attributed to each patient was taken in accordance with the clinical judgment of the orthopaedic specialist taking in consideration any disability or pattern of pain the subject was in. Details on the pattern of pain were not recorded, as it was beyond the scope of this study. The data was documented in a spreadsheet document along with the management plan for each patient. The data was analyzed using the spreadsheet sorting and formulae functions.

Authorization was obtained from the Orthopaedic Department to use the anonymous data for this study. The team retained no personal details or performed extra clinical consultation procedures nor brought forward any sensitive questions, so no ethical approval was needed. Still informed consent was obtained from each patient, indicating clearly the main scope of the study.

## Results

### *Consultation*

A 3 month period was investigated, where a total of 100 patients (55 male, 45 female) were reviewed. These patients were all new cases presenting to orthopaedic clinic session led by an orthopaedic consultant. The referrals were divided into two categories (low back pain and radiculopathy) according to the general practitioner's working diagnosis. Radiculopathy incorporated all referrals that suggested any neurological symptoms as outlined by the general practitioner. Age ranges were from 15 to 87 years for the female study population while males' age ranged from 11 to 82 years. The major complaint was low back pain for both genders (males  $n=42$ , females  $n=38$ ) while radiculopathy was predominantly a male complaint (male  $n=13$ , female  $n=7$ ).

### *Analgesia*

Prescription or otherwise of any analgesics by the general practitioner was assessed. All patients complaining of low back pain were given analgesia, which varied from paracetamol to non-steroidal

(NSAIDs) medication. The majority were prescribed NSAIDs.

### *Previous Orthopedic Outpatient visits*

The study population was further evaluated to elucidate whether this visit was the first time encounter with the orthopaedic outpatients (OOP), or previous referrals for the same complaint were already done.

In the male study population, 63.6% ( $n=35$ ) were referred to the orthopedic outpatient for the first time. Out of these only 10.9% ( $n=6$ ) were in need for further investigation by means of an MRI and follow up orthopaedic consultations. Out of the patients who required MRI, 5 were referred due to radiculopathy while 1 complained of low back pain. 49% ( $n=27$ ) were referred for physiotherapy and discharged from the orthopaedic outpatients while the remainder 3.6% ( $n=2$ ) were referred to the pain clinic and discharged from the orthopaedic outpatients.

The remaining males (36.4% ( $n=20$ )) had already been seen previously by an orthopaedic specialist for the same complaint and were discharged from the orthopaedic outpatients to be managed in the community. Out of the patients who were re-referred to the orthopaedic outpatients, only 5.5% ( $n=3$ ) required further MRI investigations and follow-up. 23.7% ( $n=13$ ) were referred for physiotherapy and discharged while the remaining 7.3% ( $n=4$ ) were referred to the pain clinic and discharged from orthopaedic clinic. Table 1 shows a diagrammatic presentation of the distribution of the male study population management plan according to whether they had previous orthopaedic visits or not.

With regards to the female study population, 48.8% ( $n=22$ ) visited the orthopaedic outpatients for the first time due to low back pain or radiculopathy. 8.9% complained of radiculopathy, requiring an MRI scan. The majority, 33.3% ( $n=15$ ) were referred to physiotherapy and discharged from orthopaedic outpatients. The remainder were discharged, out of which 4.4% ( $n=2$ ) were referred to the pain clinic and 2.2% ( $n=1$ ) was prescribed analgesia.

Out of the total female study population, 51.1% ( $n=23$ ) had already consulted an orthopaedic specialist in the past. Only 4.4% ( $n=2$ ) were considered to be in need of an MRI and further follow up in view of their low back pain complaint. 28.9% ( $n=13$ ) were referred to physiotherapy as well as discharged and 17.7% ( $n=8$ ) were referred to the pain clinic and discharged. Table 2 shows a diagrammatic presentation of the distribution of the female study population management plan according to whether they had previous orthopaedic visits or not.

**Table 1:** Referred males under study and their management plan at orthopedic outpatient (OOP) clinic

Males	MRI & Follow-up	Physiotherapy & Discharge	Pain Clinic & Discharge	Total
First OOP visit	6	27	2	35
Previous OOP visit	3	13	4	20

**Table 2:** Referred females under study and their management plan at orthopedic outpatient (OOP) clinic

Females	MRI & Follow-up	Physiotherapy & Discharge	Pain Clinic & Discharge	Analgesia & Discharge	Total
First OOP visit	4	15	2	1	22
Previous OOP visit	2	13	8	0	23

## Discussions

The majority of the patients seen at the outpatient clinic could have been managed in the primary care setting. Our study shows that only 16% ( $n=16$ ) of all the study population merited further investigations and follow up. This reflects the importance of developing local management guidelines for low back pain, which would be of assistance to the general practitioners when it comes to managing low back pain. Such guidelines could possibly help identify the patients who merit a referral for a specialist opinion and those who can be managed in the community. Also reflects the need for better liaison between primary care and orthopaedic specialists in the management of low back pain in form of possible frequent 'GP update lectures' apart from local management guidelines.

When patients present to the general practitioner with back pain, it is important that a good clinical history is obtained to try to identify the origin of the back pain followed by a physical examination in order to elucidate any neurological symptoms. In a study<sup>5</sup> it was brought forward that cases of sub-acute low back pain with radicular symptoms as well as chronic back pain with symptoms of radicular pain should all be referred for specialist opinion. It is then up to the clinical judgment of the specialist to decide the management plan of the referred patient. In our study 20% ( $n=20$ ) of the referrals to the orthopaedic outpatients were due to radiculopathy, out of which 12% ( $n=12$ ) needed further imaging investigation and follow up.

Assessing the patient for red flags and yellow flags should be part of the general practitioner management guidelines for low back pain.<sup>6</sup> Table 3 and 4 give a list of red and yellow flags<sup>7</sup> respectively. These would give the general practitioner a general guideline on how to

manage the patient with low back pain. Patients presenting with red flags are to be referred immediately to the Accident and Emergency department or urgently to the orthopaedic outpatients depending on the seriousness of the spinal pathology elicited. On the other hand presence of yellow flags may require further assessment and possible referral to other professional members such as psychologist but rarely would need an orthopaedic referral. In our study, none of the patients had any red flags present but occasional elements of yellow flags criteria were evident.

When red flags are excluded, patients should be reassured and advised to keep as active as possible, with a target to increase in the levels of activity performed.<sup>4</sup> Bed rest should be discouraged as part of the management of low back pain. Some guidelines only permit a maximum period of 2 days bed rest in very severe pain.<sup>8-11</sup> In our study 15% ( $n=15$ ) of patients were advised by their general practitioner to undergo a period of bed rest, which does not follow the current guidelines.

The first management step for low back pain is analgesia which can be easily prescribed by the general practitioner. This would help the patient to remain active as well as manage the pain.<sup>7</sup> The first medication choice is paracetamol due to its low incidence of gastrointestinal side effects. The second step up the pain treatment ladder would be NSAIDs (unless contraindicated), which are used when paracetamol is insufficient to relieve the pain. Sometimes a short period of opioid containing analgesia and antidepressants may help the patient be relieved from the low back pain.<sup>4</sup> In our study, patients were either started on paracetamol and then moved to NSAIDs or else started on NSAIDs straight away.

**Table 3:** Red flags in a patient presenting with acute back pain

Red Flags <sup>7</sup>
Age less than 20 or more than 55 years
A recent history of trauma
Constant progressive pain – includes pain that is not associated with movement and not relieved with lying down
Thoracic pain
A past history of malignancy
Recurrent or prolonged use of corticosteroids
Immunosuppression and HIV
Substance misuse
Systemically unwell
Unexplained weight loss
Neurological symptoms such as weakness of the limbs
Structural deformity of the spine

**Table 4:** Yellow flags in a person presenting with back pain

Yellow Flags <sup>7</sup>
An inappropriate perception of back pain <ul style="list-style-type: none"> <li>a) The belief that back pain is harmful and disabling</li> <li>b) The belief that passive activity such as bed rest is better than staying active</li> </ul>
Lack of support at home and social isolation
Mental health problems such as depression, anxiety and stress
Problems at work such as job dissatisfaction
Claims for compensation and benefits

In general practice worldwide there appears to be mixed ideas as to who merits an imaging investigation, in fact in our study there were 36% ( $n=36$ ) who had x-rays performed. The general consensus among the guidelines present is that imaging does not show any benefits unless progressive neurological symptoms are present or else serious pathology is suspected.<sup>7,12,13</sup> As could be seen from our study, only 15% ( $n=15$ ) referred to the OOP needed further imaging. According to the European clinical guidelines, imaging is not recommended unless a specific cause is strongly

suspected. The guidelines state that plain radiography is the best option for structural deformities while MRI is best for radicular symptoms, discitis or neoplasm.<sup>14</sup>

According to United Kingdom guidelines, when the first line treatment consisting of analgesia fails to subside the pain or disability, the general practitioner should then refer the patient to physiotherapy, unless neurological symptoms arise, in which case referral to an Orthopaedic specialist is required.<sup>6</sup> In Malta, the state primary health care provides a free service of physiotherapists in all the major health centers found

around the island. General practitioners working with either the state or with private sectors are able to refer patients to these physiotherapy hubs. Patients should be directly referred to the physiotherapists by the general practitioner rather than referring the patients to orthopaedic outpatients when low back pain persists. Referrals to orthopaedic specialists when first line therapy fails are not indicated. Complying with this and preventing unnecessary referrals leads to a decreased burden on the outpatients waiting lists as well as preventing the delay in the management plan of low back pain patients.

Pain clinic referral should only be considered in patients in whom conservative treatment has failed and surgery is not indicated.<sup>6</sup> In Malta, pain clinic referrals fall outside the remit of the general practitioners. In practical terms this means that patients can access this service only after being referred to the orthopaedic outpatient clinic.

### **Study Limitations**

The study was performed over a short period of time assessing only the first 100 new referrals by general practitioners only, to one-consultant orthopaedic outpatient sessions. The management plan and assessment of each patient was based on the orthopaedic specialist clinical judgment as well as on international guidelines. Clinical judgment may vary from one specialist to another, mostly depending on the exposure to the presenting complaints. Only a small sample of patients with low back pain complaint was evaluated. Although this is suggestive of low back pain referrals in Malta, a larger population sample with the same complaint should be studied. Data obtained regarding previous orthopaedic specialists encounter was obtained verbally during the consultation, therefore patient error may be present. No personal data of the patients visiting the OOP was kept making it impossible for any form of follow-up to be performed and so unable to close the audit loop. It would be suggested that a similar study would be performed with the aim to follow the cohort of patients to assess the long-term management plan. This was outside the scope of this current study, where the authors wanted to assess whether referrals to OOP were justified or not and to bring forward the correct management plan in accordance to the most recent guidelines.

### **Conclusion**

Low back pain is a common complaint, which is dealt with in the primary health care globally. This condition should not be lucidly referred for specialist review unless neurological symptoms are present. There is strong evidence that NSAIDs relieve low back pain<sup>15</sup> and this should be first line therapy. Patients should be advised to remain active, which should speed up the

recovery time and decrease the possibility of developing chronic disability. Muscle relaxants can be used to relieve pain but one needs to look out for side effects such as drowsiness.<sup>15</sup> If first line therapy does not relieve the pain, then the general practitioner should refer the patient for physiotherapy for a core strengthening exercise programme. Only when these steps fail should referral to the orthopaedic outpatients be considered depending on the patient's clinical evaluation. Our study shows that the majority of the cases referred to the orthopaedic outpatients were not indicated and the patient should have been managed in the community. Although this study was done over a short period of 3 months and assessed patients of only one consultant clinic, it is strongly indicative that referral to orthopaedic outpatients should only be triggered when all treatment in the primary health care system is exhausted. This suggests that there should be a better communication and management plans between the primary care and the orthopaedic specialists, possibly a beneficial exercise would be to have frequent lecture updates between the two departments on common orthopaedic encounters in primary care. General practitioners should have available local guidelines as to when to refer to OOP and when they can manage a low back pain complaint in primary care. Physiotherapy service is already available in the community making it easy and feasible for general practitioners to refer candidate patients with low back pain for physiotherapy without the need to refer to OOP. General practitioners unfortunately lack the access to refer patients to the pain clinic, something that may be of benefit to the patients if their family doctor has access to.

We believe that following this lower back pain management plan will lead to a better delivery of management of this common complaint. Patients would benefit from achieving targeted treatment timely with the added comfort of being managed in the community. It would undoubtedly result in shorter waiting time for an orthopaedic outpatient visit as well as result in more time and effort being spent on patients needing spinal surgery.

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