

**THE PRIMARY CARE MANAGEMENT OF  
MUSCULOSKELETAL DISORDERS  
IN ONTARIO**

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**November 9, 1995**

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## EXECUTIVE SUMMARY

Family physicians play an important role in the recognition and management of musculoskeletal disorders. In mid-1993, a self-administered survey was mailed to 798 Ontario members of the College of Family Physicians of Canada. The survey asked physicians about their management practices for various musculoskeletal disorders (MSD) commonly seen in family practice, as well as other demographic and practice characteristics. These MSD scenarios included a shoulder problem, early and late presentations of rheumatoid arthritis (RA), osteoarthritis of the knee and a hot, swollen knee. At the same time, a current practice panel was formed, whose members included rheumatologists, family physicians, orthopaedic surgeons, physiatrists, physiotherapists (PT), occupational therapists (OT) and social workers. In each scenario, they were asked to recommend the items most appropriate in the management of the scenario by a competent family physician.

The response rate to the survey was 68.3%. Most respondents were male and were practising in a full-time group setting. The average age was very similar for both urban and rural family physicians and was approximately 40 years.

For the most part, the recommendations made by the panel were reflected in the items chosen by the sample of family physicians. In most scenarios, this included various diagnostic tests, the use of a non-steroidal anti-inflammatory drug (NSAID) and various referrals. However, referrals to rheumatology, PT and OT for the early RA scenario, all recommended by the panel, were chosen by only 58.4%, 38.9%, and 13.6% of the respondents, respectively. The use of a NSAID was not recommended by the panel for either the shoulder problem or the hot, swollen knee, and yet 39.8% and 59.6% of physicians chose this item, respectively.

Although there are certain limitations inherent in this type of self-administered questionnaire, the findings point toward a need to restructure the training of Ontario family physicians. The Arthritis Society and others involved in the management of rheumatic diseases need to work together to develop the most effective interventions for educating family physicians about the diagnosis and management of MSD in the Ontario population.

## INTRODUCTION

The role of the family physician in managing MSD includes early diagnosis, appropriate treatment, education on self-management, and ongoing monitoring and support. In Ontario, Family physicians also play a role as gatekeeper to many specialty services.

The purpose of this study is to examine practice patterns among family physicians in managing common musculoskeletal disorders (MSD). These include rheumatoid arthritis (RA), osteoarthritis (OA), stiff, painful shoulder and hot, swollen knee.

## BACKGROUND

Musculoskeletal disorders are among the most common causes of morbidity<sup>1-8</sup>, disability<sup>1,9-14</sup>, and health care utilization<sup>1,15,16</sup> in the North American adult population. Their impact in primary care is extremely high: MSD are the main reason for 9% of all physician visits in the U.S.<sup>17</sup> and 11-13% of ambulatory encounters with office-based general and family physicians<sup>18</sup>. Similar figures are found in primary care settings in a number of other countries, irrespective of the health care system<sup>19-25</sup>. Osteoarthritis and regional joint pain are the disorders most frequently encountered in the ambulatory setting<sup>18-21,26</sup> in contrast to hospital settings where inflammatory disorders predominate.

Despite the importance of MSD as a major cause of morbidity and disability in the population, training of primary care physicians in the diagnosis and treatment of common MSD has been observed to be deficient. Inadequate training at the undergraduate level was

found in the U.S., the U.K., and Australia<sup>27-31</sup>. Postgraduate training similarly suffers from a paucity of appropriate training experiences in musculoskeletal specialties<sup>33,34</sup>. Although core educational guidelines have been developed for family practice residents<sup>35</sup>, few residency training programs contain mandatory experiences in musculoskeletal specialties.

Inadequate training in MSD can be expected to lead to suboptimal patient management. The current literature suggests this through documentation of missing, inaccurate, and late referrals to rheumatology clinics<sup>36-39</sup> as well as suboptimal management of a variety of rheumatic diseases<sup>40</sup> including gout<sup>41</sup>.

## METHODS

A questionnaire was mailed to 798 Ontario family physicians, a random sample of active members of the College of Family Physicians of Canada (CFPC), whose names and addresses were provided by the College. The sample was stratified by urban (n=400) and rural (n=398) location, as defined by Statistics Canada, with over-sampling of the rural group for the comparison of urban and rural physicians in the analysis. Physicians were eligible for the study if they saw patients with MSD and were in practice at the location on the CFPC mailing list.

A self-administered questionnaire was developed by members of the Arthritis Community Research and Evaluation Unit (ACREU), including a family physician, 3 rheumatologists, a physiotherapist and a community health and disability specialist, all with

epidemiology or clinical epidemiology training. Questions were designed to elicit self-reported responses to scenarios depicting different MSD, as well as barriers to referral to medical specialists and other health professionals, past training, confidence in managing MSD, interest in continuing medical education (CME) and demographic data such as age, practice location, year of graduation from medical school and sex.

The questionnaire was pretested on a convenience sample of 16 (academic and community-based) family physicians. Revised questionnaires were then mailed to all physicians in the sample. Questionnaires were numerically coded to ensure confidentiality. Follow-up mailings were sent to non-respondents four and nine weeks after the initial mailing, with a reminder postcard sent to all physicians between the first and second mailings.

The appropriateness of primary care practice could not be judged based on guidelines, since none exist, nor on the current literature, since it does not comprehensively cover all aspects of management of MSD. For these reasons, a multidisciplinary panel was formed to consider the current standard of practice for patients with MSD. It consisted of 36 members, including family physicians, rheumatologists, psychiatrists, orthopaedic surgeons, social workers, physiotherapists (PT) and occupational therapists (OT) working with individuals and families affected by MSD. Panel members were asked to give their opinion regarding the optimal management of the patient depicted in each scenario by a well-rounded competent family physician. Three

rounds of a Delphi process<sup>42</sup> were conducted by mail.

In the first round, the panel selected optimal management items and potentially harmful items. Consensus was considered to have been reached when a management item was chosen by at least 70% of the panel members. In the second round, any items selected by 30-69% of panel members in the first round (ie. those in which there was a lack of consensus) and all potentially harmful items (selected by at least two panel members in the first round) were fed back to the panel for consideration. Items achieving 70% consensus after the first two rounds were considered to reflect current standards of practice by primary care physicians. A third round of this process was used to obtain importance weights for each recommended item. However, since the weights were uniformly high, they were not used in the analysis.

To adjust for the over-sampling of rural physicians, all analyses were weighted according to the actual distribution of urban and rural physicians in Ontario.

All data entry and analysis was carried out using the SPSS PC+ computer program<sup>43</sup>. The study protocol was approved by the Wellesley Hospital Research Ethics Committee.

## **RESULTS**

Of the 798 questionnaires mailed, 529 completed responses were received from eligible subjects. After allowing for 17 physicians who were ineligible because they did not see patients with MSD or because they were doing a locum for the regular physician, and 6 questionnaires

returned from the post office, the overall response rate was 68.3% (529/775).

The demographic characteristics of the sample are outlined in Table 1. Most respondents were practising in a full-time group setting and did not have a university affiliation. The average age was very similar for both urban and rural family physicians and was approximately 40 years. The majority were male (64.2%) and had graduated from medical school on average 13-15 years ago. Over 80% of the group were certificants of the College of Family Physicians of Canada.

Compared with respondents, non-respondents were significantly less likely to be members of the CFPC. Non-respondents did not differ significantly from respondents in location, medical school, year of graduation, or sex.

The results for each individual scenario are reported in Tables 2-6. Each table includes the written description of the patient as well as the entire list of management items presented to the family physicians in our sample. Items recommended by the current practice panel are shown in a separate column.

### **Shoulder Problem Scenario**

Relatively few items were recommended by the current practice panel (an overview of the effectiveness of treatments for a stiff and painful shoulder is in progress at ACREU). In their management of the painful, stiff shoulder, most family physicians chose x-rays (67.9%), exercises (55.2%), ice or heat (65.3%) and outpatient physiotherapy (75.8%) (Table 2). Smaller proportion of physicians also chose acetaminophen (32.7%) or a non-steroidal anti-inflammatory drug (NSAID) (39.8%).

Given the fact that this scenario represented an elderly woman who had taken a previous course of a NSAID, we further explored the demographic characteristics of those choosing a NSAID for this scenario compared with those that did not. We found that those choosing a NSAID were significantly younger ( $p < 0.01$ ) than those that did not. There were no other significant differences between the groups in terms of practice location, full/part-time status or sex.

Ambulatory PT was the most common referral (75.8%).

### **Early RA Scenario**

For the RA scenario of 6 weeks' duration, most respondents selected investigations including CBC, ESR, anti-nuclear factor (ANF), and x-rays (Table 3). Just over half chose to start a NSAID, which was one of the items recommended by the panel. Approximately 40% recommended rest or ice/heat, both of which were recommended by the current practice panel.

In contrast to the recommendations of the current practice panel, only 58.4% opted to refer this individual to a rheumatologist, 38.9% to a PT and 13.6% to OT.

### **OA Scenario**

The third scenario (Table 4) depicted osteoarthritis of the knee. X-rays were the most common investigation (88.5%) and were recommended by the current practice panel. Other investigations that were not recommended, but were chosen by over 40% of physicians included CBC, ESR and uric acid. Roughly half of physicians chose a NSAID for this individual

(54.8%), which was also a recommended item. Exercises were also recommended, but were chosen by one-third of physicians. The only referral recommended by the panel was to PT, which was selected by just over 50% of physicians. Most physicians choosing PT selected a referral to ambulatory or outpatient PT.

### Late RA Scenario

For the presentation of late RA (Table 5), a large majority of physicians chose investigations. Compared with the early RA scenario, a higher proportion selected CBC, ESR, RF, and x-rays. Although recommended by the panel, less than 40% chose a NSAID, rest or ice/heat as interventions. The panel also recommended a referral to rheumatology for this scenario and 91.3% of physicians selected this management item, representing a much higher referral rate than in the early RA scenario.

Home-based PT, OT and social work were also recommended by the panel, and were chosen by 40.7%, 35.8% and 39.1% of physicians, respectively. Including ambulatory referrals, 67.2%, 44.8% and 46.9% referred to PT, OT and social work, respectively. These referrals are significantly higher than for the early RA scenario. When combined together, over half of the respondents chose a referral for home therapy.

### Hot, Swollen Knee Scenario

Unlike the previous scenarios, the last scenario did not portray a definitive diagnosis (Table 6). It was worded to depict a diagnosis of gout or infectious arthritis, the latter of which requires urgent aspiration of the joint and analysis

of synovial fluid, as this type of arthritis can cause serious joint damage if not diagnosed and treated promptly. High proportions of physicians chose investigations such as CBC and ESR, and 78.5% opted to aspirate the joint.

Among those who chose not to aspirate the joint for this scenario, 74.1% selected referral to a medical specialist. Those who did not aspirate but did refer were similar in characteristics to those who did not aspirate and did not refer.

Over 85% of physicians also chose uric acid, indicating that many physicians were considering a diagnosis of gout. The most prominent interventions were rest (53.3%), ice/heat (35.6%) and NSAID (59.6%), the latter of which was not recommended by the panel for this scenario.

Referrals were very low for this scenario, and none were recommended. Home-based PT, OT or social work were chosen by less than 1% of respondents.

## DISCUSSION AND RECOMMENDATIONS

The scenarios presented in this working paper were written to reflect a number of different musculoskeletal disorders presenting to family physicians.

As expected, different management items were chosen for different scenarios, although some patterns emerge when looking at management across scenarios. For example, most physicians chose investigations such as CBC and ESR, in each scenario. However, higher proportions of physicians chose multiple investigations for the RA scenarios and for the hot, swollen knee scenario. X-rays

were also chosen by a large number of physicians across scenarios.

Choosing multiple diagnostic tests may reflect a suspicion of an inflammatory condition for the RA scenarios and may reflect diagnostic uncertainty for the hot, swollen knee scenario, which was deliberately worded to portray more than one potential diagnosis.

In terms of interventions, the most consistent item chosen appears to be a NSAID. A NSAID was not recommended by the panel for either the shoulder problem or for the hot, swollen knee. However, in both cases, a substantial number of physicians chose a NSAID in their management of the patient. This finding is most problematic for the shoulder problem, given the age of the individual involved and the increased risk of a NSAID-related complication in the elderly.

The low rate of referral to rheumatology for the early RA patient is an important issue, since early and appropriate referral can have an important impact in terms of long-term outcomes for the RA patient<sup>44,45</sup>. This low referral rate may reflect a lack of training and experience on the part of family physicians in diagnosing and managing RA. Referrals to PT and OT were very low, especially for the early RA scenario. This finding may reflect the limited exposure which family physicians have had to the training and role of these professionals.

These findings regarding investigations and referrals may also reflect the longitudinal nature of management in primary care. It is common practice in primary care to await

the results of tests and judge response to therapy prior to initiating a referral. In the case of these RA scenarios, however, waiting time for referral can be long in Ontario and both patients had disease of sufficient severity and duration that referrals would have been appropriate.

Referral to The Arthritis Society's Consultation and Therapy Service (CTS) was included as an option under home-based PT, OT and social work. The family physicians in this sample chose home-based therapy most often in their management of the two RA scenarios. Referrals to home-based therapy were minimal in the other 3 scenarios. Barriers to accessing these and other services will be explored in a future working paper.

There are a number of limitations to keep in mind when interpreting these findings. First, the results are based on self-reported management and not actual behaviour. Self-report may be influenced by several factors such as social desirability and the cuing effect.

In addition, our sample was chosen from members of the College of Family Physicians of Canada, and therefore is not representative of all physicians in Canada. College members have an annual requirement for continuing medical education and have been shown to practice more comprehensively than non-College members.

Keeping these limitations in mind, the data presented can help The Arthritis Society, and others involved in the care of people with rheumatic conditions, target educational interventions for family physicians. There is a clear need to restructure the training of primary care physicians in order to enhance their competence in managing MSD in the



population.

Structured undergraduate exposure to rheumatology and other musculoskeletal specialties must be assured so that the essential skills of joint examination can be learned at that stage. Mandatory exposure to musculoskeletal specialties during internship and residency training is indicated. This training should include interaction with care providers including physiotherapists, occupational therapists and social workers and should give the physician a broad base of knowledge around examination of the musculoskeletal system, diagnosis and appropriate management strategies.

There are other important issues surrounding the practice patterns displayed by Ontario family physicians which will be dealt with in future working papers and peer-reviewed journals.

#### *ACKNOWLEDGMENTS*

The authors would like to acknowledge the assistance of Patti Pitcher, Siu Fong, Chris Sammut and the cooperation of the College of Family Physicians of Canada. Geigy Pharmaceuticals generously donated copies of the Primer on the Rheumatic Diseases, 9th Edition for survey respondents.

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Table 1: Demographic characteristics of respondents

|                               |           | Total<br>(n=529) | Urban<br>(n=251) | Rural<br>(n=278) | Significance<br>Level* |
|-------------------------------|-----------|------------------|------------------|------------------|------------------------|
| Clinical practice             | Full-time | 83.20%           | 81.90%           | 88.40%           | NS                     |
|                               | Group     | 64.8%            | 66.8%            | 57.1%            | NS                     |
| University affiliation        | Yes       | 31.1%            | 34.8%            | 16.3%            | p<0.01                 |
| Average age±SD†               |           | 40.7±8.6         | 41.0±8.9         | 39.7±7.5         | NS                     |
| Sex                           | Male      | 64.2%            | 61.9%            | 72.6%            | p<0.05                 |
| Years since<br>graduation±SD† |           | 14.2±8.8         | 14.5±9.1         | 13.2±7.5         | NS                     |
| Certificant of CFPC‡          | Yes       | 87.4%            | 86.8%            | 89.4%            | NS                     |

\* comparing urban and rural physicians; NS=not significantly different at p<0.05

† standard deviation

‡ College of Family Physicians of Canada

Table 2: Management of a shoulder problem

A 77 year old woman, a retired book-keeper living with her husband, presents with a 6 week history of right shoulder discomfort while sleeping, and difficulty doing her hair, putting on her coat, doing up her bra, and reaching up to high shelves. On physical examination, you find tenderness over the anterior aspect of the shoulder and pain on shoulder abduction in the mid-range. The remainder of the physical exam is normal. There is no history of trauma. She has been previously well with no history of peptic ulcer disease or any other serious illness. A previous physician prescribed a three week course of a non-steroidal anti-inflammatory drug (NSAID) without relief.

| Survey items*   | Percent choosing the item (n=529) |             |
|---|-----------------------------------|-------------|
|   | Recommended items                 | Other items |
| <u>Investigations</u>   |                                   | 45.7        |
| CBC   |                                   | 45.8        |
| ESR   |                                   | 14.1        |
| RF  |                                   | 10.1        |
| ANA   |                                   | 17.5        |
| uric acid   |                                   | 21.7        |
| creatinine, BUN (blood urea nitrogen)                           |                                   |             |
| x-rays  | 67.9                              |             |
| joint aspiration±synovial fluid analysis                        |                                   | 0.6         |
| cultures of blood±urethra                                       |                                   | 0           |
| <u>Interventions</u>  |                                   |             |
| acetaminophen   |                                   | 32.7        |
| acetaminophen with codeine/other narcotic                       |                                   | 13.6        |
| low dose ASA (acetylsalicylic acid)                             |                                   | 8.5         |
| high dose ASA   |                                   | 4.9         |
| NSAID   |                                   | 39.8        |
| allopurinol   |                                   | 0           |
| initiate disease modifying agent (eg. gold)                     |                                   | 0           |
| oral corticosteroids  |                                   | 1.0         |
| joint injection with corticosteroid                             |                                   | 10.0        |
| recommend exercises   |                                   | 55.2        |
| recommend rest  |                                   | 22.2        |
| recommend ice or heat   | 65.3                              |             |
| <u>Referrals†</u>   |                                   |             |
| physiotherapy--ambulatory or outpatient                         | 75.8                              |             |
| physiotherapy--home therapy (Homecare/Arthritis Society)        | 5.9                               |             |
| occupational therapy--ambulatory or outpatient                  |                                   | 3.1         |
| occupational therapy--home therapy (Homecare/Arthritis Society) |                                   | 1.2         |
| social work--ambulatory or outpatient                           |                                   | 0           |
| social work--home therapy (Homecare/Arthritis Society)          |                                   | 0           |
| rheumatology  |                                   | 3.5         |
| orthopaedic surgery   |                                   | 1.5         |
| general internal medicine                                       |                                   | 0           |
| rehabilitation medicine/physiatry                               |                                   | 2.0         |

† referral to home-based physiotherapy, occupational therapy or social work was chosen by 6.3% of respondents

Table 3: Management of early rheumatoid arthritis

A 45 year old woman, a beauty counsellor separated from her husband and responsible for the care of three school-aged children, presents in your office with a 6 week history of pain, stiffness, and swelling of her hands and wrists. She also has some discomfort in her feet. She finds that she is worse in the morning with increased stiffness lasting about three hours. She has additional symptoms of fatigue and a 5 lb. weight loss. She has been unable to work for the past week. On examination, there is symmetrical swelling and tenderness of the small joints of the hands and wrists and tenderness of the metatarso-phalangeal joints. The remainder of the physical exam is normal. There is no history of trauma. She has been previously well with no history of peptic ulcer disease or any other serious illness. A previous physician prescribed a three week course of an NSAID without relief.

| Survey items  | Percent choosing the item (n=529) |             |
|---|-----------------------------------|-------------|
|   | Recommended items                 | Other items |
| <b>Investigations</b>   |                                   |             |
| CBC   | 96.0                              |             |
| ESR   | 96.2                              |             |
| RF  | 95.8                              |             |
| ANA   | 89.2                              |             |
| uric acid   |                                   | 36.5        |
| creatinine, BUN (blood urea nitrogen)                           |                                   | 56.5        |
| x-rays  | 65.5                              |             |
| joint aspiration±synovial fluid analysis                        |                                   | 6.3         |
| cultures of blood±urethra                                       |                                   | 1.9         |
| <b>Interventions</b>  |                                   |             |
| acetaminophen   |                                   | 9.0         |
| acetaminophen with codeine/other narcotic                       |                                   | 9.2         |
| low dose ASA (acetylsalicylic acid)                             |                                   | 8.9         |
| high dose ASA   | 34.2                              |             |
| NSAID   | 51.9                              |             |
| allopurinol   |                                   | 0.1         |
| initiate disease modifying agent (eg. gold)                     |                                   | 1.7         |
| oral corticosteroids  |                                   | 3.2         |
| joint injection with corticosteroid                             |                                   | 0.4         |
| recommend exercises   |                                   | 16.8        |
| recommend rest  | 41.4                              |             |
| recommend ice or heat   | 43.2                              |             |
| <b>Referrals†</b>   |                                   |             |
| physiotherapy--ambulatory or outpatient                         | 32.8                              |             |
| physiotherapy--home therapy (Homecare/Arthritis Society)        | 6.2                               |             |
| occupational therapy--ambulatory or outpatient                  | 9.1                               |             |
| occupational therapy--home therapy (Homecare/Arthritis Society) | 4.4                               |             |
| social work--ambulatory or outpatient                           |                                   | 2.7         |
| social work--home therapy (Homecare/Arthritis Society)          |                                   | 5.1         |
| rheumatology  | 58.4                              |             |
| orthopaedic surgery   |                                   | 0           |
| general internal medicine                                       |                                   | 0.8         |
| rehabilitation medicine/physiatry                               |                                   | 0.1         |

\* items shown in bold were recommended by at least 70% of the current practice panel

† referral to home-based physiotherapy, occupational therapy or social work was chosen by 10.3% of respondents

Table 4: Management of osteoarthritis

A 64 year old man, a married middle-level manager for a life insurance company, presents in your office with a 6 month history of right knee stiffness after prolonged sitting, as well as pain and difficulty with the right knee going up or down stairs. He reports mild intermittent swelling in the right knee. He has continued to work without any serious limitation but he has recently given up golf as a result of this problem. On examination, there is moderate crepitus in the right knee and a small effusion. The remainder of the physical exam is normal. There is no history of trauma. He has been previously well with no history of peptic ulcer disease or any other serious illness. A previous physician prescribed a three week course of an NSAID without relief.

| Survey items  | Percent choosing the item (n=529) |             |
|---|-----------------------------------|-------------|
|   | Recommended items                 | Other items |
| <b>Investigations</b>   |                                   |             |
| CBC   |                                   | 51.2        |
| ESR   |                                   | 48.9        |
| RF  |                                   | 12.2        |
| ANA   |                                   | 11.6        |
| uric acid   |                                   | 46.2        |
| creatinine, BUN (blood urea nitrogen)                           |                                   | 23.3        |
| x-rays  | 88.5                              |             |
| joint aspiration±synovial fluid analysis                        |                                   | 23.1        |
| cultures of blood±urethra                                       |                                   | 1.2         |
| <b>Interventions</b>  |                                   |             |
| acetaminophen   |                                   | 25.7        |
| acetaminophen with codeine/other narcotic                       |                                   | 13.5        |
| low dose ASA (acetylsalicylic acid)                             |                                   | 6.0         |
| high dose ASA   | 6.2                               |             |
| NSAID   | 54.8                              |             |
| allopurinol   |                                   | 0.9         |
| initiate disease modifying agent (eg. gold)                     |                                   | 0           |
| oral corticosteroids  |                                   | 0           |
| joint injection with corticosteroid                             |                                   | 12.2        |
| recommend exercises   | 33.1                              |             |
| recommend rest  |                                   | 29.0        |
| recommend ice or heat   |                                   | 50.4        |
| <b>Referrals†</b>   |                                   |             |
| physiotherapy--ambulatory or outpatient                         | 53.5                              |             |
| physiotherapy--home therapy (Homecare/Arthritis Society)        | 1.4                               |             |
| occupational therapy--ambulatory or outpatient                  |                                   | 0           |
| occupational therapy--home therapy (Homecare/Arthritis Society) |                                   | 0.4         |
| social work--ambulatory or outpatient                           |                                   | 0           |
| social work--home therapy (Homecare/Arthritis Society)          |                                   | 0.3         |
| rheumatology  |                                   | 2.5         |
| orthopaedic surgery   |                                   | 22.5        |
| general internal medicine                                       |                                   | 0           |
| rehabilitation medicine/physiatry                               |                                   | 1.0         |

† referral to home-based physiotherapy, occupational therapy or social work was chosen by 1.5% of respondents

Table 5: Management of late rheumatoid arthritis

A 42 year old woman, a married factory worker with two school-aged children, presents in your office with a 5 year history of symmetrical joint swelling and pain in her hands, wrists and feet. She stopped work two months ago and now finds it difficult to get out of the house. She and her family are having problems coping with her illness and their financial situation has become difficult. On examination, she has obvious deformities in her hands, wrists and feet. There is marked swelling and tenderness over the metacarpo-phalangeal and metatarso-phalangeal joints and wrists. She has painful and restricted movement of her shoulders and nodules over her elbows. Her only previous medications have been various NSAIDs. Notes from her previous physician reveal only the diagnosis of "arthritis"; you can find no evidence of previous investigations or referrals. There is no history of trauma. Other than this problem she has been previously well with no history of peptic ulcer disease or any other serious illness.

| Survey items  | Percent choosing the item (n=529) |             |
|---|-----------------------------------|-------------|
|   | Recommended items                 | Other items |
| <b>Investigations</b>   |                                   |             |
| CBC   | 98.3                              |             |
| ESR   | 98.9                              |             |
| RF  | 99.1                              |             |
| ANA   | 92.2                              |             |
| uric acid   |                                   | 46.5        |
| creatinine, BUN (blood urea nitrogen)                           | 75.2                              |             |
| x-rays  | 87.9                              |             |
| joint aspiration±synovial fluid analysis                        |                                   | 8.3         |
| cultures of blood±urethra                                       |                                   | 0.5         |
| <b>Interventions</b>  |                                   |             |
| acetaminophen   |                                   | 9.5         |
| acetaminophen with codeine/other narcotic                       |                                   | 15.3        |
| low dose ASA (acetylsalicylic acid)                             |                                   | 4.3         |
| high dose ASA   | 34.0                              |             |
| NSAID   | 38.0                              |             |
| allopurinol   |                                   | 0.1         |
| initiate disease modifying agent (eg. gold)                     |                                   | 17.9        |
| oral corticosteroids  |                                   | 10.9        |
| joint injection with corticosteroid                             |                                   | 4.1         |
| recommend exercises   |                                   | 22.8        |
| recommend rest  | 33.2                              |             |
| recommend ice or heat   | 34.3                              |             |
| <b>Referrals†</b>   |                                   |             |
| physiotherapy--ambulatory or outpatient                         |                                   | 26.5        |
| physiotherapy--home therapy (Homecare/Arthritis Society)        | 40.7                              |             |
| occupational therapy--ambulatory or outpatient                  |                                   | 9.0         |
| occupational therapy--home therapy (Homecare/Arthritis Society) | 35.8                              |             |
| social work--ambulatory or outpatient                           |                                   | 7.8         |
| social work--home therapy (Homecare/Arthritis Society)          | 39.1                              |             |
| rheumatology  | 91.3                              |             |
| orthopaedic surgery   |                                   | 1.7         |
| general internal medicine                                       |                                   | 0.5         |
| rehabilitation medicine/physiatry                               |                                   | 7.3         |

† referral to home-based physiotherapy, occupational therapy or social work was chosen by 52.3% of respondents



Table 6: Management of a hot, swollen knee

A 30 year old single man, an executive who travels extensively and who is a heavy social drinker, presents with the sudden onset overnight of an extremely painful hot, swollen knee. On examination, there is a moderate effusion, extreme tenderness, and restricted range of motion. He walks with a marked limp. There is no history of trauma. He has been previously well with no history of peptic ulcer disease or hemophilia or any other serious illness.

| Survey items  | Percent choosing the item (n=529) |             |
|---|-----------------------------------|-------------|
|   | Recommended items                 | Other items |
| <b>Investigations</b>   |                                   |             |
| CBC   | 93.3                              |             |
| ESR   | 82.0                              |             |
| RF  |                                   | 17.3        |
| ANA   |                                   | 14.8        |
| uric acid   | 85.8                              |             |
| creatinine, BUN (blood urea nitrogen)                           |                                   | 33.8        |
| x-rays  | 57.7                              |             |
| joint aspiration±synovial fluid analysis                        | 78.5                              |             |
| cultures of blood±urethra                                       | 58.4                              |             |
| <b>Interventions</b>  |                                   |             |
| acetaminophen   |                                   | 7.1         |
| acetaminophen with codeine/other narcotic                       |                                   | 22.2        |
| low dose ASA (acetylsalicylic acid)                             |                                   | 0.9         |
| high dose ASA   |                                   | 2.8         |
| NSAID   |                                   | 59.6        |
| allopurinol   |                                   | 12.2        |
| initiate disease modifying agent (eg. gold)                     |                                   | 4.2         |
| oral corticosteroids  |                                   | 0           |
| joint injection with corticosteroid                             |                                   | 0.9         |
| recommend exercises   |                                   | 1.8         |
| recommend rest  | 53.3                              |             |
| recommend ice or heat   | 35.6                              |             |
| <b>Referralst</b>   |                                   |             |
| physiotherapy--ambulatory or outpatient                         |                                   | 3.3         |
| physiotherapy--home therapy (Homecare/Arthritis Society)        |                                   | 0.3         |
| occupational therapy--ambulatory or outpatient                  |                                   | 0           |
| occupational therapy--home therapy (Homecare/Arthritis Society) |                                   | 0           |
| social work--ambulatory or outpatient                           |                                   | 0.2         |
| social work--home therapy (Homecare/Arthritis Society)          |                                   | 0           |
| rheumatology  |                                   | 16.7        |
| orthopaedic surgery   |                                   | 12.2        |
| general internal medicine                                       |                                   | 11.5        |
| rehabilitation medicine/physiatry                               |                                   | 0.4         |

+ referral to home-based physiotherapy, occupational therapy or social work was chosen by 0.3% of respondents