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EXTENDED REPORT

Immediate access rheumatology clinic: efficiency and outcomes

Miriam Gärtner,¹ Julia P Fabrizio,¹ Elisabeth Koban,¹ Martin Holbik,² Lorenz P Machold,¹ Josef S Smolen,¹ Klaus P Machold¹

ABSTRACT

Objective and Methods In order to facilitate access and shorten waiting times to rheumatologist assessment, an immediate access clinic (IAC) was established. Patients were assessed at presentation in the clinic and after 6–12 months, either in the clinic or by telephone. Data regarding diagnostic accuracy, pain levels and care were analysed.

Results From February to December 2009, 1036 patients were assessed. 223 (21.5%) patients had symptoms for 3 months or less. 660 were available for re-assessment after 6–12 months. Initial tentative diagnoses were confirmed in over 75% of patients suspected of having rheumatoid arthritis (RA), spondylarthropathy and osteoarthritis. Men suspected of having spondylarthropathy had a significantly longer symptom duration than women (median (IQR) 54.0 (18.0–120.0) vs 24.0 (6.0–66.0) months; $p=0.0082$). There was no significant gender difference regarding pain. At follow-up, the visual analogue scale for pain in RA patients admitted to further care in the clinic ($n=61$) had significantly decreased by a median (IQR) of 37.5 mm (10.5–50.5), whereas this improvement was only 6 mm (–26–33.5) in the 22 RA patients followed outside the clinic ($p=0.0083$).

Conclusions The IAC resulted in considerable waiting time reduction for rheumatology assessment. A substantial minority was seen before 3 months' symptom duration. 'Positive predictive correctness' of the assessing rheumatologists regarding the presence of inflammatory rheumatic conditions was over 75%. Patients with RA cared for in the clinic had substantially lower pain levels after 6–12 months' follow-up than patients treated elsewhere.

Rheumatic diseases constitute major health and societal burdens.¹ Rheumatoid arthritis (RA) with an estimated prevalence of 0.5–1% affects approximately 5–10 million individuals in industrialised countries,² more than 150 million have osteoarthritis or any other form of arthritis, approximately 50 million have osteoporosis and more than 350 million have spine problems.³ The societal burden is underscored by the fact that after 5 years 22% of patients with RA were unable to work⁴ or by the significant excess mortality in patients with osteoporosis.⁵

RA, the most common chronic inflammatory rheumatic disease, is a destructive progressive immune-mediated disorder leading to joint erosions in 60% of patients within 1 year.^{6,7} Ten per cent of those presenting early (median of 8 weeks

from first symptoms) have joint erosions at the first visit.⁸ It was postulated that early application of disease-modifying antirheumatic drugs (DMARD) improves the outcome of RA.^{6,9–18} Furthermore, it was shown that there is a 'window of opportunity' especially within the first 3 months.^{11,19}

The delay from symptom onset to the first visit with a rheumatologist or start of therapy ranges from several months up to more than 1 year.^{20–23} This delay has several reasons: neglect or negation of rheumatic diseases in general,²⁴ lack of information,^{25,26} lack of knowledge about available therapies,²⁷ limited availability and (geographical) proximity of specialists, or a mix thereof.²⁸ As early and easy access to rheumatology assessment and treatment is regarded as mandatory,²⁹ early arthritis clinics have been established in many countries such as The Netherlands, Germany, the UK, Austria and North America.^{30–32}

As a result of the lack of rheumatologists, however, waiting times frequently exceed by far the desired and recommended period of maximally 3 months from the onset of symptoms, thus precluding the start of therapy within the 'window of opportunity'. Therefore, we decided to establish an 'easy access' clinic, the so-called immediate access clinic (IAC; German: 'Akutbegutachtungsambulanz'), in which patients are seen usually within 1 day to 2 weeks from referral by other physicians or upon patients' self-referral, but only for a brief encounter and evaluation.

In the present study we describe the spectrum of patients' diagnoses and clinical characteristics at presentation and after 6–12 months. The aims of this study were: (1) to describe the characteristics of the patients evaluated in the IAC with respect to demographic data and initially suspected diagnoses; (2) to evaluate the accuracy of the initial diagnostic categorisations when compared with the 'final' diagnoses after 6–12 months; (3) to analyse differences between diagnostic categories with respect to disease duration, gender and pain levels; (4) to compare outcomes after 6–12 months with respect to pain levels and treatments between patients who continued to be cared for in our clinic and those cared for at other facilities.

PATIENTS AND METHODS

Patients for this study were first seen in the IAC of the Vienna General Hospital between February and December 2009. There are no formal restrictions regarding referral to the IAC, ie, patients are referred by their general practitioner, by another

► Additional data (supplementary tables) are published online only. To view these files visit the journal online (<http://ard.bmj.com>)

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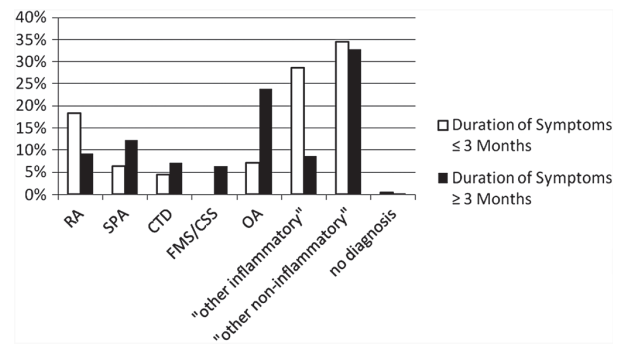
Clinical and epidemiological research

129 specialist or are self-referred. Patients are informed at the time
130 of their initial contact or upon visiting the IAC that they will
131 receive only a brief encounter by an experienced rheumatologist
132 who will assess their disease to decide on further diagnostic
133 or therapeutic management. The rheumatologist takes a brief
134 history regarding duration and clinical symptoms. In addition,
135 a short symptom-centred physical examination is performed
136 and a preliminary decision is made to assign the patient to one
137 of two groups: patients in group A are referred to the regular
138 outpatient clinic for further work-up; patients in group B are
139 assigned to other specialist care/work-up or back to the refer-
140 ring physician with appropriate recommendations for further
141 care. There are no formal decision criteria for assigning a patient
142 to either group A or B; however, patients suspected of having
143 inflammatory rheumatic diseases (eg, RA, spondylarthropathies,
144 connective tissue disease (CTD), etc.) are preferentially assigned
145 to group A, whereas patients with osteoarthritis, chronic pain
146 syndromes and non-inflammatory (eg, soft tissue) rheumatism
147 or presumably degenerative spine disease are usually assigned
148 to group B. Nevertheless, under special circumstances (such as
149 a RA patient under care by another rheumatologist referred for
150 a 'second opinion' or an osteoarthritis patient qualifying for a
151 therapeutic study or further assessment), these informal rules
152 are modified.

153 Demographic data, tentative diagnoses, symptom duration and
154 pain (assessed using a 100 mm visual analogue scale; VAS)
155 as well as the time between the date of referral (taken from the
156 referring physicians' request forms) and the day of assessment
157 were recorded at baseline (first presentation to the IAC) and
158 entered into an electronic spreadsheet. If the duration of symp-
159 toms exceeded 10 years, '120 months' was recorded. For this
160 analysis, all patients' suspected diagnoses were grouped into
161 the following categories: RA, seronegative spondylarthropa-
162 thies, CTD, fibromyalgia syndrome (FMS)/central sensitivity
163 syndrome (CSS), osteoarthritis, 'other inflammatory' (such as

193 reactive arthritis, viral arthritis, gout, etc.) and 'other non-in-
194 flammatory' diseases.

195 For follow-up after 6–12 months, group A patients had to
196 be divided into two subgroups: group A1 were patients who
197 were regularly followed in the outpatient rheumatology clinic,
198 data regarding diagnoses (given by the treating outpatient clinic
199 rheumatologist, mostly on clinical grounds supported by classi-
200 fication criteria and grouped according to the above-mentioned
201 categories) and pain were extracted from the patients' charts.
202 Patients initially allocated to group A who did not return for
203 follow-up visits within the 6–12-month timeframe (group A2)
204 were called for a telephone interview. Group B patients were
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Figure 1 Distribution of patients with duration of symptoms shorter or longer than 3 months. The proportions of patients suspected of having rheumatoid arthritis and 'other inflammatory' diseases were significantly higher among the 223 patients with symptoms for 3 months or less, whereas the longer presence of symptoms was reported by patients suspected of having spondylarthropathy, CTD, FMS and osteoarthritis ($p < 0.0001$). CSS, central sensitivity syndrome; CTD, connective tissue disease; FMS, fibromyalgia syndrome; OA, osteoarthritis; RA, rheumatoid arthritis; SPA, spondylarthropathy.

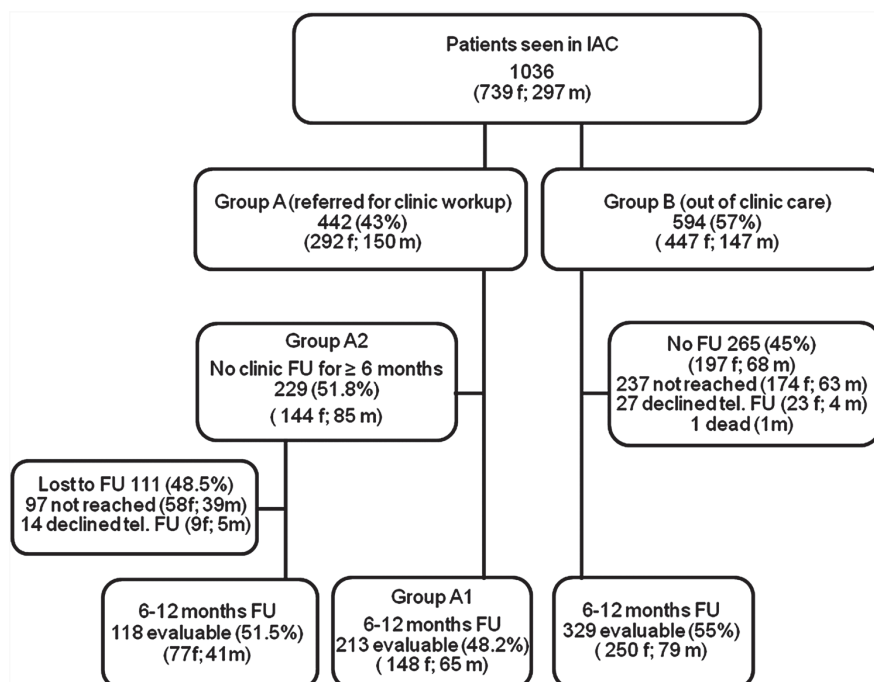


Figure 2 Follow-up of the patients included in the IAC between February and December 2009. FU, follow-up; IAC, immediate access clinic.

Table 1 Diagnoses suspected by the referring physicians and at first assessment in the IAC

	RA	Spondylarthropathy	CTD	FMS/CSS	Osteoarthritis	'Other inflammatory'	'Other non-inflammatory'	No diagnosis
All referral diagnoses (n=1036)	325	114	91	34	47	137	107	181
GP (n=493)	158 (32%)	31 (6.3%)	32 (6.5%)	19 (3.9%)	32 (6.5%)	78 (15.8%)	47 (9.5%)	96 (19.5%)
Other specialist (n= 469)	167 (35.6%)	82 (17.5%)	59 (12.6%)	15 (3.2%)	15 (3.2%)	58 (12.4%)	59 (12.6%)	14 (3%)
Self-referred (n=74)	0	1 (1.4%)	0	0	0	1 (1.4%)	1 (1.4%)	71 (95.9%)
Diagnoses suspected at first assessment in the IAC	115 (11.1%)	111 (10.7%)	68 (6.6%)	51 (4.9%)	208 (20.1%)	134 (12.9%)	341 (32.9%)	8 (0.8%)

Patients were referred to the IAC by their GP, by any other intramural or extramural specialist or they were self-referrals. Specialists tended to refer more patients suspected as CTD than GPs, whereas GPs suspected more osteoarthritis. It was remarkable that 19.5% of the patients referred to by a GP had no suspected diagnoses, even 3% of patients referred by other specialists were referred without provision of a specific suspected diagnosis. Substantially fewer patients were suspected of having RA by the rheumatologist compared with other specialists or GPs.
 CSS, central sensitivity syndrome; CTD, connective tissue disease; FMS, fibromyalgia syndrome; GP, general practitioner; IAC, immediate access clinic; RA, rheumatoid arthritis.

Table 2 Diagnoses suspected by the rheumatologist at baseline and percentage of confirmed diagnoses by chart review for patients of group A1 (follow-up visit in our clinic)

Diagnosis (n=213)	Suspected at baseline (n (%*))	Confirmed by chart review (n (%†))
RA	61 (28.6)	47 (77.0)
Spondylarthropathy	51 (23.9)	41 (80.4)
CTD	43 (20.2)	36 (83.7)
FMS/CSS	1 (0.5)	0 (0.0)
Osteoarthritis	16 (7.5)	13 (81.3)
'Other inflammatory'	14 (6.6)	9 (64.3)
'Other non-inflammatory'	27 (12.7)	10 (37.0)

*Percentage of total population in columns.
 †Percentage of diagnoses as initially suspected.
 CSS, central sensitivity syndrome; CTD, connective tissue disease; FMS, fibromyalgia syndrome; RA, rheumatoid arthritis.

also interviewed by telephone. For the telephone interviews, a structured questionnaire was used. In addition to numerical pain rating and current diagnosis, current care (general practitioner, specialist or none) as well as the reason for non-attendance were assessed during this telephone follow-up. Patients who could not be reached by telephone over a period of 2 months on several occasions and different times of the day were defined as lost to follow-up.

The study was approved by the local ethics committee and conducted according to the guidelines of the Declaration of Helsinki. Written informed consent was given by all participants.

Statistical analysis

Data were analysed using GraphPad 5. t Tests were performed for continuous data, analyses of variance were conducted for multiple group comparisons and Pearson's χ^2 tests were used to analyse categorical variables. For analysis of the suspected diagnoses' accuracy descriptive statistics were performed. p Values less than 0.05 were regarded as statistically significant, for multiple comparisons Bonferroni's correction was applied.

RESULTS

Patients

Between February and December 2009, 1036 patients were seen in the IAC during 112 clinic days. A median (IQR) of 10 (7–12) patients was examined per day. The median (IQR) lag time between referral and consultation at the IAC was 8.0 (4.0–13.25) calendar days. Groups A1, A2, and B did not differ significantly with regard to referral delay. The mean (SD) age of the patients was 50.3 years (15.9), median (IQR) duration of symptoms was 24 months (5–72), median (IQR) pain rating on a 100 mm VAS was 54 mm (34–73.5). Seven hundred and thirty-nine (71% of the patients) were women, there were no significant gender

differences regarding age, disease duration and VAS for pain (data not shown); 223 (21.5%) patients had a symptom duration of 3 months or less (figure 1). Within the timeframe of 6–12 months after initial assessment, patients in both groups A and B were re-assessed. The patient disposition with regard to follow-up is shown in figure 2.

Suspected diagnoses

Frequencies of diagnoses suspected by the referring physicians are given in table 1. Approximately one third of the patients was referred because of suspected RA; however, in only 80 of them (7.7%) this diagnosis was also considered by the assessing rheumatologist. The majority of these patients were then referred for further outpatient clinic care (group A).

Analyses of differences in age, VAS for pain and duration of symptoms between patients' tentative diagnostic categories demonstrated significant differences between these categories: osteoarthritis patients tended to be significantly older than patients with spondylarthropathy, CTD, FMS/CSS and 'other inflammatory'/'non-inflammatory' diseases; FMS/CSS patients reported the longest symptom duration and the highest degree of pain (significantly different from all other categories). RA patients had significantly shorter symptom duration (median (IQR) 9 months (2–48)) than spondylarthropathy (median (IQR) 30 months (8.5–114)), FMS/CSS (median (IQR) 120 months (36–120)) and osteoarthritis (median (IQR) 24 months (12–120)). Detailed results are given in supplementary table S1, available online only.

Gender distribution patterns within the diagnostic categories were in line with established epidemiological data. Solely among patients suspected of having spondylarthropathy, men had a significantly longer duration of symptoms (median (IQR) 54.0 months (18.0–120.0)) than women (median (IQR) 24.0 months (6.0–66.0); p=0.0082). Details can be found in supplementary table S2, available online only.

Patient follow-up after 6–12 months

Group A (referred to further care in clinic)

Suspected diagnoses in patients allocated to group A who had a follow-up visit after 6–12 months (group A1) are shown in table 2. The diagnosis in patients classified initially as RA, spondylarthropathy, CTD or osteoarthritis was confirmed in over 75% of cases. The median VAS for pain (IQR) of this subgroup was 60 (41–75) at baseline and 31 (7.25–50) (p<0.0001) at follow-up.

Analysis of baseline diagnosis distribution in groups A1 and A2 revealed that significantly fewer patients in group A2 (stopped clinic attendance) had initially been categorised as 'inflammatory rheumatic disease', such as RA, spondylarthropathy and CTD (table 3). With regard to the 'type' of referral, no differences in

Table 3 Diagnosis suspected at baseline for patients with (group A1) or without (group A2) follow-up visit in our clinic

N=331	RA (n=83)	Spondylarthropathy (n=74)	CTD (n=52)	FMS/CSS (n=2)	Osteoarthritis (n=26)	'Other inflammatory' (n=32)	'Other non-inflammatory' (n=61)	No diagnosis (n=1)
Group A1 (n (%)) (follow-up in the clinic)	61 (28.6)	51 (23.9)	43 (20.2)	1 (0.5)	16 (7.5)	14 (6.6)	27 (12.7)	0
Group A2 (n (%)) (stopped clinic attendance)	22 (18.6)	23 (19.5)	9 (7.6)	1 (0.8)	10 (8.5)	18 (15.3)	34 (28.8)	1 (0.8)

In the patients initially assigned to follow-up in the outpatient clinic (group A), and who were followed for 6–12 months, distribution of diagnoses suspected at baseline differed significantly between groups A1 and A2 ($p < 0.0001$; χ^2 test).

CSS, central sensitivity syndrome; CTD, connective tissue disease; FMS, fibromyalgia syndrome; RA, rheumatoid arthritis.

diagnoses of inflammatory rheumatic diseases (RA, spondylarthropathy or CTD) were discerned for self-referred compared with physician-referred patients (data not shown).

We evaluated why group A2 patients did not return to our clinic. Among the 118 patients (51.8%, see figure 2) who were evaluable, 32 (27.1%) regularly visited specialists, including rheumatologists, for their rheumatic disease and 22 (18.4%) saw other specialists or their general practitioner because of other non-rheumatic diseases. Forty-four (37.3%) indicated that their problems had resolved and therefore did not require further care. Only four (3.4%) of the patients indicated dissatisfaction with the treatment at our outpatient clinic and the remaining 16 (13.6%) patients gave no reason why they did not attend follow-up visits at our clinic.

The median (IQR) VAS for pain in group A2 at baseline was 57 (35.5–72.22) and 30 (0–60) at follow-up by telephone interview. Forty-four patients indicated that they had no further problems. Therefore, we calculated the VAS for pain separately for the 74 patients who answered that they still had rheumatological complaints. This subgroup had a median VAS (IQR) of 50.0 (17.5–71.25) at follow-up, significantly higher than group A1 ($p=0.0042$). Because the distribution of diagnoses in groups A1 and A2 was different, we analysed pain improvement in patients with a diagnosis of RA separately: RA patients' pain VAS in group A1 ($n=61$) improved by a median (IQR) of 37.5 mm (10.5–50.5), whereas this improvement was only 6 mm (–26 to 33.5) in RA patients followed elsewhere (group A2, $n=22$; $p=0.0083$).

Group B (referred to further care outside the rheumatology clinic)

After 6–12 months, telephone follow-up was possible in 329 (55%) of the 594 patients (see figure 2). One hundred and ninety-nine (60.5%) indicated that their medical problems had fully resolved. Details regarding the suspected diagnoses at baseline and reported at follow-up can be found in supplementary table S3, available online only. Because of the notorious inaccuracy of self-reported diagnoses, further analyses were not performed.

Therapy

A total of 192 (90.1%) group A1 patients received further treatment: depending on diagnosis, 25–73% were treated with DMARD, 0–25% with biological agents, 4.8–56% with glucocorticoids and 1.7–17.4% with physiotherapy. Supplementary table S4 (available online only) gives details of treatment according to diagnosis.

Of the 118 group A2 patients who had no follow-up visit in our outpatient clinic but were interviewed by telephone, 45 (38.1%) received further therapy at the time of interview. Non-steroidal anti-inflammatory drugs (NSAID) were the most common treatment (42.2% of patients), biological agents were used in 15.6%, synthetic DMARD and physiotherapy each in 13.3% and glucocorticoids in 4.4%.

In group B, 137 (41.6%) of the 329 patients who could be reached for follow-up indicated that there were under further medical treatment: 29 (8.8%) by a general practitioner and 108 (32.8%) by a specialist; 32.3% of the treated patients received physiotherapy, 30.5% NSAID. Synthetic DMARD were used in 1.2%, 4.9% were under treatment with glucocorticoids, biological agents were used in 1.2%, and 7.9% were treated with a combination of these therapies.

DISCUSSION

Rheumatologist assessment as early as possible has been recommended in several guidelines for managing arthritis patients.¹⁰ The aim of the IAC is to facilitate early access to an experienced rheumatologist. In 2007, at the time the IAC was established, wait time for a (first) appointment frequently exceeded 4 months, ie, in January 2007, 'new referrals' received appointments in June and so on. This constituted a substantial barrier to early referral, which had been encouraged at the department previously through administrative changes,³⁴ but still met considerable, mostly logistic, obstacles. The reasons for delayed presentation of patients with rheumatic complaints were recently shown to be hesitance of both patients and referrers, frequently rooted in uncertainty about diagnostic recommendations and shortage of rheumatologists.^{35,36} The latter also holds true for the Austrian healthcare system, in which only very few rheumatologists are working in private practice and most rheumatological care is centre/hospital based. Through the IAC waiting times were substantially shortened, rarely exceeding a few days. However, only a minority of patients (21.5%) presented with symptoms of less than 3 months.

Some aspects of this analysis of a population of unselected rheumatology referrals merit mention.

First, at follow-up, over 75% of the diagnoses of inflammatory rheumatic diseases initially suspected at the IAC proved to be correct. This indicates high reliability of these initial categorisations by an experienced rheumatologist, which often have to be made within only a few minutes, compared with a later and mostly 'criteria-based' classification.

Second, although patients suspected of having RA presented earlier than others, a median symptom duration of 9 months (only 41 of the 115 suspected RA patients had a duration of symptoms of ≤ 3 months) by far exceeds the postulated 'window of opportunity'. Although some of these 'RA' patients came for a 'second opinion' and had been treated appropriately with DMARD, the majority had not been treated except with NSAID and thus are likely to have experienced avoidable/unnecessary damage.

Third, gender analysis showed that in line with common epidemiological knowledge men were more often categorised as spondylarthropathy, whereas the majority of patients categorised as osteoarthritis or FMS/CSS were women. Interestingly, men with spondylarthropathy had a significantly longer symptom duration than women; this observation contrasts with a

513 recent report that did not find such differences,³⁷ but may be in
514 line with the observation of more severe symptoms in women
515 than in men.³⁸ It may be speculated that male patients might
516 more frequently misinterpret spondylarthropathy as non-specific
517 lower back pain.

518 Fourth, no difference in the frequency of final diagnosis of
519 an inflammatory rheumatic disease between physician and self-
520 referred individuals was apparent. While this finding has to be
521 interpreted with caution due to the low number of self-referrals,
522 physicians did not appear to be more accurate in discriminating
523 inflammatory rheumatic disease (which rightly should be
524 referred to a tertiary care centre) from other rheumatic diseases
525 or complaints. No specific advertisements were made to the public;
526 however, through several local meetings with possible referrers,
527 the existence of the IAC and the recommended peripheral
528 work-up as well as contact details were made available (mostly
529 in the context of educational talks on diagnostic and therapeutic
530 procedures in rheumatic diseases). Therefore, it might have
531 been expected that the physicians' referral accuracy should have
532 been higher, which was not the case.

533 Finally, among the RA patients in group A1 (followed at
534 our clinic) VAS for pain was substantially reduced, whereas
535 RA patients treated elsewhere only had a marginal reduction.
536 Whereas the question as to whether care within the framework
537 of a highly specialised centre is 'better' than 'routine' care would
538 be a randomised trial of care, this finding indicates that centres
539 with a higher standard of care such as a university hospital/clinic
540 are significantly better suited for more complex cases and reduce
541 their burden of disease accordingly.

542 One of the limitations of our study is the potential inaccuracy
543 of telephone interview data. Therefore, we did not analyse
544 data further with respect to diagnoses. However, 27.1%
545 of the patients in group A lost to follow-up (group A2), were
546 still treated by rheumatology specialists outside our clinic. The
547 main reasons for the patients to seek treatment elsewhere were
548 geographical proximity and shorter waiting times for follow-up
549 visits. In group A2 37.3% of the patients indicated they had no
550 further problems at all. This finding is in line with the higher
551 level of 'other inflammatory' and thus mostly self-limiting
552 diseases such as reactive arthritis in this group. Conversely, patients
553 in group A2 who indicated they still had problems had a surprisingly
554 high median VAS for pain of 50 mm.

555 Another limitation with regard to the interpretation of the
556 follow-up data is the percentage of patients lost to follow-up
557 (approximately 36%). There is, however, no indication to believe
558 that these individuals differed substantially from the patients for
559 whom follow-up data were available. For most, symptom disappearance
560 may have been the main reason for not returning; in addition,
561 technical obstacles, such as change of telephone numbers may
562 have precluded more complete follow-up.

563 Our initiative may serve as a model in similar settings: lack
564 of practising rheumatologists, concentration of experts in large
565 centres, high diagnostic and therapeutic insecurity on the part of
566 primary physicians or non-rheumatology specialists (exemplified
567 by the extremely high proportion of 'suspected RA' compared
568 with the categorisation by the expert). In addition, our setting
569 constitutes an opportunity to see and treat truly early RA
570 patients rather than RA patients whose referral had already
571 been delayed and whose wait time for an appointment, previously
572 being several months, precludes them from more timely
573 diagnosis and therapy. For different circumstances, for example,
574 in areas with many practising rheumatologists overwhelmed by
575 primarily degenerative or pain problems, the role of the 'expert
576 rheumatologist' quickly categorising or assigning patients might

577 be filled by the rheumatologists taking turns. In a different
578 approach, an expert rheumatology nurse or other health professional
579 might, with appropriate training, be able to fulfil certain
580 roles as 'gatekeeper' or counsel in order to provide at least basic
581 information, for example, regarding diagnostic tests needed by
582 primary physicians or practising specialists as well as patients
583 seeking advice.

584 Another interesting aspect was our finding that despite the
585 short time of interaction between patient and rheumatologist
586 at the time of the visit to the IAC, complaints about insufficient
587 attention were very rare. Apparently, patients appreciated the fact
588 that they had an immediate opportunity to discuss their problems
589 with a specialist, albeit for a short time, and to receive an
590 initial diagnostic assessment and therapeutic recommendation.

591 In summary, this analysis shows that an IAC allows for a substantial
592 reduction of waiting times for individuals with musculoskeletal
593 problems with a 'positive predictive correctness' of the initial
594 diagnosis by an experienced rheumatologist regarding the presence
595 of inflammatory rheumatic conditions amounting to over 75%.
596 The IAC presented here may thus serve as a model for other
597 institutions to reduce overall waiting times for appointments
598 and at the same time allow early recognition and timely
599 appropriate therapy for patients in need of a rapid intervention,
600 such as RA or CTD.

Contributors MG: data collection, entry, cleaning, analysis, manuscript writing.
JPF and EK: data collection, entry, cleaning, analysis. MH: data analysis, statistics.
LPM: data collection, entry. JSS: data review, manuscript writing. KPM: project
601 management, data collection, manuscript writing.

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602 in managing patients' files and contact data.

Competing interests None.

Patient consent Obtained.

Ethics approval The study was approved by the Ethics Committee of the Medical
603 University of Vienna.

Provenance and peer review Not commissioned; externally peer reviewed. 604

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Clinical and epidemiological research

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