Summary & Discussion
Working gainfully is a major activity of adult life, providing income, structure, social interaction and an opportunity to learn and practice skills, and a source of self-esteem. In people with chronic arthritis work disability is common, having a major impact upon individuals as well as society. In the Netherlands, rheumatic diseases account for about 15% of the costs due to work disability payments. Given this significance, work retention issues have been identified as one of the aims of the management of chronic arthritis. Apart from the optimization of medical treatment, in many countries structured vocational rehabilitation programs are being offered to patients with chronic arthritis, with the aim of preventing the loss of paid employment or enhancing return to work.

The aim of the present thesis was to describe the evidence regarding the effectiveness of vocational rehabilitation programs in patients with chronic arthritis. Moreover, this thesis includes an evaluation of a multidisciplinary job retention vocational rehabilitation program aimed at the prevention of work disability in patients with chronic arthritis who were at risk for job loss. In addition, the co-operation between rheumatologists and occupational physicians in the process of vocational rehabilitation was evaluated.

**Chapter one** describes the epidemiology of work disability (including job loss, sick leave and the problems encountered at work) in patients with chronic arthritis. It is concluded that the burden of work disability in chronic arthritis is substantial to both individuals and society, and commences early in the course of the disease. Several studies over the past decades have identified risk factors for permanent work disability, and over the last years the number of papers on the significance of sick leave is growing. Despite the general recognition of the importance of work disability in chronic arthritis, evidence for the effectiveness of vocational rehabilitation is lacking.

**Chapter two** describes the results of a systematic literature review concerning the effectiveness of vocational rehabilitation programs in patients with chronic arthritis. Data were obtained by a computer-aided and manual search of the literature from 1980 until May 2001. Six studies were selected for the review, all of them were uncontrolled. In five out of six studies a positive short-term effect of vocational rehabilitation, defined
as return to paid employment, was suggested. It was concluded that the proof of the benefit of vocational rehabilitation in chronic arthritis is slim, and it was recommended that more controlled studies, with adequate follow-up periods and including an economic analysis, should be performed.

**Chapter three** describes the significance of sick leave as a predictor of work disability among individuals with chronic arthritis. All data were collected in connection with the randomized controlled trial comparing the effectiveness and costs of a multidisciplinary vocational rehabilitation program in patients with chronic arthritis who were in paid employment but at risk for job loss with usual outpatient care (chapters 4, 5 and 6). Data from 112 of the 140 patients included in the trial were available for analysis. At baseline, 60 of the 112 subjects (54%) were on sick leave, with a mean duration of 18.7 weeks. After 24 months, 26 patients (23%) had lost their job, all of them receiving a full disability pension and none of them being unemployed. The depression scale of the Hospital Anxiety and Depression Scale (HADS) and the presence of complete sick leave were significantly and independently associated with job loss after two years of follow-up. These results underscore the need for the recognition of sick leave, especially if this is complete, and mental health status as major predictors of permanent work disability by rheumatologists and health professionals involved in the management of patients with chronic arthritis.

**Chapter four** reports the results of a randomized comparison of the effectiveness of a multidisciplinary job retention vocational rehabilitation program with usual out-patient care in patients with chronic arthritis who were in paid employment but at risk for job loss. In that trial, 74 patients were randomly assigned to a multidisciplinary job retention vocational rehabilitation program and 66 patients to usual outpatient care. Patients in the vocational rehabilitation group were assessed and guided by a team comprising a rheumatologist, a social worker, a physical therapist, an occupational therapist, a psychologist and a consultant occupational physician, whereas subjects in the usual group received care as initiated by their rheumatologist, supplemented with written information about rheumatic conditions and work. After 24 months of follow-up there was no difference between the two groups regarding the proportion of patients losing their jobs at any time point, however over the total period of 24
months, patients in the vocational rehabilitation group had a greater improvement of fatigue, mental health as measured with the RAND-36 and the HADS as compared to the usual care group. It was concluded that a job retention vocational rehabilitation program did not reduce the risk of job loss but improved fatigue and mental health in patients with chronic arthritis at risk for job loss.

Chapter five reports the result of the economic analysis in conjunction with the randomized controlled trial. To investigate the economic consequences of the program we performed a cost-utility analysis, from the societal perspective. Program costs were estimated at €1426, of which about 20% were time and travel costs incurred by the patients. These costs were outweighed by savings on productivity costs, but non-significantly so. Except for the program costs, no significant differences were observed in health-care consumption, productivity, costs or quality-adjusted life years. As a result, it remains unclear whether the vocational rehabilitation programme in its current form reduces or increases costs. Moreover, programme costs cannot be justified by a gain in quality-adjusted life years.

Chapter six describes the satisfaction of patients and occupational physicians with the multidisciplinary job retention vocational rehabilitation program as employed in the randomised controlled trial (chapters 4 and 5). Patients’ and occupational physicians’ satisfaction was measured with a multidimensional questionnaire including comprising a rating scale (0-10) and a structured telephone interview, respectively. Fifty-nine of the 65 patients who had completed the VR-programme responded to the questionnaire. The patients' mean satisfaction score was 7.3 (SD 1.0), where they were most satisfied with the interpersonal approach and professional knowledge and least satisfied with waiting time for the final report and the elaboration of the given advice. Twenty-eight of the occupational physicians involved could be interviewed. They were overall satisfied with the programme, but 21 (75%) stated that their role in the vocational rehabilitation process could be defined more clearly, and they would appreciate more contact with the members of the multidisciplinary team.

Chapter seven describes the communication between Dutch rheumatologists and occupational physicians in the process of occupational rehabilitation of patients with chronic rheumatic diseases. A postal survey
was sent among 187 Dutch rheumatologists, with 82% of them responding. Diminishing pain and fatigue was being considered as their major responsibility in the process of occupational rehabilitation, followed by improving work participation (46%) and quality of work (37%). Although 73% of the rheumatologists judged the communication and co-operation with occupational physicians as reasonable to good, 78% of them stated to be willing to improve the collaboration. Perceived bottlenecks mentioned were a lack of clarity about the occupational physicians’ position and activities and the absence of practice guidelines. The most important prerequisites for improvement were found to be guarantees about the occupational physician’s professional independence and more clarity about the competence of the occupational physicians and the use of information provided to occupational physicians by rheumatologists.

General discussion
Participation in paid employment is a major life role for most adults. People with chronic arthritis face many challenges at work(1) and can expect to be substantially more days on sick leave and to be employed significantly fewer years than the general population. Given the large impact of work disability in chronic arthritis to individuals as well as society, the interest in work retention issues is increasing. Apart from a review on studies in which vocational rehabilitation interventions are evaluated, this thesis describes the effectiveness and costs of a multidisciplinary job retention vocational rehabilitation program for patients with chronic arthritis at risk for job loss and the communication among rheumatologists and occupational physicians regarding the process of vocational rehabilitation.

From the review of the literature included in this thesis, it can be concluded that the evidence regarding the effectiveness of vocational rehabilitation interventions is scanty, and that there is a need for controlled clinical trials with an adequate follow-up period. After the publication of this review, two randomized controlled trials have been conducted, one in the United States and the other being the trial described in this thesis. In contrast with the study from the United States, the multidisciplinary job retention vocational rehabilitation program evaluated in this thesis did not reduce the risk of job loss. As the extent and components of the interventions employed in the two trials appear to be fairly similar (2-4 visits, comprising
identification of work limitations, education, counseling, guidance and treatment), other factors than the intervention per se could have contributed to this lack of effect.

In our study, a considerable number of patients were already on sick leave for quite a long time at the start of the intervention. Therefore, it could be that the entitlement of a full work disability pension, which had to be settled after 12 months of continuous sick leave at the time the study was conducted, was virtually unpreventable. This inevitability may be related to the Dutch society's relatively weak emphasis on putting disabled people back to work at that time. For employees with chronic arthritis to maintain in the work force, an active role of the patient, the employer, the occupational physician, the rheumatologist and other health care providers is needed. It is conceivable that too often a working problem, even if this had resulted in sick leave, was seen as a logical consequence of the disease, and not as a red flag for an impending work disability pension.

Since the time the study was conducted, the Dutch legislation concerning sickness and work disability benefits has changed. Nowadays, more emphasis is placed on the planning and execution of reintegration measures beginning at six weeks of sick leave (Wet Verbetering Poortwachter). This policy requires a joint action of the patient, the employer, and the occupational physician. In this process, the rheumatologist and other health professionals are often demanded for information about the rheumatic disease, its treatment and prognosis.

For an appropriate execution of this law it is first of all important that patients/employees themselves are aware of the Dutch legislation regarding sickness and disability pensions and acknowledge the need for exchange of information between the rheumatologist or other health professionals and the occupational physician. For that purpose, the provision of information and education of patients regarding this topic is needed. Preferably, this information and education should be provided to all patients who are recently diagnosed with chronic arthritis and have a paid job. The rheumatology clinical nurse specialist could, in conjunction with the care provided in early arthritis clinics, play an important role in the provision of information and education about rheumatic conditions and work.

With respect to the role of the rheumatologist and other health professionals, it is until now not very common that they take the lead in the early recognition of working problems and the realization of vocational rehabilitation or other reintegration measures. Asking all patients with
chronic arthritis who have a paid job whether they are on sick leave is a way to identify patients with seriously threatened work ability. The recent availability of easy to use tools for assessing work-related problems could help rheumatologists and health professionals with identifying patients in earlier stages and making appropriate referrals or select interventions. Examples of these tools are the RA-Work Instability Scale (2) and the Work Limitations Questionnaire (3). As it was found that a great part of work disability occurs early in the disease course, the implementation of such a tool in the sets of systematic assessments employed in early arthritis clinics needs to be considered.

With respect to the role of employer, the concept of "disability management" is now advocated to be the global basis of the solution of disability in the workplace (4). Disability management is an employer-directed process, defined as: "A workplace prevention and remediation strategy that seeks to prevent disability from occurring or, lacking that, to intervene early following the onset of disability, using coordinated, cost-conscious, quality rehabilitation service that reflects an organizational commitment to continued employment of those experiencing functional work limitations. The remediation goal of disability management is successful job maintenance or optimum timing for return to work, for persons with a disability". An active approach to work disability, moves away from the outdated notion that disability costs are unavoidable outcomes of doing business, to one where managers are committed to tracking and controlling costs of disability through prevention and rehabilitation strategies. To employ such strategies, an active cooperation between the employer and the occupational physician is needed. Occupational physicians may however in general have too little information about chronic arthritis, its treatment and prognosis, as they will only see a limited number of patients with this condition per year. This relative underexposure could result in a too pessimistic view on the future work ability of employees with chronic arthritis, and makes the timely provision of adequate information by the rheumatologist all the more important. In addition, special training courses on rheumatic diseases could increase occupational physicians' knowledge and skills regarding the guidance of employees with chronic arthritis. To address this issue, the project group involved in the research projects described in this thesis was engaged in the development and execution of two training courses for occupational physicians concerning the topic of rheumatic conditions in the
region of Leiden, The Netherlands, between 2002 and 2004 (5,6). Apart from educational bottlenecks, there may be other barriers limiting the potentialities of occupational physicians, such as budgetary and time constraints imposed upon occupational physicians by employers and the relatively high job turn-over, threatening the continuity of care.

To reduce the numbers of recipients of work disability pensions in general, future policy reforms should concern a re-definition of work disability making disability less equated with inability to work; a stronger emphasis on putting disabled people back to work; removal of disincentives to work while participating in rehabilitation programs; reassessment of disability benefits at regular intervals; a greater involvement of employers in the integration process through anti discrimination legislation and employment quota; design active disability programs; the promotion of early interventions; and the making of benefit recipiency dependent on active participation in vocational rehabilitation or other integration measures (7).

Especially from the perspective of the latter three suggestions, and the fact that the vocational rehabilitation intervention described in this thesis although not preventing job loss had a positive effect on mental health, a further development of the intervention, with subsequent evaluation, is warranted. With that further development, not only the pace and the communication with occupational physicians have to be taken into account. It should also be noted that the intervention described in this thesis did not include work site visits, where in the literature the importance of a work site visit to observe workplace issues first hand is emphasized. More research is needed to identify appropriate content for work site visits and their role in interventions aimed at retaining employment or facilitating return to work. In addition, it should be evaluated whether offering the intervention in a more early stage than the trial described in this thesis, where sick leave has not yet occurred, has an impact on its effectiveness.

Regarding future research on the epidemiology of work disability and chronic arthritis, and evaluations on the effectiveness of vocational rehabilitation interventions, a uniform definition and description of work disability is required. Although a definition as "complete work cessation (at least in part) caused by chronic arthritis prior to the normal age of retirement" is advocated, this does not take into account various other forms of work limitations encountered by patients with chronic arthritis. Examples of these are: partial work disability, being on complete or partial
sick leave, or still working but experiencing problems at work or with commuting. The use of a uniform set of parameters describing work status is recommended.

To conclude with, given the large burden of work disability in chronic arthritis, early identification of patients with threatened work ability is needed. Regarding vocational rehabilitation, there are various opportunities for the improvement of the interventions that are currently available. In connection with this improvement, enforcement of the role of employees with chronic arthritis and employers in the prevention of work disability and occupational rehabilitation, the early recognition of working problems and subsequent timely provision of interventions, and the communication between the rheumatologist or health professionals and the occupational physician are major topics to be addressed. General disability policy reforms having economic and social integration of the disabled as their key objective could enhance the realization of the above mentioned areas for improvement.

In future evaluations of vocational rehabilitation interventions as well as in epidemiological studies regarding work disability, the use of a uniform set of parameters to describe work status is recommended.

References
5. Training in co-operation: Rheumatology [Scholing in samenwerking: Reumatologie]. Training course for rheumatologists and occupational physicians, organized by the Boerhaave Commissie Leiden in cooperation with the Netherlands School of Public & Occupational Health (NSPOH) in connection with "Project Arbo Curatie Transmuraal II" (PACT II).
6. Rheumatic conditions and work [Reumatische aandoeningen en Arbeid]. Organized in cooperation with Edufit, in connection with the project "Improvement of cooperation between occupational physicians and a
multidisciplinary job retention vocational rehabilitation program for patients with chronic arthritis in the region Zuid-Holland” [Verbetering van de arbocuratieve samenwerking bij multidisciplinaire arbeidsbegeleiding voor mensen met chronische reumatische aandoeningen in de regio Noordelijk Zuid Holland], funded by ZON Mw, project nr. 3022.0018.