



# ARTHRITIS COMMUNITY RESEARCH & EVALUATION UNIT (ACREU)

The Wellesley Hospital Research Institute

*WORKING PAPER: 92-1*

## THE ARTHRITIS SOCIETY CONSULTATION & THERAPY SERVICE (CTS):

# A Retrospective Chart Review of Client Problems and Therapist Management

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*Prepared by:*

*Mary Bell  
Sydney Lineker  
Elizabeth M. Badley*

*Annette Wilkins  
Lyn Maguire*

**Mailing Address:**

c/o The Wellesley Hospital  
160 Wellesley Street East  
Toronto, Ontario  
M4Y 1J3

**Location:**

Churwell Site, 4th Floor  
65 Wellesley Street East  
Toronto, Ontario



The Wellesley  
Hospital

*In partnership with The Arthritis Society  
Ontario Division*



University of  
Toronto

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## EXECUTIVE SUMMARY

- Program evaluation has been an integral part of The Arthritis Society Consultation and Therapy Service (CTS). The most frequently requested intervention provided by the CTS is physiotherapy (PT) and the most frequently identified disease type referred to the CTS is inflammatory polyarthritis (IP). A randomized controlled trial to determine the efficacy of this intervention is underway. In order to design a scientifically rigorous study, characteristics of the PT intervention in clients with IP had to be determined. In 1992, a retrospective review of the charts of 57 clients with IP was conducted in order to describe client characteristics, client identified problems, treatment interventions given, and outcomes measured in clients who had received a CTS PT intervention.
- The sample under review consisted of the charts of those clients who received intervention by a CTS physiotherapist. In addition to regional and service criteria, the sample was limited to the charts of clients with suspected or confirmed IP who had received 4 or more physiotherapist visits, and whose case was opened after January 1990 and closed in March 1991. A consensus approach was used by the study team to develop chart extraction forms. A multi-disciplinary team of reviewers was chosen to reduce interpretational bias based on occupational focus. Chart extraction occurred in a controlled environment under the supervision of the research team. Inter- and intra-rater reliability rates were excellent, ranging from 96% to 100%.
- The population which was serviced by the CTS PT program, as represented by the charts reviewed, suggested that the consumers of the service were older women, most of whom were not employed, many of whom had other concurrent disorders and a chronic rheumatic disease condition. These characteristics reflected those identified for the entire 1991-1992 CTS caseload.
- Pain, limited activities of daily living, and lack of disease knowledge were the three most frequently identified **problems** requiring intervention by the CTS physiotherapists. Modalities of treatment (including heat, exercise, splints, etc.) and education were the two components of care most frequently recorded in the management of these problems.
- Approximately 53% of all identified problems had an outcome which was rated to be resolved or improved. When considered on an 'per case' basis, 67% of all clients reviewed had a positive resolution of at least one problem.
- The CTS Inflammatory Arthritis: Management Guidelines (IAMG) were developed as a management tool for the treatment of the most common client

problems. Quantification of the client identified problems revealed that 96% of these fell within the categories listed within the IAMG. This agreement suggests that the physiotherapy directors had accurately identified the most frequent problems of clients requiring home therapy and that the physiotherapists had appropriately identified those problems within their diverse caseloads. However, it was not possible to determine whether the interventions performed by the physiotherapists were appropriate, or to what extent the outcomes reflected the interventions employed.

- This study provided a descriptive analysis of the PT intervention. The lack of ability to attribute outcome to intervention supported the search for outcome measures which would accurately reflect **change** for the most frequently identified client problems (pain, activities of daily living, limited disease knowledge).

## **The Arthritis Society Consultation & Therapy Service (CTS): A Retrospective Chart Review of Client Problems and Therapist Management**

### **I. Introduction:**

The Arthritis Society (TAS), Consultation and Therapy Service (CTS) was established in 1950 to provide home therapy services for clients with rheumatic diseases whose therapeutic needs could best be met in the home setting. The CTS is funded by the Ontario Ministry of Health. In 1991/92, the program provided service to 7,167 people with arthritis and delivered 39,481 visits (mean 5.5 visits/client). CTS currently employs over 57 therapists (Physiotherapists, Occupational Therapists and Social Workers) based in 26 communities, covering an area populated by approximately 95% of Ontario residents. CTS therapists work with family physicians, internists, rheumatologists and other specialists on a referral basis. They also collaborate with Rheumatic Disease Unit treatment teams ensuring continuity of care in the community. Almost 50% of CTS clients have been diagnosed as having IP. The remaining clients have a variety of other arthritic and musculoskeletal disorders. Over 80% of referrals are made for physiotherapy (PT) interventions alone or in combination with occupational therapy or social work.

Clinical objectives of the CTS are: to improve the physical, emotional and social well-being of clients with arthritis; to reinforce and support the work of the health care team by bridging the gap between office visits or hospital care, and the home; to educate the client and immediate family in disease self-management; to provide an individualized physical and/or occupational therapy assessment and management program in the home, school or workplace; to facilitate client alliance with community resources; and, to provide counselling and psychosocial support.

Program evaluation has been an integral part of the CTS home therapy program. Two surveys of CTS clients have shown high levels of satisfaction with CTS services for physicians, therapists and clients.<sup>1,2</sup> Evaluations of the PT intervention for ankylosing spondylitis and the occupational therapy intervention for rheumatoid arthritis have also been performed.<sup>3,4</sup>

A methodologically rigorous study of the most frequently prescribed intervention (PT) for the most frequently identified disease entity (IP) has just been undertaken.<sup>5</sup> Before such a study could be designed, however, the components of the intervention needed to be defined.

In 1989, the physiotherapy directors of The Arthritis Society, Ontario Division, performed a chart review from which the ten most frequently identified client problems were selected. This review was followed by a consensus manoeuvre to prescribe appropriate therapeutic interventions for each problem. An internal document entitled,

"Inflammatory Arthritis: Management Guidelines" (IAMG)<sup>18</sup>, was created and circulated to all therapists in order to standardize PT interventions for CTS clients with IP.

Within this package, the ten most common problems encountered in the physical management of the client with IP are identified and accompanied by suggestions for successful management. The standardized management guidelines address interventions for: pain; limited knowledge of disease management; limited knowledge regarding the disease process; limited joint range of motion or stiffness; decreased muscle strength or weakness; joint deformity; fatigue and/or sleep disturbance; joint swelling or effusion; low level of physical fitness; and, limited activities of daily living.

A retrospective chart review of CTS clients was undertaken in order to answer the primary study question:

What are the components of care provided by the CTS PT program?

Secondary objectives of this study were:

- a) To describe the population serviced by the CTS PT program.
- b) To assess the effectiveness of the PT intervention as recorded by the therapists in the charts.
- c) To determine if actual care reflects the management goals as outlined by the PT program.
- d) To identify appropriate variables for collection prospectively.

A retrospective review of 57 charts was conducted to describe client characteristics, client identified problems, treatment interventions given, and outcomes measured in clients who had received a CTS PT intervention.

## **II. Methods**

### **1. Sample selection**

The review consisted of the charts of those clients who received an intervention by a CTS physiotherapist. Charts were selected from 5 regions within Ontario. An equal number of charts were selected from areas with PT only versus all 3 services (PT, Occupational Therapy, Social Work). The sample was limited to the charts of clients with suspected or confirmed IP who had received 4 or more physiotherapist visits, and whose case was opened after January 1990 and closed in March 1991. A complete copy of the eligible charts identified within each region were forwarded to the Arthritis Community Research and Evaluation Unit (ACREU) for review. An Identification Number (ID) was assigned to the chart upon receipt, and recorded on the Master List next to the client's full name, address and phone number etc. Prior to review, the

client's name was blinded from all pages of the chart; and only the ID was used to identify a client chart. Fifty-nine charts (100% of all requested) were received at ACREU; two clients had a diagnosis of Juvenile Rheumatoid Arthritis and thus were determined to be ineligible upon receipt. Charts were allocated sequentially by ID to each of the three reviewers. Representation of each region was equitable (see Table 1).

**Table 1: Charts received by region by reviewer.**

Region	Received	Ineligible	Total Reviewed	Reviewer Type		
				PT	OT	SW
Eastern	18	1	17	6	6	5
Central East	12	0	12	4	4	4
Central West	14	1	13	5	4	4
South Western	8	0	8	2	3	3
Northern	7	0	7	2	2	3
Total	59	2	57	19	19	19

## 2. Create chart extraction method

A pilot set of data extraction forms were designed and used by the senior physiotherapist and a physiotherapist/MD/epidemiologist (research team) to extract data from 20 charts. The completed forms were then reviewed by the research team to determine areas which required revision. Once consensus was reached, revised forms were created for the initiation session with the designated chart reviewers. The final forms incorporated the suggestions of the chart reviewers upon completion of their initiation sessions. The resultant extraction forms (Appendix A) covered 2 different domains:

**a Case Data Form:** This form extracted all variables from the CTS chart Case Data form. The information collected by this form included demographic, disease history, and PT management data.

**b Problem Management Form:** The CTS adopted the Problem Oriented Recording (POR) system of charting between 1983 and 1994. Problems identified conjointly by the client and therapist were recorded as well as their subsequent outcomes as a result of the PT intervention. These problems were copied verbatim by the reviewers onto the Problem Management Form and later recoded quantitatively.

### 3. *Train chart extractors*

A physiotherapist, occupational therapist and social worker from the Toronto CTS regional office were selected to review the charts. A multi-disciplinary team of reviewers was chosen to reduce interpretational bias based on occupational focus. The three reviewers had a high level of experience in arthritis care and demonstrated ability to quickly and competently learn the skills required for the data extraction process. To maximize the objectivity of the data extraction process, retraining occurred at regular intervals throughout the chart review manoeuvre (Table 2 and Appendix B).

**Table 2: Training of Chart Extractors**

CTS CHART REVIEW SCHEDULE		
FEB 24 1992	Orientation	This session highlighted the context of the study, the study goals and objectives, as well as the review of a common chart. Reviewers were provided with a package of two charts and data forms for home study.
MAR 3 1992	Training	This session began with an exercise in which reviewers extracted data from a complicated chart. Investigators and reviewers then met to discuss coding of the chart data. When consensus was reached on coding this chart, each reviewer was then assigned an additional 2 charts to review. Review of coding problems encountered with this set of charts were discussed. This one hour session was then followed by two hours of chart review in which each Reviewer extracted unique charts. A final discussion and retraining took place at the end of this session.
	Chart Review	
	Discussion & Retraining	
MAR 4 1992	Chart Review	This session consisted of three hours of review of unique charts followed by discussion.
	Consensus Discussion	
MAR 9 1992	Retraining	This session consisted of one hour of discussion and retraining followed by the review of charts which had been assigned but not yet completed by each reviewer.
	Chart Review	

### 4. *Establish reliability of chart extractors*

In total, 25 charts were commonly reviewed for determination of inter/intra-rater reliability (IIRR). The research team reviewed the four charts used in the multi-extraction IIRR exercises. Using a consensus approach, a Gold Standard for each IIRR chart was developed. These data were used to validate the inter-rater reliability measures.

### 5. *Perform chart extraction*

Chart extraction occurred in a controlled environment in which extractors did not collaborate. A member of the research team was available at all times to field



questions. Extraction activities took place in combination with training and consensus sessions (Table 2).

#### **6. Determine the most frequently identified client problems.**

The IAMG problem list was used to classify and quantify all client problems. Problems were classified using consensus approach during which each rater classified separately; disagreements were discussed and agreed upon or classified as 'other' if a resolution could not be easily reached.

#### **7. Analysis**

Data was managed and analyzed using SPSS PC+ Version 4.0 data entry and statistical package. Over 10% of all data entries were verified and the error rate was deemed acceptable (< 1%). Due to the nature of the analysis, missing data was minimal and, where necessary, considered in the interpretation of results.

One case data record was created for each chart (n=57). One problem management record was created for each problem identified by the therapists. The data from the 57 charts resulted in 162 problem management records.

Mean scores were compared by the Student's t-test or analysis of variance, with  $p \leq .05$  considered statistically significant. Correlations were assessed with Pearson's correlation coefficients.

### **III. Results:**

#### **1. Inter/Intra-rater Reliability**

Inter/Intra-rater consensus varied from 96-100% between and within reviewers, between and within the Gold Standard, and between the reviewers and the Gold Standard. This excellent rate of reliability is credited to the intensive training schedule which was interspersed with the chart extraction periods.

#### **2. Client characteristics (Table 3)**

The population which is serviced by the CTS PT program as represented by the charts reviewed suggests that the consumers of the service are older women (mean age 61.6 years; 84% female), most of whom are not employed (79%), many of whom have other concurrent disorders (43%) and a chronic rheumatic disease condition (mean duration 9.5 years). These characteristics reflect those identified for the total 1991-1992 CTS caseload.<sup>7</sup>

**Table 3: Client Demographics: Chart Review cases versus all new inflammatory polyarthritis referrals for CTS physiotherapy in 1990**

		Chart Review Cases (n = 57)		TAS Data base: new physio refs (n = 1,302)
		f	%	
Gender	female	48	84	79%
	male	9	15	21%
Concurrent Disorders	none	32	56	not available
	one or more	25	44	
Employment Status	employed	12	21	not available
	other	45	79	
Age	mean (SD)	61 (16)		58
	min-max	24-85		18-96
Disease Duration (yrs)	mean (SD)	9.5 (11)		8.5
	min-max	0-41		0-75

**3. Client identified problems (Table 4) and treatment interventions (Table 5)**

Problems extracted during the chart review were reviewed and quantitatively classified by IMAG category (1-10). Quantitative analysis identified Pain, Limited Activities of Daily Living and Lack of or Limited Knowledge regarding Disease Management as the three most frequently identified problems addressed by the CTS physiotherapists (Table 4). By far, the most frequently prescribed interventions for identified problems were Modalities of Treatment (which includes the utilization of exercise, heat, ice, splints, footwear, aids, etc.) followed by Education (which includes energy conservation, joint protection, disease information, self-advocacy, self-efficacy, etc.) (Table 5).

**Table 4: Client Identified Problems**

PROBLEM TYPE:	f	%
Pain	62	38.3
Limited Activities of Daily Living	23	14.2
Lack of Knowledge re: Disease Management	22	13.6
ROM / Stiffness	14	8.6
Lack of/Limited Disease Knowledge	10	6.2
Muscle Weakness	9	5.6
Swelling/Effusion	8	4.9
Miscellaneous	7	4.3
Joint Deformity	4	2.5
Fatigue/Sleep	2	1.2
↓ Physical Fitness	1	0.6
	162	100.0

**Table 5: Treatment Interventions (Clients may receive more than one)**

Intervention Category	Specific intervention within category	f •(n = 162)	%
Modalities of Treatment	1 or more (ie exercise, heat, ice, aids)	135	83.3
Education	1 or more (ie energy conserv'n, joint protect'n)	46	28.4
Therapist Advocacy	1 or more	8	4.9
Referrals	1 or more	8	4.9
Miscellaneous	1 or more	5	3.1
Social Support	1 or more	1	0.6
Counselling	1 or more	1	0.6

#### 4. *Outcomes measured (Table 6)*

Approximately 53% of all identified problems (n=162) had an outcome which was rated by the therapist to be resolved or improved. However, when considered on an individual basis, 67% (38/57 clients) had a positive resolution of at least one problem. Considering the age of the group being serviced, the chronicity of disease and the rate of concurrent medical conditions, the positive resolution of at least one problem over the limited period of therapy (83% of clients had  $\leq 9$  therapist visits in total) would indicate that the CTS intervention is effective in meeting the therapeutic needs of the population it services.

**Table 6: Frequency of Outcome**

		f (n = 162)	%
Outcome Type	Resolved/Improved	87	53.7
	No Change	41	25.3
	Worse	0	0.0
	Referred	9	5.6
	Not Assessed/Missing	25	15.4
Total		162	100.0

From the multitude of data collected, we were able to address the study question and objectives identified while designing this project.

**Primary study question:**

- 1. What are the components of care provided by the CTS PT program for clients with IP?***

The retrospective chart review identified pain, limited disease knowledge and limited activities of daily living as the three most frequent problems requiring intervention by the CTS physiotherapists. Modalities of treatment and education were the two components of care most frequently recorded in the management of these problems. Debriefing of chart reviewers indicated however, that interventions of counselling, therapist advocacy and social support are vastly under-recorded during routine charting procedures. It is postulated that the frequency of education, counselling, therapist advocacy and social support as components of care is actually much higher than this analysis indicates. A revised charting system would allow for more efficient recording of interventions and outcomes.

**Secondary study objectives:**

- 1. To describe the population serviced by the CTS PT program.***

Results of the chart review suggest that the consumers of CTS service are older women (mean age 60.6 years; 84% female), most of whom are not employed (78.9%), many of whom have other concurrent disorders (43%) and a chronic rheumatic disease condition (mean duration 9.5 years). Group sub-analyses have identified that these general characteristics do not differ between the regions represented in the study.

**2. To assess the effectiveness of the PT intervention.**

Approximately 54% of all identified problems (n=162) had an outcome which was rated to be resolved or improved by the therapist. However, when considered on an individual basis; 67% (38/57 clients) had a positive resolution of at least one problem. Considering the age of the population being serviced, the chronicity of disease and the rate of concurrent medical conditions; the positive resolution of at least one problem over the limited period of therapy (83% of clients had  $\leq 9$  therapist visits in total) would indicate that the PT intervention is effective in meeting the therapeutic needs of the population it services. It was not clear from the charts how much the therapist rating of outcome was related to objective outcomes of the client's assessment of change.

**3. To determine if actual care reflects the management goals as outlined by the PT program.**

The IAMG were developed as a management tool for the treatment of the most common client problems. Quantification of the 162 client problems revealed that 96% of these problems fell within the categories listed within the IAMG. Components of care utilized in the management of these problems also fell within the treatment specifications set forth in the IAMG. This agreement suggests that the physiotherapy directors accurately identified the most frequent problems of clients requiring home therapy and that the physiotherapists have appropriately identified those problems within their diverse caseloads.

**4. To identify appropriate variables for collection prospectively.**

As noted previously, the 3 most frequent problems requiring intervention were pain, limited knowledge regarding disease management and limited activities of daily living. All future plans to evaluate the program must include outcome measures which will ensure adequate coverage of these three areas.

#### **IV. Summary**

In summary, we developed a method of chart extraction which included the design of extraction forms. We identified and trained the chart reviewers and established acceptable inter-rater and intra-rater reliability. We reviewed 57 charts from all 5 regions of the province, including an equal number from areas with all 3 services and areas with PT services only. Analysis of the data contained within these charts resulted in the identification of the population serviced, the major problems addressed by the physiotherapists, and the most frequently recorded interventions.

Quantification of the client problems identified through the chart review revealed that

96% of these problems fell within the categories listed within the IAMG. This agreement suggests that the physiotherapy directors have accurately identified the most frequent problems of clients requiring home therapy and that the physiotherapists have managed these problems within their diverse caseloads. However, it was not possible to determine whether the interventions performed by the physiotherapists were appropriate, or to what extent the outcomes reflected the interventions employed.

This study has provided a descriptive analysis of the current CTS PT intervention for clients with IP. The lack of ability to attribute outcome to intervention supports the search for outcome measures which would accurately reflect **change** for the most frequently identified client problems (pain, activities of daily living, limited disease knowledge). These results will be incorporated into the development of a prospective study in the ongoing evaluation of the CTS.

Patient ID# 1110131

REVIEWER NUMBER: 3 INITIALS LLL

DATE OF REVIEW: DD 29 MM 03 YY 92

Service Area	A
Service	1 Physiotherapy 2 Social Work 3 Occupational Therapy
Gender	1 Male 2 Female
OHIP	111451213111211
City	Milford?
Postal Code	K1O1A121P10
Marital Status	1 Married 2 Widow/Widower 3 Single 4 Divorced 5 Other _____ 9 Missing from chart
Date of Birth	DD 01 MM 06 YY 40 ineligible if DOB is after 01 01 1972
Referring Phys	Dr. Koval
Referring Physician Type	1 Rheumatologist 2 GP 3 Internist 4 Orthopaedic Spec 5 Other _____
City	Pictou
Postal Code	K1O1A121T10
Patient received Service before?	1 Yes 2 No
Consultant or Physician	N/A
Type	1 Rheumatologist 2 GP 3 Internist 4 Orthopaedic Spec 5 Other _____
City	N/A
Postal Code	1111111111 N/A
Date of Referral	DD 04 MM 06 YY 92
Date of Opening	DD 21 MM 06 YY 92
Referral Source	1 Regular 2 RDU 3 HomeCare 4 Clinic

Occupation	Arthritis Related?	Arthritis Related?		
		1 Yes	2 No	8 NR
1 Employed Fulltime		1 Yes	2 No	8 NR
2 Part-time		1 Yes	2 No	8 NR
3 Self Employed		1 Yes	2 No	8 NR
4 Homemaker		1 Yes	2 No	8 NR
5 Student		1 Yes	2 No	8 NR
6 Not working at present		1 Yes	2 No	8 NR
7 Retired/voluntary idle		1 Yes	2 No	8 NR
8 Unemployed & looking for work		1 Yes	2 No	8 NR
9 Maternity leave		1 Yes	2 No	8 NR
10 Temporarily laid off		1 Yes	2 No	8 NR
11 Sick Leave		1 Yes	2 No	8 NR
12 Long Term Disability		1 Yes	2 No	8 NR
13 Short Term Disability		1 Yes	2 No	8 NR
14 Unemployment Insurance		1 Yes	2 No	8 NR
15 Other _____		1 Yes	2 No	8 NR
99 Missing from chart				

NR = not recorded

\* circle all that apply

\* check against job status in body of the chart

Job Name	Farmer
Primary Diagnosis	1 03 1 Confirmed 2 Suspected
If Diagnosis Code 1	indicate if JRA: 1 Yes 2 No
Duration	1 01 07 1 Months 2 Years
Concurrent Disorders/Precautions	1   _____   2   _____   3   _____   4   _____   5   _____   6   _____
Date of Closure	DD 10 MM 04 YY 91
Home Care	1 Yes 2 No
Total HC Attend.	100
Total Attendances	104
Total No Shows	100
Total Cancellations	100
Date of First Visit	DD 21 MM 06 YY 92
Date of Last Visit	DD 27 MM 09 YY 92

\* within the last 12 months

\* must be relevant

\* N/S use next visit

**CTS CHART REVIEW**

**Clinical Features & Problem List**

Patient ID# | 1 | 0 | 3 |

REVIEWER NUMBER: | 3 | INITIALS: | | |

DATE OF REVIEW: DD | 0 | 9 | MM | 0 | 3 | YY | 8 | 2 |

CLINICAL FEATURES: All clinical features may not have been assessed per visit.

Date	Joint Count	AM Stiffness	Grip Right #/20	Grip Left #/20	Fibro Points #/14	VAS Pain #/10	Other
DD   2   1   MM   0   6   YY   9   0	02	3   0   hrs   0   0   min	N/A	N/A	0	N/A	
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					
DD       MM       YY		hrs       min					

PROBLEM LIST: Use this list to assign problem management forms.  
 In the case of conflicting numbers, the problem number assigned on the Problem List page supersedes problem numbers assigned throughout chart.

No.	PROBLEM TITLE
1	Chronic pain (R) sh.
2	Occasional (L) hip pain
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	



**CTS CHART REVIEW**

**Problem Management Form**

Patient ID# | 103 |

REVIEWER NUMBER: | 2 | INITIALS: | | |

DATE OF REVIEW: DD | 02 | MM | 03 | YY | 92 |

NO.	<u>01</u>   OF   <u>02</u>			
PROBLEM TITLE	<u>Chronic Pain (R) sh</u>			
Date	DD   <u>21</u>   MM   <u>06</u>   YY   <u>92</u>			
		Action Recorded		
		E	TA	C
Education	1 energy conservation	YN	YN	YN
	2 joint protection	YN	YN	YN
	3 self-efficacy	YN	YN	YN
	4 family education	YN	YN	YN
	5 medication	YN	YN	YN
	6 disease information	YN	YN	YN
	7 pain management	YN	YN	YN
	8 self-advocacy	YN	YN	YN
	10 community resources	YN	YN	YN
	11 other	YN	YN	YN
	12 other	YN	YN	YN
	Modalities of treatment	1 splint-custom	YN	YN
2 insoles-custom		YN	YN	YN
2 ice		YN	YN	YN
3 heat		YN	YN	YN
4 exercise		YN	YN	YN
5 relaxation		YN	YN	YN
6 massage		YN	YN	YN
7 aids, list below:		YN	YN	YN
_____		YN	YN	YN
_____		YN	YN	YN
8 other	YN	YN	YN	
_____	YN	YN	YN	
10 other	YN	YN	YN	
_____	YN	YN	YN	
Social Support	1 therapist-patient	YN	YN	YN
	2 therapist- family	YN	YN	YN
	3 crisis intervention	YN	YN	YN
	4 other	YN	YN	YN
	_____	YN	YN	YN
5 other	YN	YN	YN	
Therapist Advocacy	1 with family gp/spec	YN	YN	YN
	2 social services	YN	YN	YN
	3 letters (CPP etc)	YN	YN	YN
	4 other	YN	YN	YN
	_____	YN	YN	YN
5 other	YN	YN	YN	

KEY FOR ACTION RECORDED	
E	Education Only
TA	Therapist Active: performance/demonstration/fabrication etc.
C	Reported patient compliance/performance
CIRCLE:	
Y	Yes
N	No

		Action Recorded		
CONTINUED...		E	TA	C
Counseling	1 contact with employer	YN	YN	YN
	2 with spouse/family	YN	YN	YN
	3 other	YN	YN	YN
	4 other	YN	YN	YN
Referrals	1 referral to social work	YN	YN	YN
	2 referral to md/specialist	YN	YN	YN
	3 hydrotherapy	YN	YN	YN
	4 Home Care (HC)	YN	YN	YN
	5 HC - nursing	YN	YN	YN
	6 HC - OT	YN	YN	YN
	7 HC - homemaking	YN	YN	YN
	8 HC - lab	YN	YN	YN
	10 HC - transport	YN	YN	YN
	11 HC - drug card	YN	YN	YN
	12 TAS - OT	YN	YN	YN
	13 TAS - SW	YN	YN	YN
	14 footwear	YN	YN	YN
	15 other	YN	YN	YN
	16 other	YN	YN	YN
	Miscellaneous	1 _____	YN	YN
2 _____		YN	YN	YN
3 _____		YN	YN	YN
Outcome Date	DD   <u>10</u>   MM   <u>04</u>   YY   <u>92</u>			
Outcome Type	1 Resolved 2 Improved ③ No Change 4 Worse 5 Referred 6 Not Assessed			

CTS CHART REVIEW

Problem Management Form

Patient ID# | 103 |

REVIEWER NUMBER: | 3 | INITIALS: | | |

DATE OF REVIEW: DD | 09 | MM | 03 | YY | 22 |

NO.	0   2   OF   0   2			
PROBLEM TITLE	Occasional W-hip pain			
Date	DD   21   MM   12   YY   12			
		Action Recorded		
		E	TA	C
Education	1 energy conservation	YN	YN	YN
	2 joint protection	YN	YN	YN
	3 self-efficacy	YN	YN	YN
	4 family education	YN	YN	YN
	5 medication	YN	YN	YN
	6 disease information	YN	YN	YN
	7 pain management	YN	YN	YN
	8 self-advocacy	YN	YN	YN
	10 community resources	YN	YN	YN
	11 other	YN	YN	YN
	12 other	YN	YN	YN
Modalities of treatment	1 splint-custom	YN	YN	YN
	2 insoles-custom	YN	YN	YN
	2 ice	YN	YN	YN
	3 heat	YN	YN	YN
	4 exercise	YN	YN	YN
	5 relaxation	YN	YN	YN
	6 massage	YN	YN	YN
	7 aids, list below:	YN	YN	YN
		YN	YN	YN
		YN	YN	YN
		YN	YN	YN
	8 other	YN	YN	YN
	10 other	YN	YN	YN
Social Support	1 therapist-patient	YN	YN	YN
	2 therapist- family	YN	YN	YN
	3 crisis intervention	YN	YN	YN
	4 other	YN	YN	YN
	5 other	YN	YN	YN
Therapist Advocacy	1 with family gp/spec	YN	YN	YN
	2 social services	YN	YN	YN
	3 letters (CPP etc)	YN	YN	YN
	4 other	YN	YN	YN
	5 other	YN	YN	YN

KEY FOR ACTION RECORDED	
E	Education Only
TA	Therapist Active: performance/demonstration/fabrication etc.
C	Reported patient compliance/performance
CIRCLE:	
Y	Yes
N	No

CONTINUED...		Action Recorded		
		E	TA	C
Counselling	1 contact with employer	YN	YN	YN
	2 with spouse/family	YN	YN	YN
	3 other	YN	YN	YN
	4 other	YN	YN	YN
Referrals	1 referral to social work	YN	YN	YN
	2 referral to md/specialist	YN	YN	YN
	3 hydrotherapy	YN	YN	YN
	4 Home Care (HC)	YN	YN	YN
	5 HC - nursing	YN	YN	YN
	6 HC - OT	YN	YN	YN
	7 HC - homemaking	YN	YN	YN
	8 HC - lab	YN	YN	YN
	10 HC - transport	YN	YN	YN
	11 HC - drug card	YN	YN	YN
	12 TAS - OT	YN	YN	YN
	13 TAS - SW	YN	YN	YN
	14 footwear	YN	YN	YN
	15 other	YN	YN	YN
	16 other	YN	YN	YN
Miscellaneous	1	YN	YN	YN
	2	YN	YN	YN
	3	YN	YN	YN
Outcome Date	DD   10   MM   11   YY   21			
Outcome Type	1 Resolved 2 Improved 3 No Change 4 Worse 5 Referred 6 Not Assessed			

## Appendix B: Training of Chart Reviewers & Chart Review Process

In order to maximize the objectivity of the data extraction process, training and retraining occurred at regular intervals throughout the chart review (See Table 1).

Training consisted of:

- a) February 24, 1992 an initial orientation which highlighted the context of the study, the study goals and objectives, as well as the review of a common chart. Reviewers were provided with a package of two charts and data forms for home study.
- b) March 3, 1992 reviewers extracted data from a complicated chart. Investigators and reviewers then met to discuss coding of the chart data. When consensus was reached on coding this chart, each reviewer was then assigned an additional 2 charts to review. Review of coding problems encountered with this set of charts were discussed. This one hour session was then followed by two hours of chart review in which each Reviewer extracted unique charts. A final discussion and retraining took place at the end of this session.
- c) March 4, 1992 three hours of review of unique charts followed by discussion.
- d) March 9, 1992 one hour of discussion and retraining followed by the review of charts which had been assigned but not yet completed by each reviewer.

Table 1: Schedule of Training, Inter/Intra-Rater Reliability (IIRR) and Chart Review

CTS CHART REVIEW SCHEDULE			Physiotherapist	Occup Therapist	Social Worker									
MONDAY MARCH 3	1:00-2:00	Training	X	X	X									
	2:00-4:00	Chart Review	PHYSIOTHERAPY ONLY CHARTS											
		IIRR	A	B	C	D	A	B	C	D	A	B	C	D
		Individual	# completed/10				# completed/10				# completed/10			
	4:00-5:00	Discussion & Retraining	X	X	X									
TUESDAY MARCH 4	9:00-12:00	Chart Review	FULL SERVICE CHARTS											
		IIRR	A	B	C	D	A	B	C	D	A	B	C	D
		Individual	# completed/10				# completed/10				# completed/10			
	12:00-1:00	Consensus Discussion	X	X	X									
MONDAY MARCH 9	2:30-3:30	Retraining	X	X	X									
	3:30-5:30	Chart Review	OUTSTANDING CHARTS: EITHER GROUP											
		IIRR	A	B	C	D	A	B	C	D	A	B	C	D
		Individual	# outstanding/20				# outstanding/20				# outstanding/20			

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