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Components and organizational determinants of workplace interventions designed to facilitate early return to work

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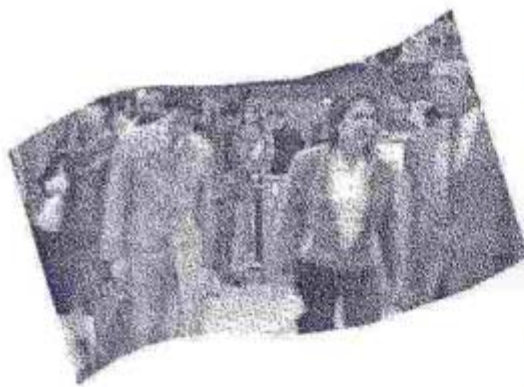
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Components and Organizational Determinants of Workplace Interventions Designed to Facilitate Early Return to Work

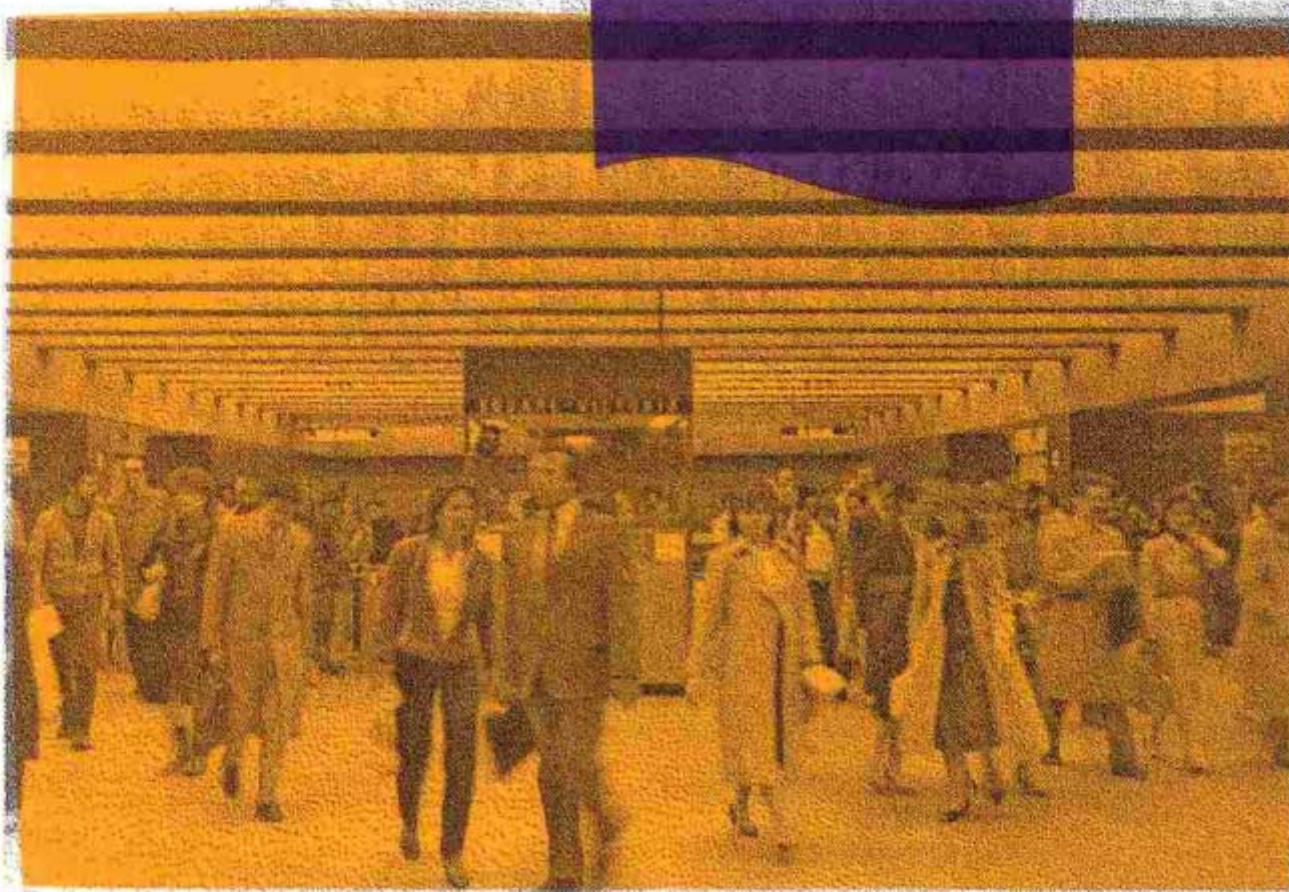
Raymond Baril
Diane Berthelette

ÉTUDES ET RECHERCHES



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SUMMARY



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Components and Organizational Determinants of Workplace Interventions Designed to Facilitate Early Return to Work

ÉTUDES ET RECHERCHES

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SUMMARY



SUMMARY

Objective: This exploratory research was undertaken to develop a conceptual framework and a theoretical model of the organizational determinants of workplace interventions designed to facilitate the early return to work of workers suffering from occupational injuries.

Method: The initial phase of this research was a literature review of the components of early return to work interventions and the organizational factors influencing their implementation. This was followed by a descriptive study of the characteristics of the workers forming the target population of the early return to work policy of the CSST. The study population was composed of all cases of occupational injury reported by the CSST's Montreal 3, Montreal 4, Montreal 5, and Eastern Townships regional offices between January 1994 and March 1997; these were recorded in the CSST's RMLE.DRS (compensation, early return to work, detection, and follow-up) database. Bivariate, correspondence and ascending hierarchical classification analyses were used to identify four population-level scenarios, i.e. situations with common characteristics, as well as scenarios applicable to workers having benefited from occupational reintegration measures. Finally, 16 detailed case studies were conducted, using semi-directed interviews of the personnel of companies in the accommodation, printing, furniture, and sawmill sectors and of CSST representatives.

Results: The quantitative analyses revealed that early return to work measures were implemented in 21.4% of cases reported by the four regional offices between January 1994 and March 1997. Data from the CSST database indicated that temporary reassignment, sometimes accompanied by progressive return to work, was characteristic of almost 90% of cases in which early return to work measures were implemented. Data from the CSST database indicated that in almost 90% of cases, early return to work measures were associated with temporary reassignment, and in some cases, with progressive return to work. However, the results of the case studies, conducted in 1998, indicate that the CSST database underestimates the number of workers benefiting from early return to work measures. In fact, during data collection, it was observed that early return to work measures had been implemented in 15 of the 16 case-study companies within the last year.

The multidimensional analyses revealed that three typical scenarios, representing 37.3% of cases, were characterized by the **absence of early return to work measures**. Two scenarios, representing 33.9% of all cases, were characterized by the **presence of early return to work measures**.

Data from interviews of employer and employee representatives revealed variation in workplace interventions designed to promote early return to work. The intervention **process** was found to comprise the **formalisation** and **standardization** of temporary reassignment procedures, the **continuity** of the relation between the organization and workers, and the **flexibility** of early return to work measures. Employer representatives appear to have primary responsibility for the **structure** of early return to work measures. **Three structural models** were identified: one in which the employer's representative is the sole actor, one characterized by teams composed of both employer and worker representatives, and one characterized by heterogenous groups composed of workplace stakeholders and external resources.

The following structural characteristics of companies were found to influence the manner in which early return to work measures were implemented, and the type and magnitude of allocated resources: the company's economic sector, size and financial health, the presence or absence of a union, the characteristics of health and safety committees, and the presence or absence of prevention programs.

Furthermore, it appears that the implementation of formal OHS procedures promotes the formalization of early return to work policies and the standardization of interventions. The following factors related to collective agreements were found to hinder the implementation of early return to work measures: 1) The application of seniority clauses when temporarily reassigning workers; 2) Awareness of these clauses by the various parties concerned; and 3) A poor work climate. This last factor also hinders the adoption of specific agreements that modify or suspend the application of the collective agreement. The presence of multiple unions within a company was a further obstacle to temporary reassignment.

Variations in the attitudes, values, causal attributions and behaviour of various organizational parties appear to affect the work climate as well as intra-organizational relations and collaboration. While the attitudes and values of those responsible for occupational re-integration appear to be of crucial importance, those of upper management may influence the amount of resources available for early return to work interventions. Communication was improved and task assignment was more flexible in situations involving supervisors and production managers sensitive to the plight of injured workers. Furthermore, supervisors and production managers whose performance evaluation reflected the impact of occupational injuries and the costs engendered by work absences were more inclined to temporarily reassign injured workers. Union representatives' attitudes towards early return to work measures appear to be determined by the perceived objectives of these interventions, the severity of the injuries and workers' acceptance of the measures. Coworkers' attitudes also play a role in determining the support offered to workers upon their return to work.

The flexibility of task assignment depends on the manner in which work is organized. Fewer reassignment positions are available when the work is highly specialized or physically demanding, subcontracting is prevalent, and workers enjoy little job security. The effects of modernizing operations depends on whether this results in layoffs.

Specialists in the public health and safety network play a vital role, by providing expertise which most respondents found facilitated the implementation of early return to work interventions and the processing of case files. On the other hand, contact between companies and workers' attending physicians was rare. Respondents felt that physician's inadequate knowledge of workplaces and task requirements may hinder early return to work. Excessive social proximity, characteristic of certain regions, may result in the stigmatization of workers, and hinder early return to work.

Although CSST respondents believed that workers' social and demographic characteristics may affect return to work, company respondents rarely referred to these characteristics, or to injury-related factors, when describing the implementation of early return to work measures.

The bivariate analyses revealed that the provision of early return to work measures was dependent on workers' age (more prevalent among workers aged 30-39 years), sex, and occupation. Furthermore, workers suffering inflammation and injuries to the upper limbs and shoulders were more likely to be the beneficiaries of early return to work measures.

The multidimensional analyses illustrate the complex relationships which exist between workers' social and demographic characteristics, the characteristics of workers' injuries, the structural characteristics of companies, and the implementation of early return to work measures. These results indicate that differences in the nature and site of injury may explain intra-sectoral variations in the implementation of early return to work measures.

The theoretical model which emerges from our results indicates that both work organization and the structural characteristics of early return to work measures are dependent on the company's size and economic sector of activity. The structure of early return to work measures influences the process by which they are implemented (formalization, standardization, systematization, flexibility, continuity). The company's organizational characteristics (type of injury, work organization, corporate culture, rules, intra-organizational relations) and social environment (OHS-sector actors, social proximity) both exert modulating effects.

Conclusion: The theoretical model described above will be further analyzed and empirically tested in the second phase of this project. Further research is needed to evaluate whether different types of early return to work measures result in differences in the duration of absence from regular tasks, number of relapses and aggravation of injuries, and whether organizational factors affect the effectiveness of early return to work measures.

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TABLE OF CONTENTS

SUMMARY	i
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS	vii
LIST OF FIGURES AND TABLES	ix
1. INTRODUCTION	1
2. LITERATURE REVIEW	3
3. METHODS	7
4. RESULTS	9
4.1 Descriptive analyses of the population	9
4.2 Qualitative Analyses	15
4.2.1 Characteristics of early return to work measures	16
4.2.2 Organizational characteristics	18
4.2.2.1 Organizational structure	18
4.2.3 Organizational rules	20
4.2.4 Organizational culture	20
4.2.4.1 Upper management	20
4.2.4.2 Health and safety personnel	21
4.2.4.3 Production managers and supervisors	21
4.2.4.4 Union representatives	22
4.2.4.5 Coworkers	22
4.2.4.6 Workers	22
4.2.5 Work organization	23
4.2.6 Intra-organizational relations	23
4.2.7 Interorganizational relations	25
4.2.8 Social and demographic characteristics of injured workers	26
4.2.9 Characteristics of injuries	27
5. CONCLUSION	29
BIBLIOGRAPHY	35
APPENDIX A Ascending hierarchical classification, entire population	47
APPENDIX B Ascending hierarchical classification, beneficiaries of early return to work measures	51

LIST OF FIGURES AND TABLES

Figure 1.	Variables with a statistically significant positive correlation to the presence of early return to work measures	10
Figure 2.	Variables with a statistically significant positive correlation to the absence of early return to work measures.....	12
Figure 3.	Theoretical framework.....	15
Figure 4.	Theoretical framework for the implementation of early return to work measures.....	32
Table 1.	Ascending hierarchical classification, entire population	48
Table 2.	Ascending hierarchical classification, beneficiaries of early return to work measures	52

1. INTRODUCTION

In 1993, the Commission de la santé et de la sécurité du travail du Québec (CSST, Québec occupational health and safety commission) developed a policy regarding early return to work, designed to increase the percentage of workers who return to their original work following an occupational accident or disease. Victims of occupational injury who are absent from work more than 45 days constitute the policy's target population. In concrete terms, application of the policy is supposed to result in the implementation of temporary or permanent return to work solutions developed jointly by workers, worker or union representatives, employers and attending physicians. To identify research needs in the field of occupational re-integration, the IRSST organized meetings between its researchers and professionals, researchers and professionals from the Université du Québec à Montréal's School of Management, and members of the CSST's rehabilitation division.

The research reported here was undertaken to respond to specific needs identified during these meetings, and more specifically, to identify organizational characteristics that favour the early return to work of injured workers. This is thus essentially an exploratory study designed to develop a conceptual framework and a theoretical model of the organizational determinants of return to work. The research proceeded in three stages:

- A literature review of prescriptive documents and of scientific articles on the characteristics of early return to work interventions and on the organizational factors which affect their implementation.
- A descriptive study of the characteristics of workers in the population targeted by the CSST's early return to work policy, using CSST computer files from four of its regional offices (Montreal 3, Montreal 4, Montreal 5, and the Eastern Townships).
- Detailed case studies, based on interviews with employer and worker representatives from the accommodation, printing, furniture and sawmill sectors, of eight companies. Returning a relatively high number of workers and eight companies returning a relatively low number of workers.

2. LITERATURE REVIEW

Interest in early return to work intervention took off in the 1980's in North America. This phenomenon appears to have been largely a result of advances in rehabilitation, participation of unions in such interventions, and the constellation of cultural, social and economic factors which led companies to value their workforces more highly. There appears to be consensus that preventing occupation-related disability can reduce its human and financial costs for workers, companies and society as a whole.

Early return to work programs referred to in the literature are heavily influenced by the integrated disability management model developed in the United States, whose ultimate objective is the reduction of the prevalence of disability and its impact on workers and companies. Several prescriptive documents have reviewed the **theoretical bases** of these programs, the most important of which are:

1. Injured workers must return to work as quickly as possible, and their workstation must be safe
2. Early return to work depends on workers having rapid access to rehabilitation services
3. Return to work must allow workers to gradually increase the work capacities and eventually return to full-time work
4. Task requirements for injured workers must be consistent with workers' abilities and reinforce their self-esteem
5. Return to work measures must be flexible
6. The organizational climate must embrace return to work programs and promote the psychological support of workers
7. Program content must be supported by public-health interventions¹
8. Programs must be evaluated and the results of the evaluation used to improve the programs, if necessary

In general it is recommended that the early return to work process includes the following activities:

1. Rapid processing of requests for compensation, in order to avoid conflict
2. Objective evaluation of workers' capacities
3. Regular and sympathetic contacts of companies with workers, in order to establish a gradual return to work program, reinforce workers' self-esteem, and reassure employers about workers' rehabilitation
4. Identification of task requirements

¹ Needs identification, formulation of objectives, identification of activities and attribution of resources.

5. Communication between companies and workers' attending physicians, in order to exchange information on workers' capacities, requirements of the tasks to which workers are to be reassigned, and possible modifications to workers' workstations
6. Flexible work organization consistent with the following measures, which may be applied individually or in combination: temporary or permanent reassignment, task modification (with or without coworkers' help), increased work schedule flexibility, ergonomic workstation redesign, and worker training

Furthermore, early return to work programs should possess the following **structural characteristics**:

1. Oversight by an interdisciplinary team.
2. Participation of all relevant parties in the establishment and application of the program.
3. Presence of a program director responsible for task allocation, resource coordination, and coordination of the activities of internal and external resources involved in the rehabilitation process.

Several articles have addressed the question of the effect of organizational factors—especially factors related to work organization and organizational structure and culture—on the establishment and application of return to work interventions. In general, it is recommended that workers and employers clearly state their expectations, in order to avoid misunderstandings that degrade the work climate. Furthermore, upper and middle management must be committed to the success of early return to work programs.

The **organizational culture** must be characterized by:

1. Employer representatives, union representatives and coworkers being sympathetic to the plight of injured workers.
2. Positive attitudes to injury reporting and return to work.
3. Emphasis on the long-term performance of the program rather than on the organization's short-term productivity; health and safety training of upper and middle management can help ensure this goal.

The following points regarding the **corporate structure and work organization** have been noted:

1. Positions suitable for reassigned workers may be rarer in workplaces characterized by repetitive tasks with high cadences or requiring significant exertion
2. In companies with fewer than 500 employees the implementation of return to work measures is facilitated by the presence of greater schedule and task flexibility, and more direct communication between management and employees
3. In companies with more than 500 employees, the implementation of return to work measures is facilitated by certain characteristics of the workforce, and the financial

stability, availability of health and safety resources and number of positions typical of these companies

In their literature review, Shrey and Olsheski (1992) drew up a profile of American rehabilitation interventions and highlighted how these interventions diverged from the integrated disability management model. Most of the interventions reviewed were preoccupied with providing services to individual workers only. Clauses concerning access to modified work were present in most of the collective agreements, with access to modified work a function of seniority.

Studies on the opinions of rehabilitation specialists are rare, compared to the volume of prescriptive documents. The characteristics of interventions these specialists consider effective do not differ significantly from those set out in prescriptive documents.

Only one empirical study has analyzed the association between organizational characteristics and the implementation of early return to work measures (Shoemaker, 1989). The results revealed that the following factors account for 21.3% of the variation of the resistance to return to work policies: bureaucratic management practices, the value the company places on its workforce, and the priority given to training and work modification designed to ensure the early return to work of disabled workers. Bureaucracy is positively associated with the dependent variable (i.e. resistance to policy implementation) while cultural variables are negatively associated.

Only one Quebec study, based on responses from representatives of employers and unions of the Confederation of National Trade Unions in the CSST's three highest priority industrial groups, has examined temporary reassignment (Lévesque, 1993). Temporary reassignment was practised in one-third of the companies; almost one-third of the companies assigned workers to their original tasks, while 19.8% assign them to essentially symbolic tasks. Tasks were modified in 24% of cases, and 10% of respondents indicated that positions were reserved for temporary reassignment in their company. Furthermore, almost 75% of union respondents reported that their collective agreement contained a clause concerning return to work following occupational-injury-related absences, and 43% reported the presence of clause concerning temporary reassignment specifically. The following variables were positively associated with temporary reassignment:

- Membership in one of the CSST's three highest-priority industrial groups
- The type of union federation
- Company size
- Internal occupational health and safety resources (company physicians, corporate health department, administrative personnel whose primary responsibility is health and safety)
- Changes in the incidence of occupational accidents and diseases or of the duration of work absence
- Increases in the number of appeals filed by employers
- Failure to report occupational injuries

Other studies have analyzed the determinants of the return to work of disabled workers. Hocking et al. (1993) and Wood (1987) evaluated the results of return to work interventions, but fail to characterize the interventions in sufficient detail to allow compliance with regulatory requirements to be assessed. This was also true of two Ontario studies (Butler et al., 1995; Johnson and Baldwin, 1993), although their results suggest membership in a union and employment in the public sector increase the probability of return to work. Baril et al. (1994) considered the following aspects of organizational culture to be important:

1. Favourable attitude to rehabilitation, temporary reassignment, progressive return to work and occupational re-integration
2. Recognition of workers' competence and work
3. Favourable attitude to the recognition of the work-regardless of accidents

According to this study, a favourable work climate and, especially, the application of collective-agreement clauses concerning reassignment and seniority, are advantageous.

Furthermore, structural characteristics, generally related to company size, may account for variations in the implementation of return to work measures. For example, large companies can allocate more financial resources to workstation modification than can small and medium-sized companies. Lacking medical and ergonomic resources, it is relatively difficult for the latter groups to ensure that task requirements are well suited to workers' capacities. This situation increases workers' and employers' fears of relapse upon return to work. In addition, the absence of appropriately modified work is more common in companies which rely heavily on manual tasks. Finally, regardless of company size, the presence of a health professional and a health and safety committee favours the implementation of effective health and safety programs.

In conclusion, it is important to point out the interaction between workers' educational level and physical task requirements, occupational mobility and employers' willingness to modify work to suit disabled workers (Butler et al. 1995). This interaction explains the higher probability of early return to work of more educated workers. These results, and those from other studies on the effect of workers' characteristics on return to work, indicate that the characteristics of the workers in question must be taken into account when identifying organizational factors associated with the implementation of return to work measures.

3. METHODS

This descriptive study examined all cases of occupational injury recorded in the CSST's compensation, early return to work, detection and follow-up database (RMLE.DRS) between January 1994 and March 1997 in its Montreal 3, Montreal 4, Montreal 5, and Eastern Townships regional offices. The study population consists of 13 728 cases.

Cases were classified in terms of the four following groups of variables: 1) workers' characteristics (sex, age group, occupation, occupational group), 2) injury characteristics (site, nature, presence or absence of relapse, duration of absence), 3) presence of early return to work measures and 4) structural characteristics of the worker's company at the time of injury (assessment rate, industrial sector). Data on workers' characteristics and injuries were taken from the CSST's occupational injury file, data on early return to work was taken from the RMLE.DRS database, and data on the characteristics of the companies was obtained from the CSST's company database.

Following descriptive analyses, cases who had benefited from early return to work measures were compared to those who had not, for each variable. Early return to work measures had been applied in 2 933 cases, compared to 10 795 cases in which no such measures had been applied. Statistics were calculated using the chi-squared module of the SAS software package. All variables which were observed to have statistically significant associations with the application of early return to work measures were subjected to further bivariate analyses against all the other variables.

Finally, two complementary multidimensional analyses—correspondence analysis and ascending hierarchical classification analysis (Benzécri, 1985; Fénélon, 1981)—were performed, in order to identify typical homogenous classes, i.e. classes with common characteristics. Initial analysis was of the entire population, with subsequent analysis limited to cases having benefited from occupational re-integration measures. These analyses, performed using the SPAD.N (portable digital data analysis) system, resulted in the identification of typical classes for the entire population and for workers having benefited from early return to work measures. Comparison of the results of the bivariate and factorial analyses facilitated interpretation of results.

To select companies for the detailed case studies, we matched workers having benefited from early return to work measures and those not having so benefited on the following variables: industrial sector, site of injury, nature of the injury, occupation (manual vs. non-manual), age (15-39, 40-49, 50+), sex, geographic region, relapse/no relapse, estimated company size (on the basis of CSST assessment rate). The net effect of this matching was to exclude cases who systematically benefited or did not benefit from early return to work measures. Following matching, 3 554 cases in 1 915 companies were selected.

The number of injured workers who returned to work in each company was determined from the CSST's company database. These cases were grouped into two categories: those whose company implemented early return to work measures and those whose company did not. The number of

workers in each group was determined for each company. Companies were then divided into three groups:

- Companies never having implemented return to work measures (1 587 injuries in 1 168 companies)
- Companies systematically implementing return to work measures (477 injuries in 419 companies)
- Companies implementing return to work measures inconsistently (1 490 injuries in 328 companies)

These three groups were further subdivided by region (Montreal 3, Montreal 4, Montreal 5, Eastern Townships), and each region was stratified by industrial sector and company size. For each stratum, companies which never implemented return to work measures were compared to those implementing them systematically. In each stratum, the two companies with the most cases were retained for analysis. The following sectors were selected: accommodation, printing, furniture, and sawmills.

Data was collected from employers (n=16) and workers (n=4) in each of the 16 companies in the sample, using semi-directed interviews based on an interview grid. The interview grid included questions on the following factors: corporate culture and structure, work organization, workplace rules, characteristics of occupational injuries, and characteristics of the components of early return to work interventions. Collective agreements were obtained from unionized companies.

In addition, CSST representatives from the offices in the regions of the companies studied were interviewed about organizational factors which they believed explained the success or failure of early return to work interventions in the industrial sectors studied, and about the characteristics of each industrial sector. A secondary objective of these interviews was to obtain a better understanding of the CSST's procedures concerning the application of early return to work interventions. The interviews took the form of semi-directed group interviews.

Interviews were conducted between January 27, 1998, and April 7, 1998; their duration varied from 30 to 60 minutes. Interviews were recorded on audio tape, transcribed, and analyzed using the ATLAS.ti software package. Respondents' discourse was analyzed and coded. To develop the theoretical model, the result of the initial coding was subjected to a second coding.

4. RESULTS

4.1 Descriptive analyses of the population

The results of the quantitative analyses indicate that 21.4% of cases in the four CSST regional offices had benefited from early return to work measures between January 1994 and March 1997. The data from the CSST's RMLE.DRS database indicates that almost 90% of workers benefiting from early return to work measures also received temporary reassignment, occasionally accompanied by progressive return to work. However, the results of the case studies conducted in 1998 indicate that more workers benefited from early return to work measures than the RMLE.DRS database indicates. It should be recalled that this database had been used to identify eight companies that had implemented early return to work measures and eight that had not. In fact, it became apparent during data collection that seven of the eight companies identified as not having implemented early return to work measures had in fact implemented them over the previous year, in many cases as a result of CSST interventions.

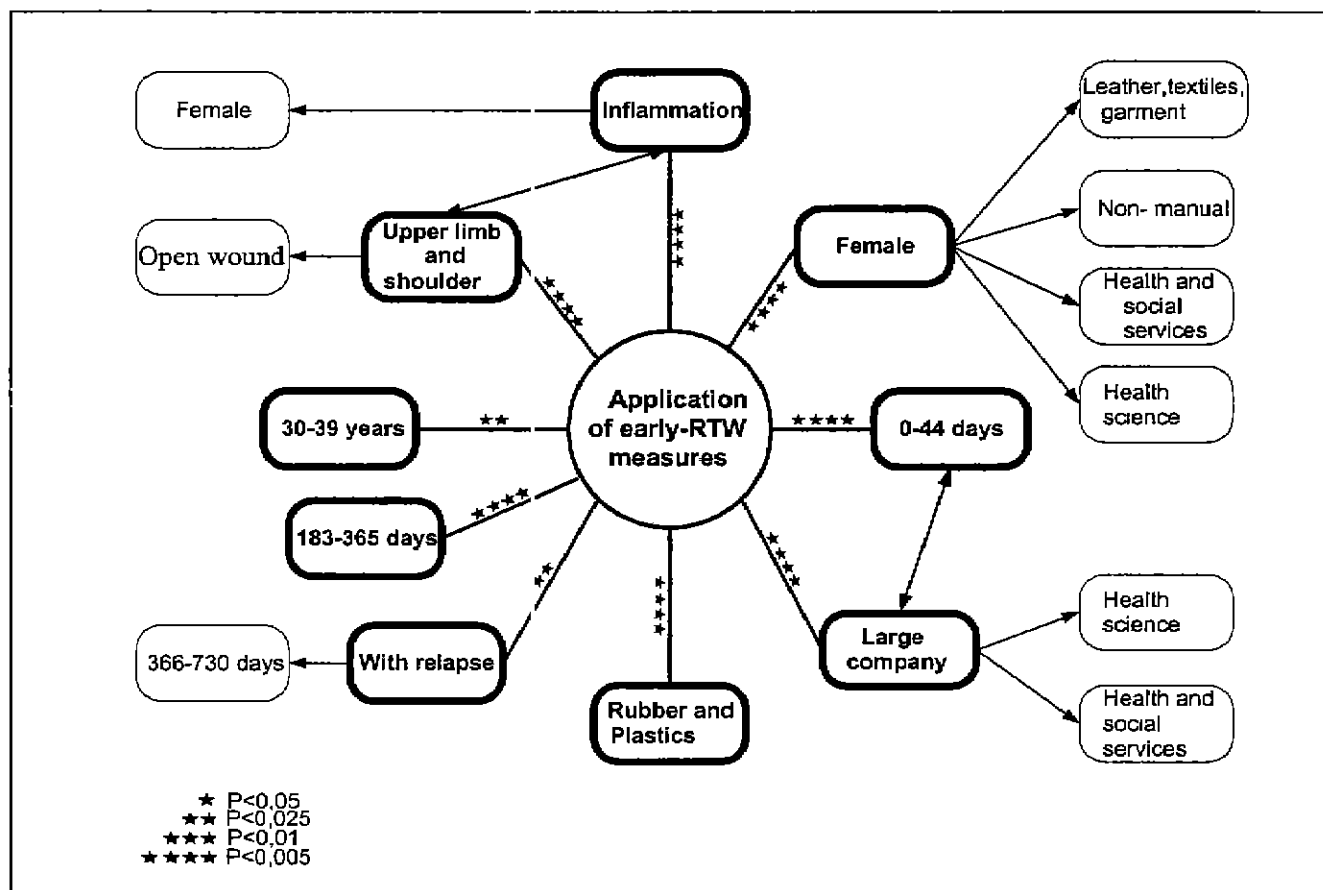
This section presents the results of the bivariate analyses of the presence or absence of early return to work measures and each of the other variables. The effect of early return to work measures on all variables except workers' occupational category was statistically significant. The results are divided into two sections. The first section discusses variables with a statistically significant association with the presence of early return to work measures, while the second discusses variables with a statistically significant association with the absence of early return to work measures.

The following variables were positively associated with the **presence of** early return to work measures, i.e. the proportion of cases benefiting from early return to work measures was significantly higher than expected:

- Nature of the injury: inflammation
- Site of injury: upper limb and shoulder
- CSST assessment category: large (retrospective rate)
- Duration of absence: 0-44 days, 183-365 days
- Sex: female
- Sector: rubber and plastics
- Relapse: present
- Age: 30-39 years

It is possible, after examination of each of these variables as well as the other variables, to identify groups of significantly interrelated variables, which in turn helps to reveal trends (Figure 1) in the application of early return to work measures.

Figure 1. Variables with a statistically significant positive correlation to the presence of early return to work measures



A first group is centred on the nature and site of injury. Workers who have suffered from inflammation of the upper limbs and shoulders appear to be the beneficiaries of early return to work measures. It should be noted that female workers are statistically more likely to suffer inflammation and that injuries to the upper limbs and shoulders are significantly associated with open wounds. The data is inadequate for interpretation of this last association.

A second group is centred on the CSST assessment category and the duration of absence. Large companies are associated with short durations of absences, and both are associated with early return to work measures. It was impossible to determine the direction of the association between short durations of absence and the application of early return to work measures. It should be noted that large company size is associated with the health and social services affairs, and health sciences sectors. Finally, female workers are more prevalent in the health and social services affairs, and health sciences sectors, as well as in other sectors.

These results indicate that the beneficiaries of early return to work measures are female workers suffering from inflammation of upper limbs and shoulders, employed by large organizations

(particularly in the health and social services sector), and that these workers are absent from work for relatively short periods (less than 44 days).

The following variables were associated with the **absence of** early return to work measures, i.e. the proportion of cases not having benefited from such measures was significantly higher than expected:

- CSST assessment category: small company (unit rate to 10%)
- Occupational group: non-manual
- Duration of compensation: 45-90 days

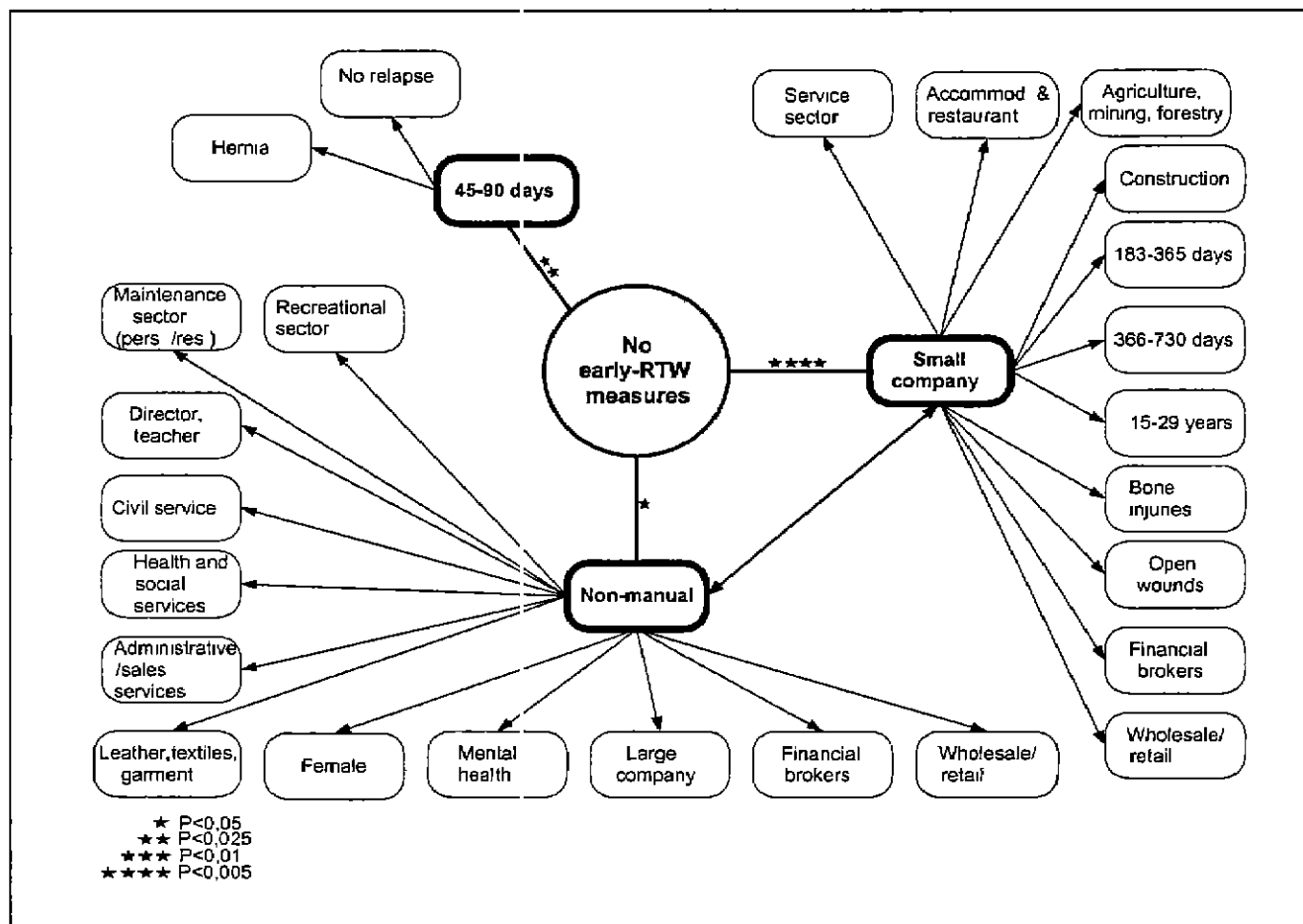
The relation between the absence of early return to work measures and the other variables appears more disperse than that observed in the previous case (Figure 2). However a strong triangular relation exists between the absence of measures, small company size and non-manual work.

Relatively short work absences (between 45 and 90 days) are significantly associated with the absence of early return to work measures. This duration of absence is significantly associated with hernias and the absence of relapses.

In summary, bivariate analyses indicate that the presence of early return to work measures distinguishes large companies from small ones. The application of return to work measures is associated with short (0-44 days) and relatively long (183-365 days) work absences, while the absence of return to work measures is associated with relatively short absences (45-90 days) absences. Early return to work measures are associated with female workers in large organizations in the health and social services sector, and work absences of 0-44 days. In contrast, companies that do not apply early return to work measures are small, and employ predominately female non-manual workers (the last two variables being related).

Relapse-related clusters can also be observed. Workers suffering relapses have long work absences (366-730 days) and benefit from return to work measures, while the absence of relapse is associated with relatively short absences (45-90 days) and the absence of early return to work measures. Inflammation (associated with female workers) of the upper limb and shoulders is associated with the application of early return to work measures. Finally, two relatively isolated variables—employment in the rubber and plastics sector, and age between 30 and 39 years—are also associated with the application of early return to work measures.

Figure 2. Variables with a statistically significant positive correlation to the absence of early return to work measures



Multidimensional analyses were carried out on the entire population by correspondence analysis and ascending hierarchical classification analysis. These methodologies allow the population to be divided into sub-groups or classes, and the descriptive characteristics related to early return to work measures to be identified².

The variables which best account for clustering in the entire study population are, in descending order: occupation, industrial sector, sex, occupational group, presence or absence of early return to work measures, nature of the injury, site of the injury, CSST assessment category, duration of absence, age group, and presence or absence of relapse.

The presence or absence of early return to work measures, although never the best discriminating variable, is however useful as it is significant in five of the seven classes. The rest of this section presents the attributes of each variable whose occurrence in a class is statistically more prevalent than expected.

The **absence of** early return to work measures was characteristic of three classes (2, 5, and 7), representing 37.3% of the study population. These classes are typified by:

- Manual workers older than 40 years in large companies in the transportation and warehousing sector, with musculoskeletal injuries to the upper limbs and trunk and work absences of 45-90 days
- Female non-manual workers younger than 30 years employed in small companies in the service sector (especially in the accommodation and restaurant sector), with musculoskeletal injuries to the trunk, neck, and to a lesser extent, lower limbs, and relatively long work absences (up to one year), and no relapses
- Female non-manual workers in small or large public-service organizations (teachers), the retail sector (saleswomen) or the finance sector, with injuries to multiple sites, the lower limbs or the bones, work absences up to 2 years, and no relapses

The **presence of** early return to work measures was characteristic of two classes (3 and 6), representing 33.9% of the population. These classes are typified by:

- Manual workers of both sexes younger than 30 years performing fabrication, assembly and repair operations in medium-sized companies in a variety of sectors (garment, metal, wood, rubber, food, etc.), with injuries (inflammation, wounds) to the upper limbs and shoulders, work absences up to two years, and in some cases, relapses
- Female workers older than 40 years in large organizations in the health sciences and health and social services sectors, with pain or muscular injuries in the trunk or neck, work absences less than 45 days, and no relapses

Other multidimensional analyses were conducted **only on cases benefiting from early return to work measures**³. Seven distinct clusters were obtained. The typical profile of members of each cluster are presented below, with additional comments when comparison with other classes in the sample sheds new light on the factors influencing the application of early return to work measures.

- Relatively old (older than 40 years) manual workers in large companies in the transportation and warehousing sector or the primary sector, with contusions or bone injuries to lower limbs or at multiple sites. Comparison of this class to classes II and IV of the entire population reveals that workers in the transportation and warehousing sector having suffered musculoskeletal injuries to the trunk or neck do not benefit from early return to work measures. It was also noted that large companies in the primary sector are more likely to apply early return to work measures than are smaller ones.
- Young male workers (younger than 30 years) in small companies in the service or retail sectors, with bone injuries to the upper limbs, and work absences from three months to two years. Comparison of this class with classes V and VII of the entire population reveals the presence of a sex-linked difference: female workers with injuries to the lower

³

See Table, Annexe B.

limbs in the same sectors do not benefit from early return to work measures despite having comparable work absences.

- Relatively young (younger than 40 years) manual workers performing materials handling, machine tooling, or fabrication operations in medium-sized companies in various sectors (pulp and paper, wood and furniture, metal, printing), with musculoskeletal injuries or pain in the trunk or neck and work absences of less than 45 days. This class is comparable to class I of the entire population, which exhibited no association with either the presence or absence of early return to work measures. On the other hand, workers in this class were absent from work for a shorter period than the two years observed among workers in class I.
- Female workers in small companies in the service sector (accommodation, restaurant and leisure sectors), with contusions to the upper limbs and relatively long work absences (up to one year). This class was similar to class V of the entire population, although workers in class V suffering muscular injuries to the trunk or neck did not benefit from early return to work measures.
- Relatively young (30-39 years) female workers performing fabrication, assembly, repair or machine-tooling operation in medium-sized companies in several sectors, with inflammation or open wounds to the upper limbs or shoulders, and relatively short work absences (less than 3 months)
- Non-manual female workers, such as teachers, administrators, directors, saleswomen or household workers in small companies or organizations in the civil service, health and social services sector, retail sector, personal services sector, and maintenance sector, with pain or bone injuries to the upper limbs or multiple sites and relatively long work absences (from one to two years). Working in small companies or in the health and social services sector appears to be typical of workers having received measures. This class is comparable to class VII of the entire population, with the exception of the presence of early return to work measures.
- Relatively old (40-49 years) female workers in large organizations in the health and social services sector⁴, with pain or muscular injuries to the trunk, neck or multiple sites, short work absences (no more than 45 days) and no relapses. This class is identical to class VI of the entire population.

In summary, the implementation of early return to work measures appears to not only depend on industrial sector and company size, but also vary with a given company. Intra-company variation appears to be associated with social and demographic characteristics of workers and the characteristics of their injuries.

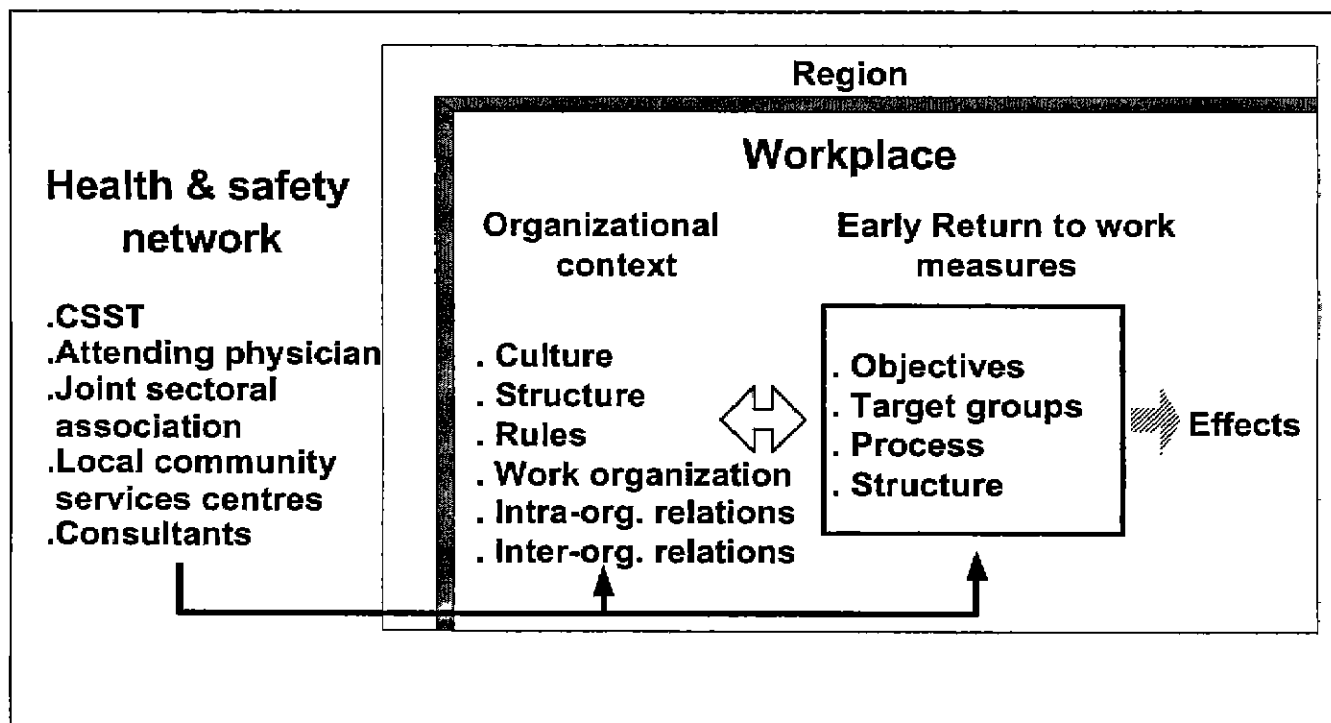
⁴ It should be recalled that statistically significant positive associations were observed between the presence of measures and the following variables: work absences of 0-44 days, large company size, female. Furthermore, the "female" and "large company" variables were positively associated with the health and social services sector and with the health sciences sector.

4.2 Qualitative Analyses

This section presents the results of the content analysis of interviews of CSST, employer and union representatives conducted in the course of the case studies. The conceptual framework illustrated in Figure 3 was used to classify the data collected. Data on early return to work measures was grouped into the following categories (Contandriopoulos et al, 1992):

- objectives
- target groups (workers)
- process (activities)
- structure (resources)

Figure 3. Theoretical framework



The context of implementation is a function of the following organizational characteristics:

- culture
- structure
- collective agreement clauses
- work organization
- intra- and inter-organizational relations

"Inter-organizational relations" refers to relations between organizational parties and members of the public-sector health and safety network. The organization's place in its community, a factor particularly important for organizations in the Eastern Townships, was also taken into account. The analysis and validation of the interview data was supported by comparison with the results of the quantitative analyses.

4.2.1 Characteristics of early return to work interventions

Interviews with employer representatives and workers in our sample indicate that, in general, early return to work interventions have been **implemented** only relatively recently. Interventions are often an integral part of **global strategies** related to health and safety and even, in some cases, quality control. However, the successful implementation of early return to work interventions requires several preliminary steps designed to ensure an adequate management infrastructure. Management, supervisory and work cultures are difficult to modify, but determine in large part variations in the introduction of early return to work interventions.

For many companies, the primary motivation for implementing early return to work interventions was the potential **reduction in CSST premiums**, although companies also introduced such interventions as part of ISO certification programs or in response to rapid growth. In all cases, successful intervention implementation depended on the availability of **human resources and production managers**. These specialists, often with considerable experience in general, and specific experience in the management of accident prevention, first establish integrated management policies for health and safety activities. Despite the fact that these policies were developed in order to ultimately implement early return to work measures, their initial focus is often in the area of primary prevention. The establishment or reactivation of a joint health and safety committee may also be an important intermediate step.

Data from workplace interviews revealed differences in early return to work measures. The following organizational dimensions of the **intervention process** were therefore identified: **formalization** and **standardization** of temporary reassignment procedures, **continuity** of the relations between organizations and their workers, and **flexibility** of return to work interventions. Furthermore, organizational culture appears to exert an effect in its own right. Organizations' values, attitudes, and behaviour regarding workers, workers' injuries, return to work, medical counter-expertise, and the filing of appeals reflects control-oriented, rather than support-oriented, cultures.

Some companies favourable to return to work interventions have drafted policy documents that **formalize** their position, and, to promote buy-in by the entire workforce, undertaken publicity campaigns (posters, brochures, etc.) to communicate the policy. In some cases, management personnel has been trained in intervention implementation. Workers, supervisors and, more rarely, members of the health and safety committee, have also received training that enables them to understand the costs associated with occupational injuries⁵.

⁵

Members of the health and safety committee often receive training on primary prevention.

Some companies have **standardized** not only their return to work procedures but also the positions available for temporary reassignment; in some cases, these positions have even been listed on the temporary reassignment forms provided to workers' physicians. Employer representatives expressed a preference for **task lightening**, i.e. assignment to tasks which, in the opinion of the respondents, do not require workers to exert the part of the body that is injured. There was some variation in the type of workstation allocated to reassigned workers, with some remaining at their usual workstation, others assigned to another, existing, workstation or yet others assigned to workstations created specifically for the purpose. In some companies, the early return to work interventions are **flexible**, and allow workers to choose from a number of reassignment strategies. These include workstation modification, reduction of the length of the work-day or work-week, and restructuring tasks to provide workers with greater control over their work or the freedom to ask their coworkers for help with their more demanding tasks. In a few cases, workers received training which increased their skills upon their return to their regular position. Flexibility was higher when the CSST, sectoral associations, or organizational health and safety teams collaborated with organizations on the application of **systematic strategies** designed to evaluate the extent to which workers' functional limitations and occupational and social qualifications are well matched to the reassignment position. Employer and worker representatives recommend that workers consult their attending physician when such strategies are absent or, more generally, when the reassignment position, is poorly matched to workers' capacities. In addition, our results indicate the existence of two **assignment criteria** for reassignment positions: utility and production value. While some companies are conscientious in ensuring that reassignment positions possess these characteristics, others ignore them, leading to the reassignment of workers to marginal or pointless positions.

The **continuity** of services (Contandriopoulos et al., 1992) is a matter not only of contact between companies and absent workers, but also of the extent to which requests for the modification of workstations and work organization are followed up. Some respondents indicated that employer representatives **call absent workers** on the telephone to obtain information concerning visits to physicians or ensure that workers feel that companies are concerned about their health. On some occasions, contacts with coworkers or employer representatives were initiated by the workers themselves. In any event, worker-workplace contacts appear to promote return to work. **Rapid and positive action** in response to requests for workstation modifications increases employers' credibility; respondents however deplored the difficulty of obtaining the human resources needed for such action.

The data indicates that the **procedures** underlying early return to work may vary between departments or divisions of the same company. This variation appears to be related to upper management's failure to formalize procedures and to certain characteristics of middle management personnel responsible for health and safety.

While employer representatives appear to have primary responsibility for early return to work measures, **three different structural models** were identified, characterized by the participation of a single employer representative, teams of employer and worker representatives, or internal stakeholders and external resources.

Our data does not allow the development of a **typology of early return to work interventions** that accounts for both the interrelation of process characteristics and the relations between process and structural characteristics. This was no doubt a reflection of the study's small sample size.

The following sections discuss the factors which appear to facilitate or hinder the implementation of early return to work measures.

4.2.2 Organizational characteristics

4.2.2.1 Organizational structure

Industrial sector

The industrial sector is the second most important factor in describing the clusters formed by multidimensional analyses, and appears to exert an indirect effect on the implementation of early return to work measures. Interviews of both CSST and workplace representatives demonstrate the clear importance of sector-specific dynamics. The "sector" variable is associated with the nature of production activities, with work organization, and with employment status.

Company size

Company size exhibits a statistically significant positive correlation with the presence of early return to work measures. Interview data suggests that this effect is indirect. The following phenomena were observed:

- According to CSST respondents, larger companies allocate more of their **personnel** to positions with at least partial responsibility for health and safety.
- Large companies are more likely to have a **formal health and safety infrastructure**. This, in turn, leads to more regular consultation of workers and broader organizational awareness of procedures related to primary prevention and return to work. CSST respondents stated that their work is facilitated and the continuity of early return to work measures improved in companies in which the human resources department is responsible for health and safety questions.
- The results of the interviews with workplace respondents suggests that large and medium-sized companies are more likely to **formalize and standardize** temporary reassignment procedures, and ensure the **continuity** of early return to work measures (measured in terms of case follow-up). On the other hand, there appears to be no relation between company size and the flexibility of reassignment strategies.
- Similarly, workplace interviews indicate that large and medium-sized companies resort call upon **external resources** more often to support early return to work measures.
- Large companies are better able to identify reassignment positions because they possess **more positions** in general. CSST respondents indicated that very small companies are too small to provide adequate pools of reassignment positions.

- CSST respondents stated that membership in **prevention mutuals** raises awareness of return-to-work issues and promotes the development of return to work strategies in small and medium-sized companies, by exposing them to a range of management models.

Corporate financial health

According to workplace respondents, companies that are **rapidly expanding** are better able to acquire qualified personnel and new expertise. Both these acquisitions help improve planning and communication, and often reinforces health and safety management as a whole. Conversely, as both workplace and CSST respondents pointed out, early return to work measures are often difficult to apply in companies experiencing financial difficulties resulting in **negative growth**, restructuring or large-scale layoffs. This impedes the creation of "light duty" positions.

Unionization

According to CSST personnel, the presence of a union decreases the extent of discriminatory actions taken against injured workers. On the other hand, the presence of multiple unions within the same company is an obstacle to reassignment.

Health and safety committees

CSST respondents reported that the **presence of a health and safety committee** is an indicator of the sensitivity of the company to health and safety issues, while workplace respondents reported that these committees play an important role in the establishment of **primary prevention**, and, in some cases, return to work measures. Health and safety committees are essential to the **formalization** of the various procedures.

The fact that these committees are **bipartite**—composed of employer and worker representatives, regardless of whether a union exists—appears to improve intra-organizational communications. CSST respondents added that early return to work measures are facilitated by the presence of a **decisional** committee whose members are at least partially responsible for health and safety.

Workplace respondents indicated that the overall functioning of health and safety committees is improved when they:

- meet regularly
- have precise prevention-related objectives
- adopt a step-by-step approach
- resort to external consultants (in some cases, at any event)

The **absence of upper-management support** was reported to rob committees of their ability to convince supervisors to comply with established health and safety rules.

Finally, it should be noted that in some unionized companies, union representatives do not sit on the committee and employee representatives are not appointed by the union. Some employers are in favour of this arrangement, especially when dealing with return to work issues, as they believe that **union involvement** leads to "negotiation" and hinders decision-making. They are prepared

to inform employees and unions of their decisions but consider that human resources decisions are part of their management rights.

Prevention program

Overall, respondents believed that the presence of a prevention program is an indicator of favourable attitudes to health and safety issues.

4.2.3 Organizational rules

According to workplace representatives, the **formalization of health and safety procedures**, especially those related to accidents and return to work, facilitates implementation of early return to work measures. The effect of establishing rules is to **formalize** corporate policies regarding early return to work, **standardize** procedures, and promote **collaboration** of all parties involved in ensuring early return to work. However, as CSST respondents pointed out, these objectives can only be attained if information and training activities designed to communicate the rules throughout the organization are undertaken.

Nine of the sixteen companies studied were **unionized**. Eight of the nine collective agreements contain clauses requiring that **seniority** must be taken into account in allocating vacant positions and recalling laid off workers; the remaining agreement requires seniority to be taken into account only when recalling laid off workers. However, six agreements contain **specific clauses** that modify the application of seniority clauses for the purposes of accommodating injured workers. In the other three unionized workplaces, the collective agreement can be modified or suspended by special agreement between employers and unions for the purposes of temporary or permanent reassignment. The observed **variations** in collective agreements do not appear to be sector-specific or reflect specific union affiliations.

All respondents believed that temporary reassignment is hindered in workplaces in which the collective agreement contains **rigid seniority clauses** governing access to positions. Furthermore, CSST respondents believed that **multiple union accreditation** within a company also reduces the number of positions available for reassignment purposes.

4.2.4 Organizational culture

Workplace respondents had the most to say about the organizational culture—especially organizational attitudes, values and causal attribution—related to occupational injuries. Organizational culture is a contextual element that influences the relation between the types of resources allocated to early return to work interventions and the way these interventions are applied.

4.2.4.1 Upper management

The attribution of occupational injuries to non-occupational factors appears to be characteristics of organizations that doubt workers' integrity and resort to medical counter-expertise and to appeals. Both CSST and workplace respondents stated that this behaviour favours the

development of negative attitudes towards the implementation of primary prevention and early return to work measures, especially when the injuries in question are musculoskeletal in nature.

Companies that **value their workers** treat them with respect and have more effective communications and human resources departments. A concern for a good work climate appears to improve the success of early return to work measures, according to CSST and workplace representatives. In small and medium-sized companies, where communication between owner-operators and workers is personalized, the effect of this concern in facilitating return to work measures is even more important than its effect on reducing the costs associated with occupational injuries. Respondents in companies which claim to be concerned by the quality of their work climate preferred to temporarily reassign workers to productive and useful tasks that allow workers to maintain their self-esteem. Reassignment may therefore be flexible in companies that value their workers and strive to maintain a good work climate.

According to workplace representatives, companies interested in **reducing their CSST assessment rate** are also more open to modifications of the organization of primary prevention and early return to work interventions. When both employers and workers share this openness, there is greater collaboration between the two, which facilitates the application of early return to work measures. However, both CSST and workplace respondents believe that the best indicator of upper management's **commitment** to organizational change is the **magnitude of resources** it allocates to the implementation of early return to work measures. Management's commitment appears to depend on the value it places on its workers and the realism of its timetable for reducing the organization's assessment rate. A lack of commitment by upper management to health and safety issues, and more specifically, to the implementation of early return to work measures, has more serious consequences in small and medium-sized companies, which lack adequate health and safety management infrastructures.

Finally, CSST and workplace respondents believed that early return to work measures are harder to implement in companies whose upper management does not support its personnel responsible for health and safety issues.

It should be noted that in some companies, management attempts to reduce the direct costs associated with injuries by adopting **avoidance strategies** designed to reduce the number of injuries reported to the CSST, e.g. appeals of requests for compensation, encouraging workers to use group insurance plans. Both CSST and workplace respondents believed that the adoption of strategies such as these negative affects the implementation of early return to work measures.

4.2.4.2 Health and safety personnel

According to workplace representatives, early return to work measures are significantly easier to implement in companies which hire individuals with **competent** in health and safety and **open** to workers' participation in health and safety programs. Furthermore, **attentiveness** to workers favours the continuity of early return to work measures, especially with regard to contact with absent or temporarily reassigned workers.

4.2.4.3 Production managers and supervisors

Interviews with companies indicated the existence of two diametrically opposed sets of attitudes and values among production managers and supervisors. On the one hand, some are **sensitive to the problems** of injured workers and **open** to enabling early return to work. They attempt to foster **communication** between all parties involved in early return to work interventions, **flexible** reassignment policies, and the **matching** of workers' functional limitations and occupational and social qualifications to task requirements.

Others, in contrast, hold negative attitudes with regard to early return to work and in fact believe that it constitutes an **obstacle to production**. They therefore oppose measures designed to favour temporary reassignment. This attitude appears to be particularly prevalent in companies that lack an integrated approach to health and safety and in which production managers and supervisors are **evaluated** solely on the basis of production results, with no thought to the direct and indirect costs of occupational injuries.

4.2.4.4 Union representatives

According to workplace representatives, the attitude of union representatives towards temporary reassignment depends on the following factors: 1) the perception that managers' **only priority** is to reduce the costs of occupational injuries, 2) the **severity of injuries**, and 3) the **consent of workers** to temporary reassignment.

4.2.4.5 Coworkers

Employer and union representatives stated that the attitude of coworkers towards temporary reassignment is a function of the quality of the work climate and especially to the relationship between employers and unions. In companies with a **good work climate**, attitudes were generally **favourable** to early return to work. In other cases, coworkers' attitude reflected their **perception of the severity** of the injuries.

4.2.4.6 Workers

In general, CSST and workplace representatives believed that injured workers view early return to work measures favourably and identified workers' **personal characteristics** as the prime determinant of return to work. An expressed **desire** to return to work as soon as possible was considered an important predictor of return to work. This desire is a function of workers' **personality** ("pride, character"), **motivation** to work, **tolerance** to injury-related pain, **fear** of losing their jobs and **financial needs**, and is externalized, according to CSST rehabilitation counsellors, by workers' accessibility and collaboration.

The following three perceptions are at the heart of workers' **resistance** to returning to work before their injuries have consolidated: that they are **not healthy enough** to return to work, that **companies' principal preoccupation** is to reduce injury-related costs, and that **reassignment positions** are pointless and deskilling. Furthermore, some immigrant workers are **suspicious** of governmental institutions and reluctant to collaborate with CSST personnel.

4.2.5 *Work organization*

CSST and workplace respondents believe that organizational models based on workers' **multiple skilling** create conditions favouring return to work by increasing workers' ability to assume different positions and, in many cases, forging a team spirit that facilitates the application of early return to work measures. Positions may however be unavailable for reassignment purposes due to their occupational, social, or physical requirements, the nature of production activities, or if reassignment would compromise safety.

Subcontracting moves positions that would otherwise be available for temporary reassignment outside the company. On the other hand, temporary reassignment may in some cases reduce the need for subcontracting.

The introduction of **new technologies** may lighten tasks and thereby facilitate the implementation of early return to work measures. If accompanied by downsizing, however, the net effect will be to reduce the number of reassignment positions.

CSST respondents indicated that **workers' employment status** influences temporary reassignment practices, as it is more difficult to reassign seasonal, temporary or on-call workers than permanent, full-time workers.

4.2.6 *Intra-organizational relations*

Open and **direct communication** and **information sharing** between management and other parties during accident inquiries affects intra-organizational collaboration and the climate of confidence. Overall, respondents believe that such **collaboration** favours the implementation of early return to work measures.

The absence of **consensus** among departmental directors regarding the importance of health and safety and the presence of inter-departmental differences in rules related to prevention and return to work have a marked and negative effect on workers' attitudes to the formalization of health and safety procedures. According to workplace representatives, these factors result in contradictory perceived messages and constitute obstacles to the implementation of return to work measures.

Relations between **upper management** and **health and safety personnel** may be problematic when the parties possess **different points of view** about the best way to reduce the costs of occupational injuries. Companies preoccupied by the need to rapidly reduce their CSST assessment rates fail to provide their health and safety specialists with the human and material resources the latter require.

Three **patterns of union-employer interaction** related to health and safety were identified in the unionized companies studied: lack of participation of unions, collaboration, and confrontation.

Unions are **absent** from health and safety initiatives when employee representatives sitting on bipartite structures are not approved by the union. Worker representatives stated that unions'

absence from such committees reduces workers' ability to communicate their message to management, which holds decision-making power.

CSST respondents indicated that the presence of a good employer-union relationship favours the development of a work climate favourable to **collaboration** on the implementation of early return to work measures and the drafting of agreements suspending the application of seniority clauses in cases of temporary or permanent reassignment. For this collaboration to occur, responsibility must be shared among members of the union executive: conferring responsibility for grievances and health and safety to different individuals avoids the former affecting the latter. Furthermore, collaboration is stronger when employers and union representatives share the belief that all parties have an interest in reducing the costs associated with CSST premiums.

All respondents agreed that **confrontation** has a negative effect on the implementation of early return to work measures. Confrontation is the result of the employers' desire to exclude unions from decisions related to return to work, and in some cases, from union behaviour described as "very aggressive".

Management was observed to communicate with production workers in two ways: personalized and formalized. **Personalized communication**, typical of very small companies, takes the form of direct contact between upper management or owner-operators and production workers. This mode of communication favours problem resolution and the implementation of early return to work measures without recourse to formal procedures. In medium-sized and large companies, members of the human resource department are the primary agents of communication, and communicate directly with all parties concerned by return to work issues. Regular contacts by managers who are open to health and safety issues and value their workers favour the implementation of early return to work measures.

In some companies, especially large ones, the forms used to record information about occupational injuries (statements, inquiries, temporary reassignment, etc.) are usually developed by joint committees. This type of **formalized communication** appears to have the advantage of clarifying procedures related to injuries and return to work. It was also pointed out that these forms considerably reduce the impact of personality conflicts on organizational decisions related to health and safety.

The health and safety committee's approach to decision-making may be authoritative or participatory, reflecting the company's leadership style. The latter is considered more favourable to the implementation of early return to work measures.

In general, prevention and return to work interventions can only be implemented as part of an integrated management strategy if there is good communication between employers and workers (through the union or the health and safety committee). Priority should be placed on radical changes of attitudes and habits. The absence of instantaneous financial or behavioural results, may lead to frustration and conflicts between employers and workers or their representatives. Crisis management depends on the maintaining open lines of communication.

4.2.7 *Interorganizational relations*

Workplace respondents indicated that the following CSST interventions favour the implementation of early return to work measures:

- **Information**, provided primarily by inspectors and rehabilitation counsellors, appears capable of modifying an organization's culture
- **Direct CSST interventions** are believed to incite companies to implement early return to work measures
- Support by **CSST inspectors** in the training health and safety committees and the development of procedures, both of which affect the formalization of early return to work measures
- Verbal encouragement by inspectors who note improvements in companies' primary prevention and early return to work interventions
- Support in assessing the extent to which reassignment positions and workstations are **well matched** to workers' injuries and functional limitations; this support could improve the flexibility of reassignment policies
- **Evaluation** of temporary reassignment practices and development of recommendations for eventual modifications
- The **continuity** of services offered by rehabilitation counsellors, either in the form of the presence of a single CSST representative or the establishment of ongoing contacts between the CSST representative and the company. The goal here is to improve counsellors' understanding of the company, facilitate communication with company representatives and accelerate the processing of cases.
- Follow up of temporary reassignment by a CSST rehabilitation counsellor
- Contacts between CSST rehabilitation counsellors and workers' physicians favour communication between physicians and the company
- **Online access** of companies to their occupational injury files

Furthermore, workplace respondents from companies resistant to change were more likely to criticize CSST inspectors and mention instances of inspectors' repression or arbitration of health and safety conflicts.

Both workplace and CSST respondents believed that interventions by joint sectoral associations foster the establishment of health and safety committees and of formal health and safety procedures. Furthermore, CSST respondents believe that interventions by **public-sector occupational health teams** also contribute to the development of an organizational culture that favours return to work. Workplace respondents indicated that the application of early return to work measures is facilitated by workstation analysis conducted in consultation with joint sectoral associations or public-sector occupational health teams.

Some companies resort to **external consultants**, most commonly ergonomists who analyse workstations and formulate recommendations concerning workstation design as it relates to return to work. Recourse to external consultants increases the flexibility of return to work policies.

In general, workplace respondents indicated that they had little contact with **attending physicians**. Some respondents attempted to communicate with physicians when temporary reassignment was refused. Accurate diagnosis and assessment of functional limitations was reported to greatly facilitate selection of reassignment positions. Physicians are perceived to misunderstand workplace realities and fail to validate worker-provided information concerning work and requirements. Respondents would like attending physicians to visit companies, although they recognize that this may be difficult in practice. The lack of information and training concerning the CSST's compensation and assessment policies and practices hinders collaboration between physicians and companies attempting to implement early return to work measures.

Finally, both to CSST and workplace respondents from the Eastern Townships reported that the **social proximity** characteristic of outlying areas may hamper early return to work. In fact, in tightly knit communities, personal information about workers is widely known by regional employers. In some cases, prejudicial information concerning workers has been circulated, leading to workers' **stigmatization**. This hinders return to work and reduces **access** to early return to work measures, especially when workers' employment status is precarious.

4.2.8 Social and demographic characteristics of injured workers

The data from interviews of CSST and workplace representatives indicates that the following characteristics of injured workers influence early return to work: age, premature aging, educational level, and language.

Respondents believed that it is more difficult to implement early return to work measures when workers are **older** or appear to be victims of **premature physical wear**, and CSST respondents specified that these workers take longer to recover. Furthermore, these workers are more likely to be being laid off when companies downsize. In contrast, **younger** workers were thought to heal more quickly, facilitating their return to work, although their lack of **professional experience** reduces reassignment positions available to them.

The statistical analyses partially confirm these perceptions. In fact, workers aged 30-39 years were more likely to be the beneficiaries of early return to work measures, although this was the only age group for which a statistically significant association was observed.

According to CSST respondents, low **educational achievement** limits access to reassignment positions. Similarly, according to respondents from the accommodation sector, it is difficult to reassign **immigrant workers** who have a poor mastery of English or French.

The bivariate analyses revealed an association between the implementation of early return to work measures, and two other variables: sex and occupational group. **Women** were over-

represented, and men under-represented, among beneficiaries of early return to work measures, particularly in the health sciences, health and social services, leather, textiles and garment sectors. Finally, membership in a "**non-manual**" occupational group was associated with the absence of early return to work measures.

Our results suggest that the characteristics of early return to work measures are dependent on certain characteristics of workers. The results must be interpreted with prudence, however, as there is also evidence that associations exist between these variables and structural characteristics of organizations (size and economic sector).

4.2.9 *Characteristics of injuries*

The following four characteristics of injuries were observed to affect early return to work measures: site, nature, severity and presence of relapses.

Only the results of the bivariate and multivariate analyses allow identification of associations between injuries and the presence of early return to work measures. The only association (greater than expected proportion of cases having received early return to work measures) observed was with injuries to the upper limbs and shoulders.

The results of the bivariate analyses reveal that a statistically significantly positive association of inflammation with the presence of early return to work measures. Inflammation was also associated with injuries to the "upper limbs and shoulder". Hernias were negatively associated with the presence of measures ($p < 0.05$). Furthermore, company respondents indicated that it was more difficult to apply early return to work measures in cases of musculoskeletal injuries, because of the perception that diagnoses are inaccurate and the difficulty identifying workstations that do not require workers to exert themselves.

Workplace representatives believed that it is more difficult to temporarily reassign the victims of serious injuries. The bivariate analyses indicate that early return to work measures were statistically more likely to be applied in cases associated with work absences of 0-44 days (more frequent in large companies) and of 188-365 days. Early return to work measures were statistically less likely to be applied in cases associated with work absences of 45-90 days. Finally, the statistical analyses indicate that relapses was statistically more prevalent among workers absent from work for 366-730 days.

5. CONCLUSION

Overall, expert opinion and current policy in Quebec appear to share the same underlying theory, namely that it is essential to apply early return to work measures in order to prevent chronicity of injury. The longer workers are absent from work, the more likely they are to develop psychological and social problems that hinder their return to work.

In general, the objectives of interventions published in the literature agree with those of the respondents in this study. However, three recommendations from the literature were not universally endorsed by respondents: 1) improvement of the health status of disabled workers, 2) ensuring the employment of workers, and 3) minimising the impact, and especially the costs, of disabilities on workers and companies. The first objective was rarely stated by CSST or workplace respondents, although the second and third objectives were mentioned by CSST respondents only; in the third case, the emphasis was on the minimizing the impact on companies.

Data from companies revealed a large variation in the structure of interventions, ranging from the presence of a single person responsible for return to work to the presence of teams composed of internal (sometimes bipartite) and external resources. Experts emphasize the importance of involving supervisors in decisions related to health and safety. This issue was not a preoccupation of the workplace respondents in this study. While several respondents decried the absence of collaboration with supervisors, there was no effort to develop new mechanisms that would stimulate participation in decision-making.

Another difference between experts' recommendations and the structure of interventions observed in this study concerns workers' participation in decision-making. It is generally believed that injured workers should be members of the teams applying return to work measures. In this study, this was a minor concern. CSST and workplace respondents may contact workers, inform them of the steps taken to return them to work, and even consult them on occasion, but such activities were not systematic.

There were also differences between implementation procedures recommended in the literature and those observed in this study. The recommended approach is based on the systematic design and implementation of programs and processing of cases. Program design and implementation is based on a public-health model with the following stages: identification of needs, formulation of objectives and organizational policies, training of all employees, identification of necessary resources, task allocation, and program. Furthermore, workers' gradual return to work should include the following steps: evaluation of workers' functional capacities and of task requirements, taking into consideration psychological and emotional problems accompanying workers' disabilities, assignment to tasks which are meaningful to workers and with their capacities, and ongoing follow-up and clinical evaluation of reassigned workers, with an eye to their eventual return to their original position.

The data suggests that companies' approaches are improvised, not systematic. In addition, while most workplace respondents were aware of the type of interventions that should be part of a

progressive return to work intervention, they believed that they lacked both the competence and the internal resources to implement them. The only systematic approaches observed were in companies resorting to external resources (CSST, joint sectoral associations, public-sector occupational health teams, private consultants).

The results indicate that the following structural characteristics can affect the implementation of early return to work measures: industrial sector, company size, financial health of the company, presence of a union, characteristics of the health and safety committee, and presence of a prevention program. These variables appear to have an effect on skilling and the magnitude of resources allocated to early return to work measures.

The establishment of formal health and safety procedures appears to allow formalization of the return to work policy and standardization of procedures. No empirical study has examined this question. The data indicates that the following factors may hinder the implementation of early return to work measures: 1) the presence in collective agreements of seniority clauses applicable to position assignment, 2) knowledge of these clauses by the concerned parties, 3) poor work climate. These phenomena may hinder the adoption of specific agreements that modify or suspend the application of the collective agreement. Finally, it appears that the presence of multiple unions within the same company is an obstacle to reassignment.

The attitudes, values, causal attributions and behaviours of the various parties differed, with consequences on the work climate, intra-organizational relations and collaboration between parties. The attitudes and values of personnel responsible for return to work interventions appear to be of key importance, but those of upper management influence the availability of resources available for these interventions, which in turn may limit the scope of action of managers attempting to apply the interventions. Similarly, the sensitivity of supervisors and production directors to workers with occupational injuries significantly affects the communication and the flexibility of reassignment strategies. It also appears that these parties are more open to temporary reassignment when their evaluation takes into account the effect of occupational injuries and costs associated with work absences. The attitudes of union representatives to early return to work measures reflects their perception of intervention objectives, the severity of injuries, and workers' buy-in. Coworkers' attitudes reflect the work climate and the perceived severity of the injuries, and influence the support offered to workers returning to work.

The data indicates that the flexibility of reassignment strategies is a function of the manner in which work is organized. Workplaces characterized by highly specialized tasks, physically demanding tasks, sub-contracting, and precarious work statuses offer fewer opportunities for reassignment. The effect of introducing new technologies depends on whether it is accompanied by downsizing or not.

The members of the public-sector health and safety network appear to play an important role, by offering advice (generally judged useful) concerning the implementation of early return to work interventions and the processing of individual cases. Contacts between companies and attending physicians were rare. Respondents believe that physicians' unfamiliarity with workplaces and task requirements hinders early return to work.

Regional characteristics may affect the social proximity of workers, and by stigmatizing them, hinder their return to work. To our knowledge, this aspect has never been studied.

CSST respondents believed the social and demographic characteristics of workers play a role in determining return to work. Workplace respondents, in contrast, rarely referred to these factors or to injury-related factors in discussing return to work measures, although they would invoke sector-specific organizational factors, age, physiological aging of workers, language barriers, and the fact that the injuries are musculoskeletal in nature to explain difficulties encountered in implementing early return to work measures. The results of the bivariate statistical analyses indicate that workers aged 30-39 years were over-represented among workers benefiting from early return to work measures. The application of early return to work measures was also observed to depend on sex and occupational group. Inflammation and the injuries to the upper limbs and shoulders were positively associated with the application of early return to work measures.

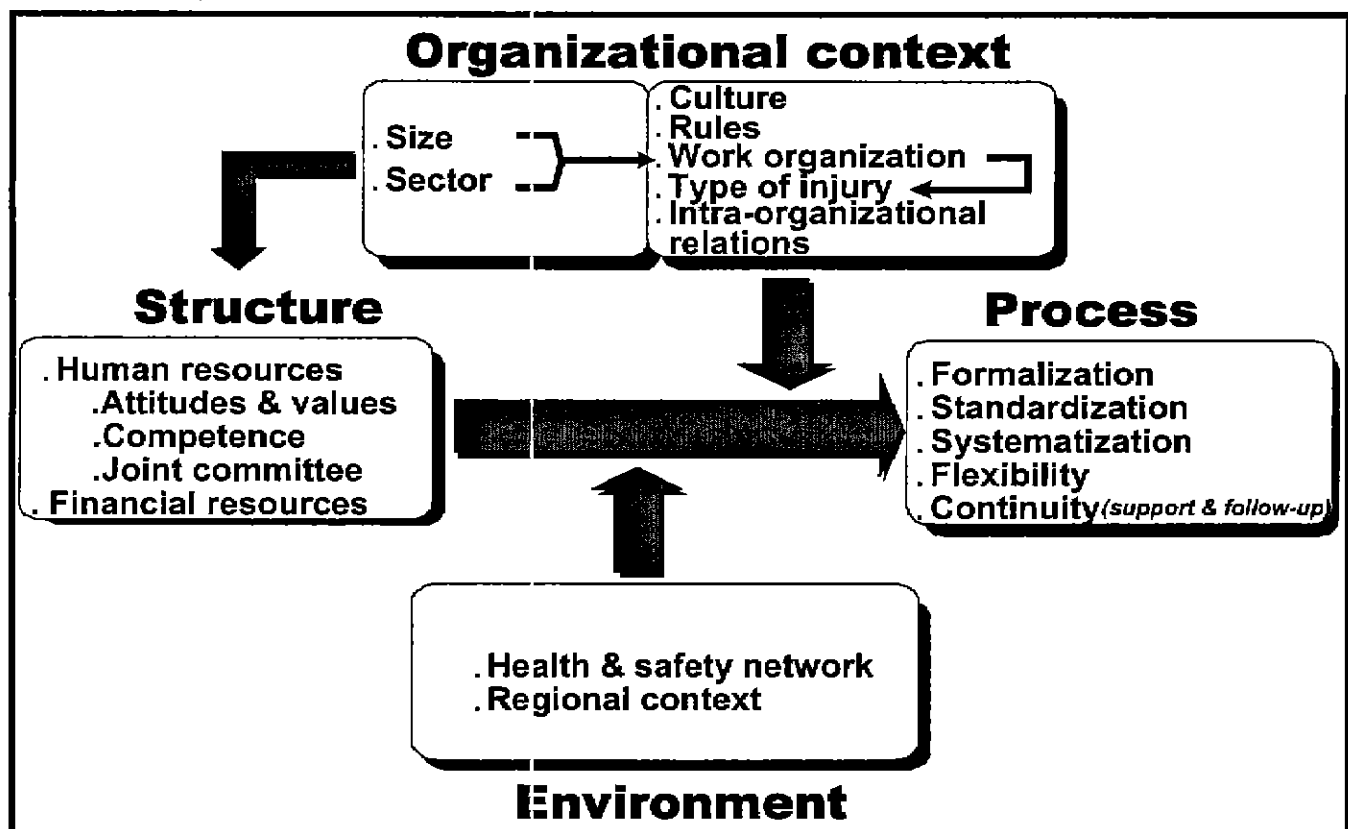
In light of the objectives of this study, the many studies undertaken solely to identify the characteristics of injuries and the social and demographic characteristics of workers associated with return to work were not reviewed. Three studies attempting to identify the effects of such variables and of organizational characteristics were however identified. Baril et al. (1994) reported that the application of early return to work measures was primarily a function of the characteristics of companies, not of workers and their injuries. Butler et al. (1995) observed that among older workers and among women, the probability of not returning to work increases for every year of age. The probability of keeping one's original job is greater for workers suffering sprains and strains (excluding back injuries) and for highly educated workers. Finally, Johnson and Baldwin (1993) reported that age was a demographic variable likely to explain variations in return to work.

The results of the multidimensional analyses illustrate the complex interdependence likely to exist between the social and demographic characteristics of workers, the characteristics of their injuries, structural elements of organizations and the application of early return to work measures. These interdependent relations are particularly striking when broken down by sector, type of injury and site of injury. A given sector, e.g. transportation and warehousing, may be a member of a population cluster characterized by the absence of early return to work measures and a cluster in which such measures were applied. The nature and site of injuries is one of the factors that best distinguishes between the two categories. In the first case (absence of return to work measures) muscle injuries, contusions, spinal injuries and hernias predominate, and injuries typically affect the trunk, neck, upper limbs, or multiple sites. The second category (application of measures) is characterized by contusions and bone injuries to the lower limbs or at multiple sites. These results suggest that the implementation of early return to work measures within a given sector may depend on the nature and site of injury. In other words, these variables (nature and site of injury) appear to modulate the relation between the resources available for early return to work measures and procedural characteristics of early return to work measures.

The following figure illustrates the broad lines of the theoretical model which emerges from this study's results. Company size and sector influence both the structure (characteristics of resources) of early return to work measures and the manner in which work is organized. The

structure of early return to work measures influences the characteristics of the intervention processes (formalization, standardization, systematization, flexibility, continuity). Two categories of variables exert modulating influences: the company's organizational context (types of injuries, work organization, culture, rules, intra-organizational relations) and the social context (members of the public-sector health and safety network, social proximity) in which it operates. The term "modulating effect" refers to the effect of variables that increase or decrease the influence of a structural component on the return to work process. This model will be analyzed and empirically tested in the second phase of this research.

Figure 4. Theoretical framework for the implementation of early return to work measures



Overall, we observed that absenteeism, regardless of its origins, disrupts production activities. In order to maintain production activities, control mechanisms should attempt to prevent this absenteeism and fill any needs related to work absences. These mechanisms may focus on strategies including or excluding workers suffering from permanent or temporary disabilities. Early return to work measures emphasize inclusion, in contrast to interventions which are limited to compensating workers and favouring the consolidation of their injuries outside the workplace. Our data indicates that exclusionary strategies incur a high cost for companies. However, it appears that some early return to work measures may also exclude workers from production activities, if their reassigned tasks are non-productive or not meaningful. This in turn leads to other costs associated with the deterioration of the work climate. Inclusionary practices require

the participation of a variety of parties and the maintenance of good relationships with members of the public-sector health and safety network, which incurs further costs. It would be useful to evaluate the cost-benefit relation of different early return to work measures from the point of view of workers and employers.

Given the sparseness of scientific knowledge on the subject, it would be useful to evaluate the effect of variations in early return to work practices on the duration of absence from the original position, the number of relapses, and the aggravation of injuries. Such studies should also measure the influence of organizational elements on the effects of early return to work measures.

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APPENDIX A

Ascending hierarchical classification, entire population

Table 1. Ascending hierarchical classification, entire population

Variable	Class I 2 893 cases 23.7% of the population Inertia: 5.3%	Class II 1 222 cases 10.0% of the population Inertia: 2.8%	Class III 2 696 cases 22.1% of the population Inertia: 5.4%
Occupation	Fabric., ass., repair (34.3) ⁶ Materials handling (33.6) Mach. tooling, Secondary (23.9)	Transportation (61.5) Materials handling (21.4) Construction (8.8)	Fabrication, assembly, repair (52.9) Machine tooling, Secondary (31.8)
Sector	Leather, text., garm. (21.1) Metal prod. machinery, transport. equipment (13.1) Wood, furniture (10.0) Food and drink (8.8) Housekeeping (7.2) Rubber and plastics (6.7)	Transportation and warehousing (59.0) Civil service (16.6) Food and drink (6.6)	Leather, textile, garments (27.7) Metal prod. machinery, transport. equipment (18.9) Wood, furniture (11.1) Rubber and plastics (11.0) Food and drink (7.6)
Sex	Male (80.9)	Male (91.6)	
Occupational group	Manual and mixed (100.0)	Manual and mixed (98.0)	Manual and mixed (99.8)
Measures applied		No (88.2)	Yes (27.5)
Nature of injury	Muscles (51.2) Unspecified pain (14.4) Spinal disorder (10.3) Hernia (4.9)	Muscles (41.1) Contusion (14.9) Spinal disorder (8.6) Hernia (3.8)	Inflammation (34.6) Open wound (21.9) Bone (17.4)
Site of injury	Trunk and neck (69.2)	Trunk and neck (49.7) Lower limbs (22.3) Multiples sites (6.5)	Upper limbs, shoulders (88.5)
Assessment category	Medium (11-99%) (73.0)	Large (retrospective) (39.0)	Medium (11-99%) (67.9)
Duration of absence	≥ 731 days (3.4)	45-90 days (39.8)	91-182 days (25.0) 366-730 days (6.1)
Age group	30-39 (35.4) 15-29 (22.4)	40-49 (29.3) ≥ 50 (29.0)	15-29 (23.6)
Relapse	Yes (21.0)		Yes (20.8)

⁶ Percentage of cases in each category. For example, workers in the fabrication, assembly and repair sector account for 34.3% of the cases in Class I.

Table 1. Ascending hierarchical classification, entire population (cont'd)

Class IV 618 cases 5.1% of the population Inertia: 2.5%	Class V 1 823 cases 15.0 % of the population Inertia: 5.4%	Class VI 1 436 cases 11.8 % of the population Inertia: 3.1%	Class VII 1 500 cases 12.3 % of the population Inertia: 5.8%
Agriculture, forestry, mining (39.8) Mach. tooling, Sec. (26.5) Construction (13.6)	Services (79.9)	Health sciences (80.5) Services (17.1)	Administration, sales (54.7) Director, teacher (39.3)
Primary (63.7) Wood, furniture (9.2)	Accommodation, restaurant, leisure (50.6) Others services (15.6) Civil services (11.5) Housekeeping (9.3) Brokerage (4.7)	Health, social services (93.8)	Civil services (25.6) Health, social services (19.4) Wholesale, retail (11.3) Housekeeping (11.0) Brokerage (10.1)
Male (96.2)	Female (37.2)	Female (76.8)	Female (57.1)
Manual and mixed (99.5)	Manuals and mixed (94.7)		Non-manual (92.2)
	No (81.8)	Yes (27.4)	No (82.8)
Bone (27.5) Open wound (10.4) Other (8.4) Hernia (4.4)	Muscles (45.5) Bone (14.9) Contusion (10.8)	Muscles (46.4) Unspecified pain (23.6) Spinal disorder (9.3)	Bone (15.1) Other (4.1)
Lower limbs (25.4) Multiple sites (8.1)	Trunk and neck (43.0) Lower limbs (22.1)	Trunk and neck (56.2) Multiple sites (6.3)	Lower limbs (20.3) Multiple sites (8.1)
Large (retrospective)(29.4) Small (-10%) (29.0)	Small (-10%) (48.2)	Large (retrospective)(45.5)	Small (-10%) (29.6) Large (retrospective)(28.1)
	45-90 days (39.4) 91-182 days (27.1) 183-365 days (12.7)	0-44 days (41.1)	183-365 days (11.9) 366-730 days (6.4)
≥ 50 (28.6)	15-29 (26.2)	40-49 (31.3) ≥ 50 (26.1)	
Yes (22.0)	No (82.8)	No (82.9)	No (83.3)

APPENDIX B

Ascending hierarchical classification, beneficiaries of early return to work measures

Table 2. Ascending hierarchical classification, beneficiaries of early return to work measures

Variable	Class I 322 cases 12.3% of the population Inertia: 5.7%	Class II 221 cases 8.5% of the population Inertia: 3.8%	Class III 589 cases 22.5% of the population Inertia: 5.3%
Occupation	Transportation (30.4) Construction (15.2) Agric. forest. mining (14.9)	Administration, sales (35.3) Materials handling (21.3) Services (19.0)	Machine tooling, Sec. (33.1) Materials handling (30.0) Fabricat., assembly, repair (28.9)
Sector	Primary (27.0) Transportation, warehousing (23.6) Civil service (12.4) Food and drink (12.1)	Housekeeping (24.0) Wholesale, retail (17.2) Civil services (16.7)	Metal prod., machinery, transportation equipment (17.1) Wood, furniture (12.2) Food and drink (11.2) Pulp and paper (10.4) Rubber and plastics (9.0) Printing (6.4) Chemical (5.8)
Sex	Male (91.9)	Male (79.6)	Male (85.6)
Occupational group	Manual and mixed (98.8)		Manual and mixed (100.0)
Measures applied	-----	-----	-----
Nature of injury	Bone (22.4) Contusion (14.6)	Muscles (43.4) Bone (25.8)	Muscles (60.3) Unspecified pain (14.3) Spinal disorder (12.4)
Site of injury	Lower limbs (25.8) Multiples sites (9.9)	Lower limbs (26.7)	Trunk and neck (74.5)
Assessment category	Large (retrospective) (56.2)	Small (-10%) (37.6)	Medium (11-99%) (77.4)
Duration of absence		91-182 days (29.4) 183-365 days (22.2) 366-730 days (9.5)	0-44 days (31.6)
Age group	40-49 (33.2) ≥ 50 (31.7)	15-29 (28.0)	30-39 (38.7) 15-29 (25.1)
Relapse			

Table 2. Ascending hierarchical classification, beneficiaries of early return to work measures (cont'd)

Class IV 275 cases 10.5% of the population Inertia: 4.3%	Class V 620 cases 23.7% of the population Inertia: 6.8 %	Class VI 203 cases 7.8% of the population Inertia: 4.6%	Class VII 382 cases 14.6% of the population Inertia: 5.1%
Services (85.1)	Fabrication, assembly, repair (58.4) Mach. tooling, Sec. (29.5)	Director, teacher (55.7) Administration, sales (40.4)	Health sciences (82.5)
Accommodation, restaurant, leisure (65.1) Other services (18.2) Housekeeping (4.9)	Leather, textiles, garment (29.2) Rubber and plastics (20.5) Metal prod., machinery, transport. equipment (16.9) Wood, furniture (6.4) Electrical products (5.6)	Civil services (30.5) Health, social services (26.1) Housekeeping (11.3) Wholesale, retail (9.8)	Health, social services (93.5)
Female (54.2)	Female (49.0)	Female (68.0)	Female (75.1)
Manual and mixed (98.2)	Manual and mixed (99.7)	Non-manual (97.5)	
-----	-----	-----	-----
Contusion (13.8)	Inflammation (49.7) Open wound (18.1)	Bone (16.7) Unspecified pain (14.5)	Muscles (56.3) Unspecified pain (16.2) Spinal disorder (7.8)
Lower limbs (18.5) Multiple sites (7.6)	Lower limbs, shoulders (90.5)	Lower limbs (19.2) Multiple sites (7.4)	Trunk and neck (55.0) Multiple sites (6.5)
Small (-10%) (49.1)	Medium (11-99%) (63.5)	Small (-10%) (28.6)	Large (retrospective) (55.0)
91-182 days (31.3) 183-365 days (18.9)	0-44 days (31.9) 45-90 days (31.6)	366-730 days (9.4)	0-44 days (19.3)
	30-39 (37.7)		40-49 (33.2)
			No (82.5)