

Integrating Gender in Ergonomic Analysis

Strategies for Transforming
Women's Work

Ed. **Karen Messing**



*European Trade Union
Technical Bureau
for Health and Safety*



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**Strategies for Transforming
Women's Work**

Joint action-oriented research
by the University of Quebec
and trade unions

Ed. Karen Messing
CINBIOSE,
University of Quebec at Montreal

Translated from the French by
Glenn Robertson

Preface

One major loophole in the Community health at work Directives is their failure to take account of gender segregation at work - an issue to which the TUTB has repeatedly called attention.

In 1996, I had the good fortune to meet Karen Messing, a researcher at the Montreal-based CINBIOSE Centre. She told me about a series of projects she had worked on with Quebec trade unions. It seemed important to me that this should be brought to European attention, since it shows the immense potential of action-oriented research in improving equal opportunities and working conditions.

The TUTB asked Karen Messing to summarize some of her action-oriented research projects so that European trade unions would have a selection of practical workplace experiences to devise their own ways of acting. In a way, this stands as a companion work to our soon-to-be-published trade union guide to risk assessment.

The contribution from Elisabeth Lagerlöf and Lars Grönkvist, and Laurent Vogel's introduction, add a more specific take and information on the situation in the European Union.

Hopefully, it will not be long before the TUTB is able to publish a book on European trade union successes in combining the fight for equality with that for health in the workplace.

Marc Sapir
Director of the TUTB



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A Quebec contribution to a debate which Europe's unions must enter

By Laurent Vogel,
TUTB Research Officer

Preamble : A long but largely unknown history

Both of the first two international Conventions on occupational health concluded in Berne in 1906 affected women's work¹. One did so expressly, prohibiting night work by women; the other, although not gender-specific, banned the use of white phosphorous in match manufacture. The former was adopted unanimously by the fifteen States at the international Conference, the latter by only seven States. From the very dawn of the century, then, two strategies can be discerned : one protective, and often equivocal, which may effectively bar women from certain types of production work^a; the other, preventive but gender-neutral, laying down rules putatively to enable equal employment opportunities at no cost to health. Few writers have delved into the background leading to the first international industrial hygiene Convention on white phosphorous. As always, the motives are mixed^b. But radical, widespread industrial action by women matchworkers (the so-called "matchgirls' strikes") had a crucial impact in at least two countries : France (including a six-week strike in government match factories in May 1895) and Britain². The history of workers' struggles for occupational health is largely ignored, and has tended to rate only a footnote in the history of the labour movement. But the history of women workers' struggles for occupational health is more marginalised still, suffering the dual disadvantage of women in the labour movement, and occupational health in employment issues generally.

a. The vagueness of protectionist legislation is attested by the wave of strikes by women workers following the passing of the Women's Employment (Protective Measures) Act 1892 in France which "sanctioned if not aggravated job insecurity across many areas" (Louis, 1994, p. 246).

b. Long-discussed plans for an international convention on white lead were abandoned because it was felt that rules banning the use of white lead raised no international competition issues, and a simple recommendation was adopted instead (see Fonteneau, 1997, p. 533).

The matchworkers' struggle foreshadows most of the issues of many later struggles. Among other things, it illustrates the absence of a direct relation between identifying a health problem (the first medical descriptions of necrosis of the jawbone from white phosphorous date back to the early 1840s³), developing technical solutions (methods of match making using red phosphorous, which avoids the horrors of "phossy jaw" from white phosphorous use, were known as early as 1850) and political



decisions (bans on white phosphorous were introduced at various times from 1872 in Finland to 1931 in the United States!). This struggle did not stand apart from those on labour issues generally : the strike by Bryant and May's women matchworkers in 1888 in London is viewed by many historians as a turning point in the British working class' battle for political independence³. Nor is the link between health and other demands itself straightforward, because specific health-related demands emerge only sporadically⁴, and in some cases seem ultimately to have been absorbed into other issues. That clearly raises the problem of the lag between occupational health issues entering into the collective consciousness and the ability to translate those issues into discrete demands.

Oppression by managerial staff, the demand for dignity in the workplace, and the fight for shorter working hours run as constant threads through all these struggles. The visible havoc wrought by work was also to be a major issue, not least through condemnation of the role of occupational medicine in masking the problems. The choice of solutions long oscillated between opposing approaches : controlled use of harmful substances based on the employer's freedom to direct production and carry out reasonable self-regulation of risks⁵, compared to a far more radical demand that products should be designed in a way acceptable to workers. The consequence of this latter demand is a workers' criticism not just of the workflow conditions of production but also of production as such, in the products placed on the market.

Nearly a century after the matchworkers' struggle, Italian women workers (27 women among the 29 complainants) brought a successful case against FIAT Group management in June 1997. On the evidence of trade union investigations, they were found guilty of different offences connected with the development of illnesses from repetitive work. The judgment of Praetor G. Casalbore contains a summary analysis of the way in which the failure to take account of gender segregation at work undermined the effectiveness of "prevention" policies. One great merit of this case is to have focussed attention on the pace of work and the particular effects of rapid repetitive work. The judgment contains the following analysis of their work : *"The reasons for the development of the illnesses (exertion required by work processes, repetitive movements, bad postures, inadequate breaks) could have been eliminated from the production cycle not only by*

a. The owners of Bryant & May were politically active liberals at a time when the old craft unions dominated by the labour aristocracy tended to support the liberals. Direct experience of exploitation and the appallingly disfiguring diseases cause by their working conditions led the matchworkers to a far more direct political split from liberalism than would have been achieved by years of ideology-based campaigning for a socialist organization. The immediate cause of the 1888 strike was the employers' attempts to force their workers to pay towards the cost of erecting a statue in honour of the liberal leader, Gladstone.



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TUTB, 1999

Published in French as :
"Comprendre le travail des
femmes
pour le transformer"
ISBN : 2-930003-33-2
Translated into English by
Glenn Robertson

Production :
Olivier Comanne
Janine Delahaut
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<http://www.etuc.org/tutb>

ISBN : 2-930003-34-0
D/1999/6107/35

Layout by
Ex Machina Graphic Design
Printed in Belgium by JAC Offset
Cover by Tony Stone Images

Scientists, employers, decision-makers and even women themselves seem to have difficulty in coming to grips with women's work-related health problems. In part, this stems from traditional perceptions of women's work. The widespread belief that women's jobs are safe compared to men's, means that women's health problems are dismissed as an inability to do the job, or "all in the mind". This has held back efforts to improve their occupational health. Prolonged standing which lead to circulatory disorders, or repetitive movements which cause micro-strains, seem much less dangerous than the risk of falling from scaffolding or saw-cut injuries.

For a number of years past, the Montreal-based CINBIOSE centre has been conducting research to make visible and gain recognition for aspects of women's work which are bad for their physical or mental health. This research stems from the concerns and needs voiced by women workers themselves. Most of it is conducted in partnership with the three main Quebec trade unions. Through their scientific research and commitment to making workplaces healthy and safe, the team aims to shed light on what has so far remained invisible. We thought this was a lead which should be brought to European attention. It shows the immense potential contribution of action-oriented research to improving equal opportunities and working conditions.

Integrating Gender in Ergonomic Analysis

Strategies for Transforming Women's Work

Ed. Karen Messing

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introducing different technologies, but more simply by slowing down the work pace (which required 96 to 105 sequential operations to assemble the gearboxes for each car in the space of six and a half to seven minutes) and by allowing longer rest breaks in between assembly operations (the investigations showed that workers tended to speed up operations so as to build up an additional short rest break after each assembly on top of that allowed by the employer which was manifestly too short to enable them to recover their energies properly). Even after the development of illnesses related to repetitive injuries, company management continued to use a rest factor table with inadequate fundamental indicators and without reference to indicators of primary importance like age, sex (27 of the 29 victims are women), non-continuous work, and the characteristics of the working environment". The judgment also notes - but does not consider it an essential element of the offence - that after the first complaints, management gradually began replacing their female workers in sectors where illnesses were reported. Following this conviction, the trade unions succeeded in creating a balance of power which enabled them to negotiate a prevention programme for the industry, especially in FIAT's subcontractors⁶.

Women workers' struggle for healthy working conditions is an ongoing, unremitting reality which comes into the public eye only in fairly exceptional cases. The common idea of dangerous work is far more readily associated with mining, building or fishing (almost exclusively male preserves in western Europe) than with hospitals, textiles, supermarkets or farming.

Women's experience in and out of the workplace is seriously hindered because it is not easy to slot into scientific pigeonholes. The great merit of this book from Quebec is to show the practical feasibility of an approach which fuses equality and occupational health issues. The case studies reported are set in the local context of Quebec, but the scope is universal. The issues addressed are all-too familiar to Europe's trade union activists. The nuts and bolts of union action and the workings of the industrial relations system may differ in some respects from what we are used to, but the fundamental issues are the same : the invisibility of a major part of women's real work, the ubiquitous male norm implicit in self-proclaimed "gender-neutral" prevention policies, the need for any prevention policy and union intervention in occupational health to stem from workers' needs and experiences.

On all these issues, the book speaks for itself. It is particularly inspiring for us in Europe because it presents reproducible schemes. In other words, it hands us the means to feed trade union practice into the political and theoretical debates which cannot be ducked.

This introduction sets out to help foster the emergence of such trade union practices through a discussion of the relations between equality at work and occupational health as they stand today in the European Community. In order to keep within the traditional bounds of a preface, I have provided a more or less systematic bibliography referring to more in-depth treatment of the issues covered, especially some of the European research.

Occupational health and gender segregation at work

During the Sixties, widespread industrial unrest threw traditional approaches to occupational health into question. A broader view of work-health interactions considerably opened up the traditional field of hygiene and safety which chiefly aimed to reduce recognized and compensated occupational risks (employment injuries and occupational diseases) within a broader scheme of things where the emphasis was more on financial compensation than prevention. Particular emphasis was placed on workplace relations. The health impact of work is not a simple matter of the combined or accumulated effects of a series of risks. Work organization, with all the intangible factors it comprises or implies, stands out as a key area for prevention policies.

Gender segregation at work is a key determinant of work organization. Generally-speaking, work is highly segregated. Men and women are not distributed equally across industry segments, jobs, levels of responsibility or job type. Likewise, looked at by total working life and career development, men and women's respective situations differ significantly.

This gender imbalance at work is inextricably linked to relations of domination and oppression. In other words, segregation at work is not just a matter of distributing men and women between different work situations. In every case it enshrines and sanctions inequalitarian and hierarchically-organized relations^a.

a. Which is why some economists' assertions that segregation of women in certain industries or jobs may be to their advantage by creating sectors which are "sheltered" from male competition lack conviction.



As Danièle Kergoat (1993) puts it : *"Sexual division of labour is a feature of all societies, but the mechanics of that division vary greatly in time and space. It is organized according to a hierarchical principle : male work is always more highly valued than female work"*.

There is a very close linkage between equality and occupational health issues. Unequal distribution of work creates differential risks, unequal access to power (political, scientific and trade union) increases the invisibility of the risks women workers run. Denial of risks and health damage is also closely related to gender segregation at work. In male jobs, the emphasis on manliness and its associated stereotypes (strength, courage, etc.) allows some of the risks to be trivialized and in some occupations, effectively discriminates between workers⁷. In female jobs, stereotyping is a means of denying both the real skills (and so justifying unequal pay and exclusion from decision-making) and the health hazards entailed in tasks described as "naturally female". This very close link between refusal to recognise real skills and denial of work load and risks was thrown into sharp relief in a wave of industrial unrest, especially the nurses' strikes, in France in 1988-1989⁸.

There is considerable social resistance to mainstreaming women workers' needs in occupational health policies. Discrimination against women in waged employment, in fact, appears to be a functional prerequisite of the reproduction of our social system. Questions about it far exceed the organization of paid work. The meagre and often disappointing results of equal employment opportunity policies also suggest that the debate needs to be taken beyond mere equal opportunities between individuals to reflect on the conditions for material equality between men and women as social groups.

Waged employment and domestic work

Women have entered the labour force in large numbers in all European Community countries in different ways, at different rates, and to different extents⁹. Between 1975 and 1996, the total volume of male employment remained virtually unchanged (86,171,000 in 1975 compared to 86,384,000 in 1996) while the number of working age men rose by over 20 million^a. Over the

a. In fact, male employment fell by over 3 million if German unification is taken into account.



same period women's labour force participation rose from just over 46 million to nearly 62 million, for an increase of around 18 million in the number of working age women. In the past twenty years, the rise in female unemployment has also outstripped the rise in male unemployment (with a registered unemployment rate of 12.5% for women and 9.6% for men^a). While the female labour force participation rate is rising in all fifteen Community countries, national situations are still characterized by very pronounced differences. For a Community average of 57.4% in 1996, labour force participation rates below 50% were registered in Italy, Greece, Spain, Luxembourg and Ireland; between 50 and 60% in Belgium, Germany and the Netherlands; ranging between 60 and 70% in France, Austria, Portugal and the United Kingdom; and above 70% in Denmark, Finland and Sweden. The two ends of the spectrum are represented by Italy (43.7%) and Sweden (76.1%).

This mass influx made no fundamental changes to the structural inequalities in the labour market. Gender segregation at work has scarcely been affected. Worse, it has been reinforced in some cases, and segregation is most pronounced of all in the Scandinavian countries where women's labour force participation rates are actually highest¹⁰. The pay gap also remains wide despite legislation to enforce compliance with the "equal pay for equal work" principle. The problem is, what is "equal work" or "work of equal value" in a society where work is gender-differentiated¹¹.

There is also a gender perspective to the spreading job insecurity which, in the past twenty years, has tended to reverse the long-term trend in western Europe to strengthening employed workers' rights. It is as if the only way for women to gain access to the labour market despite rising unemployment was to forsake certain guarantees. The form may differ from one country to another, but everywhere there is the same trend to hyper-insecurity of the types and conditions of women's employment¹².

The figures on unwaged work are piecemeal and do not afford such precise comparisons as for waged employment. It remains a fact, however, that movement in this area is slow^b and probably more connected with the breakdown of the traditional family unit - which seems increasingly less like the only life pattern for adults - than a redistribution of work and work-family roles^c. Essentially, unwaged reproduction work falls to women.

a. If part-time work is counted as a form of part-time unemployment in many situations, the share of female unemployment is much higher still.

b. Time use surveys in France indicate that compared to ten years ago, men are spending 10 minutes a day more on household chores, and women five minutes less. But women still spend twice as long, averaging 5 h 24 min a day compared to 2 h 40 min for men (figures cited by H. Hirata in Hirata & Senotier, 1996, p. 13).

c. Looking at household composition, single parent families represented 39.6% of households in Sweden in 1990-91, single householders 6.9%. The difference may be less pronounced in the other EU countries, but the general trend remains towards a significant increase in the number of people living in other-than traditional family units (See Rubery and Fagan, 1998, in particular, pp. 78-79).



Available time use figures show that time spent on "unpaid work" is very unequally distributed, and that women spend far more time than men on performing unpaid "domestic duties" in the broad sense. According to a 1991 research study by Juster and Stattford, women's unpaid working time ranges between 27 and 33 hours a week according to country, with little in-country variation. The variations for men are much wider, ranging from a minimum of 3 to 5 hours (Japan) to a maximum 18 hours (Sweden)¹³. The non-socialization of domestic work places severe constraints on women's ability to perform waged employment. The correlation between the extent of female part-time work and the lack of childcare provision in the Netherlands is a telling example¹⁴ - despite a female labour force participation rate close to the Community average, the Netherlands has one of the lowest volumes (in hours) of female waged employment, which effectively reduces women's financial independence from the family institution^a.

a. In 1991, female waged employment as a proportion of the total volume of waged employment was under 30% in the Netherlands (close to those of Ireland and Italy), compared to a Community average of approximately 35% and peaks of more than 40% in Portugal and Denmark. (Maruani, M., *Le travail à temps partiel en Europe*, in Hirata and Senoutier, 1996, p. 179).

Little is known about the health impacts of this unequal division of paid work because virtually no research has been conducted on them. The effects of domestic work on health are even more invisible. The sparse data available indicates that women who perform only domestic tasks generally have less robust physical and mental health. Only very rarely is the interaction between unpaid domestic work and waged employment addressed, and yet it is a key aspect for understanding the differentiated impact of working conditions on the health of men and women. So, employers' flexible working time policies generally increase women's job insecurity and may even lead to mass layoffs of women workers¹⁵.

Another interaction found in the job content of female-dominated paid work is well-described by Philippe Davezies : *"women at work tend to be assigned tasks which are just an extension of the domestic activities they are trying to escape - repetitive tasks, personal care, decoration - but above all, they have to be submissive, willing, accommodating. This continuum drastically impairs the functions of openness, discovery, progress and personal development that everyone is entitled to expect from work. So not only do women have to work a double day, but very often both days involve the same kind of activity. Repetition makes the work activities uninteresting. It saps drive and itself becomes a source of exhaustion. Especially as, unlike the manly virtues extolled at work, female know-how is routinely belittled. Finally, the effort*

needed to keep up with the pace of work in many female manual jobs is such that some continue to work at the same pace in their domestic work" (free translation).

The limits to the European Community's equal opportunity policy

As early as 1958, the Treaty of Rome promulgated the principle "equal pay for equal work"¹⁶, a provision (article 119) admittedly included under pressure from French employers more from considerations of competition than social philanthropy. Nearly twenty years' inertia by the Member States, the European Community and its different institutions (Council, Commission, Court of Justice, etc.) effectively vitiated the principle.

In 1966, women workers at FN (Belgium's national ordnance situated in Herstal) kept up a three month strike for equal pay and against their "robot-like" working conditions, citing, less with irony than indignation, article 119 and the different competent institutions' refusal to give it material effect¹⁷. It was not until the wave of industrial unrest starting in 1968, and the significant rise of feminism, that the Community authorities began to put in place a legal framework for equality in employment¹⁸.

That legal framework has now been in place for twenty years. A systematic detailed assessment of it is beyond the scope of this introduction, so I shall confine myself to one conclusion and one hypothesis. The conclusion is that the fundamental inequalities have not gone away¹⁹. The hypothesis falls into two parts. One is that persistence may be partly due to the limitations of the objectives pursued and the strategy adopted. The other is that the possible legitimization of indirect discrimination through putatively gender-neutral political and economic objectives has in many cases unravelled the framework built up by equality policies.

This is not the place for a detailed analysis of the Community system of equality in employment law. There is already abundant literature elsewhere on that. The aims pursued by Community law are limited. It does not seek to overturn the social division of labour, still less to throw male domination into question. It aims to ensure equal opportunities on the labour market for all individuals regardless of sex, for one thing, and to ensure that those individuals receive equal pay for equal work, for another thing.



In such an approach, the status of women as a social group is eclipsed behind an infinity of disparate individual cases. This legal structure is underpinned by an essentially free-market ideology : not one of privilege due to gender-accidents of birth, but the stirring adventure of free competition on the labour market. There is no strict duty to perform by eliminating material inequality between men and women as social groups, but rather a relative obligation of diligence : all procedures must be fair and gender neutral. This approach tends to see factors of inequality as a hangover from the past, and to disregard the daily reproduction of inequality by economic and social structures^a.

a. The Opinion of Advocate General Tesouro in the Kalanke case encapsulate this approach: *"the rationale for the preferential treatment given to women lies in the general situation of disadvantage caused by past discrimination and the existing difficulties connected with playing a dual role"* (ECR, 1995, I., p. 3063).

b. See the figures cited by A. Ramos Yuste (1996). In particular, there was a pronounced divergence between the average hourly pay of female manual workers and male wages between 1980 and 1991 (table, page 75). Inequalities deepened in the United Kingdom, Italy and Denmark (the latter two countries were the most equal in 1980, Italy slipping back level with Greece, and being overtaken by France), but continued to narrow fairly steadily in Belgium, fairly rapidly in Greece, slowly in Luxembourg and the Netherlands, and relatively unchanged in Germany and Ireland.

As an approach, it has certainly had positive results in a context where the legal rules were openly discriminatory. It has been a force for development in all Community States' legal systems. But this initial impetus has lost much of its momentum in the present context where open sex discrimination between individuals is now rare and where indirect discrimination is increasingly justified on the "objective" grounds of competitiveness, flexibility, protection of small firms, reducing labour costs, etc. Looking just at the most visible, measurable aspect of discrimination - the gender pay gap - it will be seen that differentials slowly closed in European Union countries up to the mid-80s, after which national situations stopped converging and the gap began to widen again in some cases, doubtless due to the gender dimension of job insecurity^b.

The strategies put in place are directed towards individual instances of inequality. The Community Directives offer no remedy for discrimination against groups. The problem of women textile workers earning substantially lower wages than male metalworkers is not one that can be dealt with by Community legal instruments. Likewise the fact that part-time work is overwhelmingly female. Only individual cases where a man or woman believes themselves to be the victim of discrimination on the grounds of sex can be dealt with. The positive action regime is tightly constrained by a body of case law whose requirements can be nitpicking in the extreme. Finally, the emphasis is placed on redress through the courts which, of course, is not available to groups of workers as such (unlike the United States, class actions are unknown to Community employment equity law).

Generally-speaking, Community law does not make equality a matter of higher interest such as to warrant more proactive intervention by the public authorities in the sphere of private



interests. An analysis of the Court of Justice's case law reveals that equality is conceived in terms of both economic and social ends. This undermines the legitimization of equality policies. Examples abound of *de facto* discrimination which have been justified on the grounds of economic rationale. The limitation is threefold.

- There is no attempt to tackle the root causes of inequalities in that the only challenge available is against discrimination on the grounds of sex, and that must be established in each individual case.
- Even where there is discrimination, it may be justified by a higher economic rationale.
- Finally, there is no binding Community legislation on the link between unequal working conditions, as restrictively interpreted by the Community Directives or case law, and other forms of inequality (in self-employment, family matters, policy-making, etc.).

The distribution of low pay typifies the variable links between gender segregation at work and pay inequality. Two of the countries with the highest percentage of low-paid women (defined as wages below 66% of the median wage) are Canada (34.3% in 1996) and the United States (32.5%). But sex discrimination is comparatively less visible because a high proportion of men are also low paid (between 23 and 25%). So the female/male low pay ratio is not very high (1.7 in the United States, 2.1 in Canada). At the other end of the spectrum, Sweden has the lowest proportions of both low-paid men and women (3 and 8.4%, respectively), but a female/male ratio which makes the discrimination far more visible than in the United States (2.8). Japan is a case apart, with a fairly low proportion of men (often close to European averages, and very much lower than that of the United Kingdom and Canada/USA) combined with the highest proportion of women (37.2%). That tends to show that while the social construction of the labour market always works against women in wage setting, the immediate visibility of the process in terms of discrimination varies widely. (OECD figures on full-time work, taken from Rubery and Fagan, 1998, p. 69).

In Community case law, justifications for indirect discrimination vary, and the Court of Justice has not always displayed undue concern for consistency. Reasons held acceptable are internal organizational considerations (*Jenkins* judgement of 31 March 1981, *ECR* 1981, p. 911), state measures to help small employers (*Petra Kirsammer-Hack* judgement of 30 November 1993, *ECR* 1993, p. 6185) or general measures to contain social security spending (*Commission v Belgium* judgement of 7 May 1991, *ECR* 1991, p. 2205). While intent is no longer a decisive factor of discrimination (the CJEC has implicitly revised its criteria since the *Jenkins* judgement), the simple objectively established fact that discrimination has resulted is not sufficient.



The combined effect of these three limitations is to leave vast grey areas in Community action on equality. Official wage-setting regulations are reduced to insignificance and vary widely from one Community country to the next. Hiring (selecting those allowed employment opportunities) and firing are essentially regarded as employer's prerogatives and framed only within restricted and qualified rules (combatting direct discrimination, laying down procedures for dismissals, etc.). To the best of my knowledge, Italy is the only Community country which, in the wake of the labour gains of the 70s, attempted to conduct a public employment policy and managed - to a limited extent and for a fairly short time - to pursue equality policies through the public employment service's monopoly on recruitment. Likewise, Community equal opportunity law completely disregards the decisive effect which work organization may have in perpetuating and engendering gender inequality. Employers are under no compulsion to develop a work organization which is gender-balanced in tasks and jobs²⁰. It is sufficient for them simply not to discriminate between any of the individuals who work for them. In this connection, it should be noted that the expression "working conditions" as used in the Directive and many Court of Justice rulings refers essentially to measurable aspects or personal rights deriving from employment contracts. It will include pay in its widest sense, various benefits connected with performance of the employment contract (training, leave, etc.) but not working conditions in the wide sense which is the basis of article 118A of the Treaty, and forms the legal basis of Community action on the working environment.

The fact that the definition of workload systematically devalues women's employment, that job content is itself highly gender-shaped, maximizing the restrictions on the employment of men or women for specific activities, or that the choice of contractual relations bespeaks significant divisions between men and women (part-time, short-term contracts, etc.), are all factors which escape the legal rules on equality. There is no doubting the Community institutions' intention to promote good practice²¹ in this area, as witness their appeal to the goodwill of the "social partners" to eliminate discrimination in job evaluation or classification systems in collective agreements. But, as Béatrice Hertogs of the ETUC Women's Committee, says, the Community institutions' failure to provide firm guidance and supervision raises a problem: *"The invitation to the social partners would obviously have been less cordial, but perhaps more effective, with a stick to wave"*²².

Equality and occupational health policies

So, if the scope of equality policies does not extend to occupational health, do occupational health policies include an equality perspective? Sadly, the answer is "no". Notwithstanding all the rhetoric about mainstreaming, Community occupational health policies take no account whatever of gender balance or equality in employment.

Community occupational health Directives never address the issue of gender balance at work. The only Directive which expressly refers to female workers is that on maternity protection²³, which chimes perfectly with the basic principles of the Equal Opportunities Directives and the case law of the Court of Justice holding a differentiated approach as valid only if it relates to biological characteristics, especially maternity²⁴.

Despite its emphasis on management/employee relations in the workplace, the 1989 Framework Directive²⁵ nowhere sets equal employment opportunities in all jobs for both sexes as an objective to be attained. It is also significant that the Framework Directive's aim of giving all workers equal coverage should be limited by a single exception - "domestic servants" which, as is well-known, are overwhelmingly female.

The single issue Directives are seriously skewed by a gender-insensitive approach which implicitly makes male work the yardstick. So, the Community's restricted answer to the epidemic growth of musculoskeletal disorders is to regulate the manual handling of loads²⁶ on terms more generally applicable to male than female work.

The Working Time Directive certainly stands as a textbook example²⁷ in its supreme indifference to every working time issue raised by women's groups (within and outside the unions). Essentially, it contents itself with setting a handful of limit values for daily rest periods, weekly rest periods, weekly working hours, length of annual leave, and maximum hours for night work. Aside from the fact that these limits are generally less favourable than existing provision in most Community countries, and are subject to flexibility provisions particularly favourable to employers (even to allowing them to annualize working time based on an average 48-hour working week!), the very rationale of the Directive itself is questionable. It is as if a neat separation



a. Almost all the Working Environment Directives make provision for consultation of workers. Their excessively vague wording and the Framework Directive's simple reference back to national regulations and practices are certainly regrettable, but the point is nevertheless made. On the other hand, two Directives - the Pregnant Workers Directive and the Working Time Directive - make no such provision.

could be made between working time and rest periods. Time for domestic work, training and travel are ignored. The waiting time between two periods of being sent to work for an employer which typify many part-time work situations are disregarded by this piece of legislation (as also by the later Directive on part-time work). There is no right to be transferred from night work to day work, merely a possibility on grounds of ill-health (as if there were no other reasons for not wanting to work nights!). The Directive pushes the subordination of gender-shaped human times to the economic imperatives of the profit motive to the very limits, granting a long series of derogations, exceptions, and flexibility provisions with not a word about consulting the workers directly concerned^a.

The Part-Time Work Directive addresses none of the concerns raised by occupational health issues²⁸. For many women workers, part-time is not just a matter of working less than full-time hours. It also means working less certain hours, and a time organization more directly dictated by profitability or operational requirements. To this extent, the economic insecurity (lower pay, often less comprehensive social protection, etc.) of part-time work is compounded by an inability to manage personal time, which may create insecurity across the individual's entire life, both as a worker and all other aspects (emotional, family, social, etc.) as well.

The legal rules are clearly insufficient, but the same failings can be seen in the occupational health programmes framed in recent years. The priorities are set essentially by reference to two criteria. One is the desire to be as non-prescriptive as possible, contrary to the express wording of article 118A which clearly states that in working environment matters, the Community is to intervene essentially through Directives to harmonize existing situations while maintaining the improvements made. Since about 1992, there has been a reluctance to legislate which has prevented the development of a body of coherent rules covering the main aspects of occupational health. The other is that in areas where Community action is planned, the gender perspective is clearly lacking. In the Commission's action programme for 1996-2000, women as a target group appear only in relation to maternity. Any planned legislation which might have a direct impact on women workers seems to have become bogged down : the Commission has still not put forward any proposals to improve the Pregnant Workers Directive (the revision should have gone under way in



October 1997). Work has still not begun on framing Directives on teleworking and home work. The only Directive to address the health and safety aspects of insecure employment²⁹ is severely flawed and no proposals for a Directive have been brought forward to improve it.

It is probably too soon to tell whether the Bilbao-based European Agency for Safety and Health at Work will address the health of women in the workplace. Its work programme has little to say on the matter. The Dublin Foundation's recognition of the importance of this field of research, by contrast, is praiseworthy. It has taken the information collected for its 1996 survey of working conditions as a basis for exploring the gender dimension of deteriorating working conditions³⁰. The employers' growing unease about the Dublin Foundation's survey and the research based on it this survey are highly significant^a. It is easier to break a thermometer than admit that a patient is sick, especially when one bears some responsibility for the sickness, and particularly when what the employers' are trying to do is to roll back the gains made in the Seventies and demand absolute control of work organization and management. And there is no question that extending the scope of prevention to all factors with an impact on health is a limitation on what is regarded as the employer's traditional prerogatives.

a. The Dublin Foundation is a tripartite-run body. Every project is discussed by representatives of the unions, employers and governments. Since the completion of the 1996 survey on working conditions, the employers' representatives have become increasingly hostile to the publication of the survey findings, research linked to concrete issues like job insecurity and the gender perspective, and have especially objected to political capital being made of the survey findings to demand fresh Community initiatives on occupational health.

Recent developments

Women workers' occupational health needs are not being taken into account because of rationales which are holding back prevention. The traditional invisibility of women's work hazards which is the result of priorities derived from compensation systems and male-dominated research is made worse by pressures that put economic considerations before occupational health. It is highly significant that the major conference on cost-benefit policies in occupational health called by the Dutch government in May 1997 in The Hague³¹ did not discuss the gender perspective of such policies. And yet it seems to me that two possible criticisms can be made from the equality angle. One is that the invisibility of women's work-related health problems makes any discussion of costs that much more difficult. The other is that the lower economic value attributed to women's work tends to diminish the "benefits" of the preventive measures taken. On this



point, I share Cutler and James' criticism of the Health and Safety Executive policy of promoting prevention on the grounds of economic profitability : *"There are also important issues regarding the implications for workers' equity of variations in accident costs. In terms of the HSE approach, the incentive to invest ought to increase with higher accidents costs. The logic would thus be that different groups of workers are likely to be exposed to differing levels of risk because of variations in the financial consequences that accidents have for their employer. This in turn would seem to imply that employers in sectors characterised by low pay and low added value will tend to accord safety a relatively low priority"*³².

Occupational health is also disadvantaged by being treated as separate from other public health issues due to employers' pressure to reduce it to a business management concern (possibly linked to procedures for consultation of workers) and to reduce pressure from public authorities exercising their duty to protect the life and health of individuals. Community policy has not moved forward in this area - the definition of public health policies is based on a simplistic approach, often centred on the "promotion of individual health" and largely disregarding the social determinants. The 1997 Report on the State of Women's Health in the European Community³³, looks only at the individual determinants of women's health (smoking, drinking, diet, lack of exercise) and glosses over their double working day and the characteristics of their paid work in silence.

A challenge for trade union practice

The segregation of equality and occupational health is also an issue for the trade union movement. Only very rarely do trade unions succeed in dovetailing the two coherently into their demands and activities. There are different reasons why. For one thing, occupational health often remains a "side" issue, and not really part of mainstream union action. The overall health implications of work organization tend to be addressed only after-the-event. For another thing, the struggle for equality between men and women is beset by major obstacles : women's under-representation in decision-making bodies, a trade union culture whose essential yardstick remains a permanent full-time job and has problems embracing the full spectrum of labour relations, etc.

That is not to say that trade union practice has failed to forge any link between equality and occupational health. A series of noteworthy schemes which have come to my attention are reported in the bibliography to this section.

Many unions have begun to take on board the gender dimension of preventing musculoskeletal disorders. Some of these have led to ground-breaking initiatives.

The generalized introduction of employee health and safety representation in all European Union countries presents an exceptional opportunity. Women - albeit under-represented - account for a significant proportion of the hundreds of thousands of elected or appointed delegates. And trade union action has everything to gain from a renewed grassroots initiative in the workplace which succeeds in putting the needs and priorities of workers on the agenda. A recent survey³⁴ of British safety reps shows both the very great degree to which prevention issues proposed by women workers are sidelined, and a growing awareness of the gender perspective of occupational health policies. The issues most frequently raised are stress, manual handling and repetitive strain, violence, reproductive hazards, chemical and biological agents, and the effects of work on the change of life. While these issues are not necessarily different from those generally raised by men (apart from the latter), they nevertheless indicate that women's priorities are to get back in touch with a trade union strategy which uses health concerns to address all the issues bound up with work organization and the various inequalities stemming from paid work. That involves at least three aspects : independently-set (i.e., independent from the employer and his technical experts) prevention priorities which do not stem from those of compensation-based systems; building the capacities of trade unions to listen proactively to workers; the ability to mainstream occupational health issues into an overall strategy for transforming working conditions.

Nearly a century after the matchworkers' struggle, women workers in Maryflo, a small ready-to-wear clothing firm in Brittany, struck for dignity in the workplace³⁵, calling for their manager's dismissal and condemning the unacceptable harassment and humiliation to which they were subjected. A straightforward demand stemming from everyday events, but a very unaccustomed one for the trade union movement. The Maryflo workers used their working conditions as a lever to challenge the control



of their company's system of business organization and management. This is obviously not to say that all industrial disputes lead to the framing of such radical demands. But, by introducing the demand for equality which goes against the grain of millennia of oppression and throws into question labour and social relations across-the-board, women workers are certainly helping trade unionism break free of the straitjacket of the workplace and contributing to the transformation of society.



Notes

1. For a general background history to the Conventions, see Fonteneau (1997).

2. A fascinating description of the French matchworkers' struggles can be found in Gordon (1993) while Baldasseroni and Carnevale (1997) offer an overview of Italy and the main European countries. Except where stated otherwise, these are the two sources for the information on the matchworkers' struggles.

3. Baldasseroni and Carnevale (1997) cite a case in 1838 published in a case report in 1845; Raffle *et alii* (1987) cite the first reported cases in 1844. The production of phosphorous matches seems to have begun in the 1820s and expanded rapidly in the following decades. The workforce consisted principally of women and children from the very beginning, although there are reports of the Austrian industry recruiting the indigent poor and gambling debtors.

4. So, based on available sources, Baldasseroni and Carnevale (1997) show that while matchworkers were a particularly proactive section of the Italian working class up to the advent of fascism, occupational health issues do not seem to have resulted in major specific demands. Gordon (1993) asks pertinent questions at the end of his article on whether the French matchworkers' achievement was an isolated victory.

5. Baldasseroni and Carnevale (1997) cite the first case of the regulation of work in match factories in the canton of Zurich in 1847, while Gordon (1993) reports that the French Ministry of Finance considered acquiring a patent for housed machinery from an American company which would prevent workers' mouths or hands coming into direct contact with the white phosphorous.

6. The full text of the judgment and detailed information on the trade union campaign are available on the Piedmont FIOM's Internet site:

<http://www.pmt.cgil.it/fiompie>.

7. See Molinier, P., *Psychodynamique du travail et précarisation. La construction défensive de la virilité*, in Appay & Thébaud-Mony (1997), pp. 285-292.

8. See Kergoat (1992). Industrial unrest in the health sector in the United States from the Seventies clearly highlighted the link between occupational and gender hierarchy (see Brown, 1976).

9. Unless otherwise stated, the figures in this paragraph are taken from European Commission, (1997-b).

10. See Anker (1998), especially chapter 10. In a classification of 75 non-agricultural occupations, the percentage of workers employed in occupations at least 80% female-dominated is 55.4% in Finland and 53.8% in Sweden. Segregation levels are also high in the Netherlands and Luxembourg. The lowest levels in the European Union are found in Italy (10.2%, but skewed by female-dominated occupations slightly below 80%), Spain (14.2%) and Austria (14.3%). Male employment is also highly concentrated in almost entirely male occupations in the Scandinavian countries.

11. A point made by M. Maruani for France: *"The law says there must be 'equal pay for equal work' and it is true that within the same firm, pay inequalities have almost disappeared for the same job. But averaged out overall, there remains a 30% wage gap between men and women. Why? Because women still do not have equal work. And as long as men and women do not do the same work, or where it is not recognised as the same work, as the case may be, pay inequalities will subsist and will not be a matter of different educational levels"* (Maruani, 1994, p. 14) (free translation).

12. See in particular, Appay & Thébaud-Mony (1997) and Hirata & Senotier (1996).



13. Cited by Rubery and Fagan (1998), p. 75-76.
14. According to the 1995 European labour force survey.
15. See Corradi (1991) and Vogel (1992) on the case of a Barilla Group company (Italy) where the introduction of night work and Saturday work, negotiated under the threat of closure, resulted in mass redundancies among the company's female workforce.
16. For a detailed examination of Community equality policy and law, see Hoskyns (1996).
17. See Coenen (1991).
18. A useful benchmark is the first Directive on equal pay for men and women workers of 10 February 1975 (OJ L 45 of 19 February 1975, p. 19). For the Court of Justice, following a disappointing Defrenne I judgement of 25 May 1971 (ECR 1991, p. 445) justifying the discriminatory enforced retirement of airline stewardesses at the age of 40 by excluding their legal pension from the concept of pay within the meaning of Article 119, the turning point came on 8 April 1976 with the Defrenne II judgement (ECR 1976 p. 455) recognizing that article 119 has direct effect.
19. A summary overview of these persistent inequalities can be found in Rubery and Fagan (1993, 1994 and 1998).
20. Gender balance is not addressed in any binding Community legislation. It is included as a possible objective of positive actions which may or may not be initiated by Member States or the "social partner" (management and labour). (See OJ L 331 of 19 December 1984, p. 34).
21. For concrete examples and a critical discussion on the limitations of the "good practice" method, see Rubery and Fagan (1998), pp. 138-162.
22. Hertogs (1991), p. 100.
23. Directive of 19 October 1992 on the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding, OJ L 348 of 28 November 1992, p. 1. For a critical analysis of the Directive and its national transposing legislation, see Vogel (1997-b).
24. See the *Hofmann* judgement of 12 July 1983 (ECR 1984, p. 3047).
25. Directive of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work, OJ L 183 of 29 June 1989, p. 1.
26. Directive of 29 May 1990 on the minimum health and safety requirements for the manual handling of loads where there is a risk particularly of back injury to workers, OJ L 156 of 21 June 1990, pp. 9 et seq. For a critical analysis, see TUTB Newsletter, No 5 (February 1997), pp. 6-10.
27. Directive of 23 November 1993 concerning certain aspects of the organization of working time, OJ L 307 of 13 December 1993, pp. 18 et seq. For a critical analysis of this Directive, see Supiot (1995) and Vogel (1997-a).
28. Directive 97/81/EC of 15 December 1997 concerning the Framework Agreement on part-time work concluded by UNICE, CEEP and the ETUC, OJ L 14 of 20 January 1998, p. 9. For a more comprehensive critical analysis, see Jeffery (1998).
29. Directive of 25 June 1991 supplementing the measures to encourage improvements in the safety and health at work of workers with a fixed-duration employment relationship or a temporary employment relationship, OJ L 206 of 29 July 1991, p. 19.
30. K. Kauppinen and I. Kandolin (1998).
31. Mossink and Licher (1997).
32. James and Cutler (1996), p. 48.
33. Commission (1997-a).
34. Kirby, P. (1998).
35. My thanks to Josette Dixneuf of the CFDT for information on the Maryflo strike in January 1997.



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Work and health among European women

By Lars Grönkvist, *journalist*,
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Increasing numbers of women are now in paid employment. This massive influx of women onto the labour market generally seems to have had positive effects on their health. They appear to have adjusted successfully to their multiple roles as workers, mothers and wives. However, their position at work still gives evidence of a pronounced segregation between women and men on the labour market. The scientific literature documents the heterogeneous set of risks and consequences of work in female occupations. Different labour and social policies, as well as cultural differences, also impact the development of women's work and health. This overview is mainly confined to studies^a covering European working conditions.

a. This paper is mainly based on the following reports :

- *Women, work and health. OECD Working Party on the role of women in the economy, Synthesis report, OECD, Paris OCDE/GD 182 (1993).*
- *Equal opportunities for women and men in the European Union. Annual report 1996, Luxembourg : Office for Official Publications, 1996.*
- *Gender and Working Conditions in the European Union, Dublin : European Foundation for the Improvement of Living and Working Conditions, 1998.*

Women's participation in the work force is a growing trend in the EU Member States. It is one of the most obvious changes in the European labour market over the last ten to twenty years. The trend is especially noticeable in some countries, like those of southern Europe, where women's labour force participation has been relatively low.

In the future, more and more European women will demand jobs and independent incomes. The restrictions will mainly depend on how labour demand will develop in the next decade.

At the same time, structural changes are occurring, like the shift from a rural to an urban economy, from production of goods to services and from national economies to a global, more integrated economy. This will add to competition on the labour market and raise competence and skill requirements. Increasing globalisation will add to the competition and pressures to rationalise production, especially in manufacturing industry. As a result, many low-skilled jobs in the private sector will disappear. The new jobs will mainly be created in the service sector and in knowledge-intensive occupations.

On average, women make up 42 per cent of the EU work force. In Denmark, Finland, Portugal and Sweden, every second employee



is female, while women's participation is much lower in Greece, Luxembourg and Spain.

Many women in the service sector

About 80 per cent of European working women are employees. About one in ten is self-employed and about four per cent are in paid work at family firms.

Women's labour market position can only partly be explained by key factors like age, level of education and family situation. These conventional explanations are not enough to explain the complex interplay that creates and promotes segregation. Even if new work patterns are emerging, gender segregation in the labour market is strong. Segregation is both vertical – preventing women's promotion to higher managerial jobs – and horizontal – forcing women into more service and clerical jobs. There is also strong segregation within occupations, resulting in task differentiation between women and men.

Women are employed in certain sectors and occupations, and seldom found in senior and management positions. Typically female-dominated sectors are health and social services, retailing, education and public administration. In Austria, Belgium, France and Germany more than every other woman is employed as a clerk, shop assistant or in other service occupations, compared to just one in four in Portugal and Denmark, where more women are found in elementary, unskilled occupations. In Portugal, also, a large proportion of the female workforce is found in the textile industry.

Men are more evenly distributed across all occupational groups, although craft and trade workers and plant or machine operators are very male-dominated occupations. In short, women's jobs are characterised by the elements of caring, or by a nurturing or supporting role, while men have monopolised the "heavy" technical and managerial tasks.

More women than men are public employees. In Denmark, Finland and Sweden, about six in ten women work in the public sector, compared to only one in three in other countries like Austria, Belgium, France and Spain.



In the EU labour market, two thirds of employees are still in permanent jobs, but a change is in progress towards more short fixed-term and temporary contracts, so-called precarious work.

Precarious work is slightly more common among female than male workers in the EU – 18 and 14 percent, respectively. In some countries – like Belgium, Denmark, Finland, Ireland and Sweden – more women are found in these kinds of jobs. Insecure employment is most common in Spain, where every third employed woman has a temporary job.

More female part-time

In general, women work fewer paid working hours per week than men (about 80 percent of men's time). There is, however, a wide variation across the EU. In Finland, Portugal, Denmark, Greece and Spain women work almost as many hours as men.

Every fourth European woman works fewer than 30 hours a week compared to five per cent of men. Correspondingly, only eleven per cent of women work more than the standard weekly full-time compared to at least 27 per cent of men.

In male-dominated occupations, like agriculture and forestry, craft and trade jobs, and among plant and machine operators, most women work full-time. Part-time solutions are more frequent among women employed in elementary sales and service jobs, construction, transport, teaching, and health care.

Women's working time is largely determined by their family situation – the more children, the fewer hours worked outside the home. Thus, every third woman with one child and almost every second woman with two children or more works less than 35 hours per week

In order to cope with the dual burden of paid employment and unpaid domestic work many women are forced to work part-time. In the Netherlands and the UK, where part-time employment is very common, some eight or nine in ten mothers with two children or more work short hours. Similar proportions are found in Austria, Belgium and Sweden.

In contrast, men's working hours are not influenced by their family situation. Instead they seem to increase their working time with the number of children, especially among the self-employed.

In many Member States, long working hours for mothers are linked to increased stress and lower job satisfaction, while shorter working hours are associated with increased job satisfaction and less stress. It seems as though women may regulate their own health and well-being by working shorter hours – voluntarily or otherwise – in order to balance the demands of work and careers with their domestic responsibilities.

Women's balancing of paid and unpaid work is also determined by cultural factors and available provision, such as day-care, parental leave policies, etc. Women's part-time work and their dual burden must nevertheless not only be seen as a work-load problem, but also as an obstacle to competence development and career opportunities, maintaining or even reinforcing segregation.

Is the wage gap widening?

Despite women's increasing participation in working life, the gender wage gap is still wide. On average, women earn less than their male colleagues in the same occupation. The gap concerns employees in manufacturing industry as well as in the service sector. Female manual workers earn between 65 and 90 per cent of men's average wages. Contrasts between non-manual employees are even wider. The gap is smallest in countries like Denmark, Finland and Sweden, and widest in Austria, Luxembourg, the UK and Ireland.

Wage differences may be partly explained by the greater number of women in low-paid occupations. Furthermore, women more often seem to remain in unskilled jobs – partly because they work more part-time, but also lack of competence development opportunities at work.

Very few women are found in top positions, especially in the private sector. The boardroom, senior management and line management are largely male preserves. In the European survey of the Dublin Foundation, 17 per cent of women and 33 per cent of men reported themselves as being in supervisory positions. Gender differences were most apparent in Denmark and Sweden. Women's supervisory roles appear to be limited to middle management positions, and they tend to supervise smaller work units than do men. Very few women appear to have broken through the invisible "glass ceiling". The supervisory role also



tends to be gender-segregated, since only ten per cent of men – but many more women – reported having a female manager.

Equality in law and practice

Equal opportunities for women and men are recognised in the EU as a basic principle of democracy and respect for human rights. The Community has agreed on equal pay for equal job demands and developed a number of directives which guarantee equal rights to work, education and training, and – to a certain extent – social security.

Efforts to improve gender equality will be intensified and implemented in various fields via EU directives and programmes. The strategy is mainstreaming, which means a systematic evaluation of differences between women and men as regards resources, demands, situations and conditions in various policy fields. For example, it implies gender-oriented assessment of legislation, directives, action programmes, and statistics.

Occupational safety and health legislation is implicitly assumed to be gender-neutral, due to the assumption that a safe and healthy work place will benefit all citizens.

In practice, the legislation is based on male norms. This depends partly on historical reasons, since most regulations reflect the industrial society, where the main purpose was to prevent accidents and – if an accident occurred – to compensate the injured worker and his family. Thus, work-related health and safety are regulated by two parallel systems, namely prevention and compensation.

Early legislation focused on machinery, safety and accidents, but was gradually extended to include chemical, physical and biological hazards and their long-term effects, i.e., occupational diseases. Physiological risks, like heavy lifting, were early recognised as work-related, and maximum load restrictions were introduced for both women and men.

Current health and safety regulations define risk factors much more widely, and more attention is paid to psycho-social conditions. Accordingly, the EU directives also cover mental health and well-being, and if implemented and enforced in all Member States could effect major changes to many women's jobs.



Today, most experts accept that health effects have multi-factorial explanations, but compensation laws still tend only to accept mono-causal explanations. If multi-factorial work exposure is present, as in many female jobs, the resulting disease is unlikely to be compensated.

Lack of influence

Women's working conditions in the European survey on working conditions are described as involving less exposure to physical and chemical risk factors than men. Other more detailed studies confirm that women are less exposed than men to physical hazards, like radiation, dust, noise, vibrations, etc. However, low-dose chemical exposure, such as in office work, is more common among women.

In some sectors, however, women are more frequently exposed to chemicals, like solvents in dry-cleaning, and pesticides and herbicides in farming. These substances may affect fertility and pregnancy, causing foetal malformation, and lead to miscarriages or premature birth. They also increase the risk of other diseases, like allergy, cancer and eczema.

The OECD review of key studies on women's work and health found that women are more exposed to monotonous, repetitive work than men, especially in male-dominated jobs, like manufacturing. Similar tasks are also found in the service sector, for instance, VDU work. Furthermore, in typically male-dominated jobs the workplace is created for men, since ergonomic data for workplace design are based on the male norm. Typical examples are worktables, hand-tools and personal protective equipment.

The survey also finds that women's jobs contain more negatively stressful work. Women's work content can often be characterised as "high demand-low control", which may increase the risk of negative stress. In the Member States, four in ten women have such working conditions compared to one in three men.

The survey findings show that women have fewer possibilities to manage their time, such as days off, breaks at work. Even within the same occupation, men have significantly greater influence on planning, work schedules and pace of work. Two in three blue-collar women have high demand-low control tasks compared to one in two men. Men seem to move up to improved work conditions,



whereas women tend to remain stuck with monotonous, repetitive tasks. To some extent, women are taking over the bad aspects of men's work.

Correspondingly, women less often have active, "high demand-high control" tasks. About every fifth woman has a stimulating job compared to every fourth man. These kinds of female jobs are less common in Denmark, Italy, the Netherlands, Portugal, Sweden and the UK.

Male managers more often have active tasks than their female colleagues. For instance, four in ten female managers compared to six in ten men perceive their working conditions as active.

Women also reported having fewer learning opportunities in their jobs, and that they were less involved in decision-making at the workplace.

An expert report for the European Commission found that harassment is a serious problem for many women in the EU. Bullying, sexual harassment, and violence may be an increasing problem. The European survey reported that four per cent of women had been sexually harassed at work during the previous twelve months, and three per cent had been the focus of unwanted sexual attention. Temporary employed women run a higher risk.

Occupations exposed to violence include nurses and doctors in mental health care services, the police force and social workers. Workplace conflicts, like bullying, discrimination, harassment and violence, may have severe consequences, like depression, burn-out and suicide.

Indicators of health outcome

Sick leave, work-related diseases, work accidents and early retirement are used as indicators of the work environment. However, they are seldom unequivocal and reliable measures of working conditions and ill-health. Social security policies and legislation, as well as compensation policies, may influence the different indicators. For instance, more stringent rules and lower compensation may reduce sick leave, whereas more generous provision may encourage a higher rate of absenteeism.

Sick leave may not be directly related to the working conditions, since family conditions, lifestyle and other factors outside the workplace may contribute.

In many Member States, women are more often reported to be absent from work than men. This may be due to women's dual burden, where only part of their absenteeism may be explicable by their own illness and part may be due to caring for their sick children, which still tends to be women's lot.

Nevertheless, women's working conditions do affect their absenteeism rate. In male-dominated occupations, like brewing, food manufacturing, paper industry, and the textile and wood industries, women's sick leave is twice that of women in paid work generally. The most common cause of absence is musculoskeletal disorders.

Some studies indicate that younger women with home and family responsibilities try to avoid taking sick leave from work. A similar trend is observable among single parents and the self-employed. One possible explanation is the fear of losing their jobs due to absenteeism.

Female welders at risk

Early retirement may be another indicator of working conditions and ill-health, but also an indicator of economic recession or high unemployment. In some Member States, early retirement has been used to decrease the unemployment rate.

The most common causes of women's early retirement are musculoskeletal disorders and mental ill-health. Female early retirement is more prevalent in male-dominated occupations. Female machine operators, welders, and employees in the rubber industry are at greatest risk, with almost every other retired woman suffering from musculoskeletal disorders.

Rising accident rates

Women are not to the same extent as men subjected to severe or fatal work accidents. Men run a ten times higher risk of injury at work, but the last ten years has seen a rise in work accidents among women.



This could be explained by women's increasing participation in paid work and consequently higher exposure. However, the rise in female accident rates is outstripping the rate of women's labour force participation in some Member States such as Portugal and Sweden. Many Portuguese women have temporary jobs in high risk sectors, which might imply lower safety standards.

In-depth accident studies, moreover, reveal that women and men are involved in different kinds of accident. In the food industry, female employees are more often injured by machinery, while men are injured by knives, other sharp tools and contact with animals. This also illustrates female and male workers' different work tasks.

Women's accident rate is higher in high-paced, highly-demanding work, possibly due to tiredness or exhaustion. Also, many women have to use equipment, machinery or tools which are designed for men, which may add to the risk of accidents.

"Twenty times higher risk"

Many women suffer from musculoskeletal disorders. They are probably the most common work-related problem among female employees, with a much higher incidence than among men.

Musculoskeletal disorders are generally associated with heavy lifting, awkward postures, monotonous and repetitive tasks, and improper work organisation. Women often work in such conditions.

In OECD countries, musculoskeletal diseases are an increasing problem, especially among women. For example, the risk of musculoskeletal disorders among Swedish female electronic assembly workers is 20 times that of the work force in general.

The U. S. Bureau of Labour Statistics survey in 1990 showed that almost 60 per cent of all work-related illnesses were associated with repeated trauma. The highest incidence rate was in meat packing plants. Female employees dominated eight of the 26 industries studied.

However, country comparisons are complicated by the lack of a common concept and a lack of comparable sources of information. Musculoskeletal disorders cover a range of different names, such



as back pain and related injuries, carpal tunnel syndrome, cumulative trauma disorders (CTDs), repetitive motion injuries, repetitive strain injuries (RSIs), and work-related upper limb disorders (WRULDs).

Information on musculoskeletal diseases is available from workers' compensation registers and morbidity registers. However, the content is largely determined by the legal definition of compensable disorders, which differs between countries. In North America, cumulative trauma disorders mainly appear to affect the wrist and hand whereas neck and shoulder are the dominant symptoms reported in Sweden.

"Wet jobs" cause eczema

Allergy symptoms are increasing in the population. In many countries more women than men suffer from asthmatic diseases. Nine out of ten diagnosed cases of allergic rhinitis in Germany concern illnesses that affect women.

Work-related skin diseases are also an increasing problem. Many young women have contact dermatitis. Almost one tenth of the female population is allergic to nickel – a sensitivity caused by ear-piercing. Of those with a nickel allergy, about forty per cent may develop hand dermatitis.

Women are more often exposed to detergents, solvents and water. In so-called "wet jobs", such as electro-manufacturing work, hair-dressing, health care work, mechanics, metal work and sales work, women run an increased risk of hand eczema - twice that of men.

The aetiology of Multiple Chemical Sensitivity and Sick Building Syndrome (SBS) is diffuse, since there is no scientific causal explanation. Chemical sensitivity is mostly reported among employees exposed to low levels of chemicals, such as office workers. Symptoms are skin rashes, stress, non-specific joint and muscle pain and depressed immune defence. The symptoms may be related to synthetic substances in consumer goods, construction and furnishing materials.

Sick Building Syndrome or building-related diseases usually involve allergic and asthmatic symptoms as well as skin rashes.



Women more often than men experience SBS-symptoms in what seems to be the same environment. Women usually have more restricted work areas, do more VDU work, photocopying, etc. Chemicals, mould, poor ventilation and psychosocial factors have been suggested as explanations. Employees suffering from the symptoms are often found in low-paid, routine jobs.

VDU work has also been associated with skin problems, such as itching and rashes. The symptoms are mainly reported in the Nordic Countries. Suggested explanations include indoor climatic factors - high temperatures and low humidity - and stress. The present state of research rules out electrostatic or low-frequency magnetic fields from VDUs as causes.

Lung cancer is increasing

Work-related cancer is estimated to account for two to five per cent of all cases. Occupational cancer is more common among men than women, mainly due to men's prolonged, compared to women's shorter, more intermittent, exposure to carcinogens. On the other hand, lack of reliable information may lead to an underestimation of women's risk of work-related cancer.

Studies have shown an increased incidence of breast cancer among women working with pesticides, solvents and in health care. Ovarian cancer has been connected with herbicides and work in the cosmetic industry. Lymphatic cancer is associated with pesticides, work as hairdresser and work with solvents. An increased incidence of brain cancer has been reported among women in agriculture, and bladder cancer among cosmetic and food industry workers. Lung cancer among women has been linked to the furniture, asbestos and food industries^a.

Generally, lung cancer is increasing among women. Much of this may be because more women are taking up smoking, particularly those in highly stressful, low control jobs. One suggestion is that women in such jobs use smoking as a strategy to cope with monotonous work.

Population register data show an above-average risk of cancer in some groups of women. A Swedish study reports that female drivers, restaurant employees and women in manufacturing work are at risk. A Finnish investigation concludes that the work-related component of all cancer cases seems to be very limited.

a. Blair, A. (1998),
Occupational cancer
among women,
an overview,
*Women's health :
Occupation, Cancer &
Reproduction*, May 14-16,
Reykjavik, Iceland.

However, women in sedentary occupations - drivers, switchboard operators and university lecturers - have an increased risk of colon cancer. Female dyers, hairdressers, laboratory personnel, rubber workers and typographers run a higher risk of ovarian cancer. Women in agriculture also have an excess risk of soft tissue cancer, probably caused by pesticides.

Harmful foetal exposure

Over the past thirty years, new ways of revealing negative reproductive outcome have been developed and the field of occupational exposure has widened from chemical to physiological and psychosocial factors. Recent studies suggests that job stress may have an adverse effect on reproductive health^a.

In most European countries, exposure of female workers to chemicals is not a major problem in numerical terms, but studies on women employed in manufacturing, especially in chemical industries, have been associated with increased reproductive risks. One in five premature births may be associated with physiological workload, such as heavy lifting and protracted standing. A recent European study showed that protracted standing, long weekly hours and job dissatisfaction were associated with increased risks for pre-term birth^b.

In a Swedish study, drivers, home care workers and nursing assistants were found to be risk occupations with a generally increased risk of perinatal deaths. Other studies, for instance in France, show an elevated risk of pre-term birth among cleaners, health care and social workers as well as sales personnel.

Heart diseases are rare

It is now accepted that the work environment may have both physical and mental consequences. The relation between poor working conditions and somatic illness is recognised to some extent - e.g., the effects on the circulatory system are no longer questioned.

a. Lindbohm, M.-L. (1998), Women's reproductive health : Some recent developments and methodological issues, *Women's health : Occupation, Cancer & Reproduction*, May 14-16, Reykjavik, Iceland.

b. Saurel-Cubizolles, M.-J. et alii (1998), Employment, working conditions and pre-term birth in Europe, *Women's health : Occupation, Cancer & Reproduction*, May 14-16, Reykjavik, Iceland.



Stress-related problems may have a range of health outcomes. The psychological consequences of a high mental load may include anxiety, burnout, depression and job dissatisfaction.

Then there are acute physiological effects through an increased level of stress hormones. A prolonged workload may result in various diseases, such as coronary heart disease (CHD) or hypertension. However, work-related CHD is less common among women, especially among women under the age of 60. Even so, studies indicate that about 15 per cent of early cardiovascular death among women can be associated with monotonous, high-paced work, and seven per cent with shift work.

Stressful conditions may also affect individual behaviour. In the short run, negative stress and behavioural changes may impair quality of work and productivity, increasing the risk of accidents and the rate of sick leave. Longer-term, work stress may also lead to lifestyle changes, such as increased smoking and drug abuse.

Pathways to action

Action needs to be taken to obtain a better grasp of the problem. More information and further research is required to take relevant action and change norms and attitudes towards women's work if women's working and living conditions are to be improved.

Improved research methods

Although gender research on these issues has increased, more action is needed. This especially requires sex-differentiated statistics on working conditions and better monitoring models for the complex work hazard situations encountered by both sexes. There is also a need for a more gender-sensitive approach.

Gender assessment of policies

Directives, guidelines and exposure limits should be developed and assessed in a gender-sensitive way. Since the present workers' compensation system systematically underestimates illnesses found in women's work environments, gender-based assessments of compensation outcomes are needed.



Women's working conditions should also be better promoted in European and international standardisation work. As long as machines, tools, protective devices and protective clothing are unsuited to women, work conditions will remain unequal, and therefore "ergonomics for women" is a prerequisite.

More gender sensitive methods of implementing directives, guidelines, etc. are required. Information and training should be available for labour inspectors and policy-makers. New inspection tools need to be developed both for inspectors and the occupational health services.

The implementation and monitoring should be promoted by economic incentives, which further working conditions among both women and men.

Better work organisation

There must be ongoing efforts to improve work organisations in a gender-appropriate way. Because female-dominated jobs are oriented towards inter-personal relations, it is important to re-evaluate the unacknowledged skills in these occupations. Enrichment of the competence level in their jobs and new career paths must be provided. All jobs should be "learning" jobs. Models for empowering women to participate in collective decisions are also needed.

The growing trend towards more flexibility in location of work (e.g., telework) and working times should be closely monitored from a health and safety as well as an equality perspective.

Actions at workplace level

Local action programs or equality programs should be implemented and evaluated. Equality plans can promote gender equality and working conditions if they describe the job differentiation and their health and safety risks.

Assessment of tasks and job responsibilities should be more gender-sensitive, making them a key tool for reducing pay and opportunity inequalities.

Sexual harassment and intimidation are growing problems and must be recognised as a work environment problem by management and unions alike, and action models should be devised.



The social partners should be encouraged to apply gender sensitivity in all kinds of preventive actions.

Change in attitudes

Last but not least, norms and attitudes towards women at work need to be modified. An American sociologist finds two stereotypical attitudes on the labour market. Men are "real" workers, women peripheral workers. Real workers have full-time jobs, and earn enough to support a wife and family. Therefore a man is allowed to give priority to his work and career.

A woman, by contrast, is not a "real" worker, so her pay is not intended to cover her and her family's expenditures, despite the fact that more and more women are single parents.. Women are also regarded as an unstable, highly mobile work force with low ambitions.

These attitudes have affected women's working environments and preventive measures to improve their working and living conditions. Probably women's work risks therefore have been under-estimated. Furthermore many risk factors in female work and their multi-factorial interaction are insufficiently examined.

Integrating Gender in Ergonomic Analysis

**Strategies for Transforming
Women's Work**

Joint action-oriented research
by the University of Quebec
and trade unions

Ed. Karen Messing

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This study is the product of the research, findings and ideas of a great many CINBIOSE researchers past and present: the biologists and ergonomists Suzanne Bélanger, Micheline Boucher, Sophie Boutin, Carole Brabant, Céline Chatigny, Julie Courville, Sylvie de Grosbois, Suzanne Deguire, Lucie Dumais, Diane Elabidi, Evelin Escalona, Lucie Geoffrion, Alain Lajoie, Donna Mergler, Karen Messing, Johane Prévost, Yves St-Jacques, Ana Maria Seifert, France Tissot, Louise Vandelac, Nicole Vezina; the legal experts Marie-Claude Bergeron, Stéphanie Bernstein, Claudine Bienvenu, Diane Demers, Nicole Filion, Marie-Claire Lefebvre, Katherine Lippel, Catherine Néron. Johanne Leduc and Sylvie Champoux contributed their expertise in administration.

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It was mainly subsidized by the Quebec Council for Social Research, the Social Science and Humanities Research Council of Canada and the Institut de recherche en santé et en sécurité du travail du Québec.

CINBIOSE is an officially recognized World Health Organization Collaborating Centre

Publisher's Note: Terminology specific to Quebec, including some job titles, has largely been preserved except where it would not be generally understood in Europe. Except in official titles, English spelling has been used. Gender-neutral language has been employed wherever possible.



Introduction

a. The time spent on domestic work has significantly declined according to Asselin, S., Gauthier, H., Lachapelle, J., Lavoie, Y., Duchesne, L., Jean, S., Laroche, D., Nobert, Y. (1994), *Les hommes et les femmes: Une comparaison de leurs conditions de vie*, Quebec: Quebec Bureau of Statistics, p. 251. At the same time, the female participation rate has increased. (*Ibidem*, p. 130). The combined effect of these trends is to increase women's labour compensation, notwithstanding the relatively slight increase in the number of hours worked.

Many countries have experienced a massive shift of women into paid employment^a. Women's entry into the workplace has very positive effects on their health, not least through their improved financial situation and access to information¹⁻². But, as with male-dominated jobs, some jobs done by women pose health hazards. The increased number of women in the labour market and expansion of various female-dominated occupations called scientific attention to risks for the health and safety of women workers, and awoke some occupational health researchers to the need to consider specifically women's concerns.

Notwithstanding this interest, North-American occupational safety and health (OSH) research has delayed investigating the risks of predominantly female occupations. Women's work-related health problems seem invisible to employers, scientists, decision-makers and women workers themselves. This stems partly from attitudes towards what is perceived as "natural" work for women. The belief that women's work is easy and safe, and that any health problem identified by women workers stems either from their unfitness for work or groundless whingeing has held back efforts to improve women's occupational health.

So, prolonged standing which causes pain and circulation problems is seen as much less dangerous than exposure to the risks of falling from scaffolding or metal-saw cuts; while a routine matter like being unable to use the telephone to call one's sick child is not seen as causing psychological distress on a par with that of a prison warder threatened by an inmate³.

Nevertheless, some researchers have started to examine the mental and physical health problems of women workers and revealed the health problems associated with various types of jobs done by women. CINBIOSE has been researching the health and safety of women workers for many years in order to clarify and gain recognition for those aspects of women's work that constitute a mental or physical health hazard, and ultimately improve the health and



well-being of men and women workers who share the same working conditions. Where our research differs is that it stems from the concerns and needs voiced by workers of both genders. It is usually carried out in partnership with the three main Quebec unions under formal agreements dating back to 1976⁴. Through its scientific work and its commitment to creating safe and healthy working environments, the team tries to shed light on what has so far remained invisible. The trade union and academic team members hope their efforts will help usher in a better quality of working life for women and men alike.

This study introduces a series of recent projects, aiming mainly to show how they helped improve the working conditions of men and women workers, and the implications they have had for research into women's health, especially its methodology.

We shall first consider the health issues for women workers, to show why it is absolutely vital to make women part of the fight for occupational health. It is also important to understand the legal context surrounding health and safety at work in Quebec. We will also describe the structures which enable us to carry out the kind of research we do.



Making women part of the fight for occupational health

Where do women work?

The importance of integrating women into the struggle for healthy working conditions can be understood only by reference to the deep-rooted, persistent gender-based division of labour. Women's entry into the labour force has been far from uniform. They are segregated into low-grade, low-paid, part-time jobs⁵. In Canada, full-time women workers earn on average 72% of a male full-time wage⁶. The same situation prevails in most industrialised countries. Three times as many women as men work part-time or "temp". Women occupy a comparatively smaller range of jobs than men, whose employment is more equally distributed across occupational groups^a. Sectors with more than 100,000 female workers in Quebec⁷ are: public administration, retail, and other business and personal services, education and allied services, finance, insurance and real estate, medical and social services). Within this sectoral segregation, women are concentrated in comparatively few occupations (tables 1 and 2): 53% of women, but only 33% of men, work in the top 15 professions dominated by their sex. So, women are over-represented in clerical and personal service jobs and under-represented in manufacturing and natural resources activities.

a. It may be that the smaller number of job titles found among women is due to vagueness in job descriptions. "Secretary", for example, the most common women's job title, covers a wide span of tasks ranging from rewriting and correcting documents to office management. Bank tellers and supermarket check-out workers also have very different tasks and duties.

In France, too, official statistics reveal gender-differentials in social and occupational status: women are more often in non-manual, and men are in manual, occupations⁸. This horizontal division is compounded by the well-known vertical division, such that women are grossly under-represented at managerial and upper professional levels⁹.

Beyond these differences in occupational groups, there is an identifiably gender-based division of tasks within occupations. Methods of working may also differ according to sex¹⁰. Furthermore, the gender-based task differentiation found in the workplace is even wider in private life. Studies conducted by Statistics Canada of parents with children under the age of five



Table 1: Occupational order of working women, Quebec, 1991¹¹

Order	Occupation	Percentage of women working in this occupation	Percentage of jobs in this occupation held by women
1	Secretaries and stenographers	9.6	98.4
2	Sales personnel	5.8	51.2
3	Tellers/check-out	5.5	87.8
4	Bookkeepers	5.3	81.7
5	Nurses	3.7	91.0
6	Food service workers	3.7	80.4
7	Office clerk	3.3	80.0
8	Receptionists	2.6	88.1
9	Teachers, primary and pre-school	2.5	85.0
10	Chefs, cooks	2.2	49.4
11	Nurse's aides	1.9	74.5
12	Sewing machine operators	1.8	90.5
13	Accountants	1.8	47.3
14	Sales managers	1.7	33.8
15	Hairdressers	1.7	84.8

Table 2: Occupational order of working men, Quebec, 1991¹²

Order	Occupation	Percentage of men working in this occupation	Percentage of jobs in this occupation held by men
1	Sales personnel	4.6	48.8
2	Lorry drivers	4.0	98.2
3	Sales managers	2.8	66.2
4	Caretakers/concierges	2.7	66.6
5	General managers and other senior managerial	2.5	81.3
6	Motor mechanics	2.5	99.0
7	Joiners	2.0	99.1
8	Chefs and cooks	1.9	50.6
9	Accountants	1.7	52.7
10	Systems analysts, computer programmers	1.7	68.8
11	Machinery mechanics	1.3	99.0
12	Security guards	1.3	70.7
13	Welders and cutting operators	1.3	97.9
14	Supply clerks	1.2	77.7
15	Travelling salesmen	1.2	78.6

reveal that married men spend 18.2 hours a week on domestic tasks and childcare, compared to 32.2 hours for married women and 23.8 hours for lone mothers¹³. Women devote the same time as men to work activities, but divide it equally between home and the workplace, while men spend four times longer on paid work¹⁴. In France, the gap is even wider¹⁵.

Men and women have markedly differing work situations, therefore: they work in different jobs, with differently-organized working time, and differing proportions of paid work.



In the workplace, they are not allocated the same jobs, nor occupy the same rungs on the career ladder.

Women are concentrated in jobs typified by recognized mental health risk factors like a lack of responsibility and work under time pressures¹⁶. In industry, women most often occupy jobs requiring sustained, rapid precision movements, while men perform tasks requiring more intense but intermittent exertion. In the office, retail and personal service jobs we studied, we discovered a series of stresses we consider typify many women's jobs in these occupational groups: tasks that overlap in time, frequent interruptions, having to deal with several people at once, conditions which make it hard to balance work and family life, acting as a buffer between the organization and its customers, taking verbal abuse from customers.

The need to integrate women into occupational health practices

This established and continuing demarcation between women's and men's jobs makes current OSH research of limited relevance to many working women. We still lack information on many jobs commonly done by women. So, there is almost no health data on saleswomen, hairdressers, waitresses or cooks, although their working conditions suggest the likelihood of a range of problems (prolonged standing, a rapid pace of work, exposure to heat and cold, handling of heavy loads, exposure to chemicals), and women in the personal services sector (child care, hairdressing), catering and caretaking are identified as having the highest number of health problems among working women¹⁷.

Health hazards for women workers

Until recently, there was a dearth of information on the health risks of jobs occupied mainly by women. A series of studies have now begun to remedy that deficit¹⁸.

Physical stress

Some jobs put great strain on the musculoskeletal system. While those that require intense intermittent exertion - building, civil



engineering or mining, for example - are usually the provinces of men, it would be wrong simply to conclude that women's jobs are not physically demanding¹⁹. Women factory and service workers are often assigned to light but repetitive tasks in stressful postures, like assembly work, clothes make-up, cutting or packaging. Women not just in industry but also the service sector do have to handle heavy loads: carrying children, moving patients, cleaning, etc. These tasks are conducive to developing work-related injuries, particularly musculoskeletal disorders of the upper and lower limbs.

Musculoskeletal pain may be caused by a work station that is unsuited to the worker's own stature or the task to be performed. Tools, workshops and protective equipment used in traditionally male jobs tend to be designed around the average male build. This has been found to cause problems for women working in non-traditional occupations, because the average woman's body dimensions are different from those of traditional job-holders. Tools, layouts and equipment designed for differently-sized individuals can put women at risk. Indeed, anyone with a body type different to the average man may be at risk.

Over the past ten years, an increasing number of studies has examined the impact of repetitive movement in jobs held by women²⁰. However, the immense difficulty of defining exactly which conditions are potentially dangerous for the musculoskeletal system makes this a highly controversial area. It particularly impedes recognition of women's musculoskeletal disorders²¹.

Exposure to biological agents

More women (receptionists, teachers, daycare workers) work in jobs that involve contact with the public, children and sick people, which increases their exposure to infection. The range of potentially infectious agents is even greater in hospitals and nursing homes. Women laboratory workers can be directly exposed to patients as well as body fluid samples. The risk is even higher in situations where the pace of work prevents bedrooms, trays, clothing or equipment being cleaned properly. Work with animals and food also entails risks of infection²².

Hospital-acquired hepatitis B infections are very common from the handling of blood samples and needlestick accidents.



Laundry workers and cleaning staff can also be at high risk from inadequate waste and soiled clothing disposal procedures. No scientific research has yet been conducted on these groups.

Exposure to chemicals

Exposure to chemicals is a hazard in some predominantly female occupations. Hospital workers, for example, are exposed to at least 179 different eye and skin irritants, and 135 potential carcinogens or agents hazardous to reproduction²³. Contact dermatitis is a risk for cleaning and kitchen staff, for example²⁴. Dry cleaning workers, car paint shop workers, cleaners, hairdressers, workers in microelectronics factories, chemistry technicians, women farm workers exposed to pesticides, and bar staff exposed to second-hand smoke, among others, all run a risk of developing cancer²⁵⁻²⁶⁻²⁷.

The health effects of re-circulated air conditioning systems in office buildings are the focus of growing concern²⁸. Because the techniques of analysis are still fairly unsophisticated, women workers' complaints may be dismissed as "hysteria"²⁹. However, several studies have shown links between poor ventilation systems and respiratory and nervous system disorders³⁰.

Mental stress in the workplace

The mental and emotional demands of some jobs, especially those performed by women, are not always recognised. "Mental load" is difficult to measure but may be just as demanding as physical workload. Teiger described the effects of the intense mental effort required of women workers in the glove industry, who have to devise, at mind-numbing production line speed, different ways of sewing together the two often ill-cut pieces of a glove while maintaining a smooth surface. These workers find themselves in "forced retirement" at the age of 26³¹. Many characteristics of women's jobs as described above - especially disempowerment and constant demands - pose risks to mental health³².

If mental load is an underrated aspect of women's work, the emotional demands receive even less recognition. The jobs usually done by women hospital workers, for example, include a high proportion of emotional support associated with patient contact,



while staff cuts have increased the pace of work³³. This can lead to health problems³⁴ or burnout, which is still not properly officially acknowledged³⁵.

Working hours that clash with family responsibilities

Women service industry workers are increasingly pressed to work ultra-flexible hours. Telephone operators, supermarket check-out workers, nurses, hospital staff and supply teachers are all rostered at very short notice. This gives working women with family responsibilities serious childcare problems. Telephone operators and hospital workers told us they solved their childcare problems by volunteering for night shifts, so their husbands could look after the children at night, leaving the day care to them. The question is: when do these women sleep?!

Jobs with fixed hours make it very difficult for mothers with young children to juggle work and home life. They are too young to understand that their mother will get her pay docked if she is more than two minutes late (public building cleaners) and will persist in feeling unwell, not getting dressed or dawdling over breakfast. The psychological stress created by the work-life dilemma has been extensively reported elsewhere³⁶. And women are twice as likely as men to report mental or physical health problems from trying to balance work and family responsibilities³⁷.

Women's OSH issues cannot be understood without considering this key aspect of most of their daily lives - holding down a job, raising a family, and trying to balance the two. Past OSH research has rarely incorporated this double workday aspect.

Consequences

At the end of this rapid overview of the health hazards of women's work, it is clear that, contrary to popular belief, many female-dominated jobs do involve health risks, but ones which are different to those encountered in male-dominated jobs.

It is also clear that women's health problems differ from those of men. Generally, women are legally prevented from working in jobs where there are demonstrable short-term health hazards.



Women are half as likely as men to have an occupational accident, but twice as likely to contract an occupational disease³⁸. So, their health effects are hard to pinpoint, because more diffuse. General health indicators, like sick leave, are less clearly work-related than occupational accidents and the more specific effects of diseases like asbestosis, silicosis or occupational deafness found in male workers. There is a much higher incidence of severe accidents in male- than female-dominated sectors. Women's working conditions are more likely to wear them down gradually, with consequences which become drastic only in the long term, while making daily life arduous.

As we shall see in the next section, the traditional approach to occupational health based on a precise identification of working conditions which produce tangible illnesses whose work-related nature is more easily demonstrable (e.g., the link between a slippery floor and a fall) focuses more on sudden, unexpected events (accidents) than, for example, the chronic fatigue problems that characterise women's jobs. So, many women's health problems remain invisible to the occupational health prevention and compensation systems.

That is why a partnership between trade union representatives and researchers has been established to aid prevention and promote recognition of the health problems of female workers in Quebec.



Occupational health in Quebec

For a proper understanding of the case studies presented here, a word must be said about the trade unions and the employment law situation in Quebec.

Trade unions in Quebec

Collective labour relations in North America are organized differently than in Europe. The unions have exclusive representation rights and operate an automatic union dues check-off system. This embodies the general principle of monopoly trade union representation by certifying the trade union with a majority of members among the employees concerned³⁹⁻⁴⁰. So the employer must recognize it as the official bargaining agent and representative of the group to the exclusion of any other employee organization. Workers are not obliged to join the certified union, but must pay their dues to it because they benefit from the activities of its representatives. The employer must deduct the union dues from the pay of all the workers covered by the bargaining unit. On the other hand, the union has a statutory duty of fair representation to act even-handedly and without discrimination between members and non-members.

Statutory delays exist within which to challenge a previously-chosen union allegiance. Allegiance is based less on the policy stance of a given union than its ability to build rank-and-file loyalty by the way in which it defends their interests, both through bargaining and lobbying public and political opinion, and by the membership services provided.

The most recent censuses (1996) report a union density in Quebec of 41.8%⁴¹. Membership⁴² is divided mainly among the three largest organizations - the Fédération des travailleurs et travailleuses du Québec (FTQ - Quebec Federation of Labour) with 480,000 members, the Confédération des syndicats nationaux (CSN - Confederation of National Trade Unions) with 230,205



a. "Independent" meaning unions not affiliated to a central labour body.

members, and the Centrale de l'enseignement du Québec (CEQ - Quebec Teachers' Corporation) with 126,000 members, including retired teachers. Added to these are the 59,600-strong Centrale des syndicats démocratiques (CSD - Congress of Democratic Unions), formed from a split with the CSN, and a number of "independent"^a organizations represent nearly 224,000 workers⁴³.

The Quebec female participation rate is 44.4%⁴⁴. 33.5% of the total female labour force is unionized compared to 41.4% of the male force. The public and semi-public sector is the only one in which their union density slightly exceeds that of men - 62.5% compared to 62.1%⁴⁵. The proportion of women varies among unions. So, FTQ has a 33% female membership, the CSN just over 50%, the CEQ 71% and the CSD 30%. Women are represented in many of their organization's policy bodies (councils, committees, congresses, etc.) in proportions rising to 30% in the FTQ⁴⁶, 42% in the CSN, 48% in the CEQ and 48% in the CSD. Of the nineteen seats on the FTQ's Steering Committee, five are held by women including three that are reserved for women. The 6-strong CSN Steering Committee includes one woman; the CEQ's has two women and three men, while the CSD's executive comprises four men.

All trade unions have their own internal Status of Women and health and safety bodies which put forward policy suggestions to the policy bodies and advise members on their specialist areas (see Appendix I). They also provide training and information⁴⁷.

Status of Women Committees play a key role in improving the working conditions of women unionists and strongly influence non-members. They enable unions to take on board the many facets of women's living and working conditions. They address mental health through action on new forms of work organization, sexual harassment, work-related stress and gaining recognition for the value of women's work. They are involved in reproductive health through the protective reassignment of pregnant and breastfeeding workers, maternity leave, parental leave, and their recent interest in work-related causes of infertility. They are concerned with family welfare through development of care provision and ways to solve the work-life dilemma. Physical health comes within the ambit of their concern to improve female-dominated jobs ("job ghettos") and adapting traditionally male jobs to make them safely accessible to individuals with a different body size. They are particularly involved in population ageing through



the prevention of musculoskeletal disorders which prevent women performing activities of daily living. By looking into the impact of paid work on the division of responsibilities within the family and integrating home and work, they contribute greatly to the health protection of Quebecers of both sexes. They have for some time been resolutely mainstreaming their concerns into a traditionally male preserve - occupational health.

Occupational safety and health in Quebec

Two public policy statutes govern occupational safety and health protection in Quebec. The *Loi sur la santé et la sécurité du travail/ Act respecting Occupational Health and Safety (LSST/AOHS)*⁴⁸ aims to eliminate hazards at source and establishes procedures for participation by workers, employers and their respective organizations. This so-called "prevention" Act enshrines the principle of joint intervention in occupational safety and health.

The underlying principle of the Act - elimination of hazards at source - is a major achievement for the health protection of men and women workers. The procedures for achieving that protection described in the LSST/AOHS include, *inter alia*, obligations on the employer (s. 51) such as providing a safe system of work which is not harmful to health, and certain rights for workers. These include, *inter alia*, the right not to perform work which is hazardous to health or safety, protective reassignment of pregnant and breastfeeding workers, protective reassignment of men or women already in ill-health, workplace inspection, and certain regulatory matters including:

- Health and safety committees for establishments with over 20 workers;
- Workers' representatives with prevention duties;
- Mandatory company prevention programmes;
- Health programmes⁴⁹.

The other - the *Loi sur les accidents du travail et les maladies professionnelles / Act respecting Industrial Accidents and Occupational Diseases (LATMP/AIAOD)*⁵⁰ - deals with compensation for employment injuries and their consequences. It compensates victims for the cost of care needed to treat their injury and for their physical, social and occupational rehabilitation. It provides for the payment of wage loss disability benefits,



compensation for physical injuries and where relevant bereavement allowances.

Recognition of an injury as work-related under the Act respecting Industrial Accidents and Occupational Diseases is particularly important because Quebec has no universal social security system to provide a replacement income during illness. Some workers are covered by private group insurance under their employment contracts, and the employment insurance system (which does not apply to all workers) provides benefits substantially less than full pay, after a waiting period. On the other hand, most workers will receive no adequate replacement income in the event of incapacity for work, unless they can prove that their incapacity is attributable to an employment injury within the meaning of the Act respecting Industrial Accidents and Occupational Diseases.

Quebec Occupational Health and Safety Commission - OHSC/CSST

This body set up under the LSST/AOHS is the kingpin of the entire system. Its task is to devise, propose and implement occupational safety and health policies. It promotes health and safety and supports worker participation through technical support for health and safety committees⁵¹ and technical and financial assistance to sector-based associations⁵². It has set action priorities for economic sectors based on an analysis of industrial accidents in particular. The most accident-prone sectors tend to be prioritized for action. Hospitals, for example, are at the bottom of the list⁵³. It draws up and implements a programme to support the setting up and running of joint industrial structures and offers funding to trade union- and employer-sponsored health and safety promotion and industrial training or information bodies. In 1995, the OHSC/CSST funding training and information provision to the tune of nearly \$7 million⁵⁴. It also contributes to research by identifying priorities and needs, and carrying out or contracting studies and research. It also grants an annual subsidy⁵⁵ to the Institut de recherche en santé et en sécurité du travail du Québec (Quebec Occupational Health and Safety Research Institute), set up after the LSST/AOHS was passed⁵⁶. The Commission is also responsible for the application of the LATMP/AIAOD, including the employment injury compensation provisions.

The joint structure is reflected at different operational levels, i.e., it comprises equal numbers of worker and employer members sitting with OHSC/CSST officials. (see Appendix II for details of how the OHSC/CSST works).

Structures for workplace health and safety

In workplaces sufficiently large to be covered by OHSC/CSST programs, there are three types of arrangement, set by employment sector. 1. Priority group I and II workplaces are 85% male-dominated, comprising 21% of Quebec male and just 5% of Quebec female workers. They have a joint labour-management health and safety committee, a prevention programme filed with the Commission, public health services with a health programme, and a percentage of remunerated union prevention stewards proportionate to the size of the workplace. Usually the employer will have health services (first aid) and employ a doctor. The doctor is paid by the firm and has no responsibility towards the trade union. 2. Group III workplaces, with 30% of women, have prevention and health programmes but are not required to have a health and safety committee nor to allow union prevention stewards duty time. Some do so under collective agreements. 3. Group IV,V,VI workplaces have no obligation to provide occupational safety and health structures, although some have joint health and safety committees under collective agreements (there being only one union for each group of workers.) Large companies will normally have a company doctor or a contract with health services provider. The workers have no influence over these doctors.

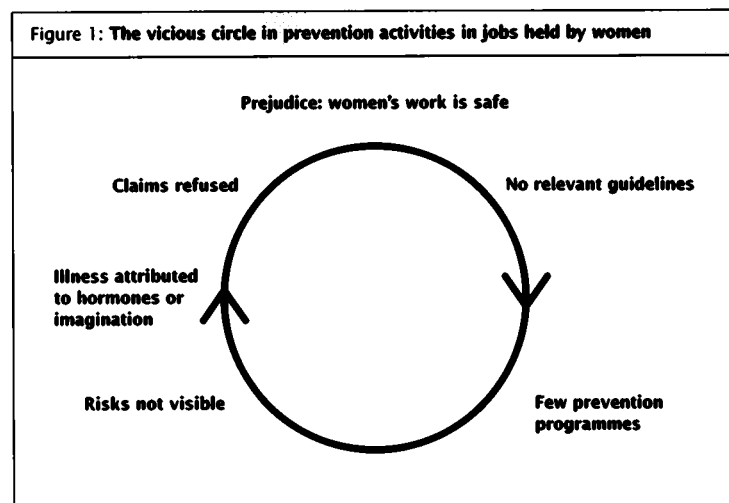
Health and safety committees vary widely in effectiveness. Some are active, meeting frequently and following-up closely on prevention programmes. Others are less so, depending on the importance attached to OSH by the employer and union.

Women have had little influence over occupational health decisions in these committees and at national level, and OHSC/CSST assessment procedures have minimized their work-related health problems. Women currently make up under 15% of workers in job groups fully protected by the LSST/AOHS, and so have less statutory protection than men. In other words, women workers have restricted access to various statutory prevention measures, which has serious implications for their health⁵⁷. And the gap is



likely to widen if the present trend towards casualisation of women's work continues.

This creates a vicious circle in which women's health problems are not studied because they do not fall within the framework of the occupational health system, which means that they are unknown and unrecognized (see figure 1).



Problems reported by women are put down to fictitious or real female characteristics or personal circumstances rather than working conditions. This leads some to conclude that it is the problems of women workers that are "abnormal" rather than the work environment that needs changing. This type of attitude can persuade some women to keep quiet about their problems so as to avoid discrimination.

If the health risks of women workers are recognized neither by the health regulatory bodies nor by those concerned with occupational health, various orders of serious consequences may ensue for women's health:

1. women's employment injuries will go uncompensated;
2. the costs of women's employment injuries will be wrongly assigned;
3. prevention activities for their jobs will not be deployed forcefully;
4. women's health problems will be seen as a sign of weakness or unemployability rather than as the results of working conditions.

The University-union programme on women's occupational health

In partnership with the Status of Women Committees of the three main Quebec unions - the Centrale de l'enseignement du Québec (CEQ - Quebec Teachers' Corporation), Confédération des syndicats nationaux (CSN - Confederation of National Trade Unions), and the Fédération des travailleurs et travailleuses du Québec (FTQ - Quebec Federation of Labour) - we undertook a programme of research into women's workload in the light of certain occupational health policies, and prevention standards and practices in women's jobs. This research programme entitled "*What you can't see can hurt you: A research and practice approach for health that takes into account the sexual and social division of labour*" aims to improve women workers' mental and physical health through an analysis of their working conditions and obstacles to their recognition. We wanted to make those aspects of women's work that are a mental or physical health hazard visible to scientists, occupational health bodies and policy-makers to ensure recognition of their workload in policies, standards and practices. This programme has three strands:

- a legal examination of why the content and application of laws are failing to meet women workers' needs;
- an examination of social policies; and
- an analysis of work activity carried out on female-dominated jobs which logs unrecognized requirements and points out the risks to women workers' health in these jobs.

These analyses have led on to recommendations for improvements in the sectors concerned.

The joint structures

CINBIOSE has for several years been conducting action-oriented research into occupational safety and health generally, aimed at mainstreaming workers' knowledge bases into all the stages of research, and giving its research a labour impetus to improve working conditions.



This action-oriented research has been significantly boosted over the past several years under agreements between the university and unions - the Confederation of National Trade Unions (CSN), Quebec Federation of Labour (FTQ), and Quebec Teachers' Corporation (CEQ) - intended to put the university's human and technical resources at the disposal of workers and their trade unions through non-credit-time education or research activities specified and worked out by the unions⁵⁸⁻⁵⁹.

The partners involved automatically consult on research undertaken under this partnership through structures to ensure a two-way knowledge transfer throughout the project. The partners and researchers interact at all stages of research. Men and women workers contribute first-hand knowledge of their work situations (working conditions, work organization, health, accidents, social life, etc) which informs the analysis of findings and opens up better pathways for future research or solutions. A clearer understanding of the problems of research gives the trade union partners a better insight into the realities investigated.

Aspects of these agreements were criticised to begin with, and their continued funding is often uncertain. However, we have so far managed to preserve: express recognition of the unequal power relationship between researchers and community groups, structures which ensure respect for the rights of both parties, the presence of full-time, university-paid project coordinators, a reduced workload for researchers who also provide trade union training, guarantees of credibility through university structures.

Direct transfer of knowledge to women workers - a priority of our approach

As well as the essential two-way flow inherent in the various structures for consultation and guidance described above, this programme of research into the health of women workers was for our partnership the start of a process to organize the information collected so it could be transferred to the partners. Information transfer is key to validating our research findings and ensuring that they lead on to concrete action. We designed training aids, general tools and trade union training guides on different topics for different target groups to ensure take-up of the contents by the labour union movement. The material focuses on specific issues of work in specific jobs.



We have provided training for union Status of Women and OSH networks on women's work and its impact on health. We have also produced support material for trainers and activists:

- A summary document on women's occupational health to brief trade union executives, occupational safety and health committees, and Status of Women Committees on the health issues and impacts of women's work;
- Documents on specific jobs;
- Documents on specific aspects of OSH standards and practices.

For Status of Women bodies, women workers' own recognition of the invisible aspects of their work has a positive impact on their own perceptions and expectations, and on the changed attitudes and strategies stemming from it. It helps break the vicious circle of risk invisibility, and enhance the status of women's work within the labour movement and society.

The following pages contain a series of case studies that we carried out on the health of men and women workers. Our overriding aim is to show how this research led to improved working conditions for men and women workers, and the implications these projects have for women's health. We shall start by outlining our preferred methodology for clarifying different aspects of men and women workers' jobs.



An approach to action-oriented research

Our approach synthesizes those of feminist research and French ergonomics⁶⁰. Feminists are concerned to profit from women's experiences and perceptions⁶¹⁻⁶²⁻⁶³. Ergonomists, especially Teiger, also place great importance on foregrounding and systematizing the knowledge of workers⁶⁴.

Therefore, we chose an action-oriented research approach aimed partly at factoring the knowledge of men and women workers into all stages of research, and partly at integrating that research into a labour movement process to transform working conditions. The key methodological tool that we used in the research projects described in the following pages is an ergonomic analysis of work activity. Some projects combine qualitative and quantitative approaches.

Our ergonomic approach is directly inspired by that developed by various French ergonomists⁶⁵ of incrementally increasing what we know of work in order to identify the real determinants of critical situations, thereby identifying the aspects of work in need of change. This makes it a truly interventionist approach leading to practical action on work situations⁶⁶. Work activity is analysed by on-the-spot observation and questioning of people working. Comparing and contrasting the employer's representation of work ("prescribed work") with the work actually done ("real work") brings an understanding of the compromises made and strategies deployed by workers to perform the tasks assigned to them while protecting their physical and mental integrity. By listing in this way the constraints on workers which influence work, changes can be suggested based on real work activity. We are currently taking part in efforts to transfer these methods to trade union work.

Broadly-speaking, the various stages of this approach are:

1. Analysis of the request for research

We first map out the issues to be worked on and establish close collaboration with the union executive (or a subcommittee



appointed by it) and a group of grassroots women workers who are not core activists.

2. Preliminary study (group interviews)

At this stage we try to get an overall picture of the situation and familiarize ourselves with the workforce. We start with group or individual interviews with men and women workers, supervisors and anyone else who can help give us a clear grasp of the situation (shop stewards, department heads,...). The criteria for interviewees are worked out with the union and include: representation of occupational groups, working conditions, marital/family status,...

The procedure followed for group interviews with workers is:

- Introduction of the team by the trade union.
- Introduction of the project.
- All participants introduce themselves so as to feel part of the group and involved (name, job title, marital status, job experience,...).
- One person gives a detailed description of her most recent working day from getting up to going to bed. The others comment on where their situations differ. We ask questions in order to gain a clear idea of the work requirements, the work-life dilemma, working conditions and impacts on the individuals and their families. From this, we learn about their working conditions, and they understand what aspects most interest us.
- We ask everyone what they like about their job so as to help those aspects and clarify the next step.
- We ask everyone what they do not like about their job.
- We ask everyone what they find hard about their job (physical, mental, emotional, aspects, working hours, effects on the family,...).
- We ask them if they have tried to change things in their job. If so, how and what was the result.
- If relevant, and if we have time, we ask them during the interviews to localize on a human body chart the spots where they experienced fatigue or pain after work on recent working days. Whenever possible, we also ask the group members to get their colleagues to complete the chart. This allows us to analyse common points and discuss their work-related nature with the



workers. This chart is an essential tool which can be also filled in during individual interviews or in a self-administered questionnaire.

- After the discussions, we draw up a list of problems with the group and set 3 priorities for the future study. These priorities are discussed with the trade union executive and a final list is drawn up.

The interviews help familiarize us with the method of work organization, the tasks to be performed, the tools used, the course of a normal working day, the main work difficulties encountered, and the main health and safety problems. They also serve to identify the places and people to be questioned and observed.

3. Preliminary study (desk research)

Accident, absence, working hours and other records are studied as useful sources for understanding situations and targeting the jobs to be studied.

4. Preliminary study (preliminary observations - choice of target situations)

We meet the people working in the targeted workplaces to explain how we plan to carry out the observations and the overall content, get their consent and fix dates, get signed authorizations to film activities we cannot code as they take place, and generally get acquainted before starting to work with them.

The results are discussed with the workers concerned at each step of this stage. And we discuss with the trade union representatives how best to proceed at the start of each stage. Where relevant, we also meet with the joint health and safety committee for the workplace, if there is one, to explain the aims and course of the study.

Our preliminary observations help clarify the main tasks to be carried out, workplace organization, general postures, main types of exertion and activities likely to present specific difficulties. Using this information, we can choose the most representative typical work situations, the places and times for systematic observations. The typical work routines targeted by our team are checked with the workers and supervisors. The places and people to be observed are also selected in consultation with heads of department and union representatives.



5. Systematic observation and analysis of real work activity

At this stage, we collect all the qualitative and quantitative measurements needed to understand the work requirements. Our method is to observe workers carrying out the targeted activities and measure certain components of the work activity (e.g., the frequency and hold time of a gesture, or the number of interruptions) or job (e.g., effort needed to move an appliance or item of furniture) and the time taken by each operation. Work is directly observed or recorded by video camera and coded afterwards. Postures may be recorded using an event register. The data are then processed using software which measures the duration and frequency of the various movements or activities. Efforts exerted and weights lifted can be measured using a dynamometer. A pedometer may be used to measure distances travelled.

We may also use self-administered questionnaires and/or individual interview questionnaires to explore certain matters in more depth, and to check our profile of the difficulties experienced at work and the health problems for all workers.

From these elements, we analyse the determinants of work activity to identify the determinants which we think require action.

6. Feedback and validation

The results are first presented to the workers observed and interviewed to validate our choices, conclusions and recommendations. Comments are taken from supervisors, the health and safety committee, and sometimes other groups of workers to expand and improve the final report.

7. Dissemination

The report is submitted to the trade union to be done with as it sees fit. It may publish a summary in consultation with the researchers. The researchers can use the material for scientific publications.



Case studies

Selected partnership
case studies on
gender equity and
occupational safety
and health

Study 1

Poultry processing plants and the gender-based division of physical work⁶⁷

Collaboration arrangements: Trade union initiative (CSN) with participation by the joint (employer-union) occupational safety and health committee.

Method: Ergonomic job analysis.

The high and rising incidence of musculoskeletal injuries in the food and food processing business is now universally recognized - at 15.5%⁶⁸, it is increasing three times faster than that of manufacturing industry. Work in meat and poultry processing plants is broken down into individual operations and often performed on production lines where workers have no control over their own pace of work. Rapid repetition of the same movements, constrained postures and fewer and shorter micro-breaks lead to overstrain of joints. Recent economic shakeouts in the food and food processing industry have resulted in a faster pace of work and an increase in the risk factors contributing to the development of repetitive strain injuries (RSI).

Unlike pork and beef processing plants, poultry processing plants have a gender-mixed workforce. Women workers are mainly employed along the production line, while male workers are at the ends⁶⁹. This gender-based division exacerbates the effects of Taylorism by introducing an additional division of labour which reduces the number and variety of tasks performed by each worker. This in turn aggravates the health problems involved in repetitive work, especially musculoskeletal disorders. Here, we report here the results of a specific study, but the gender-based division described here is fairly typical of production work.

In 1992, we conducted a study in a poultry processing plant in response to concern by the workplace union and employers' representatives about the very high accident rate. The study was carried out with the joint health and safety committee, whose priority was to reduce the incidence of musculoskeletal disorders. Official company records for 1988 showed 179 reported accidents and occupational diseases - an annual accident rate of 74.9 per 100 employees.



From an analysis of the accident records, we targeted the jobs most at risk for the development of musculoskeletal disorders, i.e., the turkey cutting line stations. As well as a very high frequency of musculoskeletal disorders, especially shoulder and wrist strain, the departmental supervisors were faced with problems introducing the plant's new policy of multiskilling in all jobs on the line to facilitate staff management. Several attempts made in the turkey cutting department to get each sex to learn the others' work had failed: neither wanted to accept the others' jobs.

The study objectives were to:

- characterize and compare men's and women's jobs;
- compare gender health profiles;
- understand each gender's reluctance to accept the other's jobs.

Individual interviews with the 27 workers enabled us to profile the production line workforce and their perceptions of the general work-related physical and mental difficulties encountered. The respondents rated each job performed on a regular basis for difficulty by reference to different characteristics: rate, precision, physical effort, posture, knife, gloves, body temperature, hand temperature. We also asked which jobs were liked or disliked, and why.

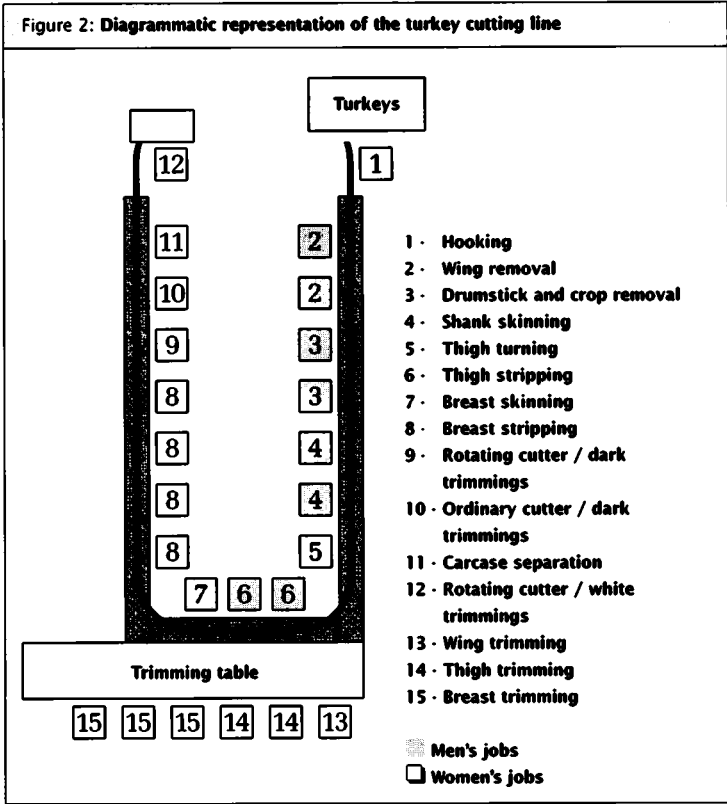
The accident records for the period January 1986 to December 1992 were analysed to clarify the incidence and circumstances of accidents. Then, a preliminary description of the work cycle and constraints for each job were produced from videotapes filmed simultaneously side-on and face-on. Five jobs were identified as most hazardous. Workers performing them were filmed in order to describe and analyse the work methods and RSI risk factors involved (postures, movements, rhythm). With these observations, we could contextualize workers' comments from the interview. Finally, from group interviews with workers and supervisors on the overall findings, we were able to develop a better understanding of the jobs analysed and identify the main workload determinants.

The gender division of production line jobs

The Figure gives a diagrammatic representation of the turkey cutting line. It comprises 15 jobs rotated among 10 male and 17 female workers. But there was a clear gender division of jobs, because 7 jobs (1 to 7) were mainly done by the 10 men, and 8



jobs (8 to 15) almost exclusively by the 17 women. So there are two distinct gender-based job rotation systems. This gender division of jobs was established on start-up of the line (1976), when the departmental supervisor thought some jobs should be done by men and others by women. He assigned women mainly to finishing and trimming. While men were mainly assigned to cutting, women were assigned jobs demanding more painstaking, precision work.



Most of the women who had received training on the men's jobs did not want to return to them. They all cited the same reason: the men's jobs are physically too hard and demanding. Even greater resistance was encountered among the men - the most senior workers refused point blank to be trained in the women's jobs. The men gave different reasons for their reluctance to do the women's jobs: two found them more boring, two found the pace of work too fast, and two others feared back pain. Yet another felt



it required too much precision, while the only man to do the women's jobs complained about all the "finicky stuff".

Men and women are exposed to different stresses despite many similarities

There is a high incidence of compensated musculoskeletal injuries among both genders on the turkey cutting line studied. The description of job constraints in this department brought to light recognized risk factors conducive to this type of injury⁷⁰: very short operating cycles involving frequently repeated gestures, no control over the pace of work which is dictated by the line operating speed and leaves little or no scope for micro-breaks between operating cycles, arms kept high to reach the turkeys and a static standing posture. They work in cold, moist surroundings, handling chilled or frozen pieces of meat. High manual dexterity is required despite the fact that gloves must be worn and that many suffer from cold hands.

Both genders are exposed to all these common risk factors. Despite these similarities, however, some factors are more specific to women's jobs while others typify men's jobs.

Women's jobs generally tend to be more static, but also faster-paced. Trimming, for example, (jobs 13, 14, 15: the fat is pulled and the meat skinned and boned) where women spend most of their time (50%), was considered too fast-paced by several. The work requires a large number of precise movements. Pace of work was also a reason why men would not accept women's jobs. Prolonged static postures are also the rule on these jobs - workers remain upright facing their table, and the movement of the conveyor towards the platform workstations (jobs 2 to 12) requires workers to stay in one spot or allows them at best to shift their weight from left to right.

The men's jobs, by contrast, are more dynamic, involving broader work areas and the use of physical strength. The jobs requiring physical effort are pre-cutting (jobs 1,4,5,7), the main job for men (42% of the time). One worker reported: *"the men's jobs are physically harder but you use all your muscles. It is hardest for the women on the breast cutting jobs because they spend an hour on cutting and it's hard on the hands"*.



The amount of stress is also connected to differences in job rotation systems - women are exposed to the same stress for longer periods of time.

**Are men's jobs more "limiting"
and women's jobs more "wearing"?**

Men and women workers on this poultry cutting line reported the same rate of musculoskeletal disorders. However, women's situations seem more critical. They report more, and more serious, pain symptoms than men (see table 3) and find their work harder to perform - 77% of women in women's jobs feel pain while working, compared to 22% of men in men's jobs. Also, 70% of men report no tired or painful spots, whereas 41% of women feel pain resulting in absence, medication or consulting a doctor.

The body area mainly affected is the cervicobrachial area comprising the neck, upper back and shoulders: more than 55% of workers had experienced pain there during the previous week. Right shoulder pain was most frequent, followed by the upper limbs, especially the wrist, and the legs.

Why should more women report more - and more severe - pain symptoms than men? One possibility is that the men were less inclined to admit to pain than the women⁷¹. But studies conducted elsewhere would tend to suggest a higher reporting rate among men for the same degree of pain⁷². Other studies carried out by our team in the same branch of industry but where the jobs are exclusively male (pork processing plants) found a high rate of reported pain⁷³. The difference between men and women on this line leads us to suspect other reasons. The differences between men's and women's jobs listed above expose them to different stresses, which could have a different impact on the development of musculoskeletal disorders and would then appear differently.

Our accident analysis showed that both genders more often report accidents when in jobs that require physical strength. Among the men's jobs, almost all the accidents are reported either on skinning, thigh turning, or turkey hooking. Surprisingly, over half the accidents in women's jobs are reported on carcase separation, on

Table 3: Percentage of men and women reporting at least one tired or painful spot according to degree of severity

	% Women N=17	% Men N=10
No spot reported	12	70
Tiredness	88	20
Pain while working	76	30
Pain after work	65	30
Medical consultation, medication or absence	41	10



which only a small percentage of their working time (approximately 5%) is spent. It is the only job in which physical strength is required and has several similarities with men's jobs. This can certainly be partly explained by the fact that when exerting force either to pull or push, as in the men's jobs, they may make a wrong movement and sustain an accidental musculoskeletal injury: *"I felt a sudden pain when pulling..."*, *"the turkey was hard and I over-strained"*, etc.

It is also possible to develop an injury and feel pain throughout a working day which will become unbearable when the job requires exerting a force. This is when the worker will stop work and report an employment injury. Indeed, it is difficult to pull off skin (men's job) when in pain, although it may still be possible to carry on working in pain for repetitive cutting into small pieces where a less intense but sustained effort is required, as in trimming or finishing (women's jobs).

This may offer a clue as to why accidents are reported in "strenuous" jobs although pain may be experienced at and associated with other jobs, as when women workers experience pain especially in the breast cutting and trimming jobs, but report accidents mainly at carcase separation.

The men's jobs require more, but less sustained, effort. That makes their jobs more "limiting" in the sense that the demands may represent a physical limit or barrier which, when reached, causes the worker to stop work. Women who report pain are understandably reluctant to occupy men's jobs.

Women's jobs demand speed and precision, and have no micro-breaks. Women report more pain because they can continue working in spite of discomfort. They may have developed more chronic pain symptoms than men. Their musculoskeletal system could be more damaged, manifest in more frequent and more severe symptoms. Unlike the men's jobs, the women's jobs are more wearing, and they will continue wearing-out their musculoskeletal system until the day comes when they can no longer perform this type of work.

Women's jobs are regarded as "light", but involve major physical and organisational stressors

Are women's jobs less physically demanding? In the sense that they involve a lesser degree of instantaneous dynamic stress,



perhaps; but what then of static work and endurance? Precision, speed, repetition, visual alertness, prolonged static postures: these are all stresses which easily go unnoticed by comparison with sweeping motions and the use of strength.

Women's jobs seem less taxing because of the lesser physical strength required, so wing trimming (where the lightest pieces are handled) is used to "ease" returning workers back into work. And yet it is one of the jobs where women report most problems and symptoms.

By revealing the stresses of the two types of job (men's and women's) and the health problems particularly prevalent among women workers, we showed that what are regarded as light women's jobs could involve major physical and organisational stress unlike those found in men's jobs, with different health impacts.

Impacts of research

The results, and especially the replies to the questionnaire, elicited considerable surprise and many questions when reported to meetings with the health and safety committee. The extent of the pain symptoms experienced by both genders astonished and alerted the health and safety committee which paid increased attention to all reports of pain by either gender at work. Now, whenever anyone experiences pain, they report it to their supervisor who puts them on lighter duties for the rest of the day. An extra employee was also added to the breast-cutting station whenever the workers thought the conveyor speed too fast. This change in attitude, especially among the supervisors responsible for assigning workers to jobs, represented a real change brought about by the feedback of results to the health and safety committee.

Other steps were also taken: - knives were changed immediately they lost their edge, - blade sharpeners were added, - further training was given in honing rotary knives.

It was also agreed with the health and safety committee to continue the study with a view to bringing forward solutions to the problem of cold extremities (mostly the women's jobs), increased difficulties during special production runs (very fresh poultry, breeding birds), the magnitude of stressors on some jobs, and the problems of knife-sharpening. These choices and education in



the difficulties on the turkey cutting line were obviously the purview of the health and safety committee which had taken part in the approach.

This study will therefore have made it possible to show that women's jobs, which seemed light (because of the lesser physical strength required) involve significant physical and organisational stressors which may produce physical problems and pain (41% of the women experience pain which resulted in absence, medication or consultation of a doctor compared to 10% of the men). Through this type of research, interveners (supervisors, workers' representatives, company management) can be made aware of the extent of the stressors and difficulties experienced by women, and some work situations can be improved. The current practice of "easing" industrial accident victims back into work by assigning them to one of the women's jobs was called in question, for example.

Study 2

Sewing machine operators - light work that takes a heavy toll⁷⁴

Collaboration arrangements: Joint health and safety committee

Method: Ergonomic job analysis.

Sewing machine operator is a fairly typical industrial job performed by women. In Quebec, 1.8% of working women do this type of job, which is the 12th most common woman's job⁷⁵. Research has shown a high incidence of musculoskeletal disorders among these workers⁷⁶. Statistically, this type of work is associated with disability at retirement age⁷⁷. The extent of the musculoskeletal disorders suffered by women workers engaged in what is often considered light work is not always readily understood or recognized by employers, compensation authorities or even occupational health and safety practitioners. Workload is often measured in terms of energy expended. This, indeed, is the criterion used by the Quebec government to set acceptable room temperature, among other things. Physically demanding work is equated with strenuous work (like handling heavy loads) requiring the dynamic involvement of the entire body. Little attention is paid to women sitting in front of sewing machines, handling light objects. This makes it harder to arouse the interest of the actors involved in improving working conditions.

In 1988, we were contacted by the management and union (health and safety committee) of a trouser manufacturer employing 142 female and 36 male workers, following a rise in compensation claims for musculoskeletal problems.

The high incidence of left shoulder musculoskeletal pain among sewing machine operators responsible for sewing inner and outer trouser leg seams suggested that we target these jobs for a comprehensive study. We carried out a detailed analysis of every step in the process of their various operations, with particular attention for the working conditions recognized as most likely to cause musculoskeletal disorders, like rapid pace of work,



uncomfortable postures, strength required (applied force) and inadequate rest (NIOSH, 1987). We wanted to pinpoint the determinants of these job stressors with a view to suggesting changes to work organisation.

We began by interviewing the workers so as to form a clear idea of the difficulties of their work and their health problems. We also observed each operator at work, took still photos and videotaped them. These observations enabled us to describe the specific operations in the work cycle, compare the sequence of operations between operators and illustrate the work posture and motions performed by each worker during each operation. To measure the operators' physical effort, we calculated dynamic effort as the aggregate weight of all objects lifted and all objects pushed or pulled, assessing the minimum strength required to move the objects using a dynamometer. For example, the total lower limb effort over the course of a day was calculated by multiplying the number of trouser legs sewn by the number of times the pedal was operated to sew a trouser leg and the minimum force required to operate it. Note out that these measurements underestimate the total effort exerted by the sewing machine operators, as we were unable to factor in the hold time. Also, dynamometer operating limits prevented us from measuring certain types of effort. Because these workers are on piece rates, they keep daily records of the number of trousers sewn. These records were used to calculate work speeds and the total time spent sewing trouser legs each day. We also measured the precise dimensions of each of the ten work areas.

A sewing machine operator's workload

By this method, we demonstrated that a sewing machine operator may repeat the same work cycle more than 1,500 times a day and lift over 400 kg of material. The total effort exerted with her arms, shoulders and hands amounts to over 2,850 kg, and that with her lower limbs in operating the pedal (outseam work station) 29,648 kg. How can this be said to be light work? It is certainly highly sedentary; the operators do not move around, except during breaks. Considered in terms of energy expenditure, the muscular work will readily be classed as light, because the objects lifted have low unit weights. The physical effort does not make whole-body demands. However, if the total number of trouser legs lifted in any shift in terms of aggregate weight lifted and upper limb effort is taken together with the cumulative number of repeated



upper limb movements, often in high-risk postures (abduction, adduction), the extent of the stresses and workload becomes clear. The work may seem light in terms of energy expended, but is strenuous in terms of bone and joint stress, particularly on the left shoulder. This type of work may well require less intense physical effort than that performed by men (manual labourers), but the volume of work produced by the sewing machine operators in arduous conditions suggests high physical strength and endurance.

Like other researchers⁷⁸, we also observed that the sewing machine operators' work posture is constrained by different elements of the work station: the position of pedals, needle, trouser holders, for example.

All ten workers in the study reported feeling tired at the end of the day, especially in the shoulder region, and nine reported pain while working (5 in the left shoulder, 3 in the right shoulder, 3 in the fingers of the right hand). Three operators had already stopped working due to left shoulder pain. Our detailed analysis of operators' work stations revealed a link between certain elements of their physical workload and their reported health problems. A high incidence of pain and tiredness symptoms would have been expected among trainee operators, but among workers with between 6 and 25 years' experience, those pain symptoms are indicators of the individual's inability to adapt to the work.

The importance of detail in repetitive tasks

This study also showed the importance of examining even the micro-details of work in repetitive tasks. The highly repetitive nature of the movements performed by sewing machine operators, like many women production line workers, may result in a very high cumulative workload if the work station layout is not adapted to the worker or the task. The measurements we took of 10 supposedly identical work stations revealed wide variations unrelated to the physical characteristics of the operators. For example, we found a 10 cm variance in the distance to the trouser holder, a difference which can be highly significant where movements are repeated thousands of times a day. High-risk shoulder movements are repeated for every one of several hundred trouser legs, which makes proper positioning of the work area elements essential. Likewise, while the end of the forward bar onto which the sewn trousers are pushed was in some cases



upright and angled backwards so that the trousers would slide under their own momentum with a single push, in others it was tilted forwards (curved) requiring more pushing motions. The pedal on one machine used by a worker who complained of leg pain was found to be very much further away than on the others.

Avenues for change

With the detailed data collected, we were able to identify various elements of the work station that were previously considered unimportant but which could, if improved, help reduce the risks of musculoskeletal disorders. We were therefore able to suggest various alterations to make the equipment more appropriate to the work activity. Thread cutting, for example, was unexpectedly difficult; it required fairly substantial strength because the blade was dull. The problem could be greatly reduced simply by keeping the knives sharpened. The pressure required to operate the pedals was reduced at work stations where it was needlessly high. It was also important to reduce the frequency and amplitude of adduction, abduction and shoulder rotations to reduce shoulder joint fatigue and pain. The company implemented recommendations like reducing the reach and adjusting the angle of trouser holders to reduce stretching, correcting pedal placement and the shape of the forward bar. The search for solutions has continued with the installation of a pilot work station where layout changes have been tested.

This, albeit partial, description, of the effort required of women performing "light" work clearly demonstrated the extent of the workload, often underrated in women's jobs, and highlighted the importance of focussing on the physical demands of some jobs traditionally assigned to women.

Some alterations to work stations can be very simple to make. But women workers' problems are too often dismissed as either unimportant or not urgent because women's jobs are considered undemanding and safe. So, their demands are perceived as unfounded or exaggerated. Only a detailed examination of the work activity gives the full measure of how hard it is.



Study 3

Women in non-traditional jobs using ill-adapted tools⁷⁹

Collaboration arrangements: Joint (local council-FTQ trade union) Occupational Health and Safety Committee.

Method: Accident analysis, interview questionnaire analysis, follow-up ergonomic study.

Job discrimination may be unlawful, but the gender division of labour persists in most industries and services. Recent feminist demands and the introduction of Affirmative Action Programmes in Quebec, however, have brought increasing numbers of women into traditionally male jobs. But even those industries⁸⁰ and services⁸¹ where they have penetrated still have “glass walls and ceilings” which deny them access to all jobs.

Various shopfloor studies have reported obstacles to integration created by layouts and tools designed for males of average build. Women of a different stature had to display ingenious adaptability⁸². Our experience has persuaded us that programmes designed to integrate women into non-traditional jobs must factor in the physical aspects of jobs to facilitate not only the integration of women, but anyone not of average male build. Taking care to match the job to the worker's physique would reduce the health risks for all job-holders, and would lead to more genuine equality so that women would not have to “buy” their employment opportunities at the price of silence about their difficulties and discomfort.

In 1991, we set up a health and safety at work project in conjunction with a Quebec local council and its blue-collar workers' union. At the time of our study, an affirmative action programme had been running for four years, under which more than 200 women had been employed. We had two objectives: 1) to identify the obstacles to risk-free integration of women into non-traditional blue-collar jobs, and 2) to suggest OSH improvements for these jobs.

Of this local council's 201 blue-collar jobs (occupational categories) only 22 were mixed, even after four years of the affirmative



action programme. Among them, we selected only jobs classed as traditionally male (as defined by Statistics Canada), i.e., jobs in which women account for under 34.3% of the total Quebec province workforce, jobs which required physical effort, and jobs with at least one recorded employment injury between 1989 and 1990. The final sample contained 14 jobs.

We first analysed the industrial accident records for the blue-collar workers in each of the selected categories to identify the high-risk jobs and pinpoint any gender-relevant differences in accident rates and types.

At the same time, we interviewed 113 male and female workers to profile the target group and obtain information on individual difficulties encountered in performing their job. Among other things, we asked what they liked and did not like about their work, physical and psychosocial difficulties, perceived gender differences in work methods^a, relations with superiors, and their opinions of women doing traditionally male work.

a. The question was:
"Are there jobs you do
(or do not do) at work
which your male/female
colleagues do not do (or
do), or less often?
If so, which?"

From a combined analysis of accident records and the interviews, we were able to target a job which was hazardous and beset by physical difficulties for both genders - gardening. A comprehensive ergonomic study of the job was conducted to observe and compare gender differential methods of work and identify problems caused to both genders by their different builds.

Women and men blue-collar workers have different statuses and jobs

Manual workers can be either certified or ancillary employees. Certified workers are permanent, full-time, year-round employees with a specific job title. Ancillary workers are temporary, with no specific job and work on-call.

Work is assigned by function but also by type of activity (type of task). So workers with different functions may work on the same activity (e.g.: refuse collection requires a "general works" employee and a "power-operated equipment driver-operator").

Permanent employees work most of the year in the same function, but may fill-in in other jobs from time to time in response to seasonal demand. Ancillary employees are also floating workers and may do different jobs in different services and perform

several distinct tasks. Temporary workers are mainly employed in gardening, and external or internal maintenance duties.

Of the 14 functions for which we studied accidents, women accounted for approximately 5% of permanent and 40% of temporary employees. Approximately 70% of the women were temporary workers (having been hired only since 1987). Temporary workers do not work full-time year-round and are enlisted as required and by job experience. Women temporary workers with significantly less job experience than men may have worked fewer annualized hours than them (the council keeps no gender-differentiated records of hours worked broken down by job or activity).

Women are not randomly distributed across council jobs and activities. The main job occupied by male permanent employees was "lorry driver" (628 men and 5 women) and female employees "general works" (449 women and 29 men).

Employment injuries and gender division of tasks

A gender comparison of accident rates would have meant comparing the male and female accident frequency rates for different jobs with the number of men and women who had worked in them. The highly complex work organization system, however, made it impossible to determine precisely the numbers of both genders who had worked in different jobs, or the total hours worked by male and female ancillary staff by function or activity. But working from the salary budget by activity, we were able to estimate (though not by gender) the number of people who had worked in each activity. The analysis of the accident rate by activity showed that different activities entailed different degrees of risk. Some - such as municipal refuse collection, cleaning public facilities and gardening work - were clearly greater safety hazards for both genders.

The general analysis of male and female employment injuries revealed no significant gender differentiation. While women temporary staff had fewer accidents than their male counterparts (table 4), they had less job experience and were less frequently called out. They had therefore worked fewer hours and were less exposed to accident risks.

Even so, these accident rates are not comparable, because men and women are unequally distributed across job categories, and



the accident rates are job-specific. We were therefore unable to evaluate the accident risk for women.

Table 4: Comparison between the percentage of accidents leading to time off work among women and men and the percentage of blue-collar men and women among temporary and permanent workers. 1989-1990				
	<i>Permanent</i>		<i>Temporary</i>	
	<i>No. of accidents (%)</i>	<i>No. of workers (%)</i>	<i>No. of accidents (%)</i>	<i>No. of workers (%)</i>
Women	40 (6.1)	97 (4.9)	74 (32.2)	239 (39.3)
Men	619 (93.9)	1,808 (95.1)	156 (67.8)	369 (60.7)
Total	659 (100.0)	1.905 (100.0)	230 (100.0)	608 (100.0)

However, by analysing work activity-related gender differences (using the injury location and type, and accident type, for each accident), gender-differential accident distribution patterns began to emerge. We found that injury and accident types varied with work activity and gender. Gardening-related activities, in particular, seemed to produce fairly pronounced gender differences (see tables 5 and 6).

Table 5: Sites of "gardening work" injuries by sex					
	<i>Upper limbs</i>	<i>Lower limbs</i>	<i>Spine (back)</i>	<i>Other painful locations</i>	<i>Total</i>
Women	3 (33.3%)	3 (37.5%)	12 (63.2%)	4 (57.1%)	22 (51.2%)
Men	6 (66.7%)	5 (62.5%)	7 (36.8%)	3 (42.9%)	4 (48.8%)
Total	9	8	19	7	43

Although the figures are not conclusive, we see that women suffer more back injuries and men more lower and upper limb injuries.

Table 6: Type of "gardening work" accident by sex				
	<i>strain</i>	<i>impact</i>	<i>other</i>	<i>total</i>
Women	13 (59.1%)	3 (25%)	6 (66.7%)	22 (51.2%)
Men	9 (40.9%)	9 (75%)	3 (33.3%)	21 (48.8%)
Total chi ² ; p=0.10	22	12	9	43

Women are more prone to strain, and men to impact, injuries. These differences may be associated with gender-specific task allocation.

Evidence from the interviews leads us to conclude that men and women in the same job are not consistently assigned to the same duties, and so are not exposed to the same risks. For one thing, over half the women self-reported as doing different work to their male colleagues. The reasons advanced varied: foreman's, supervisor's, team's or the woman's own choice, or the lack of adapted equipment.

By and large, the gender division of labour took two forms: women were assigned tasks requiring more care and attention; while men performed tasks requiring more physical strength. When interviewed, the gardening foremen confirmed their tendency to use strength and attention to detail as gender job assignment criteria.

Our analysis of gardening work content^a bore out this division of labour. Of 43 men and women gardeners, 44% reported a gender division of tasks: women were assigned to planting out smaller plants, weeding and trimming shrubs, while men were assigned heavier duties like wheelbarrowing, tree pruning, forking and hoeing. They were more likely to be operating heavy machinery like rotavators. The effort required of women seems more static than dynamic.

a. We chose to study gardening jobs in close detail because half the female workers interviewed were gardeners and because work teams were mixed.

Physical difficulties and work-related pain

Overall, more women than men reported difficulties. All were work activity-related, but we also observed that some were related to physical build. For example, although the differences detected were slight, we found that women's replies about jobs requiring strength, like "handling loads" and "digging", were similar to those of "smaller men"^b, whereas women and "tall men" more often reported problems with such things as "equipment and tool handling" and "posture and positions". In both cases, their body sizes deviate from the male norm which is the standard for work tool and equipment design.

b. "Smaller men" being those below average male height of 176 cm.

In many cases, women reported problems with protective equipment, tools and appliances not designed for use by women:



ill-fitting boots and gloves, unwieldy secateurs, tractor seat too far from the steering wheel, etc.

Gardeners of both genders reported far more physical difficulties than the other manual workers in the study. Digging - which combines uncomfortable postures and repetitive actions - seemed a particularly arduous gardening activity. Approximately half the gardeners (44% of men and 53% of women) complained about postures (especially tall men), and approximately a third (36% of men and 29% of women) complained about gardening-specific tasks like hoeing or digging. But women gardeners experienced more problems with equipment, vehicle and tool handling.

Generally, two times more men than women (31% compared to 14%) reported no tiredness; while 46% of men and 31% of women reported no painful body areas.

Women had significantly more problems with their arms than men (7 times more women than men complained of arm pains). This is where gender differences in strength are most marked. Women also more frequently reported pain in hands and feet, which may be attributable to hand tools, boots or gloves ill-adapted to women's physiques. The pains reported by women were more comparable to those of small than taller men, presumably because the tools and equipment were designed for a man of average build.

Gardeners of both sexes reported more pains than other groups, especially back and upper body pain. Women experienced more arm pains, but both men and women suffered similar leg pain. Women reported more cervicobrachial pain than men, possibly connected with the division of labour which more frequently assigns women to planting small plants.

This analysis showed that the pains experienced by women and men are different, partly because of the different tasks performed, different working methods and differences in body build.

A detailed ergonomic study of gardening

We conducted a detailed ergonomic study of gardening activity, particularly digging, which was rated as physically the most arduous task by half the gardeners of both sexes. We wanted to determine:



- if the different physical characteristics of individuals interacted differently with the job design, and
- whether any aspects of the activity constituted health and safety hazards for workers.

We observed that certain work environment-related conditions required both men and women to perform stressful movements and adopt hazardous postures. We therefore drew up recommendations for improving these task performance conditions.

During this stage of the study, we witnessed no physical problems related to women's performance of gardening work. We were struck by the wide range of physical builds represented on the team. We observed that both genders went about the same tasks in a wide range of ways, adapting the activity to their abilities. There are, in fact, a multitude of person/tool interactions: the choice of tool and work method used varied with the individual and circumstances (e.g., state of the ground). Spade use seemed harder for those of taller and shorter stature. A taller person (> 176 cm) will adopt a more bent-over work posture, particularly if using smaller tools (the interviews revealed that taller men reported more postural and position difficulties).

We therefore suggested that instead of looking for an ideal all-purpose tool, the council should supply a wide range of tools, or adjustable tools.

Factoring-in women's safety

By the end of this study, providing safe work systems for women was no longer a specific issue. Not only women's safety, but that of all workers of both sexes would be improved. Obviously, women would be particularly affected by efforts to respect human diversity. Supplying a range of tools will improve women's work situation.

The interviews revealed that women tended to have more problems with tools. But men can be as much at risk as women where tools, equipment and work systems are designed for people of a different build.

The division of labour does not protect women's health

In half the work teams, men and women were not assigned to the same tasks. But this gender division of tasks did not seem to



reduce the proportion of aches and pains experienced by women, and so does not constitute a solution to women's health problems. For example, both sexes appear to find gardening work arduous, so the gender division of labour distributes equipment handling problems and body pains to women's disadvantage since they specialize in repetitive, precision tasks. Women gardeners described physical difficulties associated with long periods spent planting small plants, a task regarded as their preserve in some teams. It requires less forceful exertion than the heavy tasks performed by men, but involves a sustained effort in a more prolonged static posture. Many men felt duty-bound to perform the strenuous jobs.

So, instead of a gender division of tasks, what is needed is to identify problems or requirements that are too demanding for all workers. This might involve teamwork for physically demanding tasks, while adjustments to machines, equipment and tools could enable all workers of both sexes to perform all the tasks. The emphasis on task division tends to minimize the effort made to adjust jobs to individual builds, and so to compartmentalize genders and tasks to the detriment of versatility and job rotation.

A word of caution to scientists: beware of gender comparisons !

This study also served as a salutary warning when assessing risk exposures in epidemiological studies. It showed the need for extreme caution when using job titles to estimate exposure, because the gender division of labour (men and women distributed unequally across job categories) is complicated by a further division of tasks between men and women performing the same work activity. Also, because men and women are of different builds, they do not use work tools in the same way, which means that identical tasks will not necessarily have the same effects on the bodies of men and women who are of average build for their sex.

Men and women permanent staff seemed to have similar accident rates. But various factors of exposure (described above) were gender-differentiated, so the accident rates were not comparable.

Finally, the study shows that statistics are not a reliable basis for gender comparisons. Our analysis of accident characteristics by activity and the interviews enabled us to identify a number of



risks specific to women and people of different builds. While accident rates are a valuable occupational health indicator, the work done may vary by gender, size and length of service. Interviewing workers may be the best way to clarify the problems experienced at the workplace and the risks connected to working conditions.



From preliminary observations of these teachers at work, we selected three indicators which enabled us to illustrate certain key aspects of work: tasks performed, gaze directions and forward bending (work postures). All the observations were made sitting at the back of the class. We confined ourselves to written observations (so as not to disturb the children) and some data noted using an event register which we used to record actions, forward bending and teachers' gaze directions.

The teachers also filled in sheets concerning their work environment and conditions: blind and window operation, room temperature and humidity, individual assistance to pupils and hours worked outside schooltime. 149 newspaper articles from three Quebec daily newspapers (1993-1994) on teaching were also analysed.

Job specifications - and real tasks

The Department of Education issues directives on the concepts to be taught for each subject, the type of teaching aids to use and the time devoted to each subject. The school board sends out and interprets these directives, and may produce additional material. It decides what goes into the student report card, which in turn determines learning content. Teachers are paid for a 27-hour, 5-day working week, including an average 20.5 hours of class contact time. Their other activities, like parents' evenings, preparation, marking and assessment, far exceed the working time they are paid for. School heads assess teachers on their class teaching and class control. *"I am responsible for the way my class behave. If I'm not there, and there is a problem, I hear about it".*

To all this are added extramural activities. Committee work is optional, but *"it's very hard to say no when the head asks"*. A remedial teacher explains that her head teacher asked her to attend a committee which meets on Fridays to standardize 2nd year lessons (school B). She usually takes Fridays off to be with her pre-school age daughter, but the head teacher nevertheless insisted she take part. Other types of voluntary work may also be requested or required.

How teachers organize their class time: "the 120-second minute"

Over and above the employer's formal and informal demands, the teacher has to attend 6 hours a day every day to the emotional



and physical needs of 23 to 27 little children. Before she can even start teaching she has to quieten the children down into a calm state of mind receptive to learning. That means dealing with behavioural and language problems, gaps in previous learning, and emotional upsets. *"When parents split up, the entire class go through it"*. They also increasingly frequently have to feed and even clothe the children. To some extent, in fact, the job requirements are unlimited and are dictated simply by the children's needs. The cumulative work activity generated by these needs goes far beyond ordinary teaching and the transmission of general knowledge.

We discovered that as well as teaching proper, women teachers perform four other activities at the same time: teaching behaviour, keeping class interest at an optimal level, attending to the classroom physical surroundings, and giving the children emotional support (table 12). Teachers also have to keep the children to their timetables and attend to the children's basic needs (toileting, dressing, milk distribution).

Table 12: Activities performed during a French lesson, 2nd year, school A				
<i>Teaching the subject</i>	<i>Teaching behaviour</i>	<i>Maintaining optimum interest</i>	<i>Attending to the physical well-being of pupils</i>	<i>Emotional support</i>
<ul style="list-style-type: none"> - Explaining - Repeating the explanation 	Explaining the rules of good behaviour	<ul style="list-style-type: none"> - Using humour - Speaking louder 	<ul style="list-style-type: none"> - Opening and closing windows to regulate temperature 	<ul style="list-style-type: none"> - Cuddling
<ul style="list-style-type: none"> - Explaining a linked concept (raised by the child) 	<ul style="list-style-type: none"> - Rewarding - Correcting 	<ul style="list-style-type: none"> - Speaking more softly - Calling the child by name 	<ul style="list-style-type: none"> - Attending to toileting needs - Finding boots for a child without any 	<ul style="list-style-type: none"> - Encouraging

Some activities are overlapped or carried out simultaneously. For example, while one teacher is explaining something in a French lesson, she is constantly replacing a child's desk (the child is forever pushing it forwards), praising another child, reprimanding a third, all in the space of a few minutes. The same act may also have multiple meanings. One teacher explains why she called on "Marie".

- I didn't ask John who was shouting because he has to learn how to wait - teaching behaviour;



- I called on Marie because I thought she didn't know the answer, but that she should say something, it's been a long time since she did - emotional support;

- by calling on a girl who did not know the answer, I gave the child at the chalkboard time to get back to his seat - learning and keeping class interest at an optimal level.

- Sylvain, the little lad next to her, was fidgeting and had to be stopped - keeping class interest at an optimal level.

So, class teaching activity comprises a wide range of simultaneously performed operations. Because of this, teachers do not always manage to allocate the specific time prescribed by the Department of Education for teaching each subject, particularly in school B where more time is taken up especially in keeping class interest at an optimal level.

Our detailed examination of teaching activity revealed that teaching is fast-paced work with no breaks, deploying a range of especially age-group-related strategies. Simultaneous monitoring of pupils, combined with administrative responsibilities for dealing with parents and external resources, and support to children with difficulties demand availability outside strict working hours. Few teachers use their breaks and lunch hour to recharge their batteries; instead, they use these rest periods to help pupils catch up, do preparation or make work-related telephone calls. Many put in time out of school hours. Teachers almost always have to prepare lessons and correct homework/classwork at evenings or weekends. From time to time, they fill in report cards, read and make notes on experimental teaching schemes, call parents to solve problems or seek their collaboration, etc. Then there are the many intangible concerns which often prey on teachers' minds: thinking about pupils in difficulty, inter-personal problems, ways of explaining or keeping interest,... Their working time is therefore a combination of prescribed class work, necessary preparation and follow-up work, and incessant thinking and worrying. Because it is measured, the prescribed work is all that most employers and the general public see.

Teachers' gaze directions

Teachers never take their eyes off their class. This level of concentration is clearly substantiated from an analysis of gaze directions. Our observations showed that gaze directions vary with the



activity and school year, and depend to a great extent on pupil behaviour (noisy or quiet). What does not vary, however, is gaze focus on one or more children. During 12 observation periods in seven classes in the two schools (totalling 107 minutes and 16 seconds in all), we observed only 6.3 seconds of unfocussed gazing. The younger the pupils, the more teachers focus on individuals. In school B, the teacher's gaze was fixed more on the "problem" children than the class as a whole. The teacher is concerned not only about the quality of learning, but also the general well-being of the child.

Encouraging, quietening, deterrent and reprimanding looks are all strategies deployed by teachers to correct behaviour, keep attention or elicit support. In fact, teachers deploy a wide range of strategies to create an atmosphere conducive to learning, among other things, focus on potentially disruptive influences, and develop different ways of stimulating the pupils' interest. But for this, teachers have to know their pupils well, be attentive, focussed and imaginative.

The classroom physical environment

Teachers reported various problems with temperature and humidity regulation in their classrooms. Window handling activity was intense in both cold and hot weather. The temperature in most classrooms can vary by 10 degrees Celsius. Temperature and humidity comfort zones were always exceeded during the observation periods. So the immediate environmental conditions are not always conducive to learning, which forces teachers to deploy mitigating strategies. A physically uncomfortable environment causes pupils to lose concentration, adding to the demands on teachers. They reported having repeatedly protested to school management, but to no avail. Minor as they may seem, these factors are detrimental to teaching and learning.

Accumulated stressors

Our observations revealed the intensity of the work demands placed on teachers: the large number and pace of operations and simultaneous performance of some operations (e.g., explaining something while keeping an eye on a difficult child and pushing back the chair of another child who is inching down the aisle). As to physical workload, we observed prolonged periods of standing and certain stressful postures, especially when bending over to give individual attention to seated children.



A third possibility was mooted in two groups and may apply to certain units, relating to job rotation policies. We were unable to include individual degrees of patient difficulty in our statistics. However, it was suggested that the men are given more difficult cases than the women. *"The biggest on the team automatically gets the heavy ones"*.

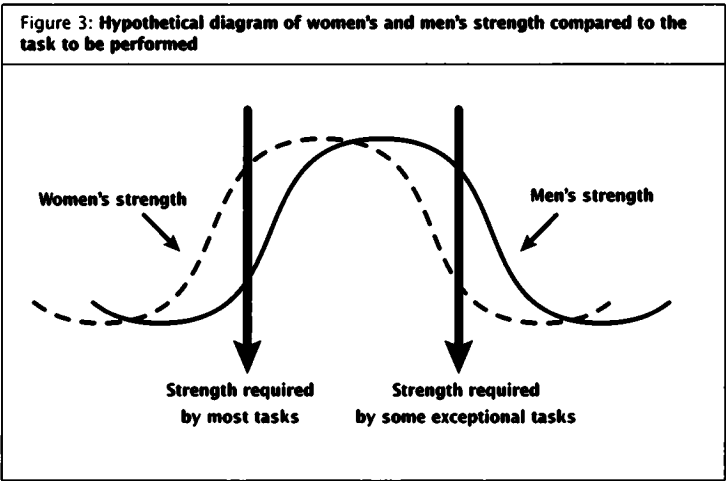
The fourth, and in our view most important, possible explanation was raised after the observation of a relatively unexceptional sequence of events one evening, in a department of relatively able-bodied patients, staffed by four orderlies - one man and 3 women - and 3 nurses. The assistant senior nurse was taking a blood sample from a patient who was becoming violent. She attached one side and called the male orderly - "Roger" a fairly stocky man in his thirties - to hold it. One of the female orderlies - "Julie" - heard the yelling and came to help, holding the patient on the other side. But it was left to the man to hold the patient's arm motionless for the jabs. He did not talk to the patient. Julie, by contrast, did talk to the patient, stroking his back and arm, so the patient quietened down until the next jab. Two other female orderlies - Suzanne and France - ran in. Suzanne shouted: *"I need Roger"*. A hefty patient was falling out of her wheelchair. Julie: *"I really can't do without Roger"*. France (to Suzanne): *"The two of us can handle it"*. Roger: *"I'm busy"*. France: *"He's busy"*. A few minutes later, Roger and Julie finish with the violent patient and go across to the other. Suzanne: *"She's a real weight"*. France: *"I can get the port-o-lift"* (mechanical patient lifter). Roger: *"The three of us can handle it"*. The three of them lift her with considerable effort. It is clear that Roger is taking most of the strain.

This example serves to show that men may very well be the first resort in extreme situations. The male orderlies gave us many examples of this type of situation where men are enlisted when exceptional strength is required. It can be assumed that in situations which do not occur in all shifts but do require exceptional physical strength or courage, men are called on first. As these are fairly rare occurrences, they would not emerge in our figures, but they are critical for orderlies' perceptions. It is probable that these situations entail an exceptionally high injury risk and should therefore be OSH analysed.

The situation can be diagrammatically represented as follows (see figure 3). Most tasks require a degree of strength within the capabilities of most women. This is the bulk of cases we



analysed. However, some tasks demand strength beyond the capabilities of most women, which only the strongest men can easily exert. The other men and most of the women may injure or chronically strain themselves. In such situations, more women than men will call for assistance, and more men will be called on to assist.



It is possible that our statistics do not accommodate these fairly exceptional situations which do form part of the staff's perceptions. It may also be that these perceptions prompt the women orderlies to strain more in "normal" situations. If this were the case, the male orderlies would be more at risk from more frequent exposure to hazard situations, while the women orderlies would be more at risk from an overload of "ordinary" work.

Impacts

Solutions are still under discussion. Our recommendations aim to reduce task demands by changing the context in which mechanical aids are used, staff allocation, spreading out operations over time, eliminating certain physically strenuous operations. We also recommend expressly encouraging teamwork, training in stereotype awareness, stabilizing work schedules, and changing work organization. The results are already the subject of debate among staff and management. We feel that extreme sensitivity and tact are called for in supporting the process. The fact that the results bear out the need for a halt to staff cuts and constant use of supply staff is not readily accepted by management at a time of budget cuts.



Study 6

Primary school teachers and multiple stressors⁹⁴

Collaboration arrangements: : Trade union (CEQ) request. Employer's assent to observations.

Method: Ergonomic job analysis.

As part of the "What you can't see can hurt you" research programme, the Quebec Teachers' Corporation (CEQ) asked us to look at the job of primary school teaching, the 9th largest employer of Quebec women⁹⁵. The union's OSH and Status of Women officials described the growing incidence of burnout, work overload, lack of autonomy, and the difficulty mothers of young children had in handling the combined, very similar demands of paid work and family life.

Women teachers in Quebec, like those elsewhere, suffer a high level of psychological distress. Quebec Health Survey data show that women teachers, who typically enjoy good mental health when young, are among the occupational groups most affected in the 45-64 age group⁹⁶. David and Payeur⁹⁷ report that 90% of teachers find their job onerous and 74% stressful. Carpentier-Roy⁹⁸ describes in detail the mental anguish suffered by men and women teachers, and dwells particularly on primary school teachers. *"The special situation of women primary school teachers seems to be a source of particular problems (...) it's less a case of a double work day than a sixteen hour day, since there is such continuity with their home lives; they feel like a non-stop mother wherever they are"*.

The health problems created by this suffering are starting to cost both women teachers and the state dear. While 12.1% of all work incapacities in Quebec are due to mental health problems, the proportion rises to 33.5% among women teachers⁹⁹. Between 1989 and 1993, 30% of all prescription medicines reimbursed by the teachers' group insurance scheme were connected with psychological problems¹⁰⁰.



We were referred to a school board where 87% of primary school teachers are women. The project aims were to identify, with local teachers' representatives, working conditions which they found problematic, to understand the primary school teaching context and observe classroom work to identify risk situations. We also wanted to develop locally possible ways to transform the work environments concerned.

We therefore studied the work activity of women primary school teachers through an in-depth examination of the working conditions of a selected target group. Seven teachers from two primary schools, one in a district identified by the Department of Education as averagely well-to-do (School A), and the other in a fairly disadvantaged district (School B), took part in this study. The group comprised 2 teachers on non-standard contracts - one combining ordinary with remedial teaching, the other a supply teacher -, 1 teacher assigned to a special class for children with behavioural problems, 2 regular part-time and 2 regular full-time teachers. Five of the 7 were mothers.

In the group interviews, we discussed problems and sources of job satisfaction, and set the work observation priorities. The teachers reported taking great pleasure in "the most wonderful profession": loving children, loved by children (*"you feel appreciated by 27 people"*), constantly challenging (*"you never know what the day will bring"*), and the sense of achievement. The health problems they identified were: actual or anticipated burnout (*"I don't see how I'll make it to retirement"*) and, to a lesser extent, throat, skin and back problems. Among workload factors, they reported: discipline (*"I'd like to teach knowledge, not just manners"*), pupils' inattention (*"these kids spend a lot of time in front of the TV, you have to perform if you want to keep their attention"*), work spilling over into private life (*"I come on Sundays; I have the key to the school and there are always other teachers there"*), the impossibility of leaving pupils' problems at the school gate, the aggression of some parents, the physical surroundings, the negative public image of teachers (*"people think we have it easy"*). Their priority problems were: overall workload, working hours, classroom temperatures or damp, back pain and sore throats. They repeatedly stressed the overall workload idea, making it clear that we should not analyse the individual task components but look at the job as a whole.



The real priority is to improve safety for hospital cleaners. Our project enabled a series of recommendations to be made to reduce the risks and difficulties:

- selection criteria for furniture, equipment and fittings;
- removal of unused objects from rooms;
- updating the list of objects and areas to be cleaned⁹⁰.

A series of meetings between the different staff levels, including management, were also set up on-site to make cleaning work more visible, and to make their work, needs and stresses, as well as those of the other users of cleaned spaces, more readily appreciated. More wide-ranging discussions are under way about the scope for making changes to the collective agreement. It seems likely probable that the distinction between heavy and light work will gradually disappear. Some centres have already abolished it, and the unions are watchful to see that women have access to the new undifferentiated jobs.



Study 5

Nursing aides, orderlies and male-female cooperation ⁹¹

Collaboration arrangements: Awareness-building by a union (CSN) followed-up with joint labour-management committees.

Method: Ergonomic job analysis.

To check our conclusion (stemming from studies 3 and 4) about the importance of physical requirements in job de-differentiation schemes, we examined an occupation where task differentiation has long since disappeared. We chose the occupation of orderly (or nursing aide) where duties were merged over ten years ago after union negotiations. Before that, male orderlies were assigned “heavy duties”, which included patient lifting, while female nursing aides were assigned “light duties” of personal care.

In 1987, Lortie found that male and female orderlies had the same accident rate but not the same injury locations (upper back for women, lower back for men)⁹². She attributed these findings to gender-specific task and handling practices. More recently, Cloutier and Duguay compared accidents to health-care institution staff in 1987 and 1991 (table 8)⁹³. Female orderlies have a higher occupational injury rate than male orderlies, and the gap has widened since 1987, as the women’s rate has risen while the men’s rate declines. Female orderlies have the highest accident rate of all women’s jobs covered in the report. Most (63%) are back injuries suffered by young people of both sexes from overstraining when lifting patients. Unlike Lortie’s work, this study does not distinguish between the lower back and upper back, so we are unable to say whether both genders suffer the same type of accidents. The proportion of women in the job has increased (from 64% to 68%) since 1987.

Table 8: Profile of orderlies in 1991		
	Women	Men
Orderlies	23,989 (67. 5%)	11,524 (32. 5%)
Proportion	increase	decrease
Average age	38.6	34.2
Over 45	33%	23%
Employment injuries, occupational diseases in 1991	24.2/100	18.5/100

(Cloutier and Duguay, 1996)



More than ten years after job titles were merged, men in the hospitals concerned complained about unequal task allocation. In trade union occupational safety and health training sessions, they argued that women were not doing their share, leaving men overworked. Some women said they could not perform the new heavy duties involved. Had feminist arguments persuaded trade unions to ask for changes detrimental to the health of both genders?

We therefore observed orderlies at work over a period of 61 hours to log the gender allocation of duties and trading of services between team members. We aimed to determine whether the jobs had been successfully merged without increasing the risks for either sex. We also wanted to gain a better understanding of how teamwork operates in circumstances where work reorganization often runs counter to the teamwork culture. We also wanted to find out by what procedures duties were allocated, and the circumstances in which assistance of colleagues was sought.

Results

We found a very high degree of task and information sharing among patient care personnel, which we call "the caring network".

Table 9: The caring network in 7 departments in 2 hospitals

Total actions and communications	1666
Total communications	497
Total actions	1169
Shared actions	523
Actions alone	646
Total shared actions and communications	1020

Both genders said that collaboration was a key aspect of their work. An individual's non-collaboration might forfeit him/her the collaboration of other staff. But over half the duties were performed alone. In consultation with the orderlies, we classed the tasks performed into three categories by difficulty. A very great number of operations are performed each hour which require a stren-

uous physical effort (up to 10 per hour at the start of the evening shift). Collaboration was involved in 80% of the operations in the most difficult category (transfer, repositioning and lifting patients). But some difficult operations are carried out alone, without mechanical assistance, and a commensurate risk of injury. The reasons given for performing difficult work alone are: time pressure at certain times of day or evening, a work organization which means that help is not available when needed, hierarchical relations which prevent orderlies from seeking nurses' help, lack of information about patients' self-sufficiency, handling equipment not available or no instruction in its use, departmental policies, hospital policy (three times more solo handling



operations in one of the two hospitals), orderlies' preferences for shared work.

Comparing the work performed by men and women orderlies for the busiest part of the day shift, slight differences in the degree of collaborative working are evident. Contrary to what we were told, women seem to do somewhat more than their share, even in the difficult operations (table 10).

Also contrary to the general belief, nurses do not seem to enlist male more than female orderlies' help, even for difficult operations (table 11).

Table 10: Men/women co-working (7:30-10:30)		
	Women	Men
All operations	195	187
All operations performed alone	118 (61%)	103 (55%)
Difficult operations	45	48
Difficult operations performed alone	16 (36%)	18 (38%)
Operations performed by men	16.0	12.6
Difficult operations performed alone	1.3	1.2

At the feedback session, the orderlies offered a series of what they regarded as equally valid explanations for the discrepancy between their perception and our figures. The first is that we observed increasingly atypical work situations. Work teams are becoming increasingly less stable, with an increase in flexible hours and supply staff, but we observed mainly women in regular jobs. These women were still in the job after many years and so would be among the "survivors" and the best team players. They also work with co-workers who know them and with whom they have established ways of collaborating. On the other hand, new women arrivals may be more rarely enlisted either because they have less strength and especially less know-how than women who have been in the job for years, or because they are unknown and stereotyping precedes knowledge. *"They don't care what women they take on here"*.

Table 11: Assistance to nurses		
	Help a nurse	Helped by a nurse
Female orderlies	29	9
Male orderlies	13	19
Chi ² = 9.2, p < 0.01		

There is also another possibility, less generally accepted by the orderlies, but concurred in by some. That is the existence of gender stereotypes which categorize women who perform many strenuous operations differently to other women. They are not seen as having the ordinary woman's work capabilities. *"If they were all like Carole, there wouldn't be a problem!"* In the same way, it may be that men who do less than their share are also regarded as unfortunate exceptions.



Study 4

Cleaning and difficult postures⁸³

Collaboration arrangements: Trade union initiative (CSN) in association with the joint (employer-union) occupational safety and health committee.

Method: Ergonomic job analysis.

The work organization is designed chiefly around management's perceptions of workers' abilities and of their task demands⁸⁴. Physical tasks in industry and the service sector alike are often divided into "heavy work" and "light work", a division which may be formally or informally gender-based. Women factory workers are often assigned to repetitive tasks where little physical exertion is required while men are assigned to less repetitive tasks but which require sporadic bursts of intense muscular work⁸⁵. This job demarcation often reflects different perceptions of gender abilities and preconceptions about the physical demands of the tasks⁸⁶.

In North America (and several European countries) this type of organization is found, *inter alia*, among hospital cleaning staff. Hospital cleaning is the 8th largest employer for men and the 10th largest for women, who account for 46% of workers in the sector⁸⁷. It is a little studied occupation, but one with a range of health, absenteeism and job dissatisfaction problems. Quebec hospital cleaning staff have an above-average employment injury and occupational disease rate for the health sector⁸⁸. Most injuries are to the back and upper limbs.

The collective agreement between the Department of Health and hospital workers classes hospital cleaning into two categories: "heavy work" and "light work". The previous categories were "cleaning work, men" and "cleaning work, women" for which men were paid \$0.15 more an hour⁸⁹. Heated discussions within the union, and hard bargaining with the employer, resulted in the two categories of hospital worker being given equal pay for different work^a.

a. Pay differentials remain the rule for public building cleaners whose pay is set by order in council, according to whether their work is classed as "heavy" or "light".



The following study arose out of trade union occupational safety and health training sessions requested by hospital cleaning staff owing to the high frequency of back problems and injuries resulting from repetitive work. In sessions where we gave input, we became aware of a series of both physical (e.g., musculoskeletal) and psychological (e.g., effects of a lack of social recognition) job stresses. In 1994, in collaboration with a short-term hospital, we undertook a study to identify the demands and difficulties inherent in this kind of work. At the same time, we aimed to explore the reasons for the persistent gender division in this work between the mainly male "heavy" cleaning work and predominantly female "light" cleaning work. The study was carried out jointly with the health and safety committee and in agreement with both the men and women workers, which allowed us to brief all those involved on the objectives, stages and summary findings of the study.

We analysed the work activity by our usual methodology. As well as the cleaning staff, we interviewed supervisors, the head of the housekeeping department, the representative of a cleaning work management software company (because the hospital has a computerized work planning system), the trade union representative, joint health and safety committee and cleaned area users (patients, nurses and head nurse). These preliminary interviews combined with preliminary observations enabled us to identify respondents' perceptions of what constitutes light and heavy work, the main tasks, workplace organization, typical postures, the main types of effort required and activities or situations which seemed to present specific difficulties. They also gave us a clear idea of work organization and the principles for planning cleaning rounds using the work management software.

This information was used as the basis for a systematic observation schedule. Operations typical of heavy cleaning duties (mopping and waxing floors) and light cleaning duties (dusting, cleaning bathrooms), were observed for 23 hours at different times of day over a period of 8 different days. We used a combination of direct observation and video filming of men and women workers carrying out the target activities, and measured torso bending movements as indicators of stressful postures. We also used a dynamometer to measure effort. Then we measured the height of objects to be dusted, the dimensions of confined spaces, counted the number of objects to be moved to wash floors, movements and number of items cleaned and handled.



Organization into “heavy” and “light” tasks and its consequences

Light cleaning staff mainly experienced tiredness in the cervico-brachial area (neck, shoulders and upper back), whereas heavy cleaning staff felt tiredness in the thoracic region (chest). The movements and postures involved in “heavy” and “light” work are also very different (see table 7).

The men spent most of their time sweeping, washing, and polishing floors, upright in a zero or neutral position with their backs slightly bent. They moved relatively heavy objects at moderately frequent intervals. In a typical 6 minute period spent mopping a room floor, an employee moved 12 objects (to mop beneath them) measured as requiring forces varying from 0.6 to 3.0 kg.

The women performed a wider range of tasks and their postures were much more variable. Dusting surfaces required them to move many small objects. In a typical 20 minute period of cleaning a room, a woman cleaned 69 objects and moved 107.

“Bin emptying” is among the most demanding activities for “light” cleaning staff. In a 32- minute period, we observed 57 bin liners being replaced in the hospital; on her office and laboratory round, a worker logged 165 bins to be emptied. The activity involves bending over, and hence making a trade-off between energy expenditure, muscular work and time available. We found that 80% of the time devoted to this activity in the hospital was spent bent over. Problems with layout and supplies exacerbate the difficulty of the operation. Some full bags weigh more than 10 kg.

Table 7: Comparison of “heavy” and “light” work by first-hand observations

	Heavy	Light
Period of observation	66 min	23 min
Number of objects moved per minute	1-2	5-6
Weight of objects moved	0-10kg	0-13kg
Period of observation	70 min	36 min
Time in neutral position	63%	26%
Time spent slightly bent-over	26%	66%
Time spent acutely bent-over, squatting, etc.	5%	3%

“Light work” proved much less light than its name suggests. The study revealed a high workload, postural constraints, repeated movements, a constant pace of work and very little rest time. The physical effort made by light cleaning staff is not always visible. It often requires the limbs or back to be held in a stretched or bent-over position, which strains the muscles and



restricts the circulatory system. This kind of motionless exertion - known as "static exertion" - is not visible.

There are many variants of bending postures. Slightly inclined postures are frequent, and inclined postures of more than 45 degrees not uncommon. These kinds of strain, even in a slightly inclined position, are stressful. They require energy to maintain a bent position or move to another position, and place demands on the musculoskeletal system of the back.

After our findings were published, we were contacted by supervisors with complaints about the practice of hospital administrators assigning injured, ageing and pregnant workers from other sectors to light cleaning duties. They all volunteered the opinion that "light" work was more taxing than "heavy" work.

We also found that light cleaning work often passes unnoticed by the users of areas and hospital managers, as a result of which part of it was omitted from operations planning. For example, the software used to programme work rounds failed to take proper account of aspects which mainly affect light work, like room clutter and the number of objects to be dusted or moved to dust. It allocated less rest time to "light work". These discrepancies between the software model and the real work have major physical and mental health impacts.

The breakdown into "heavy" and "light" work has implications for employee health protection. Firstly, it reduces the variety of work activity across all job categories, thereby increasing movement repetitiveness, which takes a toll on workers' health. Secondly, it conceals health risks behind debates about both genders' risk-coping abilities. For example, we witnessed a heated discussion about mirror cleaning, currently assigned to women. The women thought the men should do it because it involved potentially hazardous work at height. The men felt they were already overloaded. No-one suggested that the safety of equipment for cleaning at heights needed checking, as if assigning a man to the task rendered it safe.

Although the distinction between "heavy" and "light" work seems unjustified by different physical requirements, the fear is that abolishing it might result in only men being hired for the undifferentiated jobs, especially if it were thought that occupational health and safety could be neglected as a result because "real" men know no fear.



Breaks are infrequent and are often taken up with work-related activities. The stressors of these routine working conditions are compounded by a range of added stressors which they find hard to cope with:

- sudden changes to their working conditions imposed without consultation;
- a growing number of non-teaching responsibilities in the form of supervision, seeking help, committee work;
- relations with children whose social, psychological or economic situation makes heavy emotional demands;
- the contempt in which some school head teachers, deputy heads and school board staff hold teachers;
- sometimes contemptuous attitudes and seemingly unlimited expectations on the part of parents and public;
- lack of time and inclination for consultations between teachers;
- an environment (air quality, heat and noise) not very conducive to learning.

These stresses accumulate and interact to create what ultimately becomes an unbearable workload. For example, a teacher faced with a class made disruptive by heat and local noise deploys strategies (speaking louder, moving around, bending over to attend to some pupils) which wear her down and sap her resistance.

Teachers' work and abilities are not always given due recognition by school boards or the mass media. The difficulty of the task and the lack of recognition lead many of them to adopt coping strategies of overwork which may lead to burnout. They spend hours preparing their lessons and giving extra help to pupils in difficulty. Classroom problems, the challenging behaviour or abilities of some pupils, ways of stimulating or holding the attention of pupils become constant concerns which invade their every waking moment.

We interpret women teachers' mental health problems as the product of coping strategies to reconcile the infinite needs of children with the very finite resources given to them, and the exacting demands of employers and society. Some attention-retaining strategies also have a physiological cost: sore throats from speaking, for example. These problems are not readily accommodated by Quebec's ordinary occupational health bodies

because of their diffuse and chronic nature. Teaching ranks among the Occupational Health and Safety Commission's (OHSC/CSST) lowest priority occupations for preventive health activity¹⁰¹.

Teachers' working conditions (both genders) are not that bad taken one by one, and do not seem to pose a health risk. As in other predominantly female occupations, temperatures do not reach foundry levels, nor noise factory levels, nor violence prison levels. Verbal abuse from parents is not like falling from scaffolding. But women teachers do face cumulative demands and stresses which can damage their health. They all add up to a high level of stress whose effects are not immediately visible, but manifest in the long term in higher absence rates or prolonged illnesses.

Impact of the research

This research enabled us to shed light on invisible or frequently overlooked aspects of primary teaching work. The same aspects recur across different women's occupations and mirror the invisible work that women have long performed in society. We submitted a report "The 120-second minute" which set out a range of options for solutions relating to local aspects of the stressors: improving the public image, improving working conditions (taking breaks, free periods and training days, advisory and support services), improving some aspects of the physical environment. We suggest that work be reorganized by consulting serving teachers of both genders, using their intimate knowledge of pupils and the learning process.

This research was announced to a press conference and received good media coverage. The findings were disseminated in various ways: through health and safety training sessions, conferences, interventions on work organization matters in collective bargaining. An example of the study was given to the Summit Conference on Education. Union branches expressed considerable interest in the content of the report which they say very precisely describes real life at the "chalk face". It was cited in a woman teacher's total permanent disability case to show that teaching work is more arduous than commonly believed. Lastly, it was used to develop the union case in the last round of collective bargaining over the increased workload of the teaching staff employed by school boards.



Study 7

The work reorganization-related problems of bank tellers¹⁰²

Collaboration arrangements: Trade union request (FTQ). Employer's consent to observations.

Method: Ergonomic job analysis. Self-administered questionnaire.

Bank teller is the 3rd most common job for women in Quebec¹⁰³ and Canada¹⁰⁴. It accounts for 65% of all jobs in the banking sector and has the highest feminization rate - 92%.

There is little information on the occupational health and work hazards of bank tellers. Teiger and Bernier's¹⁰⁵ analysis of the work of a group of tellers in Quebec found it to be highly complex. Two Brazilian studies¹⁰⁶ noted the requirements of precision and concentration to avoid mistakes, and reported upper limb musculoskeletal disorders. The Quebec Occupational Mental Health Committee found that bank staff of both genders were 50% more likely to suffer high levels of psychological distress than other workers and 30% more susceptible to poor mental well-being¹⁰⁷. Some research has looked at changes in customer service work¹⁰⁸. Women who work with the public are exposed to verbal and physical attack¹⁰⁹ and the problems of "emotional work"¹¹⁰ (where the worker is paid to bottle-up her feelings; she must always be accommodating and smiling), associated with high levels of stress¹¹¹.

In recent years, bank work has been radically reorganized, which has transformed the work done by tellers. They have begun to evolve into "client service officers", increasingly less concerned with routine banking transactions, having less repeated contact with customers, but required to sell "banking products". The effects of this change have not been studied. We therefore studied the work activity of bank tellers to:

- identify problematic working conditions with representative tellers;
- better understand bank tellers' work contexts;
- observe tellers in action to identify risk situations and relevant variables to propose solutions.



We familiarized ourselves with tellers' work and its difficulties through group interviews with tellers. They targeted three problems impacting their well-being: prolonged standing positions, bank robberies and psychological distress.

We used three complementary methodologies to study these problems:

- individual interviews;
- an ergonomic study; and
- a questionnaire.

The individual interviews with tellers, branch managers and a senior head office executive enabled us to explore problems like bank robberies and sales which were not susceptible to observation. From our observations^a we gathered information on the work cycle, the frequency of certain operations and the amount of time spent standing in a working day. The obstacles to seated work were identified by comparing work activity in two branches, one of which offered seating facilities, the other not. In all, 12 workers were observed for a total of 38 hours over 7 consecutive weeks.

a. Although this research does not consider the specific characteristics of women, but rather those of tellers' work of both genders, we observed only women tellers to avoid gender variables. Also, 88% of tellers in Quebec are female.

From the interviews and observations, we identified a series of problems. To determine how widespread these were among tellers generally, we drew up a questionnaire, to which 305 tellers responded. The aspects covered included working hours, reconciling work and family life, work postures and furniture, musculoskeletal disorders, selling and bank robberies.

Standing and pain

North American tellers spend most of their working time (76%) standing behind their counter, and as much as 93% at peak times.

Workplace research has shown that prolonged standing results in pain and discomfort, mainly to the lower back and lower limbs¹¹².

In the group interviews, standing was identified as one of the worst aspects of work, and was associated with back and lower limb pain and sore feet. A very high proportion of tellers report daily, and at least weekly, pain (table 13).

Table 13: Incidence of lower back and lower extremity pain (n = 305 tellers)					
Body area	Every day %	Every week %	At least every 3 months %	No pain %	No reply %
Lower back	21	27	19	21	12
Legs	31	37	7	15	10
Ankles	9	6	2	62	21
Heels or soles of feet	32	27	6	25	10



Various coping strategies are used to relieve pain and tiredness. Tellers lean on the counter, forward bending in search of relief, and feel that they are sinking down onto the counter as the day wears on. They use anything that comes to hand - drawers, upturned waste baskets, the counter shelves - to rest their feet. If seating is provided, it is used whenever possible.

Where seating was provided, only 14% of the working time was spent sitting, including clerical work at desks. This is due to workplace layouts which oblige tellers to make small trips to get work equipment or information which is not to hand. Clearly, it is not enough just to provide bank tellers with seating, work systems are needed which allow them to sit down. That means reorganizing the work station to put work equipment within closer reach and reduce the number of journeys required.

Bank robberies

Tellers are obsessed by the fear of hold-ups and regard them as their main work-related stressor. All tellers are exposed to the risk of armed robbery in the course of their work. The first question asked by tellers looking to transfer to a different branch is: "are there many hold-ups?" The importance of robberies was confirmed by the replies to the questionnaire: 78% of tellers had witnessed at least one hold-up and 72% had themselves been held-up (table 14).

Table 14: Number of bank robberies in which a cashier has been a hold-up witness or victim

Number of hold-ups	Victim		Witness	
	N	%	N	%
0	85	28.1	67	22.2
1-5	153	50.7	113	37.4
6-10	42	13.9	71	23.5
11-20	19	6.3	39	12.9
21-30	3	0.9	12	3.9
Total	302	100	302	100

Being held-up is a very traumatic experience with potentially serious consequences. A number of tellers questioned reported bouts of depression and nervous breakdowns after being held-up. The symptoms most often experienced in the week following a robbery are: insecurity (66%), fear (57%), loss of concentration (43%), sleep disturbance (38%), insomnia (35%) and nightmares

(32%). Being threatened by a bank robber had profound effects on the private or family lives of many tellers. The extent of the reactions seems to vary with the degree of violence and the number of robberies.

The recovery period allowed after a robbery was regarded as insufficient by 49% of questionnaire respondents. In the group



interviews, tellers dwelt on the pressures exerted for a quick return to work in order to reopen the branch, even those threatened with bodily harm or death in an armed robbery. The replies to the questionnaire showed that tellers felt neither supported (39%) nor consulted (75%) over a return to work; 62% felt uncomfortable about refusing to return to their counter. After a hold-up, tellers look to their colleagues for mutual comfort and support. It is clear that staff cohesion here far exceeds strict operational needs to become an instrument for emotional support.

Many aspects of a bank teller's work may involve a significant mental load

The "mental load" of work is defined as "*the amount of mental resources which the operator performing a task must expend on it*"¹¹³. The amount depends on the abilities (training, condition) of the "operator" (worker) and the task requirements. Overload occurs when the worker faces demands which exceed her ability to manage them. Various aspects of bank teller work may involve a significant mental load: intense concentration, a sporadically fast pace of work, task alternation involving a considerable effort of concentration and memory work, responsibility for complex operations and frequently-changing procedures; the absolute imperative not to make mistakes which may take lengthy tracking down to put right. All this goes on "in public", before customers and colleagues, creating "performance"-related stress.

At certain times of the day and week the pace may become hectic, with a constant and endless stream of customers. The sight of queuing customers acts as a stressor on tellers. This steady pace of work also means a lack of micro-breaks (breathing spaces of a few seconds) which are regarded as essential to the preservation of health¹¹⁴. During these periods, therefore, the cashier often fills in "gaps" in her interaction with a customer by finishing off or starting new transactions with others. When the operations are completed, the cashier calls the next customer and uses the few seconds lapse before greeting them either to put away the previous customer's slips or cheques, or prepare the next customer's slip.

Although a cashier's main activity is customer service, she also files and checks the previous day's counter and automatic teller machine transactions. Our observations revealed that the various tasks can overlap. Therefore, the cashier pursues several goals



simultaneously and operations continue without let-up. The same operation may be halted and resumed at different times depending on the length of queues and prioritization. For example, one cashier was given four clerical tasks to do during her morning's work which she interspersed with customer service and advice to more junior tellers. During an hour and 53 minutes, she was interrupted 29 times: by customers, her line superior and colleagues.

When interviewed, the tellers stressed the level of concentration demanded by their work. This is a problem when the cashier has to respond to multiple simultaneous demands and also when she feels physically or emotionally "below par". For example, one cashier reported having suffered a blackout after an extremely hectic day spent having to present a smiling face to a long line of customers when she was upset by a family difficulty. It is also a problem when the cashier faces contradictory demands: speeding up customer throughput and selling banking products, keying in her transactions and responding politely to the manager who wants her to key in others, responding to abusive customers with a smile.

The work of bank tellers is very complex, requiring an excellent command of the full range of bank products, services, rules and procedures. Tellers work in an environment where rules and procedures are frequently changed, and new services frequently created. The work demands a high level of care and accuracy because error tolerance limits are near-zero. It also involves managing what may be awkward, ill-informed, inarticulate, foreign-language-speaking, or aggressive customers.

The complexity of the work can be seen by comparing the activity of experienced tellers with that of less-experienced ones. The less-experienced tellers constantly call on their more experienced colleagues' knowledge of bank procedures, rules, and customers. This makes team spirit a precondition for carrying on in this work environment. Tellers have developed informal systems of mutual assistance and knowledge-sharing.

Selling banking products: conflict between team spirit and competition

Tellers have seen their work evolve towards the sale of financial products and services (credit cards, services, loans). To stimulate



sales, the bank sets branch targets and individual targets for each cashier. Many tellers have what they regard as unrealistic sales targets given their branch's clientele. They feel under-supported and under-valued in their sales activity, which they thoroughly loathe. The questionnaire survey revealed the sale of banking products to be the aspect least liked by 65% of tellers. This, they feel, creates a conflict of loyalties toward the bank and customers, because customer relations is what they most enjoy about their job. The tellers questioned thought that soliciting business could quickly turn to harassment, that efforts to persuade turned into "selling for selling's sake", that a "needs analysis" was little more than inappropriate nosiness. They are increasingly losing direction in their job, and their motivation and satisfaction are suffering immensely¹¹⁵. Long-time Bank employees are particularly affected.

Tellers have to record their sales and their performance is rated by their superior. The obligation to book individual sales betrays a considerable misapprehension of the real work, because sales are the product of a team effort. For one thing, the customer service time used by one cashier to make a sale has to be "covered" by the others. For another, a sale may not be immediate - a customer may reject a product on first offering, only to acquire it on a later occasion. The sale will be booked to the cashier who made the final sale regardless of any previous attempts leading up to it. This also runs counter to management pronouncements about the importance of team work. One cashier put it as follows:

"They tell us we're a team, they harp on about it at every end and turn. Well, teams work together. If we could say "you just leave us alone, then we'll meet our targets together". But they want to pay us sales-related bonuses, so, there you go! (...)"

Competition between tellers for sales leaves them ill at ease. It can undermine their cohesion as a team. Some suggested that introducing group targets would allow tasks to be allocated according to individual talents at no cost to overall branch performance. Virtually all want less competition, regardless of their sales "performance". A return to branch targets would certainly boost team spirit and re-build staff loyalty to their employer (the bank), a loyalty at risk of declining as tellers increasingly have the feeling expressed by one of them as: *"They squeeze you like a lemon, then they chuck you in the trash"*.



The main topics elicited by the discussion about sales-related work in the interviews were:

- opposition to high-pressure selling;
- the climate of stress and fear created by performance assessment and the method of pay;
- deteriorating relations among tellers and, in some cases, with the management.

Finally, one topic raised both in the discussion on selling and elsewhere: respect, the feeling of counting for nothing, being right at the bottom of the heap. Fundamentally, the tellers feel deeply embittered, exploited to some extent and even despairing. Their complaints are less about defending collective interests, or working less hard for more pay, so much as about preserving the dignity and reputation of their profession, and a sense of personal competence. They feel that management seem not to appreciate this, regarding them as labour rather than as stakeholders in the Bank's strategies.

The role of the work team

The work team has become a place for developing knowledge and a source of practical mutual assistance which enables the tellers to cope with changes in instructions and procedures. It is also a source of sharing and caring after the trauma of bank robberies. But its cohesion is being undermined by the competitive forces set in motion by management to stimulate the tellers to sell more financial and credit services and management planning which seems to dismiss the contribution made by experienced tellers.

The introduction of selling duties and the accompanying rules betray an ignorance by decision-makers of the work values and rules which underpin the cohesion of work teams. Foisting this new way of working on them is likely to destroy the balance they previously had, set the tellers at odds with one another and destroy the peer emotional support which protects them from post-traumatic stress.

So, by seeking to boost performance, for seemingly indisputable ends (competitiveness, company survival, preserving jobs) the bank management runs the risk of destroying coping strategies patiently built up by the workers and at the same time, killing off a key asset for its competitiveness.



Overall workload

Our analysis showed that, as with teachers, tellers' problems cannot be equated to the simple presence of "risk factors" in the normal occupational health sense of this expression. Taken together, the elements referred to above add up to a considerable overall workload which prevention measures must take into account.

Impact

The final report made a series of recommendations to reduce work-related stress: physical layout, changes to procedures, and increased staffing. It was used by the trade union in the recent round of occupational health bargaining with the employer on bank clerks' conditions. The study also prompted large-scale grassroots action by tellers which helped the union win collective agreement concessions on preserving jobs and protecting working hours. Negotiations are in hand to improve practice in response to robberies.



Study 8

Receptionists and the stresses of clerical work¹¹⁶

Collaboration arrangements: Trade union request (FTQ). Employer's consent to observations.

Method: Ergonomic job analysis. Self-administered questionnaire.

As part of the "What you can't see can hurt you" research programme, the CSN asked us to investigate the work of women clerical staff in hospitals. Our study brought to light stresses fairly typical of clerical work, especially in the service sector.

Clerical work (including secretaries, clerks, keyboard operators, receptionists, financial management officers, etc.) is the largest general job category occupied by women. A series of risk factors associated with clerical work traditionally performed by women are recognized¹¹⁷. They include musculoskeletal disorders associated with stressful postures from unadjustable work stations, computer eyestrain from prolonged screenwork¹¹⁸, and the range of "sick building" syndromes. But while the importance of a comfortable posture for work in a motionless seated position is recognized, the physical working environment layout tends to be neglected because office work is not regarded as physical work. And because the physical aspects of service sector tasks are less visible than in factory work, less attention is paid to them and more to appearances or customer comfort. For example, the admission service windows of the hospital where the study was conducted are fitted with a plexiglass shield in which there is a small speaker disc. The positioning of this makes it difficult to hear or see, so the workers tend not to use it. They have to stretch or stand to hear and make themselves heard. In some cases, they go as far as opening the door to try and understand patients or give them directions.

Another equally-neglected aspect in this type of occupation is the emotional strain involved in work with the public. Some sectors of activity are more exposed than others to the effects of the current economic crisis.



This is particularly so of the hospital community in Quebec where the health system is in the throes of mass restructuring, including hospital closures, the merging of services, etc. This leaves the workers (of both genders) as a sort of buffer between an institution which is increasingly failing to meet steadily rising needs. This restructuring is also increasing the pressure of work, because of shortening patient stays and the resulting increased number of admissions.

The project objectives suggested by CSN were:

- to identify the working conditions perceived as problems by workers and pinpoint potential hazards;
- to analyse the work activity;
- to identify the sources of problems.

We discussed the most appropriate place for the study with the hospital workers' union. It pointed us towards four interconnected patient admission-related services whose staff had raised certain difficulties - in-patient admissions, A&E, the out-patient service and records.

We held a preliminary group interview with 8 workers from the four services to identify their priority problems. We then conducted a total of 6 hours' preliminary observations in the four target services. From the group interview and observations we produced a preliminary report which we discussed with the workers. As a result of this, we selected the in-patient admission service, because many of the problems encountered were similar to those of the other services. We carried out a further 16 hours of observations in the service.

The work activity in in-patient admissions was systematically observed using a range of methods to record the principal stressors¹⁹. From an initial series of observations, we described the tasks performed by each of the four full-time workers and the work cycle. This information was supplemented by individual interviews with the four workers. These interviews were used to compare our impressions with those of the workers, collect more detailed information and, in one case, to analyse one worker's decision-making strategies.

A second series of observations was made with more specific protocols. For each worker, we noted three aspects of their work which we considered critical. For each of these three study protocols, we also logged information using an event register.



The three study protocols were:

- Verbal exchanges with others.

A verbal exchange was defined as “*any words directed by one person towards another*”. We classed verbal exchanges into 2 categories: those where the observee initiates the communication, and those where she is the recipient.

- Sources of interference with the performance of work.

We noted interruptions and interference with the main task being performed at the time of the observation. The six most frequent sources of interference are: incoming phone calls, callers at the counter window (visitors, patients, hospital staff), verbal address by colleagues or other staff members, messages received by the pneumatic tube delivery system, and multiple interferences (a combination of 2 or more simultaneous sources of interruptions).

- Upper limb effort.

Our observations concentrated on the single most affected joint: the left shoulder. The postures to be analysed were selected after a review of the scientific literature on shoulder risk factors: abduction (movements away from the body) over 30°, leaning forward more than 30° and shoulder lifting. We chose to observe abductions (rest / abduction between 20° and 45° / abductions above 45°) and left shoulder lifting (lift / no lift), as both events could be recorded at the same time without risk to data quality.

To ensure that data were representative, each worker was observed for at least 10 minutes, on average once an hour over 5 to 7 hours.

Frequent journeys also seemed to create specific stresses for one worker. Her movements were logged at representative periods of her work activity. We also logged the characteristics and dimensions of each work station to situate the work activity in its physical environment.

Communications: an essential work tool

The service's main task is to admit and discharge patients. The four workers in the study - who we will call Marie, Julie, France and Sylvie - have different responsibilities, chiefly: to answer calls routed to the service; fill in patient admission forms; to

record new applications on the waiting list; produce a daily list of admissions, discharges and transfers; call patients for pre-admission testing in order to complete and check their application for admission; fix appointments for tests; receive and file test results; check records; replace patients who turn down the suggested admission date; etc.

Work in the admission service is a teamwork activity¹²⁰ involving much collaboration and mutual assistance. Work is allocated informally and depends on the urgency of cases and workers' availability. Not all patient records and incidents can be tracked via computer. Several people may be dealing with different aspects of a case at the same time. The same job may be completed by several workers in succession. This requires coordination and information exchange carried out mainly through verbal exchanges. Communications, in fact, are the main work tool. Asking others becomes the most efficient way of getting timely information. One example suffices to show the extent of that collaboration:

A patient calls to confirm his admission date. Marie answers the phone and asks Julie who deals with pre-admissions. She says she doesn't know the patient ("*the name means nothing to me!*"). Marie transfers the call to a part-timer who knows admissions from A&E and the out-patient service, but she doesn't know him either. Sylvie is then asked and says she originally called the patient and that there have been cancellations allowing him to be admitted.

This case concerned a patient called by Sylvie at the last minute. Cancellations mean that Sylvie has to act within extremely tight time-frames and may not have time to let the others know what she is doing. For those others, it can be a time-consuming task trying to trace the records of patients calling back who cannot recall the name of the person who called them, because the file could be anywhere in the system, and so on anyone's desk or filing cabinet. In these circumstances, a verbal query is the quickest way to get information.

Broadly work-related verbal exchanges take up 45% of the workers' time on average. Of this time, 27% is taken up interacting with work colleagues, and 56% in telephone interaction with patients. This means that receptionists are constantly inter-communicating on records management. Their communications are



important, so they need to be able to see and hear one another. Paradoxically, however, telephone conversations with patients are difficult in an environment where several people are speaking. We noted many communication problems with patients due to room noise interference.

One possible solution we suggested to the communication problems was to provide an easily-detachable (cordless to afford the workers free movement) telephone receiver, which could be held in the crook of the neck, leaving one ear free to listen to what the others were saying. We also suggested reducing ambient noise levels. Ambient noise was reduced and new receivers were bought. Unfortunately, they were a standard cord design and were not tested before purchase. As the workers are always on the move, they are constantly disconnecting and reconnecting. This type of equipment eliminated only some of the constraints of conventional telephones. The workers are having problems with the new telephones and the supervisor complains about their not using them. Thus the solution integration process is far from over.

Interruptions to work

From the interferences we observed, we were able to pinpoint the frequency and duration of interruptions to employees' work. To do so, we identified one core task for each worker observed, and took into account any interruption or interference to that task. To illustrate:

The core task identified for Marie was to complete the admission records of patients admitted the same day. On Tuesday morning, the workers performing that task suffered frequent interruptions because as well as their own work, they were handling intake for most of France's 28 patients, most of whom arrived before 11.

The following table shows that for any given observation period, there was on average one interruption every minute or two. The longest period the worker succeeded in applying herself to her core task without interruptions was 5 min 13 sec. Interruptions can vary in length from under 10 seconds (34% of interruptions) to several minutes (15% of interruptions). These interruptions affect work activity, because after each one, the worker has to pick up where she left off. After longer interruptions, she has to find where she was in her work before. Interruptions delay completion of her work. In fact, in the 20 minutes before 11.00, she

managed to complete only 3 admission records because the 20 interruptions took up 62% of her time. By contrast, in the 12 minutes after 11.00, she completed 6 records, the 7 interruptions during this period occupying only 19% of her time.

Table 15: Interruptions at the admissions counter		
Observation period	Before 11.00 34 min	After 11.00 40 min
Number of interferences	38	27
Telephone (n)	53% (20)	15% (4)
Patient at window (n)	18% (7)	19% (5)
Colleagues (n)	19% (7)	66% (18)
Multiples (n)	11% (4)	-
Average frequency	1/54s	1/90s
% of time spent on core task	45%	76%

Interruptions create a significant mental task load, therefore, as all calls have to be kept in mind while new demands are dealt with. Frequent interruptions typify women's office work. A secretary, for example, will often have to field telephone calls while engaged in other tasks.

Because the workers are often interrupted by people asking for directions elsewhere, we suggested installing directional signs to guide external visitors towards the other services and the relevant reception/intake worker. We also suggested installing a public payphone and a dedicated taxiphone at the hospital entrance to avoid hospital users having to ask the receptionists to make calls.

Upper limb effort

All workers reported pain in the cervicobrachial region (neck-shoulder) and one also reported elbow pain. All four workers associated these problems in part at least to having to cradle the telephone in the crook of the neck to keep their hands free for simultaneous writing and information-retrieval. We observed abduction and raising movements.

Abduction movements were performed during a great part of their work activity. In fact, the workers were observed to spend from 40% to 80% of their working time with their arms moderately or extremely abducted (away from the midline - see table 16).



Also, relatively long average periods were spent with arms moderately abducted, leading us to conclude that the static shoulder load may be stressful for the workers.

Posture frequency varies considerably between workers. This may be related to work activity and work station layout. Excessively high work surfaces (as will be seen below) force the workers to stretch out to reach their work equipment.

Table 16: Proportion of working time spent in varying degrees of abduction				
<i>Proportion of time spent with left shoulder abducted (number of abductions)</i>				
Abduction posture...	Marie	Julie	France	Sylvie
... pronounced	5% (23)	17% (61)	8% (32)	15% (72)
... moderate	43% (67)	62% (82)	33% (54)	39% (92)
... none	51% (57)	20% (60)	60% (45)	45% (71)
Total observation time	49m 19s	52m 52s	40m 09s	54m 19s

We noted that those workers who reported neck pain and clinical shoulder and elbow problems were those who had spent longest in abduction postures and held those postures for the longest times.

Shoulder-raising was related mainly to telephone work, which accounts for an average 25% of total working time.

We found that the total number of shoulder-raising movements for each worker corresponded to the frequency of telephone work. Sylvie performed most shoulder-raising and also spent longest on the telephone. The raising movements are due to her cradling the receiver between her head and shoulder to perform simultaneous document-retrieval and writing. This worker performed many shoulder-raising movements, 71% of them with her arm stretched away from the midline. This combination of postures places extreme stress on all cervicobrachial region structures.

Table 17: Number of left shoulder lifts at varying degrees of abduction				
Number of shoulder lifts where abduction is ...	Marie	Julie	France	Sylvie
... pronounced	5	18	4	30
... moderate	9	13	5	57
... none	4	11	11	36
Total observation time	49m 19s	52m52s	40m 09s	54m 19s
Total number of events	18	32	20	123

All the shoulder posture data showed this joint to be exposed to stressful postures in all four workers. The combined analysis of holding time, number of shoulder lifts and abductions allowed us to determine that the workers who spend most time with their shoulders abducted are also the worst affected and those who developed clinical symptoms.

Lifting the shoulder to cradle the telephone restricts blood flow in that region and compresses other structures. This may produce tendinitis or bursitis¹²¹. Also, the shoulder joint may not be the only one affected - the elbow joint may also be affected by stress on the shoulder and upper arm muscles.

Work station layout

Work station furniture, and especially the height of work surfaces, were logged in order to establish the link with workers' postures. We observed that:

1. The work surface is too high for three of the four workers. This dictates both whether or not they can use their chair's lumbar support and their upper limb posture, increasing the number and holding time of abduction postures.
2. Reception desks were insufficiently deep in all work stations, resulting in:
 - excessive eye-task proximity to the computer screen, and possible visual fatigue;
 - too little leg room under France's desk;
 - too little room for work papers, pushing other materials/equipment out of the worker's maximum reach zone.
3. Computer screens were the wrong height for the workers' line



of vision in all computer work stations. This may force them to bend their necks, increasing muscle tension in the cervico-brachial region.

We therefore suggested possible solutions:

- lower the computer keyboard to a height at which the workers feel comfortable, otherwise they will continue trying to adjust to the work station with the consequences which we remarked on earlier;
- increase the depth of work surfaces;
- increase Sylvie's work surface;
- reposition the drawer unit to better allocate work space so that Marie and Julie can use the typewriter and the computer without feeling on top of one another.

4. Travelling was a problem for one worker. Observing her movements, we discovered that she travels a lot because the work equipment is not located near her work station and also because she has to call patients in. Over an approximately three-hour period, she walked 1.44 km in journeys to call patients. Her movement is particularly restricted by the work station layout. That area of her work station which is not occupied by the chair has a radius of only 33 cm, compared to a recommended radius of 54 cm. Also, leaving her work station involves navigating a bottleneck between the typing desk and her desk runoff. The work station layout and available space obstruct her movement. She reports that she frequently bangs her legs.

Most of her travels could be avoided by a better layout, for example, if she had a patient call system and more room to keep essential forms and the most frequently-used work equipment.

Impact

A report was presented to the joint workplace committee. Several of our recommendations have already been implemented: ear-phones have been acquired and the computing system updated. The offices are being replanned with a consultant from the joint occupational safety and health association for the health sector.

Studies 9 · 10 · 11

Women workers at law¹²²

Recent Quebec occupational safety and health law research has focussed on legal aspects of the gender-differential implementation of the *Act respecting Industrial Accidents and Occupational Diseases* (LATMP/AIAOD)¹²³. These studies have shown that women suffer direct discrimination in claims for stress-related employment injuries, indirect exclusion resulting from the application of seemingly gender-neutral rules governing social rehabilitation, and systemic discrimination in the occupational rehabilitation process^a. Women are discriminated against as regards compensation and social and occupational rehabilitation benefits because interveners' overlook certain social characteristics which distinguish women from men. This situation rises from exclusion processes affecting women who have suffered employment injuries, the common denominator of which is invisibility: the invisibility of the types of jobs they perform, the impact or effects of an employment injury on their family life, the skills and value of the jobs they do.

In a later study, researchers scrutinized the preventive measures comprising the programme for the protective reassignment of pregnant and breastfeeding workers under the *Act respecting Occupational Health and Safety* (LSST/AOHS)¹²⁴. Their analysis demonstrates the uniquely beneficial character of this programme, but highlights concerns about aspects of the way it is applied.

a. The authors define direct discrimination as the outcome of a practice which *prima facie* differentiates on unlawful grounds (e.g., gender). Indirect discrimination is the discriminatory effect of an apparently neutral rule that at first blush applies universally to all, produced on a person because they belong to a given group (e.g., because they are women). Systemic discrimination is the product of a set of circumstances, activities or processes which are not necessarily intentionally discriminatory but which in practice take account of the real or presumed characteristics related to a given group and produce exclusion, distinction or preference. The latter is differentiated from the two former processes by the fact that the effect is produced by a number of interacting, interconnected elements, no one of which can produce that effect of or by itself.



Study 9

Recognition of women's psychological injuries as work-related¹²⁵

Collaboration arrangements: Project stemming from the "L'invisible qui fait mal" partnership (CEQ-CSN-FTQ).

Method: Analysis of the published and unpublished decisions of industrial injuries appeals boards.

Occupational injuries reported to the Occupational Safety and Health Commission (CSST) are compensated if accepted. If rejected, appeal lies to two further levels: the first a tripartite review board including of the CSST, employees and employers; the second, administrative law judges.

Under the Quebec scheme, men and women workers under an incapacity attributable to a psychological problem related to stressful workplace relations or work-related events are entitled to compensation. Women's complaints for these occupational stress-related employment injuries are more frequently rejected than men's, especially on first review (table 18).

a. Because a higher proportion of well-founded claims by women are rejected by the review board, it may be that decisions appealed by women to the final appeal tribunal are better cases than those appealed by men. While it is impossible to quantify the quality of cases, our qualitative analysis suggests to us that women who succeed on the 2nd appeal have stronger cases than men.

Table 18: Acceptances by sex

Sex	Appeal level	Number accepted	Percentage accepted	Total
Men	1st	28	48%	59
Women	1st	12	26%	46
Men	2nd	24	50%	48
Women	2nd	14	54% ^a	26

This is chiefly due to the interpretation placed on the vague concept of unusual stress. Difficulties are exacerbated when the claim relates to exposure to chronic stress (table 19).

Table 19: Acceptances by sex and cause

Stressor	Men % accepted (of number)	Women % accepted (of number)
Acute	56% (23)	67% (9)
Mixed	42% (57)	38% (37)
Chronic	55% (27)	23% (26)
Total	49% (107)	36% (72)

The analysis of a lengthy series of decisions shows that in the case of similar or comparable stressors, men's complaints are often upheld on the grounds that the stress factors are abnormal or unusual, but women's



are often dismissed on the grounds that their work situations form part of their normal terms of employment. Everything hinges on how two highly subjective concepts - "normal" working conditions, and the claimant's credibility - are assessed.

In this respect, another factor may militate against women. The vast majority of decision-makers at both levels are men, almost as much on the trade union as the employers' side. It may well be that men have some difficulty in grasping the specific realities of women workers, while women may feel reluctant to give evidence on very personal matters to a group of men, or even feel intimidated by them. All that could well affect their credibility.

The study on compensation for work-related stress injuries clearly shows that women are excluded through direct discrimination which takes the form of a discriminatory view of the characteristics of women's jobs, and to some extent the intrinsic value of women's work.



Study 10

Compensation for incapacity to perform domestic work¹²⁶

Collaboration arrangements: Project stemming from the "L'invisible qui fait mal" partnership (CEQ-CSN-FTQ). .

Method: Examination of relevant legislation, regulations and directives. Analysis of published and some unpublished decisions of industrial injuries appeals boards. Analysis of parliamentary debates.

Table 20: Hours per week devoted to domestic work, purchase of goods and services and childcare ¹²⁷		
	Men	Women
Single	11.2	17.5
Lone mother with child under 5 years of age	-	24.5
Couple with child under 5 years of age	16.8	34.4

A number of factors are considered in the background to this study: women's mass influx onto the labour market, the rise in lone parent families - female-headed in more than 80% of cases - and the fact that the main burden of childcare and domestic chores still falls on women (table 20).

We considered three rehabilitation programmes available to employment injury victims of both sexes: "personal home assistance", childcare costs and "ordinary maintenance work".

Personal home assistance

The personal home assistance programme aims to help employment injury victims live an independent life at home. The analysis of relevant legislation, regulations, CSST administrative directives, and case law leads the authors to conclude that the programme design disregards women's realities. Their traditional roles mean that injured women need assistance in performing some of their family obligations: housework, washing, etc. The programme does not include this type of help. The law allows an injured person's spouse to claim compensation for the extra burden of work, but the existence of family members capable of helping will negatively affect the amount of the award. On the other hand, the needs of a young children dependant on the injured worker for their care seem to be left out of the equation.

The programme is seen more as a means of providing assistance with personal care than family obligations. The express statutory reference to domestic tasks is treated as strictly ancillary. Far



from being a relevant assessment of the value of domestic work, the allowances mainly refer to the type of care generally provided by nursing aides.

Also, the statutory conditions of eligibility for personal home assistance and the CSST's interpretation of the eligibility criteria for the rehabilitation programme are major obstacles that many workers are unable to overcome. For example, claimants able to attend to their own personal care although still unable to perform domestic tasks will have their payments stopped.

Another programme anomaly affects both genders, but women more specifically because of their greater need for domestic help. Claims in respect of a temporary - but not permanent - total incapacity will be dismissed. This sidelines many people from the system and the obstacles which officials, review boards and appeal bodies are likely to raise in assessing their situation are likely to discourage them from making any claim. All this explains the very small uptake of the programme.

Childcare costs

The salient feature of the childcare costs reimbursement programme is the daunting eligibility criteria it sets. Thus, only claimants in receipt of personal home assistance, working as part of their personal rehabilitation plan, resident in a care centre or hospitalized qualify for reimbursement of their childcare costs. In the first two cases, they must also prove permanent incapacity, which may not be determined until after several months off work. Meanwhile, the injured worker has to pay her full childcare costs up-front with no inkling of whether her claim will succeed.

In every case, eligibility for childcare cost reimbursement depends on proof that the claimant is the sole care provider^a or that their spouse is unable to provide care by reason of disability. Consequently, the victim of an employment injury with a healthy spouse who is in work or education will not be refunded their childcare costs while hospitalized or after discharge. The situation is no less precarious for lone mothers, because the fixed allowance granted by the CSST will not necessarily take account of all expenditure incurred - e.g., for day and night childcare.

a. In relation to underage children, or children of adult age with physical disabilities or learning difficulties. Incapacitated elderly dependants are excluded.

Ordinary maintenance work

Not more than \$2,200 a year¹²⁸ will be refunded for home maintenance work which the worker would normally have carried out



in the absence of injury. There is no statutory definition of such work, but the published guidelines refer to work usually performed by men, like lawn-mowing, snow clearance, painting: "usual maintenance work, i.e., that which must be done periodically or seasonally". That does not automatically exclude domestic chores traditionally done by women - like the heavier tasks associated with spring cleaning - but neither does it facilitate their recognition.

Eligibility for this programme depends on suffering permanent serious physical incapacity resulting from an inability to perform the activities of daily living (ADLs). Expenses must have already been incurred even before the claimant knows whether they will qualify, which prompts many claimants to submit estimates for preliminary authorization. Clearly, this procedure does not easily lend itself to the daily domestic chores usually performed by women, which cannot normally be put off to the following day, let alone the following month.

It seems very clear that this aspect of social rehabilitation is designed, and especially applied, only to address the domestic consequences of industrial injuries to men. Indeed, both the CSST guidance and case law refer only to domestic work performed by men. Also, the CSST's own figures show that most of the expenditure under this head goes to sectors of activity which are predominantly male bastions. While that may well be because of their intrinsically more serious injuries, the authors are nevertheless impelled to conclude that the nature of the legal debates still reflect the invisibility of the domestic work traditionally performed by women.

Conclusion

Our analysis of these three social rehabilitation programmes leads us to conclude that legislation, regulations, and administrative directives or decisions - all putatively neutral sources of law - in fact convey and perpetuate role-sharing stereotypes and their consequences. Law-makers and -enforcers still see the injured worker entitled to benefit from the scheme as a he, not a she.

Consequently, women's *de facto* exclusion by these programs and their supposedly neutral rules results in indirect discrimination against them.



Study 11

Occupational rehabilitation: widening the unfairness gap¹²⁹

Collaboration arrangements: : Project stemming from the "L'invisible qui fait mal" partnership (CEQ-CSN-FTQ).

Method: Examination of relevant legislation and directives. Analysis of published and some unpublished decisions of industrial injuries appeals boards.

We examined occupational rehabilitation provision for workers with a permanent physical or psychological incapacity who were compelled to redeploy into "suitable employment"^a within the meaning of the Act because they were unable to return to their pre-injury employment or "equivalent employment"^b. In particular, we considered the procedures for determining what constitutes suitable employment and the associated training programmes through a study of the legislation, CSST administrative guidelines and case law relating to claims based on suitable employment.

The CSST itself decides whether employment is suitable by reference to various specialized tools¹³⁰ and its own criteria on what constitutes suitable employment. The employment injury victim does not have to be offered a proper job. This process is of the utmost importance, as it will influence both the amount of their entitlement to wage loss disability benefit, and the time for which it is payable. So, the CSST is particularly concerned with the financial implications of determining what is suitable employment.

While the aim of the Act is to protect earning capacity, the personal rehabilitation plan must seek "the appropriate and most economical means of attaining the desired objective", i.e., the most rational solution in terms of cost-benefit ratio.

When determining if employment is suitable, the CSST will aim to respect the worker's own personal characteristics^c, unless it authorizes him/her to be sent on a skills training programme for the job concerned. It looks first at jobs available with the original employer, then related jobs in the area, region and finally province. Related jobs will be identified by reference to the characteristics of the original job.

a. "Suitable employment" means appropriate employment in which a worker who has suffered an employment injury can use his residual capabilities and occupational skills, offers a reasonable possibility of employment, and the working conditions of which pose no threat to the health, safety or physical integrity of the worker having regard to his injury, s. 2 LATMP .

b. "Equivalent employment" is employment with characteristics similar to those of the job in which the worker was employed at the time of the employment injury in terms of the occupational skills required, pay, fringe benefits, working hours and terms of employment, s. 2 LATMP .

c. The CSST cites as an example "if, for example, the worker was in a job where he had no need to read, write or even speak French, the Committee must respect that fact since there is a link with his professional skills". CSST, Vice-Chair for Planning and Programming, Department of Programming, Rehabilitation and Compensation, Rehabilitation Service, May 1992, p. 18 .



It is this approach which is detrimental to women, especially the fewer training opportunities offered and their employment segregation. It produces differential treatment and engenders if not increases ghettoisation of poorly-paid female-dominated jobs. Here, two elements typify women's plight: their pre-injury pay and educational level. While generally better-educated than their male colleagues, their annual incomes remain inversely proportional to their educational standards. But the deciding factor when determining employment is the pre-injury annual income. This is made the financial yardstick of the personal rehabilitation plan as being the most economic solution which restricts access to rehabilitation measures (job adaptation, training, removal expenses, etc.).

An analysis of decisions on suitable employment shows that the application of these principles confine women workers to employment ghettos. Thus, for nearly 70% of women, "suitable jobs" are goods and service sector-related, i.e., office work, selling, check-outs, catering or the hospitality industry. The range of specifically male jobs, by contrast, is much wider and spans many branches of industry.

The decisions catalogued also display confusion regarding the search for a related sector of activities. For example, a telephonist's job is "related" to that of a seamstress, a packer to an office clerk, a nursery teacher to a receptionist. Unlike male jobs, which are classified by recognition of specialities, attached to branches of industry and resulting from specific training, traditionally female sectors of activity embrace few recognized or specialized skilled occupations and even fewer specific jobs justifying high pay.

Being generally better-educated, women are more immediately adaptable to the demands of almost all the jobs prescribed by the CSST. Nor does the evaluation take account of training undertaken specifically for the pre-injury employment, except insofar as justified by the annual pay. The main thing is that the annual income of the suitable employment should be equivalent.

Masking women's abilities in this way results in non-recognition of their investment in training. Here, we discovered what can only be described as distressing decisions where a child care worker and a university graduate in social services, gerontology and psychology were assigned "suitable employment" as receptionists, a dental hygienist was assigned a saleswoman's job and a licenced teacher was assigned a bar or hotel manager's job.

A much higher proportion of men than women are offered training opportunities because of their lower educational levels and higher pre-injury pay. For example, the CSST assigned a driller to a job as an administration specialist which would allow him to complete his secondary studies and get a college education. A construction labourer was sent on a three-year degree course to train for a personnel officer's job. When admitted to these programmes, injured workers are paid 90% of the defined take-home pay throughout their course of study.

Our analysis of the occupational rehabilitation scheme leads us to conclude that it reproduces existing systemic employment discrimination against women by under-valuing their jobs. Consequently, the legislative framework and the tools used by the CSST reproduce the persistent discrimination against women engendered by the labour market. That is compounded by the fact that the most economic solution involves the quasi-systematic refusal to award proper training leading on to real employment opportunities. In so doing, the set-up of the legal system and the fundamental principles of the CSST's intervention exacerbate that discrimination.

Conclusion and impacts

In making the reality of women employment injury victims visible, we found that the invisibility of that reality is a factor in denying them their statutory rights and benefits. So, although increasing numbers of women are in the workplace, employment policies are not yet gender-neutral. These studies enabled the partner central labour bodies to equip representatives properly to defend women workers and give better training to their representatives on review/appeal bodies. At the same time, Status of Women committees were able to use them to make women workers aware of the discrimination they suffer and mobilize them in defence of their rights.



Study 12

Protective reassignment of pregnant and breastfeeding workers¹³¹

Collaboration arrangements: Request from the Ministry of Health and Social Services. Project complementary to the "L'invisible qui fait mal" partnership.

Method: Review of case law.

In North America there is no universal system of paid maternity leave and pregnant workers do not automatically qualify for changes in their working conditions. While some European countries have introduced measures to protect the health of pregnant workers, the scope of the European programmes does not match that of Quebec programme for protective reassignment of pregnant and breastfeeding workers¹³².

The programme aims to afford pregnant and breastfeeding workers specific protection against the risks of work for pregnant workers and their unborn or breastfeeding children, subject to the worker's producing to the employer a medical certificate attesting that her working conditions entail physical risks to herself or her unborn child. This will be issued by her attending physician after consulting a public health officer specializing in occupational health who is, at least in theory, familiar with the working conditions of the worker concerned.

Submitting a medical certificate constitutes an application for reassignment to tasks free of the risks identified, and which the worker can reasonably perform. Reassignment may consist in the reorganization of her existing job. In the simplest of cases, it may simply consist in providing seating for a pregnant worker who normally works standing. If the worker is not immediately reassigned, she is entitled to stop work and claim wage loss benefit of 90% of her take-home pay until she is reassigned or failing that, until confinement. This presupposes that the worker remains available and fit for work. The programme is paid for out of statutory charges levied on all employers, expressly to prevent discrimination against women at the time of hiring or during the employment contract.



What distinguishes the right to protective reassignment from other statutory occupational safety and health rights is the importance attached to the attending physician's opinion on the existence of risks. However, the authors note that case law has repeatedly considered what constitutes a "risk" and report a wide range of approaches reflecting the various opinions conveyed by the medical practitioners involved in the various cases.

Our study therefore aims to consider how science, medicine and law interact in the process of recognizing the right to protective reassignment. An analysis of the legislation, regulations, case law and doctrine leads us to address three interconnected questions: Who determines whether work is dangerous? How is work assessed as dangerous? Is protective reassignment, as some have claimed, maternity leave in disguise?

Who determines whether work is dangerous?

Legally, the medical certificate is proof of risk; but there is an emerging trend for some decision-makers to question the opinion of workers' attending physicians. Some decisions have raised the standards of proof, and administrative and adjudicatory bodies have been known to substitute their opinions for those of attending physicians and public health officers in connection with reassignments. This raises fears that some fundamental principles of the scheme, which specifically empowered doctors and not the Commission (CSST) to make the initial risk assessment, are being circumvented.

How is work assessed as dangerous?

Before issuing an opinion, the doctor must assess the risk not only in terms of the patient's working conditions, but also her personal health. If work entails no risks, reassignment will be refused, as it will if the application for reassignment is based exclusively on a high-risk pregnancy which prevents the worker from performing any work at all. By contrast, dangerous working conditions combined with a high-risk pregnancy will be grounds for protective reassignment.

By definition, a clearly identified danger is no obstacle to recognition. But many working conditions have not yet been scientifically evaluated, and uncertainty remains as to the danger of many others. How should these borderline cases be dealt with, considering how far the social, human and economic costs of a



mistakenly unjustified refusal to reassign may outweigh the consequences of an unmerited acceptance? We consider that protective reassignment, as a supremely preventive measure, should be available wherever there is uncertainty as to the safety of the work for the worker or her unborn child. To await scientifically demonstrable certainty before acting would make the programme meaningless.

Is preventive reassignment disguised maternity leave?

This allegation made when the Act was passed, and trotted out repeatedly since, especially by employers' organizations, seems to be fuelled today by the relatively high rate of acceptance of protective reassignment applications, and their steadily rising cost.

Here, it should be stressed that the figures published by the CSST may be misleading because, among other things, they include neither cases where an employer immediately grants reassignment, which is cost-neutral for the scheme, nor applications rejected by the attending physician after consulting the public health officer. Bogus and frivolous applications are screened out before even being forwarded to the CSST. Consequently, we can affirm that protective reassignment, which is based first and foremost on eliminating risks to pregnant and breastfeeding workers and to the unborn child, and which lead to reassignment, is anything but disguised maternity leave. This conclusion, with those of other studies on the matter¹³³, is crucial to the defence of the programme, and recognition of women's rights both to work and to a family life.

Study 13

Balancing family and work responsibilities¹³⁴

Collaboration arrangements: : Trade union initiative (FTQ).

Method: Self-administered questionnaire, group and individual interviews, ergonomic analysis.

At present, over 60% of Canadian and Quebec couples with children work, compared with just 20% of Canadian couples in 1961. In Quebec, just over 60% of the 270 000 mostly female lone parents work outside the home¹³⁵⁻¹³⁶.

Several recent studies highlight the extent and complexity of strategies deployed especially by women to reconcile work and family responsibilities in both Canada¹³⁷ and France¹³⁸. Many parents find problems in juggling family and work obligations, leading to stress and other health problems¹³⁹. Women are twice as likely as men to say that it has taken a toll on their mental or physical health¹⁴⁰. It must be said, however, that household tasks are fairly evenly shared in Quebec compared to elsewhere.

At the FTQ's 1992 annual congress, a long meeting on the problems of balancing work and family duties attracted nearly 300 people who testified to their problems. This groundswell of interest prompted the FTQ to commission a study on how its members could ease their work-family life dilemmas.

We therefore studied the different actual living, work, family, personal and social circumstances of groups to identify and analyse the key difficulties or obstacles to integrating work and personal life, their causes and effects on the individuals, their families and jobs. The aim of the study was to inform unions and employers and suggest practical solutions. We aimed not just to improve the work-life balance, but more fundamentally to put a brake on certain patterns of work and reorganization of working time which are largely responsible for the current crisis, both on the workforce and more broadly among employers and the public authorities.



The research was conducted among members of private, quasi-public and public sector communications, energy and health unions in the Montreal area. The subjects were men and women workers who had been working for at least 28 hours a week in the same job for more than six months, and who had been living as a household with one or more children of 12 or under for at least half the time (2 weeks per month).

The study comprised 4 aspects: a questionnaire, group meetings, individual interviews and an ergonomic study.

The questionnaire - completed by 315 respondents - comprised a hundred questions in order to yield as detailed a profile as possible of the participants and their working conditions. The questions covered social and demographic, family and occupational data, working hours, ways of integrating work and personal life (means of keeping in touch with children, lateness, time off work,...), satisfaction with working conditions, psychological distress, family burden sharing, relations with the partner, childcare, time spent with children, the children's health and well-being, and subjective assessments of their personal and family situations.

Group and individual interviews were conducted with about thirty people to profile the real-life daily work, family, personal and social circumstances in which these working parents combined their roles, and their impacts on their health and their families. These interviews gave us a deeper insight into the linkages between these two worlds.

To try and clarify further our understanding of the strategies deployed by these union members to combine their roles, and especially how certain working conditions influence the way they do it, we conducted an ergonomic analysis of the activity of telephone operators who balance family responsibilities with extremely variable and unpredictable working hours. We studied the way 30 telephone operators (28 women and 2 men) rearrange childcare and change their working hours to cope with that variability and unpredictability.

All work and no play !

Working conditions and home circumstances affect role combination. This is a vast area of study, and there is not space here for



an exhaustive review of our findings. Here, we focus on the impact of working hours, because the amount and organization of time spent in paid work are central to current work-life dilemmas.

The working hours of our study group differ sharply by walk of life, job category and gender. They also vary in terms of days, times of day and week worked, as well as the degree of variability and predictability of working hours and days. While some working hours clearly make it easier to combine personal, family and social responsibilities with work, others make it astonishingly harder.

On the one hand there are the - mostly male - technicians in the energy sector whose (individually chosen) flexitime schedules greatly facilitate the work-life balance, while other workers of both genders have regular but fixed hours, which often creates problems. At the opposite end of the spectrum to the technicians are the - mainly female - telephone operators working highly irregular and unpredictable hours which requires them constantly to juggle their obligations. Here, we shall be focussing on the working hours of telephone operators as being a type of working pattern and personnel management style which is tending to gain ground, especially in the largely feminized sector of services like supermarket check-out operators and hospital care workers; and also because irregular and unpredictable working hours are among the worst disrupters of family life. The ergonomic study of telephone operators' jobs also clarified for us the relation between working hours and the difficulties and problems of reconciling work and family life.

Telephone operators' irregular working hours

The questionnaire survey revealed that the telephone operators have by far the most unsocial working hours. The great majority (87%) start each working day at a different hour. About half (46%) experience variations of more than 4 hours from one day to the next, and many, over 8 hours. The overwhelming majority (90%) work different days every week, including the weekend. On top of these irregular working hours and days, their time schedules are unpredictable, being rostered just four days^a ahead of time, i.e., on Thursday for the period from Sunday to Sunday week.

a. As is the case for around two-thirds of the 70 telephone operators who took part in the questionnaire survey and all the telephone operators in the ergonomic study.

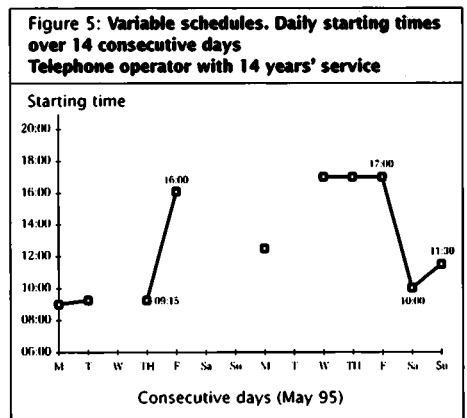
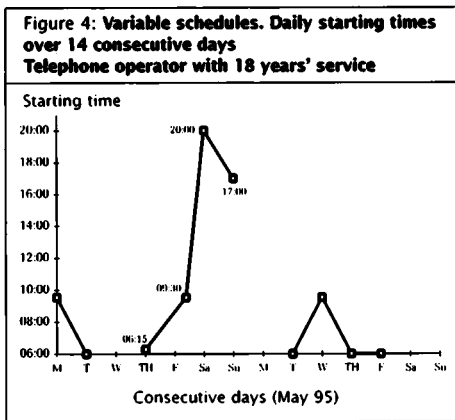


The daily working hours in some offices, in particular that where the ergonomic study took place, can start between 6.00 a.m. and 8.00 p.m.. Other offices operate around the clock, so working hours can start at any time of day. Time schedules are rostered by length of service.

This extreme variability stems from a “just-in-time” staff management system. Each day’s staffing requirements are forecast by reference to past custom throughput figures and factor-dependent variations in custom throughput (public holidays, scheduling of large-scale public events, etc.). So telephone operators’ daily starting times are staggered at 15 minute intervals. The firm’s aim is to avoid surplus staff and customer waiting times while ensuring continuous operation often around-the-clock. These weekly working hours are calculated by a computer program which some claim was not designed to include such elementary matters as essential relaxation allowances between two shifts, the idea of two consecutive days off, or even a 5-day working week^a.

a. So where the weekly rest days of two weeks are consecutive, a telephone operator may find herself working 10 days straight.

To illustrate the variation in personal working hours which this personnel management system represents, the 2 charts below show the individual starting time over a period of 14 consecutive days. The omission of an entry corresponds to a day off. The amplitude of the curve shows the extent of the variations in working hours. Note that working hours are allocated by length of service.



The first graph illustrates the work schedule of a telephone operator with 18 years' service. It shows that her working week starts at 6.15 on Thursday morning, 9.30 a.m. the following day, 8.00 p.m. the day after, and 5.00 p.m. the day after that. Her days off



also vary. Even after 18 years' service, starting times can vary within a range of 10 hours or more between one day and the next over several days in a row. The same variability is also seen in the second graph, despite the efforts made by some offices to temper it by adjusting their opening hours. It will also be seen that variations of 2 or 3 hours will create sufficient irregularity to require daily reorganization.

Rest days also vary and are as unpredictable as the daily working hours. Under a collective agreement, the firm tries to arrange for two consecutive days off, including at least alternate weekends. But it has no obligation, and does not always manage, to do so. These irregular working hours can be extremely stressful for family life, as the following accounts show:

"The company gave me 2 separate days off. They can't even give me 2 days together. It makes me sick that they find excuses, they're completely useless, they don't give a toss that we're shattered, and they don't give a toss about us having a personal life. They just tell us it's our choice - work or not! What sort of choice is that?"

The son of a single-parent telephone operator who could no longer stand his mother's fluctuating working hours moved in with his maternal uncle where "he felt part of a family" with cousins whose parents work regular hours and who he can rely on being there.

"My child moved out to live with my brother in March 1994 because up to then my working hours were different every day, so we didn't see one another much; he needs to be part of a family - my brother's wife has three children, so he feels part of a family; my brother and his wife work steady hours, which gives him stability and security. He's still a pre-teen, so he feels the need to have somebody "there", just in case ..."

Irregular working hours: regular childcare problems !

Because they only know their extremely variable working hours four days in advance, telephone operators have to rearrange their childcare arrangements on a weekly, if not daily, basis to fit in with their changed schedule, unless they can swap certain time brackets with colleagues. As one telephone operator said: "You have to start from scratch every week. There's no stability".



a. We preferred self-logging to observation because of the random nature of the activities, which can be performed at very different times of day.

The highly irregular and unpredictable hours worked by these telephone operators prevents them making regular childcare arrangements. We were therefore tackling the family-work dilemma in a particularly visible situation. The ergonomic study considered irregular working hours from the viewpoint of integrating work and family life by studying how operators went about arranging daily childcare. Every step taken was logged^a, such as for example contacting the childminder to fix the coming days' times. The data were collected over a period of fourteen consecutive days, working days and days off alike, from thirty telephone operators working in three offices of the same firm.

In 14 days, the 30 telephone operators made 212 attempts to arrange childcare. One alone made up to 36! Twelve telephone operators made fewer than 5, fifteen made from 5 to 15 and three made over 15 attempts to arrange childcare in 14 days. That averages out at 4 attempts to arrange childcare per person per working week - nearly one each working day. However a quarter of the attempts made to arrange childcare proved unsuccessful.

Furthermore, all these attempts to arrange childcare are done at often very short notice. The average time between the attempt being made and the care being needed is less than a day.

The childcare network

The 30 telephone operators in the ergonomic study rely on a network of 121 carers or childcare resources, fewer than 10% from service provision (nurseries, schools, private-home daycare, etc.). Not only do these childcare services obviously work to fixed opening hours, but most require children to be formally booked in for specific, regular days of the week, which does not fit in easily or at all with irregular working hours like those of telephone operators. In most cases (39%) family and in-laws look after children, followed by the spouse or ex-spouse (21%), childminders (10%), neighbours and parents of the children's friends (9%), and friends and work colleagues (7%).

So, the extreme variability of working hours creates a reliance on people who are not only dependable and child-oriented, but also available when needed, i.e. with "flexible working hours" as one telephone operator put it. It is probably because of the difficulty of these childcare hours that the telephone operators' childcare



networks comprise on average four people. One operator had up to 8! Broadly, how it works is:

For a 6.00 a.m. start when her husband starts at 7.00 a.m., a telephone operator has to rely on her mother-in-law coming to collect the children at 6.30, take them back home and then on to the childminder at 8.00! In these circumstances, it is not just the working hours that become impossible, but family time, too!

For another telephone operator with a hospitalized husband, a 6.00 a.m. start meant asking a young 15 year old neighbour to be there at 5.30 a.m. when she left for work. The neighbour woke the children and got them ready around 7.00, and took them to the youngest's childminder around 7.30 who then took the oldest to school for 8.30!

The network also has to be constantly maintained, if not renewed. So, at the time of the study, 2 respondents were looking for a new childminder. Between them, they made 16 attempts over 14 days before finally finding "someone with flexible working hours".

A number of telephone operators (14 out of 30) also try to adjust their working hours to fit in with their spouse's, taking it in turns to be with the children (9 by working evenings). The analysis of questionnaire data, in fact, revealed a high correlation - especially among the telephone operators - between parents' non-standard working hours, difficulties in balancing the demands of work and family, and the lack of personal time with partners.

Attempts to alter working hours

As well as making childcare arrangements, telephone operators who do not get the hours they want or have no childminder also try to alter their working hours by swapping shifts with colleagues, among other things. During the 14 days of the study, the 30 telephone operators made 156 attempts to swap shifts with colleagues or get their hours changed. The purpose was to be able to arrange childcare in about half the cases, and to try to have a proper family life in several (attending a family celebration, seeing their spouse, helping the children with an activity, attending a parents' meeting at school, etc.). Two people each made 22 attempts in 14 days. Attempts to swap hours were more specifically monitored among 20 of the 30 telephone operators in the ergonomic study, such that we know they made 113 attempts to



swap 49 shifts in 14 days! Among the 37 attempted swaps of which we know the outcome, 16 shifts were actually swapped! That means that only 43% of the attempted swaps succeeded ... disregarding the fact that it required 85 attempts to achieve the 16 swaps - a total of 5.3 attempts for just one successful swap.

Because the telephone operators' working hours and breaks are staggered (at 15 minute intervals), they have little opportunity to meet to make arrangements. Using the office phone for personal calls is strictly prohibited, so arrangements have to be made outside office hours - which presupposes being off at the same times - or by posting notices on an office notice-board provided for the purpose.

So, these telephone operators spend hours of their own time juggling childcare and working hours, negotiating, swapping, trading-off debts and obligations with those that help them out, just to fit in with their time schedules. Working time is no longer confined to time spent at the workplace, but has expanded to mean total availability, 7 days a week and up to 24 hours a day for offices open round-the-clock, invading the entire space-time of individuals and their families. That takes a very heavy toll on their mental health and personal relations with their children, partners and their regular "helping hands". No part of their space-time escapes unscathed - they miss the school reports being handed out, special celebrations, they cannot sign up for self-improvement, sport or keep-fit classes because they cannot guarantee regular attendance, etc.

The perceived effects and costs can result in health problems, as some personal accounts reveal:

"I sometimes feel that I just can't go on any more, that if I carry on running round like that, I'll end up with heart failure, because I know that once work is over, I have to start all over again at home".

"There's nothing worse than running around in circles, with schedules going up and down, you get sick".

The difficulties of reconciliation and psychological distress

The questionnaire survey enabled us to both evaluate men and women workers' own perceptions about their difficulties



balancing work and family responsibilities, and to assess their mental health.

We asked the 315 questionnaire respondents: *"Would you say that reconciling family responsibilities with your work over the past three months has been: very difficult / difficult / somewhat difficult / easy / very easy"*.

Significantly more women than men in the study found reconciling family responsibilities and work was difficult (table 21). Over half the men found it easy or very easy compared to 30% of the women.

Some kinds of work seem more conducive to integrating work and family life. Working hours differ very widely by type of work. To over-simplify - there are the telephone operators, many of them with highly irregular and unpredictable working hours including evenings and weekends; workers (both genders) with fixed but regular working hours, which may or may not include weekends, evenings and other times; and some energy sector workers with individually-chosen flexible working hours. But flexible working hours are limited or not permitted for some groups of workers in the energy firm. Two broad groups can be distinguished - those (both genders) who very often or always work flexitime, and the others who occasionally, seldom or never work flexitime. Those whose flexitime opportunities are restricted are mainly office workers, some in jobs which have much in common with telephone operators in the communications firm (answering telephones, speed, supervision, ban on personal calls).

It is not surprising to find that the telephone operators (communications sector) with rigid, very irregular and unpredictable working hours experience the greatest work-life dilemmas (table 21).

Some respondents who find it difficult to balance competing work-family demands think their employer does not do enough to help them do so.

Using multivariate analyses, we were able to identify the main work-related causes of work-life dilemmas for both genders. We found the main obstacles to be problems of telephone access and weekend working for women, and parents' non-standard working hours for men. Difficulties are also associated with the presence



of very young children (5 and under) in the family. Note that difficulties in integrating work and family life are less a matter of the workplace than the working conditions.

Table 21: Reconciliation of family responsibilities and work among respondents by type of employment

JOB	RESPONDENTS (F)				RESPONDENTS (M)			
	N	very easy/ easy	somewhat difficult	difficult / very difficult	N	very easy easy	somewhat difficult	difficult / very difficult
Communications sector								
Telephone operators	63	14.1	45.3	40.6	-	-	-	-
Technicians	-	-	-	-	65	54.7	34.4	10.9
Energy sector								
Office workers	83	38.6	34.9	26.5	30	43.3	36.7	20.0
Technicians	-	-	-	-	22	77.3	18.2	4.5
Hospital sector	39	35.0	47.5	17.5	11	36.4	18.2	45.5
TOTAL	185	29.4	41.2	29.4	128	54.3	30.7	15.0

Using a mental health scale validated and used since 1983 by Santé Québec (a public agency that regularly surveys the health of Quebecers), we estimated the “psychological distress” of our respondents. The scale comprises 14 questions measuring the frequency with which different symptoms associated with depression, anxiety, cognitive disorders (confusion) and irritability are experienced. The symptoms must have been experienced during the 7 days immediately preceding the questionnaire.

Like the Quebec workers surveyed by Santé Quebec, the women in our survey on average experience a significantly higher level of distress than male workers (56% against 41%) (table 22). Our survey also reveals that women have most difficulties in balancing work and family, and these difficulties are closely associated with psychological distress among both genders (table 22). In other words, there is a strong link between “being psychologically distressed” and “finding the balance difficult to achieve”.

Table 22: Percentage of respondents of both genders psychologically distressed by attempts to reconcile family responsibilities and work

	RESPONDENTS (F)			RESPONDENTS (M)		
	N	% psych. distressed		N	% psych. distressed	
Have you found reconciling family responsibilities and your work to be:						
very easy / easy	55	34.5	<.0001	69	26.1	<.001
somewhat difficult	76	55.3		39	51.3	
difficult / very difficult	54	77.8		19	73.7	
TOTAL	185	55.7		127	40.9	



Distress is heightened in certain circumstances (table 23). Very many telephone operators in the communications firm report a high level of psychological distress - unsurprising considering the obstacles they face in balancing the competing demands of work and family. Significantly, a high number of office workers in the energy firm on restricted flexitime also report a high level of psychological distress, despite working "normal" hours (days and weekdays only). On the other hand, they share certain working conditions with the telephone operators (answering telephones, speed, supervision, ban on personal calls, fixed hours).

Women office workers in the energy firm with flexible working hours (never or seldom fixed) report proportionally less psychological distress. Likewise, proportionally fewer male office workers in the energy firm with flexible working hours (never or seldom fixed) and most of the technicians working for the same firm with flexible working hours (never or seldom fixed) display acute psychological distress levels.

Table 23: Percentage of psychologically distressed respondents by type of employment				
JOB	RESPONDENTS (F)		RESPONDENTS (M)	
	N	% distressed	N	% distressed
Communications sector				
Telephone operators	63	68.3	-	-
Technicians	-	-	65	44.6
Energy sector				
Office workers				
· flexible working hours	53	35.8	14	21.4
· little or no flexibility ¹	30	63.3	16	68.8
Technicians ²	-	-	22	13.6
Hospital sector	39	56.4	11	54.5
TOTAL	185	55.7	128	40.6

- 1. Occasionally, seldom or never flexible
- 2. Most have flexible working hours

Using multivariate analyses, we were able to identify the main work-related causes of psychological distress for both genders. We found that psychological distress is associated with fixed working hours for both genders. The individual and group interviews revealed that one of the key advantages of flexible working hours for the energy firm employees was the elimination of lateness-related stress, and not having to hustle the children around¹⁴¹.

Because different working conditions in the same job may be judged "difficult" or "easy", however, it is not always easy to identify which single working condition is most likely to increase



distress levels. For example, some of the energy firm respondents with flexible working hours also have a degree of freedom in the way they perform their duties. So a number of them were surprised to see questions about breaks or obstacles to using the telephone. By contrast, various jobs like the telephone operators in the communications firm and office workers in the energy firm which have a fixed work schedule also are closely supervised and strictly controlled. Since lack of autonomy at work was frequently associated with psychological distress¹⁴²⁻¹⁴³, it is hard to evaluate here exactly what influence flexibility of working hours has on distress.

There is also a sufficiently discernible trend to suggest a link between the non-standard working hours of either or both parents and respondents' psychological distress. Unsatisfactory relations with line superiors is also a major cause of distress to respondents. Research has already established a link between lack of support from immediate superiors and depression¹⁴⁴⁻¹⁴⁵. There seems to be no link between family size and children's ages in the psychological distress reported by either sex.

Our sample did not permit a comparison between parent and non-parent workers. But it can be assumed that the difficulties associated with child-rearing for working parents increases psychological distress for both men and women because of the highly significant link found between "psychological distress" and difficulties in balancing work and family responsibilities.

Being unable to examine all work environment variables and all conditions for integrating work-family life, and lacking information on all possible causes of psychological distress (death, problems with ex-spouse, etc.), the possibility cannot be excluded that some working conditions or personal problems may have increased the level of distress or made the work-life balance more difficult to manage.

What our results do clearly indicate, however, is that working conditions (fixed or irregular hours, restricted telephone use, tension with supervisors) make it significantly harder to reconcile work and family life.

These results therefore point to important ways forward for easing the work-life dilemma while at the same time reducing the risks of psychological distress. That would help significantly



lessen the accumulated problems it creates firstly for employees and their families but also for firms and the community as a whole. Given that in most two-parent families with young children both parents now work, it is clear that prompt and coherent measures to balance work, family, social and personal responsibilities are essential if the future of those children and the very cohesion of society are not to be very seriously mortgaged.

Impacts

The report was used in collective bargaining and as input in government consultations on family policies. It also helped raise awareness of the importance of this issue in a predominantly male union and greatly increased the visibility of women. The study elicited considerable interest among trade unionists of both sexes. An hour of the union's annual congress was given over to discussing it. It was re-written and translated into English for Canadian trade unions. A video based on it was an astonishing success.



Overview and perspectives¹⁴⁶

Issues in women workers' health

Occupational health research and training in North America has developed in a context where compensation for employment injury and occupational disease is often disputed¹⁴⁷. In labour courts where compensation for occupational diseases or employment injuries is being decided, the judge, workers and their trade union expect the problem to be clearly diagnosed and its occupational origin objectively established.

Because the epidemiologic and biomedical statistical techniques on which the courts' judgements are based claim to clearly identify the occupational nature (or origin) of the problem, they legitimize the decision to award or deny compensation to the claimant. In other words, if expert proof can show that the health problem derives from the working conditions, like exposure to toxic substances, or an injury caused by a piece of industrial equipment, the worker concerned may be compensated; any proof to the contrary implying an origin alien to the work environment will render it non-compensable¹⁴⁸.

Although European countries do not have the same rules on compensation, the North American requirement of conclusive evidence of a causal link between diagnosable diseases and specific working conditions has left its mark on international science and influenced the context of prevention. But most of the ailments experienced in traditionally female jobs do not lend themselves to this kind of proof for reasons connected with the diagnosis of disease states and the identification of exposures. Firstly, women in these jobs experience symptoms which are not clearly diagnosed as disease states. Psychological distress among health and social workers, and administrative support workers are cases in point¹⁴⁹⁻¹⁵⁰⁻¹⁵¹. Distress symptoms seldom manifest in specific physiological signs, and are even less easily traceable to tangible working conditions. The musculoskeletal symptoms so common to repetitive or static women's jobs are often put down to ageing



or even the change of life. Diagnosis is not helped by the little attention paid to studying the specific health problems of women workers, as attested by surveys of the occupational health literature¹⁵².

Difficult as diagnosis may be, it is even harder to identify the hazards of women's jobs. The most taxing aspects of their work are often invisible to the public, the workers themselves and even experts. This is a natural consequence of the fact that women are excluded from jobs classed as dangerous or difficult because they are generally prohibited from working in jobs with demonstrable short-term health risks.

To take a few examples. As we saw in study 8, secretarial work is perceived as physically undemanding, performed in comfortable surroundings, and involving little decision-making, because it is classed as a line or operating job. It seems much easier than a warehouseman's job, for instance. But this is to dismiss the lower back pain and circulatory problems connected with the constant sitting position, and pains in the cervicobrachial region from tensed-up postures held during long hours of computer work. The comfort of fitted carpet and house plants would also be misjudged if the influence of the countless distractions caused by customers constantly in search of information and the common requirement to do several things at once were left out of the equation.

Or compare the effects of labouring work with that of a sewing machine operator in another case (Study 2). The one has to lift very heavy loads, while the other has to handle, lift, pull, grasp more or less malleable fabrics for machine-sewing. The sewing machine operator may actually lift a heavier total weight than the labourer in the course of her working day, but her employer, family and friends often do not connect her discomfort with her work. As to even less tangible (and seldom observable) effects like those stemming from sexual harassment, disrespect, or fear of aggressive behaviour, the worker's credibility will not make up for the lack of scientific tools with which to determine her real work load as well as the risks of physical or mental health problems.

Finally, the caring nature of many female occupations masks even the recognized risks. Only recently have nursing aides (Study 5) and child minders been included in the list of jobs involving the manual handling of heavy loads.



Feminist analysis and knowledge in occupational health

Women's accumulated daily experiences and knowledge are central to feminist challenges to knowledge and science, stresses Harding¹⁵³. Feminist educationalists and thinkers capitalize on women's experiences and perceptions, which have been constantly sidelined from the history of thought¹⁵⁴. Many have put knowledge (expert and common knowledge; empirical and theoretical knowledge; experiential and conceptual knowledge) in perspective and challenged scientific objectivity¹⁵⁵.

The biomedical sciences remain highly influential in the occupational health field, however¹⁵⁶, so influential in fact that in the workplace and labour courts alike, expert opinions are more highly regarded than the accumulated knowledge of experienced workers. The clear economic and political issues at stake in prevention of and compensation for occupational health problems are such that the voice of the most powerful interest groups - the employers - drowns out that of the workers. Because medical authority and expertise are generally accepted as providing the guaranteed scientific objectivity and political neutrality essential to identifying health problems and their causes, it is nigh-impossible for male workers to question them; the likelihood of a woman worker being listened to is close to nil.

The effects of this were seen in occupational health training courses on musculoskeletal disorders of men and women hospital workers given by CINBIOSE for the CSN union. Musculoskeletal disorders are the main women's health problem¹⁵⁷ and the biggest single source of compensation claims to the Occupational Health and Safety Commission¹⁵⁸. However, during the training sessions, it became clear that the men - and even more so, the women - were unable to make the link between their ailments and their work. This, as stated above, is because the techniques and validity criteria of expert biomedical research have directly influenced the understanding that some unionists have of them. Trade union experts later explained that women workers who did make formal complaints were often overwhelmed by experts paid by the employer or Commission to refute their perceptions.

While there are few scientific bases for pinpointing the physical sources of pain, there are none at all to describe the mental task

load of a job and its health effects¹⁵⁹⁻¹⁶⁰. The only way to assess mental load (and its emotional effects) is through workers' self-reporting or psychological analyses - approaches and data sources whose validity is greatly disputed in the scientific and legal occupational health community¹⁶¹⁻¹⁶². So the very nature of that knowledge and the process which engendered it must be questioned.

What new approaches?

We challenge the traditional approach to occupational health not only for the limited knowledge it produces but also for the way it excessively restricts trade union action and health protection for many workers. We believe our research demands a new paradigm for prevention and standardization in occupational health in Europe and North America alike.

For example, we question the standard definition of risks in occupational health. In studies 2 and 7, we question the concept of a physical work load which relates only to dynamic work. The lifting of heavy loads is clear to see and hence to regulate. The workload associated with small repetitive movements or the static effort involved in prolonged standing is much less visible, not to say invisible.

Also, as a result of study 13, we question the traditional public-private division used to define the very area of intervention in occupational health. Rather than the worker-provider, constantly at employer's beck and call, restored to health and productivity each day by a family environment comfortably preserved by his wife, we demand a family-friendly work environment for both sexes. Our recommendations aim to give both genders a working life with working hours which enable a healthy and secure family life. This new paradigm is demanded by the experience of women, who cannot compartmentalize corporate and family life. For them (and an increasing number of men), working life and family life are inseparable¹⁶³.

Even more against the grain of the current approach is our recommendation for urgent action in one occupation - primary teaching - where there is no toxic substance exposure or exceeding of limit values, and which ranks lowest on the OHSC/CSST's priority list. As a result of our study (study 6), we suggested replacing the idea of workplace or exposure standards with that



of accumulated stresses. We argue that a healthy work environment should be looked at in the round. Because many women work in jobs thought safe and harmless, they need prevention where ambient conditions or physical layouts cause problems which, while not dramatic or beyond the threshold limit values, are made unbearable by constant, intense stress. What must be looked at is the overall context in which women work.

Towards action

Various observers have stressed that, while difficult, it is essential to translate workers' statuses and different knowledge bases into terms which will facilitate their active input into the analysis of their working conditions¹⁶⁴. We would add that it is also important to translate the synthesis of their knowledge and that of researchers into terms which will bring about a change of attitude among employers and the occupational health research community. That means that unions must act, not just at local level to transform working conditions, but also on public opinion to bring about a gender-sensitive approach to prevention. We also call for a debate on ways of redressing the balance of power in favour of women to counter disempowerment, disrespect and constant allegations of "hysteria".

We believe that the approach must stem from a convergence of education for empowerment and feminist thought, for four reasons:

- 1) It must be empowering and feminist because it cannot be dissociated from action by and for women: it is "training for action", to use Teiger's phrase, designed to transform working conditions by supporting attempts to improve women's status¹⁶⁵. So it must be rooted in highly democratic trade unionism.
- 2) It is marked by feminist approaches to learning, especially those relating to power relations between teachers and taught, which stress the importance of using women's knowledge in learning, and those which prioritize a psychoeducational relationship which encourages discussion with women who might otherwise turn off or suffer in silence¹⁶⁶.
- 3) It stems from feminist theories of knowledge which question scientific objectivity and emphasize the biased treatment of women's experience¹⁶⁷.

4) It draws on theories of the gender-based division of labour and power relations between men and women workers and employers devised by feminist thinkers working from women's viewpoints¹⁶⁸. A clear understanding of the fundamentals of gender-based divisions is the only way to construct a united front against increasingly demanding employers. For example, gender divisions in hospital work (study 5) can undermine trade union solidarity at times of massive job cuts of the kind currently happening in Quebec.

To foster change in the unions necessarily involves interchange with male colleagues who can clearly identify sources of support. The team's trade union partners engaged in protracted discussions with male colleagues of the costs of the gender-based division of labour for men, and to clarify the issues for both genders. The increasing numbers of men in service sector jobs, and the increasing importance they place on family and domestic life, enabled us to forge strategic alliances with male colleagues in unions. As women in Quebec are increasingly unionized, trade union leaderships are becoming attentive to their needs and interests.

Even so, there remain a number of theoretical obstacles to full implementation of our approach. These are identified here in the form of three issues to be addressed.

Power issues in collaborative work: If researchers support the knowledge transmission and transformation process, how can their socially-recognized status as experts be prevented from investing them with an influence and stature disproportionate to those of the workers?

This question is made even more acute by the fact that power relations in female jobs are strongly biased against women, that the fact of a group of women workers reporting health problems is not enough to instigate a process of job reorganization, and that employers systematically suspect women of exaggerating their symptoms. Academic researchers can easily assume this mantle of authority and power, which must be replaced by a culture of mutual respect for knowledge and abilities. This means recognizing the cardinal importance of union leaders in setting the tone of relations between (women) researchers and the (women) workers they represent. The importance of this role has not escaped status of women officials, who have put time and effort into the choice of collaborating unions.



Issues about the essential nature of scientific knowledge. Are our research findings, derived from interaction between scientists and workers, "true"? In order to be "true", does an occupational health finding have to stem from an approach devised by scientists, or does scientific truth really derive, as some feminist theorists claim, from a power relation to which women workers must give input?¹⁶⁹ How is the knowledge produced by our research programme to become part of the list of occupational health "facts"?

Paradoxically, the best allies in responding to this seemingly highly scientific question are union officials, especially those concerned with occupational health. They have practical experience of the way scientific knowledge is distorted to serve economic interests, and so are disinclined to believe in objective science.

Finally, issues that stem directly from trade union action: How to forge a common approach between very male-dominated OSH committees that have long been intensely enmeshed within a traditional framework and almost exclusively female Status of Women committees that usually lack experience in the field. Why should long-standing companions in arms, constantly thwarted in their efforts to remedy "visible" hazards, change their perceptions, concepts and approaches in order to redress invisible problems? In this regard, we have profited from the exceptional open-mindedness of the Quebec trade unions, which have a long tradition of internal democracy, receptiveness, flexibility, regular contacts between the leadership and rank-and-file, and alliances with the feminist and other grassroots movements.

It is just four years since we established a formal partnership aimed at transforming occupational safety and health practices by attuning them more closely to women workers' realities. While it is still too early to claim major success, some progress has certainly been made: an increasing number of union actions for women workers during Quebec occupational safety and health week; women's concerns increasingly mainstreamed in trade union training; more pamphlets and written information on the risks to women workers' health; union advocates alerted to the need to do more for women compensation claimants; a government brochure on women's OSH risks; the Quebec Occupational Health and Safety Commission is reviewing its priorities. Before long, we plan to step up our efforts to secure recognition of women's rights to healthy, safe and family-friendly jobs.

We are very proud of our partnership, which has brought both intellectual challenges and concrete advances for women workers. On an ideological level, we believe that women workers no longer see the need to deny gender differences in order to achieve equality in the workplace. Obviously, the partnership is not without its teething problems, if only because it involves three different unions and researchers from across disciplines, all with their own constraints and approaches.

We are now addressing new issues: How to ensure the continued relevance of our work to the average woman wage-earner in the light of changing patterns of work? How to ensure that they help women telecommuters, short-term contract workers, women workers who used to be called subcontractors, and are now "independent businesswomen"? We have recently renewed our partnership with a proposal to study these questions¹⁷⁰. We are carrying out ergonomic and legal studies on telecommuting, "on-call" work and short-term contracts. At the same time, we are looking for the best ways of transmitting the knowledge gleaned into the workplace¹⁷¹. Finally, in the hope of taking part in a broad consensus on the need to improve the health and quality of life of women workers, we are extending our horizons to North America through the Canada-US Forum on Women's Health, to Latin America through a programme of collaboration with trade unions, women's associations and the University of Carabobo in Venezuela, and to Europe through the follow-up on the International Congress on Women, Health and Work.



Appendix I

Quebec trade union health-safety and status of women bodies

Occupational safety and health structures

FTQ's health and safety organization is fairly decentralized. It comprises a forty-to-fifty member central committee drawn from trade unions and regional labour councils, which also have their own committees. The FTQ committee is 19% female. The union represents a substantial proportion of industry workers, a good many of them from priority group¹⁷² branches of industry, where several health and safety committees exist in workplaces. Committee chairs attend annual meetings set up by their respective trade unions. Women account for 29% of the trade union assessors¹⁷³ in the joint review bodies¹⁷⁴.

The CSN has a confederal committee of three women and three men, chaired by a woman involved in the issue. The vice-president for the issue is an ex-officio member. Women account for more than 30% of membership and 16.9% of review body assessors.

The CEQ has a health and safety committee comprising one woman and four men.

The CSD's review body assessors act as an advisory committee to the union. 25% of them are women.

The four unions offer a range of services to their members through staff advisors, lawyers and specific health and safety budgets. Women are present in almost all the structures, but in fewer numbers than their male colleagues. Some unions are taking positive action to bring women workers into occupational health training provision. Linkages are also gradually being forged between Status of Women officials and occupational safety and health officials.



Status of Women structures

The FTQ has a twenty-five-woman committee overseeing all activities in the area. Most regional and local structures and unions also have Status of Women Committees. There are also "women's networks" in each region meeting twice a year.

The CSN also has a 6-woman national Status of Women Committee which coordinates representatives of the thirteen regionally-based central councils and federation representatives. All central councils have a committee, as do many local unions and federations.

The CEQ has a 5-woman Status of Women Committee with a full-time Chair. It calls approximately four meetings a year of representatives from over fifty affiliates in a "women's network". A number of local unions and federations have their own Status of Women Committee or officer.

The CSD has 5-woman Status of Women Committees in its nine regions. The regional committee officers sit in a provincial committee with the provincial status of women officer who has forty days' release a year for her duties. The CSD annual meetings of all regional committee members and the provincial officer.

Women's issues are a major concern in all trade union organizations. While these committees and networks have no decision-making powers, they have a decisive political influence over the unions' policy lines. Some service structures also deal specifically with women's issues. Unlike in Europe, they are not mainly political bodies, but concerned with issues of immediate importance to women workers: pay equity, employment opportunities and family leave.



Appendix II

How the Quebec Occupational Health and Safety Commission (OHSC/CSST) works

The OHSC/CSST Management Committee

The Commission is run by a government-appointed 15-member board of directors, seven of whom are selected from lists put forward by the most representative trade union organizations and seven from lists put forward by the most representative employers' organizations. The chairperson is the OHSC/CSST's CEO. At present, the FTQ, CSN and CSD are on the committee, but the CEQ is not. The CEQ sits on some working committees at the invitation of the OHSC/CSST board of directors, and is quite active in OSH matters.

The review boards

OHSC/CSST officials' decisions on claims for compensation and protective reassignment of pregnant and breastfeeding workers are subject to review by a quasi-judicial body known as the review board. It is also a joint body, comprising three members appointed by the OHSC/CSST, namely a Chairperson who is an OHSC/CSST official, one workers' member and one employers' representative¹⁷⁵. The trade union members come from the three member organizations of the OHSC/CSST board of directors.

Priority groups

The Commission phased in the regulation which was to implement the LSST/AOHS. It first allocated employment sectors into 6 groups, and prioritized them. The aim at the time was to have the Regulations applicable across all groups fairly rapidly. However, the government failed to follow up an OHSC/CSST recommendation to extend the regulation to Group III. Only part of the Regulation applies to Group III, and it has never been applied to Groups IV, V, VI.

All Group I, II and III employers must draw up a prevention programme which includes a health programme worked out by the



medical health officer; employers with over 20 workers on the payroll must send a copy of it to the OHSC/CSST for evaluation and acceptance¹⁷⁶. Finally, only Group I and II employers are subject to the Regulations requiring a health and safety committee and duty leave for a prevention steward. These groups account for 21% of all workers and only 5% of women workers in Quebec. The procedure chosen has not been overtly discriminatory, but has meant that women are all-but absent from the two categories of jobs for which most prevention provision exists (where they make up 15% of the workforce).

The health and safety committee has decision-making powers in prevention management. Its key functions are to choose the works medical health officer, approve the health programme drawn up by him or her, draw up a prevention programme, including training and information, and prescribe personal protective equipment and methods.

Although few branches of industry¹⁷⁷ have recognized priority status, many voluntary health and safety committees have been established in workplaces and operate in line with the rules governing the regulated committees. Being unofficial places them at a disadvantage, however.



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174. See Appendix 2, review boards.
175. Following the recent adoption of proposed reforms of the OHSC/CSST (Bill 79), its structures are under review. So, the review boards and employment injury appeal bodies (the "Commission d'appel en matière de lésions professionnelles") are to be abolished and replaced by administrative review procedures and a new joint union/employers employment injury appeal commission.

176. Categories prescribed by the *Safety and Health Committees and Representatives Regulations*, 1983 G.O. II, 4209: Group I - Building and civil engineering, chemical industry, forest and sawmills, mining, quarrying and oil wells, metal manufacture; Group II - Wood industry, rubber and plastics industry, manufacture of transportation equipment, first processing of metals and nonmetallic mineral products industry. Group III covers public administration, the food and drink, furniture, paper, transport and warehousing industries.

177. The branches of industry are divided into six groups and the Regulation was never applied to Groups IV, V and VI, which include in particular teaching, and the social welfare services, although the latter does have a joint sector-based association



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Integrating Gender in Ergonomic Analysis. Strategies for Transforming Women's Work

Joint action-oriented research by the University
of Quebec and trade unions

Edited by Karen Messing, *CINBIOSE, University of Quebec at Montreal*

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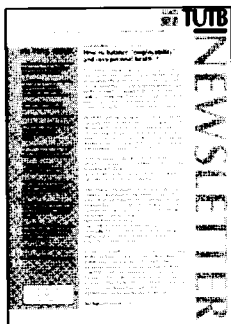


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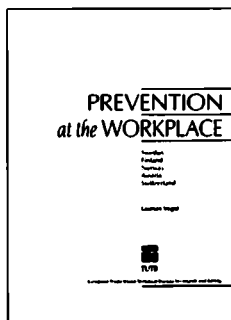
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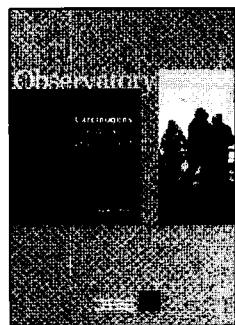
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