Institut de recherche en santé
et en sécurité du travail du Québec

Annual Report

1997

Research, the key to understanding

Mission and goals

The Institut de recherche en santé et en sécurité du travail (IRSST, Québec Occupational Health and Safety Institute), created in 1980, is funded by the Commission de la santé et de la sécurité du travail du Québec (CSST, Québec Occupational Health and Safety Commission). Its mission is to contribute, through research and development, to the improvement of worker health and safety, and more specifically, to the elimination at the source of hazards for workers' health, safety and physical well-being, and to the rehabilitation of workers having suffered occupational accidents or diseases.

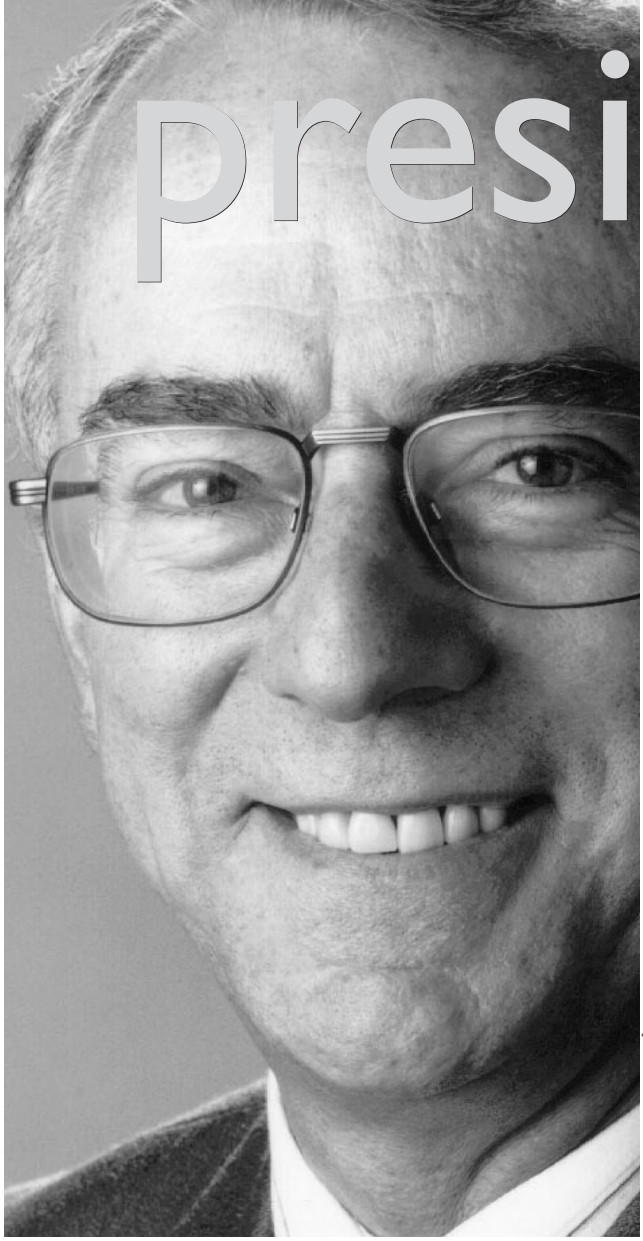
To fulfil its mission, the Institute:

——— conducts, funds and contracts research that responds to the needs of the CSST and the working community

——— communicates the results of its research and consulting activities to the working community

——— awards graduate scholarships in occupational health and safety

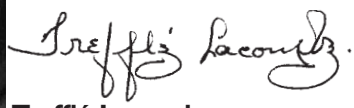
——— provides the Québec public health and safety prevention network, the CSST, and joint sectoral associations with essential laboratory and consulting services, under the terms of a contract with the CSST.



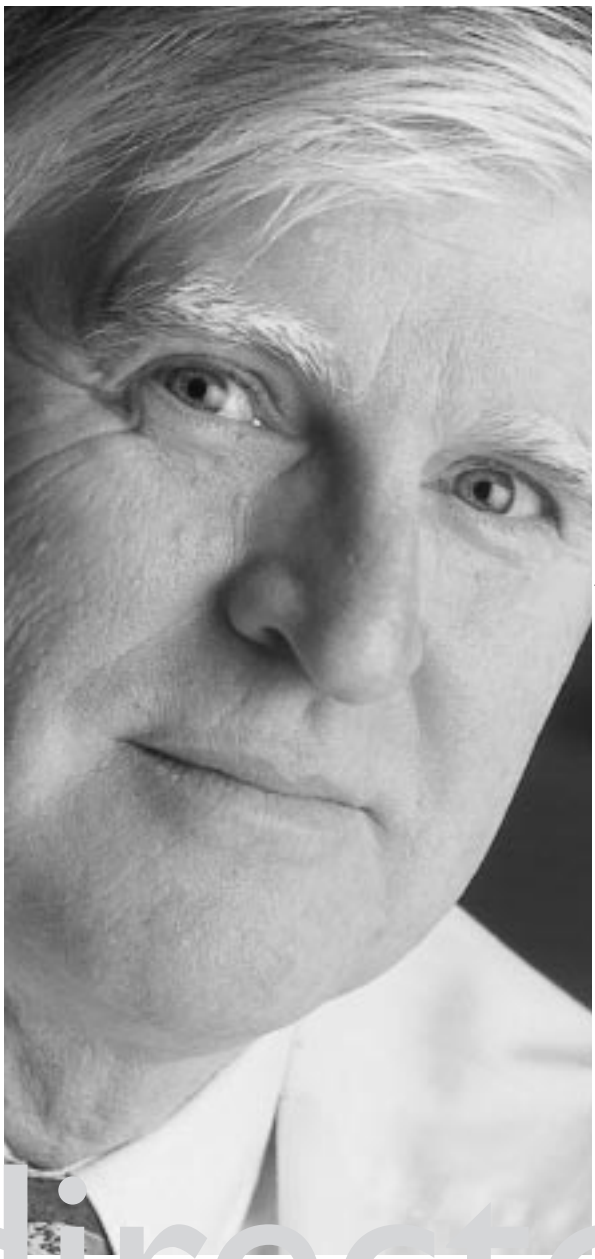
president's message

Scientific research and expertise is the foundation for both the strategic planning and the actions undertaken jointly by employers, workers and our partners in the health and safety network. Again this year, researchers and experts in all disciplines helped solidify the scientific basis of prevention and rehabilitation interventions. We have established a productive dialogue between researchers on the one hand and our partners and clients on the other, and have encouraged the latter to participate in the implementation of our scientific programme. This dynamic partnership, unprecedented in the research world, is one of the strengths of the Québec health and safety system.

This report eloquently illustrates how the results of our research facilitate informed decision-making related to field operations and strategic planning, and, by so doing, helps us innovate and bring about fundamental changes in health and safety.



Trefflé Lacombe
President



director general's report of activities

This past year, the new approach adopted during our recent client-oriented reorganization has impregnated all our activities. Thanks to its aggressive hands-on approach, our team was able to provide members of the working community and the health and a safety network with the scientific and technical support they required. At the same time, we continued to push back the frontiers of knowledge and increase our expertise, to better respond to tomorrow's new needs.

To accelerate and consolidate its strategic realignment, the Institute has embarked on a path of continual and pervasive improvement that guarantees the consistency, quality, and impact of our activities. By so doing, we ensure that we continue to acquire critical knowledge in the seven fields we have given the highest priority to in response to the needs expressed by our clients and partners.

By acting now, with an eye to the future, the Institute is laying the groundwork to meet its long-term objective — becoming a bipartite scientific reference centre at the heart of the CSST network's operations and strategic planning.

Jean Yves Savoie
Director General

Results

Highlights

In 1997, the Institute continued to give the highest priority to the seven fields it targeted two years ago in response to the needs expressed by its clients and partners. The Institute's expertise and research results in these fields confirm its essential role in the Québec health and safety network.

Priority Fields

Accidents
Back problems
Chemical and biological contaminants
Cumulative trauma disorders
Noise and vibration
Protective equipment
Industrial tool, machine and process safety

The past year also saw the Institute achieve scientific breakthroughs and expand its expertise in several areas that continue to preoccupy its partners and the working community. Significant progress was made in characterising high-risk sectors and occupations, the impact of different forms of work organisation, and new work settings such as the new environmental industries.

Through its emphasis on integrative projects in general, and improving process, equipment and workstation design in particular, the IRSST also supported the working community's efforts to manage the prevention activities that affect them. This past year also saw further development of prevention tools and intensification of prevention activities.

In keeping with the guidelines it adopted in 1995, the Institute tightly linked its activities to those of the Commission de la santé et de la sécurité du travail (CSST, Québec Occupational Health and Safety Commission) and the CSST network composed of joint sectoral associations, local health and social services boards, and local community services centres. This synergy was evident in both our research and expertise activities, particularly those conducted in support of CSST intervention programmes. Furthermore, our partnership with joint sectoral associations afforded us many opportunities to apply our research results.

Following a marked increase in the number of requests for analysis in 1996, the IRSST sensitized its partners in the health and safety network to the need to give more thought to the relevance of the analyses they request. As a result of this information campaign, the number of requests received in 1997 remained stable.

In 1997, 148 projects were active at the Institute, conducted by internal research groups or external researchers funded or contracted by the Institute. Of these, 36 were completed during the year and 38 begun.

Solid Research Activities

Scientific research is the Institute's primary activity and, again this year, more than two-thirds of its resources were allocated to research-related activities. The Institute's projects were undertaken to find solutions to recognized problems, characterise new trends, and anticipate needs. The availability of solid scientific knowledge is in fact a prerequisite for the effective prevention of occupational injuries. While continuing to respond to immediate needs, the Institute must also ensure its ability to respond to medium- and long-term needs. This is the dual challenge which the projects conducted in 1997 attempted to meet.

Profile of occupational health and safety in Québec

Through its statistical profile of high-risk sectors and occupations, the Institute provides up-to-date information on the state of occupational health and safety in Québec. Performed every five years, these reports analyse the variation of the incidence, severity, and prevalence of compensated occupational injuries as a function of industrial sector and occupation. The 1997 report revealed new trends which researchers and health and safety specialists will find illuminating.

The Institute also continued to offer its partners support and expertise in the field of occupational health and safety statistics. Finally, Institute researchers produced a statistical profile of occupational health and safety considerations relevant to firefighting and, in collaboration with firefighters, developed tools to better describe accidents in this profession.

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The effects of certain types of work organisation on health

A study of the effects of 12-hour rotating shifts in a petroleum refinery drew attention to the consequences of certain types of work organisation. Several health problems were described and quantified for the first time, and tools to facilitate decision-making regarding work organisation developed.

Similarly, an expert group studied the adjustment of permissible exposure levels to take into account non-traditional work schedules. Threshold limit values were proposed for each substance listed in the Regulation Respecting the Quality of the Work Environment.

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New work settings

Specialists in the health and safety network have become interested in the issues surrounding the new environmental industries. This past year, this interest was echoed by Institute researchers, who studied health and safety in domestic-waste composting centres and wastewater treatment facilities. Chemical, biological, and ergonomic hazards were evaluated and found to be controllable, and corrective measures proposed.

Sectoral activation

Motivating industrial stakeholders and providing interdisciplinary support teams of researchers and experts is a promising approach to generating general strategies to improve health and safety. Since October 1996, some 60 pulp and paper plants, employing some 25 000 workers, have participated in just such a study of the safety of automated systems used to control equipment in pulp and paper plants. Furthermore, industry stakeholders have joined forces with their partners in the health and safety network to conduct a study of effluent treatment in plants at which field measurements were taken in 1997.

Preventive measures

The Institute continues to produce tools to help the working community manage the prevention of certain types of injuries. In 1997, close to a decade of Institute research was crowned by the development, in collaboration with a manufacturer, of equipment with which to measure the resistance of gloves to laceration; the evaluation technique the equipment is based on was also developed by the IRSST. Several applied-research projects, notably a study of the deflashing of cast-aluminum parts, have also resulted in noticeable reductions in noise. A predictive model of the natural stresses in bedrock is another example of a prevention tool developed for the working community, in this case the mining industry.

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Supporting our partners

The Institute's 1997 research activities also benefited attending physicians, for whom it produced two innovative guides to improve the diagnosis of hand and wrist injuries caused by repetitive work. In a complementary development, the Order of General Practitioners of Québec produced their own independent study module on the diagnosis of cumulative trauma disorders (CTDs). The absence of precise clinical diagnostic criteria had been noted by the international expert group formed by the IRSST to review the literature on CTDs*.

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Evaluative research

Research has also provided answers to questions concerning the effectiveness of prevention-oriented workplace interventions. One such project examined the effectiveness of a participatory ergonomics intervention begun in the early 1990s at the Québec Liquor Commission in reducing injuries and increasing the management of prevention activities at the local level. Another evaluative project measured the effects of ergonomics training related to computer work. Thanks to the project's innovative approach, new light was shed on the utility of this type of training.

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In 1997, the Institute, faithful to the objectives it set for itself last year, gave new impetus to extramural health and safety research, and ensured that this research remained consistent with its client-driven priorities. Thanks to even closer collaboration with university researchers, over two-thirds of the new projects launched over the past year were conducted by external university researchers in partnership with internal IRSST teams.

In other developments, the Institute's joint agreement with the National Science and Engineering Research Council (NSERC) and the Université de Sherbrooke concerning the funding of an industrial chair in acoustics under the Professor-Industrial Researcher Programme on the Reduction of Industrial Noise was extended for five more years. Several related research projects are under way.

The success of the Institute's review of its graduate studies bursary programme and improved dissemination of programme information in 1997 was eloquently illustrated by the quality and relevance of the proposed projects and the increased proportion of doctoral and post-doctoral candidates.

*I. Kuorinka and L. Forcier (scientific eds.), Work related Musculoskeletal Disorders (WMSDs), Les lésions attribuables au travail répétitif, Ouvrage de référence sur les lésions musculosquelettiques liées au travail, A Reference Book for Prevention, Québec Taylor and Francis: Les Éditions MultiMondes Paris, 1995, vii-421 p.: Les Éditions Maloine, 1995, XXIV-514 p.

Useful Expertise and knowledge transfer

In 1997 the Institute continued to draw upon its internal and external resources to respond to its clients' and partners' needs. By so doing, it ensures that interventions undertaken to improve occupational health and safety fully exploit existing scientific knowledge and technical expertise.

This scientific and technical expertise was instrumental in CSST intervention programmes, particularly those related to abrasive blasting, electrostatic powder painting, the manufacture of reinforced plastic products, welding and cutting, falls from heights, and CTDs. These collaborative efforts also resulted in numerous training and knowledge-transfer activities, technical support in the field, and participation on various committees in an expert capacity.

- Significant training efforts were expended in the field of fall-prevention, an area in which the IRSST enjoys long-standing and widely recognized expertise. This knowledge-transfer activity elicited many requests for technical support from specific construction trades, activities, and projects.
- In collaboration with its partners, the Institute also organised a one-day brainstorming session on CTDs. Round-table discussions helped better target needs, and participants suggested enlarging the approach taken with CTDs to encompass all musculoskeletal problems, including back problems.
- As part of the CSST's intervention programme related to the manufacture of reinforced polyester products, the Institute supervised the collection of scientific data upon which a pocket guide to be distributed to companies will be based. In a related development, Institute researchers developed and evaluated a styrene-capture system suitable for use in the manufacture of small articles.

The Institute's expertise not only supported CSST intervention programmes but was also deployed in response to specific requests from the working community and health and safety specialists.

- To evaluate the quality of respirable compressed air, Institute contaminant specialists developed a new sampling system that allows analysis of 12 parameters requiring control. This technical-support activity was a particularly useful adjunct to the abrasive-blasting intervention programme.
- At the request of the Joint Sectoral Association, Mining and Mining Services sector, the Institute produced an inventory of diesel-emission control measures containing information on the health effects of diesel emissions, their exposure limits, and exposure-control techniques and technologies.

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———Institute researchers were also active in the prevention of pneumoconioses. In one particularly notable project, Institute researchers reviewed the market for abrasives, performed a cost-benefit analysis for the substitution of silica by less-toxic products, and analysed the factors that favour or militate against substitution.

———In response to requests from an aluminum smelter and Preventex, the textile sector's joint sectoral association, Institute experts performed a scientific validation of the ability of the Botsball™ device to measure the heat stress to which workers are exposed in a wide variety of weather conditions. The device was found to be an acceptable substitute for the equipment usually used in this unregulated area, as it is less expensive and easier to use.

———At the request of Bell Canada, Hydro-Québec and their partners, the Institute, in collaboration with the École de technologie supérieure (ETS), studied the extent to which chemicals used to extend the service life of wooden utility poles also causes them to harden and become more difficult to climb.

———A directory of construction systems used in Québec will improve firefighters' ability to predict the principal hazards present in old burning buildings.

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The Institute responded to more than 150 contaminant-related industrial hygiene questions in such fields as aerosol exposure, ventilation, and measurement techniques for various chemical contaminants. Approximately ten training sessions were offered on the measurement of carbon monoxide emissions from fork-lifts and on the measurement of gaseous contaminants in confined spaces. Requests for Institute expertise concerning electromagnetic fields were numerous and varied.

Expertise-related activities were part — often an integral part — of many research projects. Knowledge-transfer activities were begun this year as planned as part of an industry-wide research project concerning the safety of control systems in pulp and paper plants, and courses on control-system lock-out procedures were given to CSST inspectors.

The protection afforded to firefighters by boots commonly available in North America was evaluated this year, using test beds developed in recent years; similar trials were also conducted on boots used in forestry. The results of these evaluations will help stakeholders make informed choices about protective equipment and stimulate manufacturers to correct deficiencies in their products.

Institute scientists sat on committees responsible for updating various provincial regulations and reporting to the CSST's board of directors. One of the crowning achievements of these efforts was the wholesale revision of the exposure limits listed in Appendix A of the Regulation Respecting the Quality of the Work Environment to take into account non-traditional work schedules. Other activities included participation in national and international standardisation committees studying safety standards related to protective equipment, airborne chemical contaminants, falls from heights, machine safety, and industrial robots, and in a national committee responsible for the development of an information system to help prevent occupational accidents.

The Institute's expertise-sharing agreement concluded in 1997 with the International Isocyanates Institute was reaffirmation of its leadership in the field of isocyanate research. The agreement calls for the performance of two research projects over the next two years.

Thanks to agreements negotiated by the government of Québec, the Institute will have an opportunity in the coming years to showcase on the international stage its expertise in the safe use of asbestos. Under the terms of its mandate from the minister responsible for mines, lands and forests, the IRSST will implement bilateral programmes designed to prevent pulmonary disease in selected asbestos-using countries.

Open Dissemination and application of results

In 1997 the Institute's pervasive new approach, affecting everything from needs assessment to the application of results, had a positive impact of the dissemination and application of research results.

Our project-management policies ensure that special attention is paid from the moment a project begins to the communication and application of results, and a specific application strategy is required for each project.

In addition, the IRSST has developed many fruitful partnerships with joint sectoral associations. Because they are well established in their sectors, these associations know the concerns of both employers and workers, have developed appropriate intervention strategies, and — perhaps most importantly — are often the ones to request research and participate in it. They are thus well positioned to apply the results of the Institute's health and safety research.

Over the past year, our collaboration with joint sectoral associations was extremely productive. In many cases, they integrated our research results into their own training and information programmes and field interventions. For example, the Joint Sectoral Association, Municipal Affairs sector asked the Institute to develop a guide concerning the safe installation of computer equipment in police patrol cars, actively participated in its development, and ensured its distribution to all the police forces in Québec. The same association took the initiative of producing technical guides, based on Institute research delivered in 1997, on the composting of domestic waste and on wastewater treatment.

In collaboration with the Institute, the Joint Sectoral Association, Mining and Mining Services sector developed a guide on the control of exposure to diesel emissions and produced a pamphlet written in an accessible style that it distributed widely during site visits undertaken to sensitize stakeholders to their responsibilities. In a related development, phase three of a study of the evaluation of the potential for rock bursts culminated in the development of a detailed guide for a new technique for the evaluation of the risk of rock burst associated with bedrock ruptures.

Sometimes, results from complementary research projects can be integrated into prevention tools developed for the working community and specialists. An example of this can be seen in the poultry-breeding sector, where the results of intensive research since the beginning of the decade on the prevention of cumulative trauma disorders was instrumental in the development of a practical guide that will help the working community design and implement prevention strategies.

In a study whose results were published in 1996, Institute-funded researchers developed a new approach to the case management of back disorders that prevents these disorders from becoming chronic. This past year saw these results find concrete application with the opening of a clinic that implements this new approach. The research project was conducted at the Back Problems Clinic at the Centre hospitalier universitaire de Sherbrooke (CHUS), in collaboration with approximately 30 Sherbrooke-area companies and the CSST.

Throughout 1997, the Institute continued to provide interested parties with information on the results of its research. In all, it published 46 scientific documents, including 27 reports of new research and five laboratory methods. The Communications Division distributed 18 659 documents at special events and in response to requests, and published articles on 24 research and expertise-development projects conducted or funded by the Institute in Prévention au travail, the joint CSST-IRSST magazine.

Reliable Services

In 1997, Institute laboratories conducted 58 641 environmental and toxicological analyses for its partners in the prevention-inspection network, including the CSST, regional health and social services boards, local community services centres, and joint sectoral associations. A large proportion of these analyses were performed to support the development of health programmes by local community service centres and regional health boards for companies in economic sectors targeted by the CSST. In 60% of cases, the analystes were organic compounds, 10% were of metals or ions, 10% of dusts, and 20% were toxicological analyses. It should be recalled that the Institute's laboratories provide specializsed services to the CSST network under the terms of an agreement with a specific annual budget.

A concern for the quality and reliability of its laboratory services prompted the Institute to act on the increased demand for analyses noted in 1996. Accordingly, it sought to educate its clientele about the need to be more selective in undertaking industrial hygiene activities requiring laboratory analyses. Following analysis of laboratory statistics, the Institute sensitized the coordinators of regional health boards and representatives of physicians, industrial hygienists, and nurses to the need to give more thought to the relevance of the analyses they request, in order to limit their number. Thanks to this education campaign, the Institute received the same number of requests in 1997 as in 1996. Institute laboratories also performed 6 641 specialized analyses for employer groups, unions, associations, and companies. Another approximately 6 000 analyses were performed for the Institutes's researchers who develop new methods and as part of quality control programmes.

As in preceding years, we calibrated, maintained, and repaired monitoring equipment used by the CSST prevention and inspection network. The response to requests of this type from regional health and social services boards account for a significant fraction of the some 4 000 hours of services performed for the CSST's prevention network. The CSST also received support from Institute experts — most notably through the development of technical guides — when purchasing monitoring equipment for its prevention network.

organisation

The Institute's organisational structure is intended to ensure that all its research, expertise, immediate-response and service activities form a consistent and well-defined continuum, from initial needs assessment to the final delivery of results.

The Operations Division is responsible for all scientific and technical activities. Its mandate is to define research needs in response to the expectations of our partners in the working community and the CSST network, develop, coordinate, and apply the scientific research programme, and anticipate future needs. These activities culminate in the development of the Institute's annual scientific programme and ensure adequate production. By centralizing responsibility for internal and external research, establishing an integrated client-service structure, and combining responsibility for programme development and quality control, the Institute has provided itself with the tools it needs to ensure the excellence, efficiency, consistency and synergy of all of its scientific activities.

The mandate of the Quality Management and Special Projects Programme is to ensure the scientific quality of our internal and external activities, from the analysis of clients' needs to the distribution of results. This programme is also responsible for the scientific life programme and management of special projects.

The Client Service Programme integrates all service-related activities. Its mandate is to respond to requests from the CSST network, employers' associations, unions and companies, maintain operational links with our network of external researchers and ensure that their activities complement and are consistent with our own, develop applications of research results, and identify partners who can act as knowledge-transfer intermediaries.

The Institute's scientific activities, both research- and expertise-oriented, are carried out by five programmes forming the Operations Division: Work Organization, Safety Ergonomics, Safety Engineering, Analytical Support, and Industrial Hygiene and Toxicology. These programmes conduct scientific research and provide expertise within the framework of the Institute's annual research programme, and collaborate with external researchers. Two of these programmes are responsible for the laboratory services contract with the CSST and its network.

The Communications Division plans and manages activities related to the Institute's promotion and visibility. It places special emphasis on supporting the

Operations Division through the promotion of scientific and technical activities and the communication of results.

Finally, the Finances and Administration Division is responsible for ensuring the Institute's administrative credibility. To this end, it plans and manages the Institute's finances and human and material resources, and develops and applies tools for the monitoring of programmes and the assessment of performance. It also provides administrative support for scientific and technical operations and manages the secretariat.

In 1997, the Institute employed 130 people, 94 of whom were scientific personnel. During this same period, more than 135 of our external researchers either in universities, private-sector research centres and companies worked on Institute projects.

Organisational chart as of December 31, 1997

Board of Directors
Trefflé Lacombe

Executive Committee
Trefflé Lacombe

General Administration
Jean Yves Savoie

Scientific Advisory Board

Operations Division
Alain Lajoie

Finances and
Administration Division
Fransse Simard

Communications Division
Françoise Cloutier

Quality Management
and Special Projects
Jean-Claude Martin

Customer Service Programme
Colette Trudel

Work Organisation Programme
Denise Granger

Safety Ergonomics Programme
Daniel Imbeau

Analytical Support Programme
Nicole Goyer

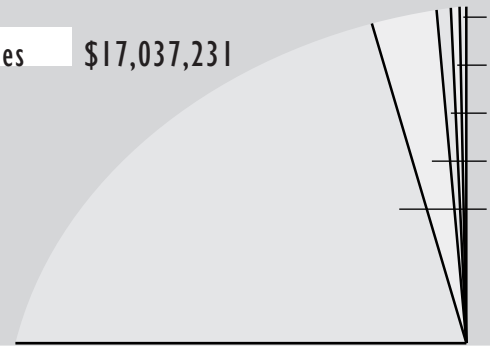
Industrial Hygiene
and Toxicology Programme
Claude Ostiguy

Safety Engineering Programme
Jean-Guy Martel

finances

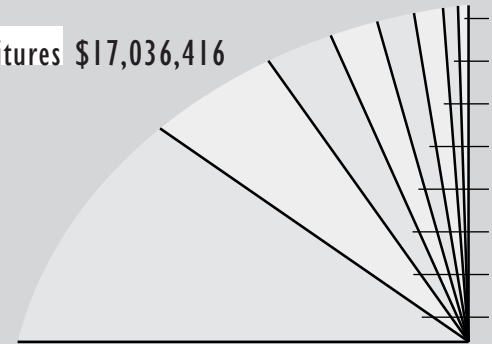
In 1996, the Institute's total revenue was $17,037,231, including a grant of $14,309,000 from the CSST. Expenditures over the same period were $17,036,416146.

Revenues $17,037,231



Other revenue	0.3%
Interest	0.4%
External contracts	1.8%
Laboratory services	13.5%
CSST	84.0%

Expenditures $17,036,416



External contracts	1.8%
Management	2.2%
Communications	5.6%
Customer service and technical support	6.4%
Finances and administration	8.7%
Laboratory services	13.5%
External research	20.4%
Internal research	41.4%

Drawing a bead on firefighter safety

It should come as no surprise to learn that firefighting is a dangerous occupation. In 1997, the publication of the results of an IRSST study conducted in collaboration with two municipal fire departments in Québec shed new light on the accidents suffered by firefighters. Researchers drew up a statistical profile of the accidents suffered by firefighters, described the characteristics of the accidents in detail, and produced a standardized accident-inquiry form. The better understanding of accidents which this research provides was complemented by a better understanding of hazards, thanks to a directory of construction systems used from the 178th century to the present. This directory, developed by a team at the Université de Montréal, will be used in training sessions on the structural behaviour of old buildings and the hazards of fighting fires involving them. Finally, the Centre for Textile Technology issued recommendations concerning materials likely to improve firefighters' dexterity while wearing protective gloves and their thermal comfort while wearing two-piece uniforms. All of these projects reflect the research priorities of the Joint Sectoral Association, Municipal Affairs Sector.

"Thanks to this architect's research, the Montreal Fire Department's Training Centre has detailed plans of typical building-types in its territory and a historical profile of building techniques and materials, including additions and modifications, over the years. This material has been integrated into the 45-hour training programme that all of the Department's officers and three-quarters of its firefighters have received."

Yvon Gauthier - *Lieutenant, City of Montreal Fire Prevention Department, Station 16, Group 1*

"By accepting to support this architectural research and enlarge its scope to include all of Québec, the IRSST has helped provide firefighters with very useful prevention tools."

André Bourdeau - *Retired, formerly Assistant-director for Health and Safety Training, City of Montréal Fire Prevention Department*

Reduction of toxicological risk

in workplaces using non-traditional work schedules

Are conventional contaminant-exposure limits applicable to non-traditional work schedules, i.e. schedules other than eight hours per day, five days per week?

This was the question facing the bipartite committee responsible for revising Appendix A of the Regulation Respecting the Quality of the Work Environment. To answer it, the expert group in toxicology created by the IRSST developed a method of adjusting the exposure limits of each of the 668 substances listed in the regulation. The method, inspired by the one proposed by the United States Occupational Safety and Health Administration (OSHA), adopts a global approach rather than one based on the application of a single correction factor. Using this approach, each substance was reviewed on a case-by-case basis.

In addition to providing the bipartite committee with guidelines, the results of this research will prove useful to industrial hygienists, as the researchers produced a technical guide for each substance.

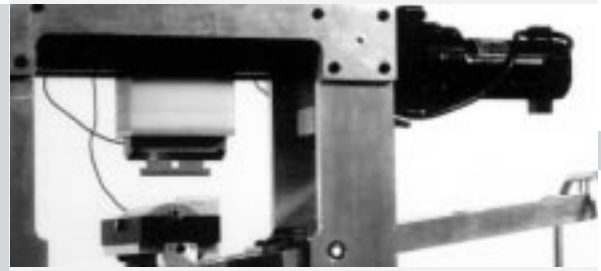
"My colleagues and I found our work in response to the bipartite committee's request very stimulating. The comprehensive work which resulted has led us to systematically review all of the data obtained with the current adjustment method. We are confident that our results and our suggestions concerning the application of the adjusted limits will lead to improved prevention of occupational diseases."

Dr. Jules Brodeur, toxicologist - *Emeritus Professor, Département de médecine du travail et hygiène du milieu, Université de Montréal*

Commercialisation of the IRSST method

for the measurement of the resistance of protective gloves to laceration

This year's launch of mass production of the TDM-100 test-bed was the culmination of some ten years of research on the development of methods and equipment with which to measure the resistance of materials — specifically, the protective gloves worn by workers in different industries — to laceration. The adoption of the IRSST method as a standard depends however on the extent to which it can be applied in a rigorously standardised and reproducible fashion. The equipment has been designed to ensure precise performance: for example, the force produced is adjustable, although constant in a given assay, and blade movement can be measured precisely. The transition from prototype to large-scale production by a commercial partner should reassure standardisation organizations — such as the International Standard Organization (ISO), the European Standardisation Committee (ESC) and the Canadian Standards Association (CSA) — who have expressed interest in the method.



"Our investment in the development of this new measurement device is justified by the global market that our agreement with the IRSST opens up. The quality of the proposed design and the support of Institute experts during the development of the prototype and instruction manual have made this development initiative a success."

Louis Lapointe - *Project Director, Les Produits industriels RGI inc.*

Innovative guides

to help physicians diagnose CTDs

The publication in 1997 of the first two guides on the diagnosis of cumulative trauma disorders (CTDs) was one more step in our efforts to better understand this phenomenon and provide specialists with adequate prevention, treatment, and rehabilitation tools. These guides are a response to a need noted by the IRSST's international expert group — who reviewed the literature on CTDs in 1995 — and to requests addressed to the IRSST by physicians.

The guides describe two types of injury of well documented occupational etiology: carpal tunnel syndrome, a condition resulting from injury to the median nerve at the wrist, and De Quervain's tenosynovitis, an inflammation of the tendon sheath of the thumb muscles. These guides were designed to help physicians come to informed clinical and etiological decisions, particularly regarding the dependence of the conditions on occupational factors. Some 60 physicians and experts participated in the development of the guides by the interdisciplinary group responsible for the project.

"Physicians face great challenges in diagnosing musculoskeletal injuries and establishing their possible link to working conditions. The approach these guides propose is consistent with that usually taken by physicians during consultations with patients. In addition to a review of the elements necessary to arrive at a diagnosis, each guide provides physicians with questions to help them visualize risk factors and assess their etiological relevance."

Louis Patry - *Occupational physician and ergonomist, Professor, Department of Epidemiology and Biostatistics and Occupational Health Sciences, McGill University, Consulting physician, Department of Public Health, Montréal-Centre*

New light on the effects

of training on the ergonomics of computer work

Yes, you can learn how to set up your computer workstation yourself! The evaluation of a training programme on workstation layout offered to some 1 000 support personnel using computers revealed that six months after the training session, three out of five participants had taken action and improved at least one of the three stressful postures known to contribute to the development of musculoskeletal and visual problems. Furthermore, symptoms of physical problems associated with computer work had diminished by half among participants younger than 40 years. This evaluation, performed by two researchers at the Université Laval, innovated in its use of a large study population (627), its use of a control group, the evaluation of specific actions rather than behaviour, and the confirmation of reported symptoms through physical examination. Communication of these research results has stimulated interest for this type of training in several settings where computer work is common, and has multiplied the impact of the project.

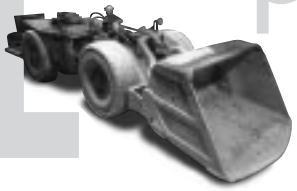
"As partners in the design and delivery of the computer ergonomics training programme, we are pleased that scientific research has proven that we are on the right path. By clearly demonstrating the gains resulting from our members' participation in the planning of workstation layout, this research stimulates us to continue our efforts to improve occupational health and safety."

Micheline Daigle - *President, Union of Université Laval Workers - CUPE (FTQ)*

"The results of the evaluation have surpassed our expectations. Not only do they confirm the effectiveness of having office workers manage the layout of their workstations, they allow us to extend the programme to other computer users and provide us with useful recommendations concerning equipment purchasing and workstation analysis."

Micheline Beaudouin - *Assistant to the Vice-Principal, Human Resources, Université Laval*

A guide to help prevent hazards related to the use of diesel motors



Are diesel emissions carcinogenic?

This question has preoccupied workers and employers in the mining sector, where diesel vehicles are common.

Upon receiving a request concerning the toxicity of diesel fumes from the sector's joint sectoral association, the IRSST first reviewed the scientific literature on the subject. The review revealed that these emissions were generally, although not unanimously, considered to be possible or probable carcinogens,

A subsequent request by the joint sectoral association, this time for information on the control of the harmful effects of these emissions, led to the production of a directory of techniques and technologies suitable for use in controlling diesel emissions in the mining sector. Produced in close collaboration with the Canadian Centre for Mineral and Energy Technology (CANMET) and the joint sectoral association, the guide presents control measures and tools capable of reducing exposure to diesel emissions, and describes the emissions' properties, impact, and exposure limits.

"Finally, the information we've been waiting for! In some workplaces, workers know little about diesel fumes. But miners in underground mines now know the effects of the fumes they breathe."

André Naud - *Vice-President, Steelworkers Union, Local 5914, Prevention Representative, Ressources MSV*

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