# Summary of work-related MSDs in the province of Quebec (Canada) and priorities

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# Purpose of the presentation

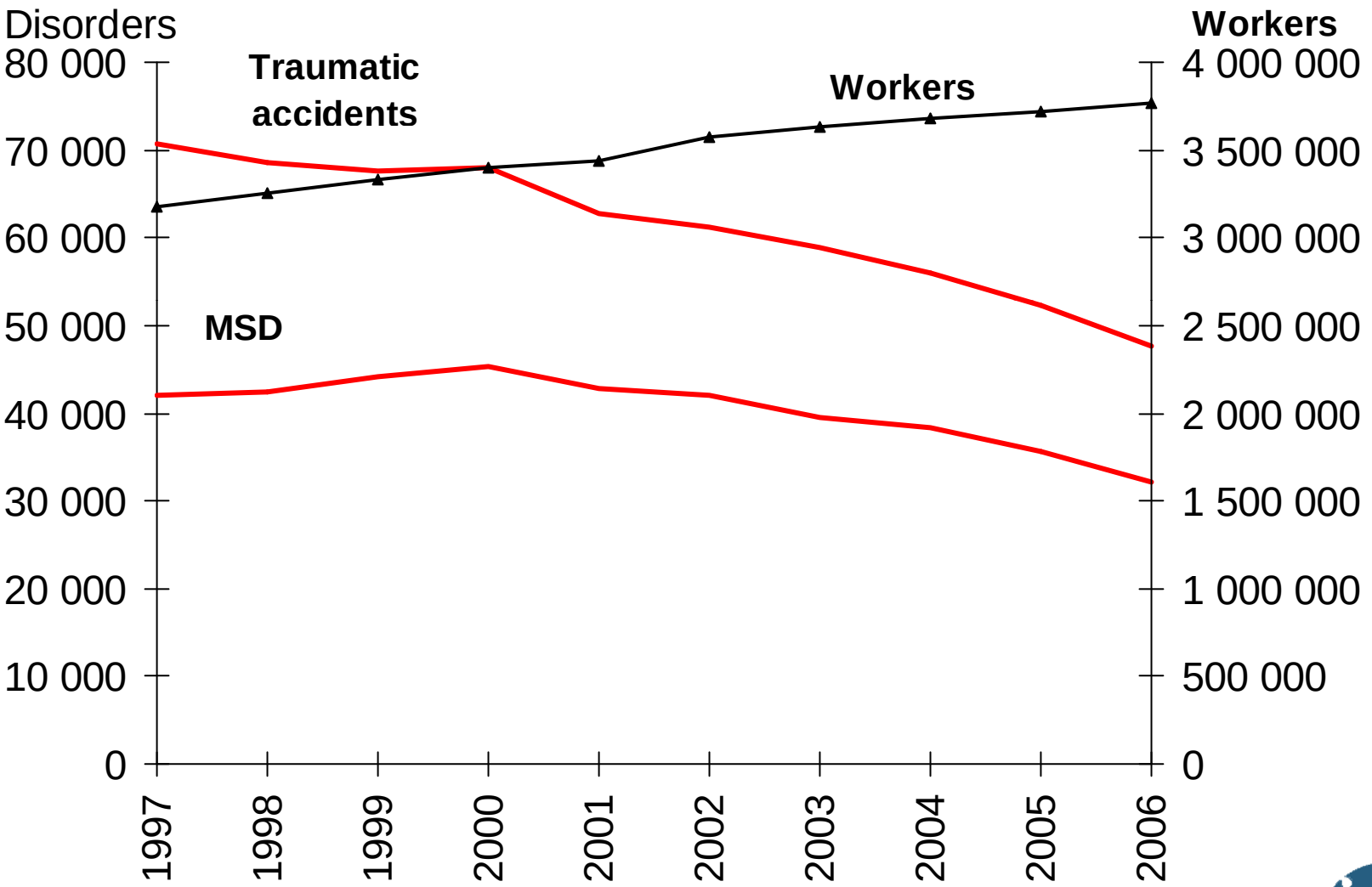
The objective of this presentation is to give:

- a summary of work-related MSDs in the province of Quebec (Canada);
- the priorities of research in MSDs at the IRSST;
- an example applied to manual material handling.

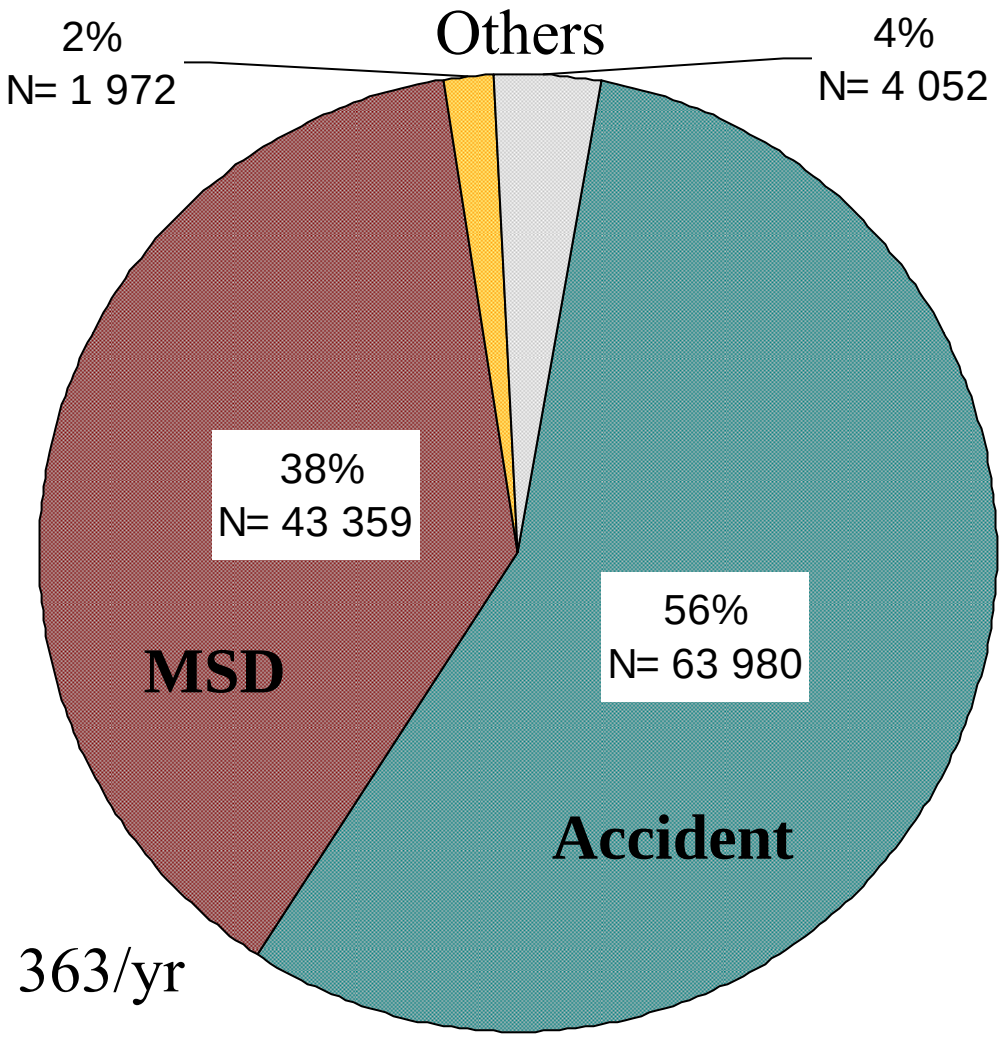
# CSST

- Province of Quebec, Canada
- Population= 7,750,500
- CSST = Commission de la santé et de la sécurité du travail = workers' compensation board of the province of Quebec (Canada).
- CSST provides insurance service that allows workers to be compensated following an industrial accident or an occupational disease.
- Number of workers covered: 3,158,000

# Statistics from CSST
## Number of compensated injuries (1997-2006)



# Total number of compensated injuries (2001)




Total = 113 363/yr

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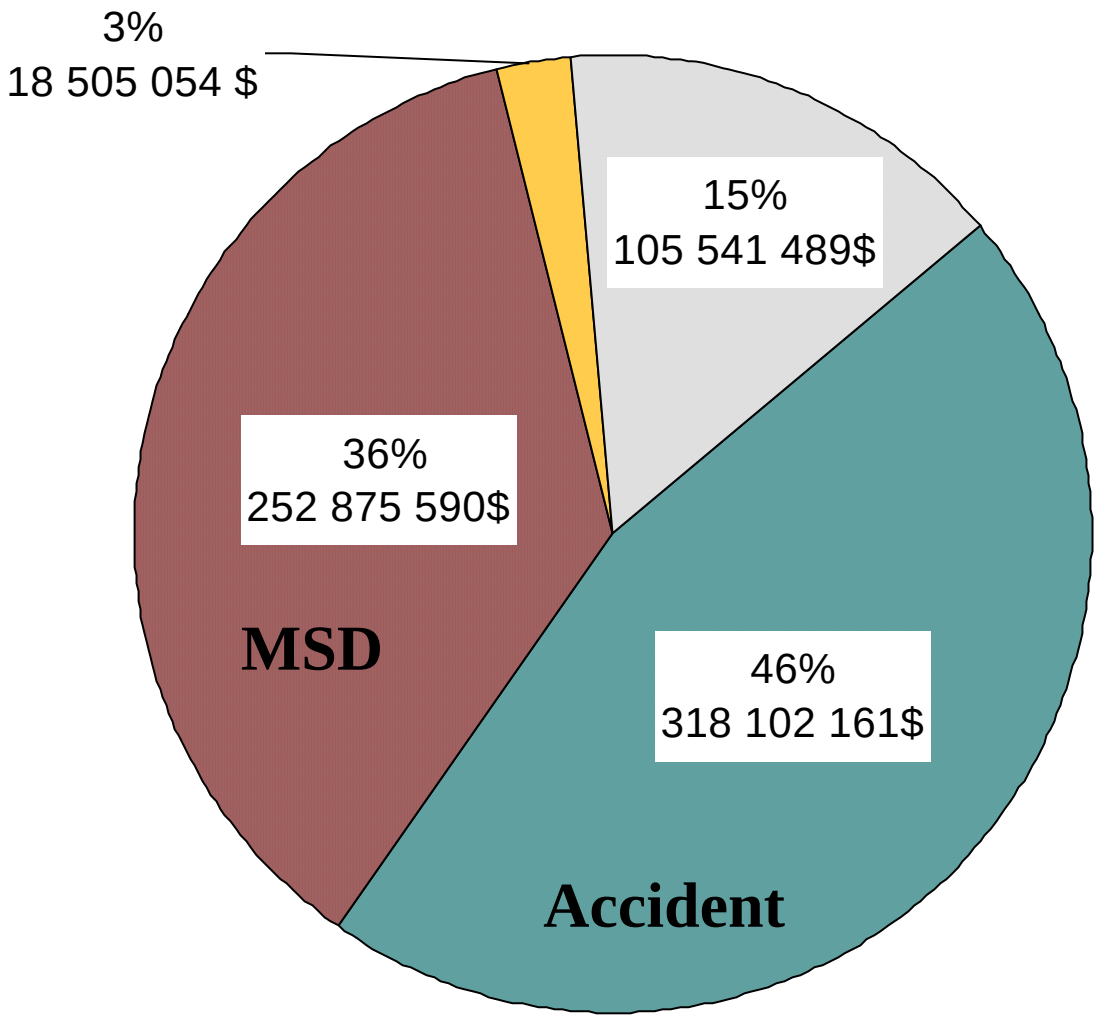
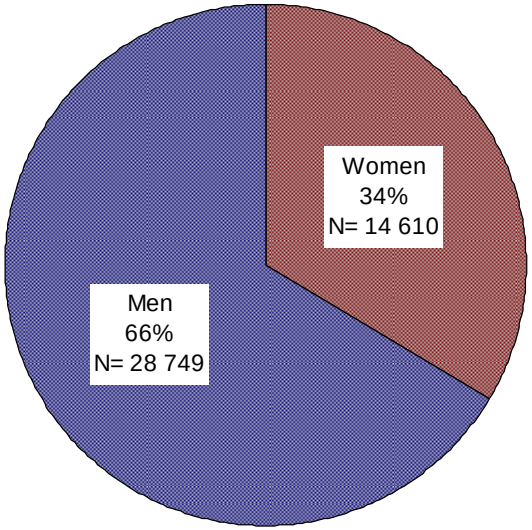
# Cost of compensated injuries (2001)

MSD ≈ 160 000 000 € /yr

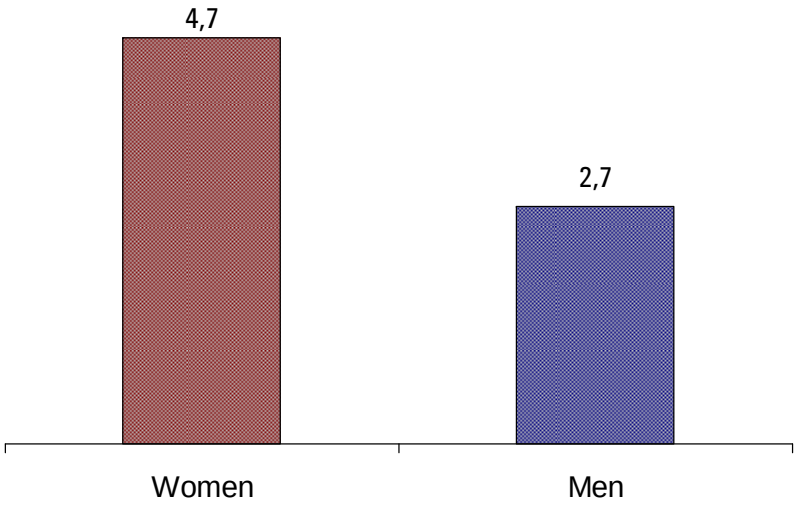


# MSD compensated in 2001

Nb of cases




% prevalence




Total = 43 359

# High-risk occupations for MSD (2001)

| Occupations | Compensated MSD | | Cost | | Compensated days | | Rank |
|---|---|---|---|---|---|---|---|
| | n | % | € | % | n | % | |
| Manual materials handlers | 7 480 | 17.3 | 22 606 572 | 14.0 | 476 138 | 14.9 | 1 |
| Nursing assistant | 2 168 | 5.0 | 6 691 472 | 4.1 | 137 514 | 4.3 | 2 |
| Truck operator and delivery man | 2 156 | 5.0 | 9 326 653 | 5.8 | 172 538 | 5.4 | 3 |
| Janitor and maintenance man | 1 312 | 3.0 | 4 521 580 | 2.8 | 105 165 | 3.3 | 4 |
| Day Labourer | 1 295 | 3.0 | 4 408 003 | 2.7 | 94 550 | 3.0 | 5 |

# Men: High-risk occupations for MSD

| Occupations | Compensated MSD | | Cost | | Compensated days | | Rank |
|---|---|---|---|---|---|---|---|
| | n | % | € | % | n | % | |
| Manual materials handlers | 5 687 | 7.9 | 16 564 933 | 6.2 | 330 109 | 6.4 | 1 |
| Truck operator and delivery man | 2 098 | 2.9 | 9 024 653 | 3.4 | 166 462 | 3.2 | 2 |
| Day Labourer | 967 | 1.3 | 2 976 822 | 1.1 | 60 073 | 1.2 | 3 |
| Automobile mechanic and motor vehicle body repairer | 894 | 1.2 | 4 605 834 | 1.7 | 81 872 | 1.6 | 4 |
| Welder and flame-cutter | 760 | 1.1 | 2 675 338 | 1.0 | 46 028 | 0.9 | 5 |

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# Women: High-risk occupations for MSD

| Occupations | Compensated MSD | | Cost | | Compensated days | | Rank |
|---|---|---|---|---|---|---|---|
| | n | % | € | % | n | % | |
| Nursing assistant | 1 798 | 12.3 | 5 775 393 | 10.3 | 120 257 | 9.5 | 1 |
| Manual materials handlers, day Labourer | 1 792 | 12.3 | 6 041 639 | 10.7 | 146 030 | 11.5 | 2 |
| Nursing DEC | 731 | 5.0 | 2 247 506 | 4.0 | 41 560 | 3.3 | 3 |
| Nursing B.Sc | 721 | 4.9 | 2 568 468 | 4.6 | 38 326 | 3.0 | 4 |
| Janitor, maintenance, cleaner | 591 | 4.0 | 2 167 839 | 3.9 | 57 067 | 4.5 | 5 |

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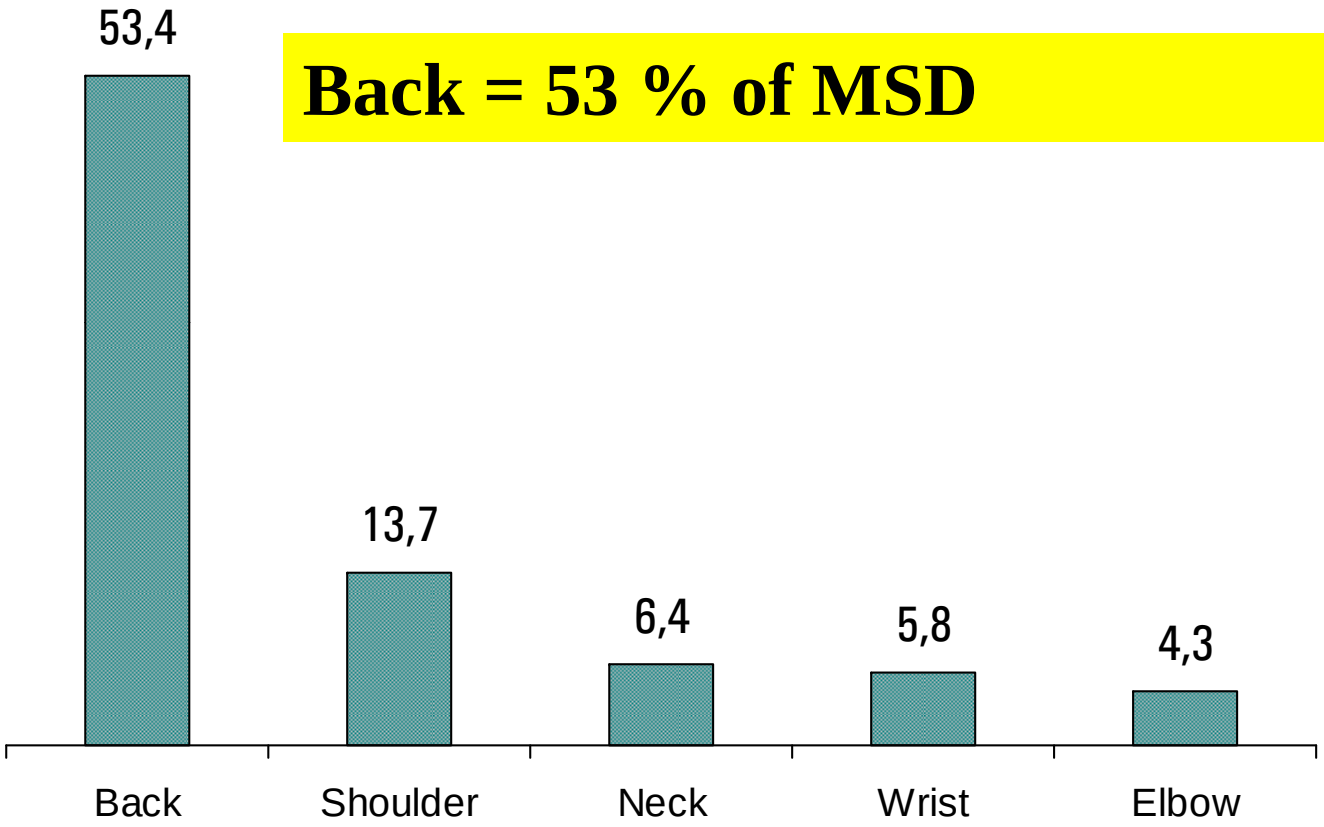
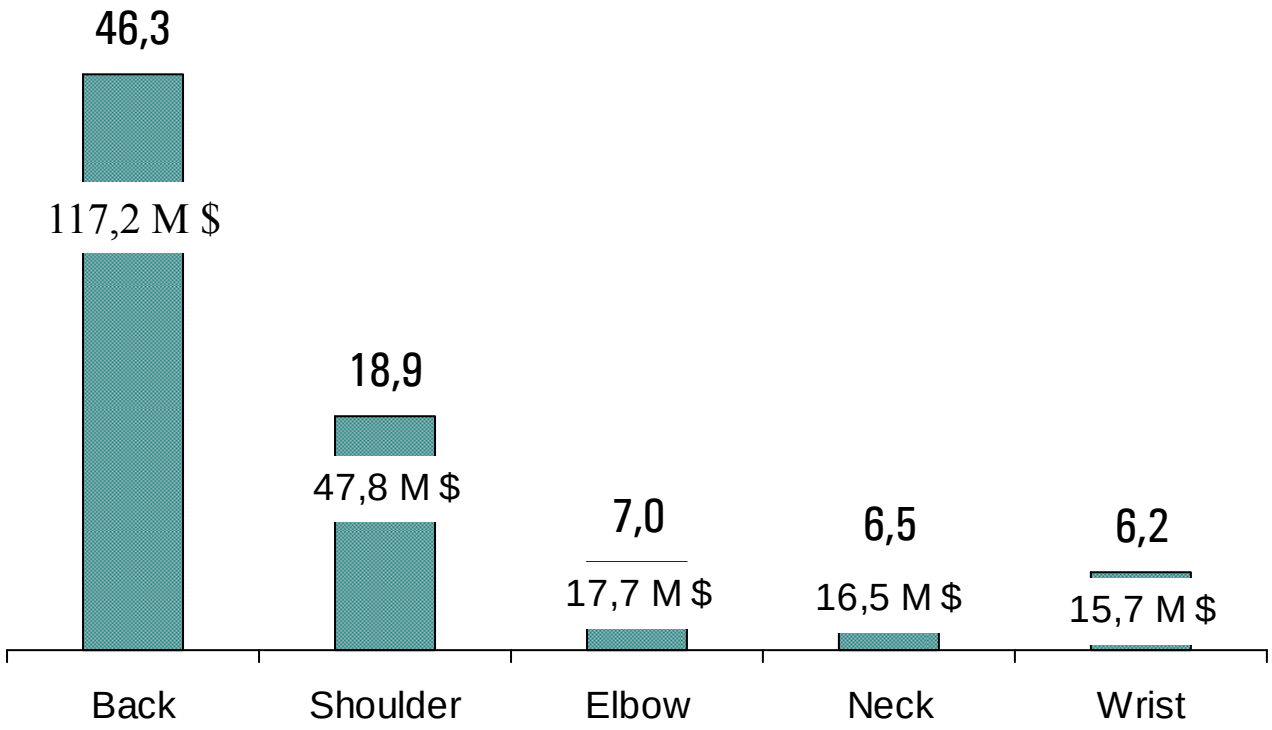
# MSD site (%) compensated (2001)



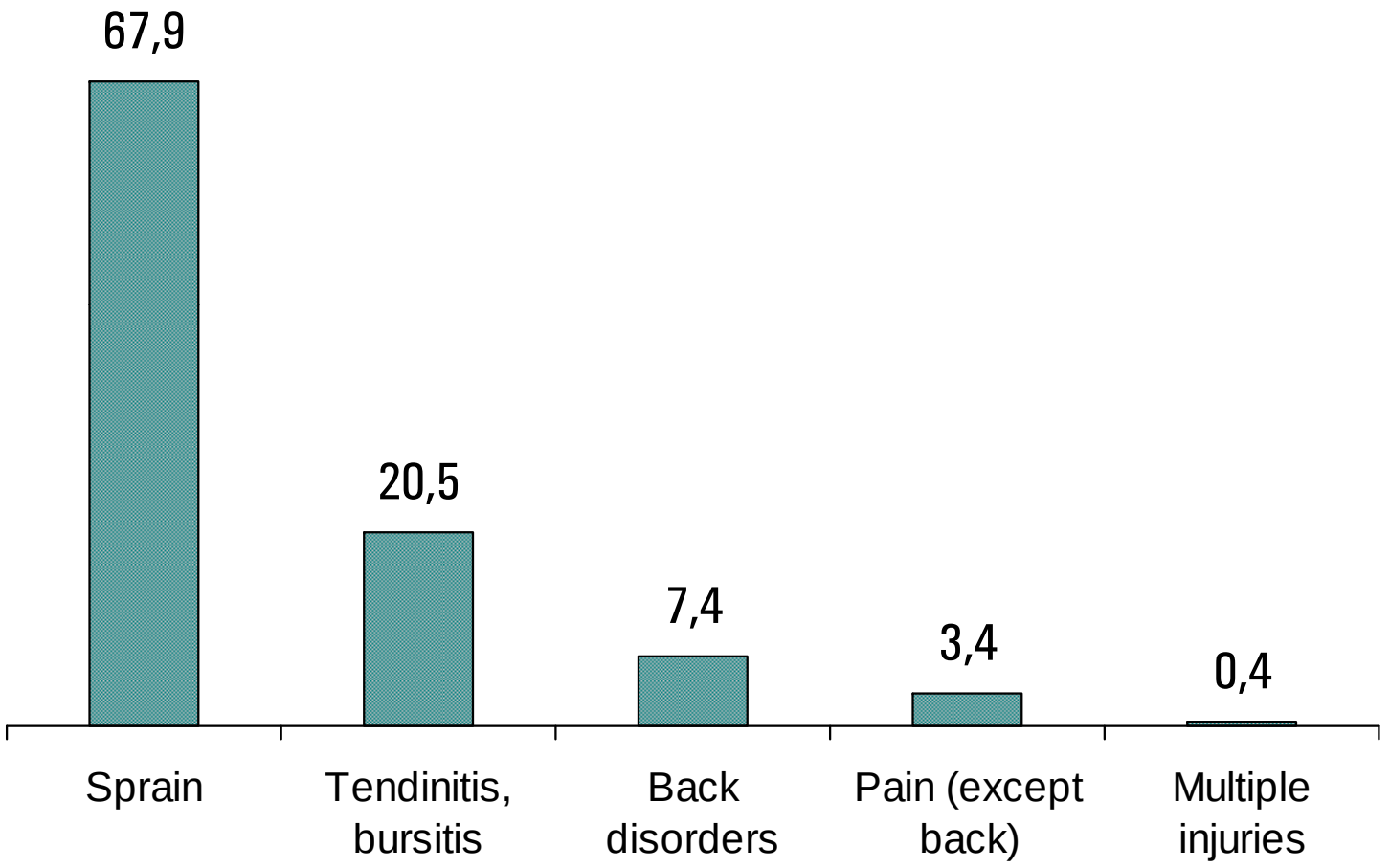

**Back = 53 % of MSD**

# Cost of MSD per region (%)

**Back = 117 M $ or 75 M €**



# Type of MSD (%) compensated (2001)





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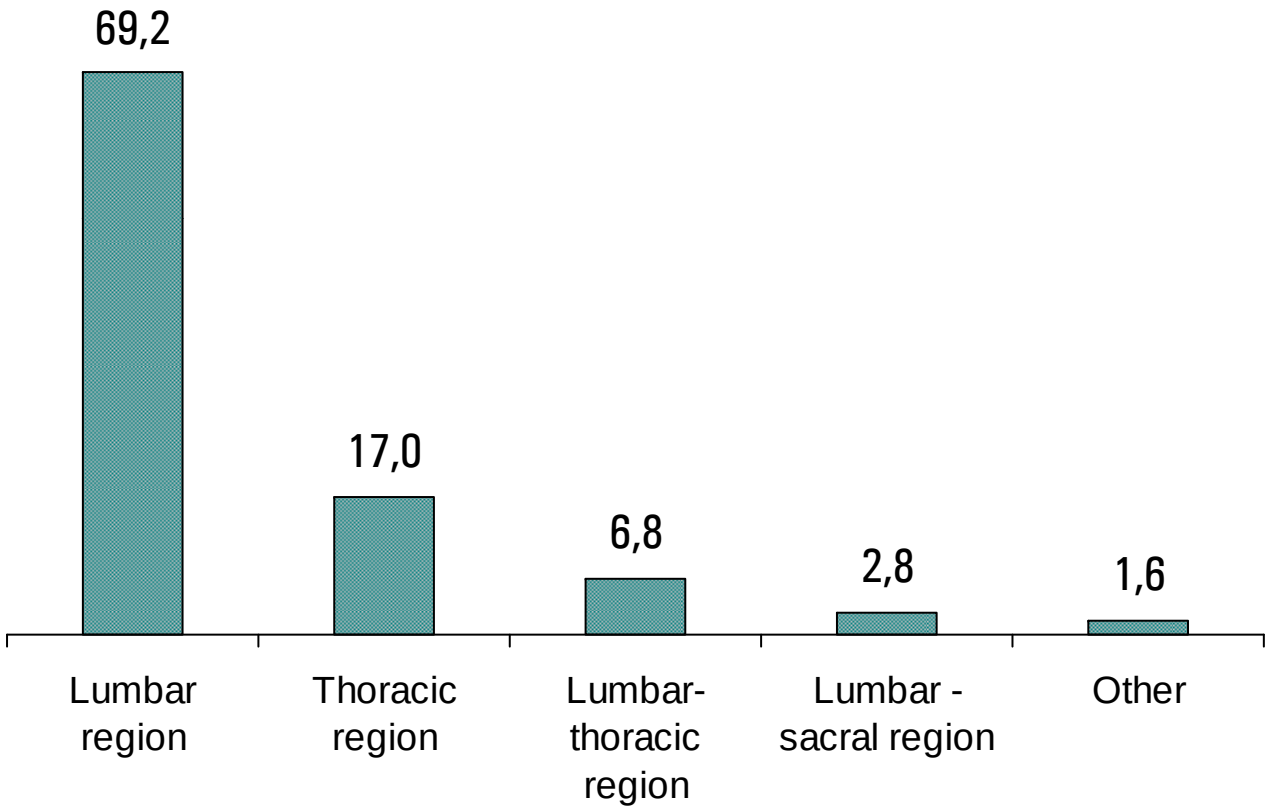
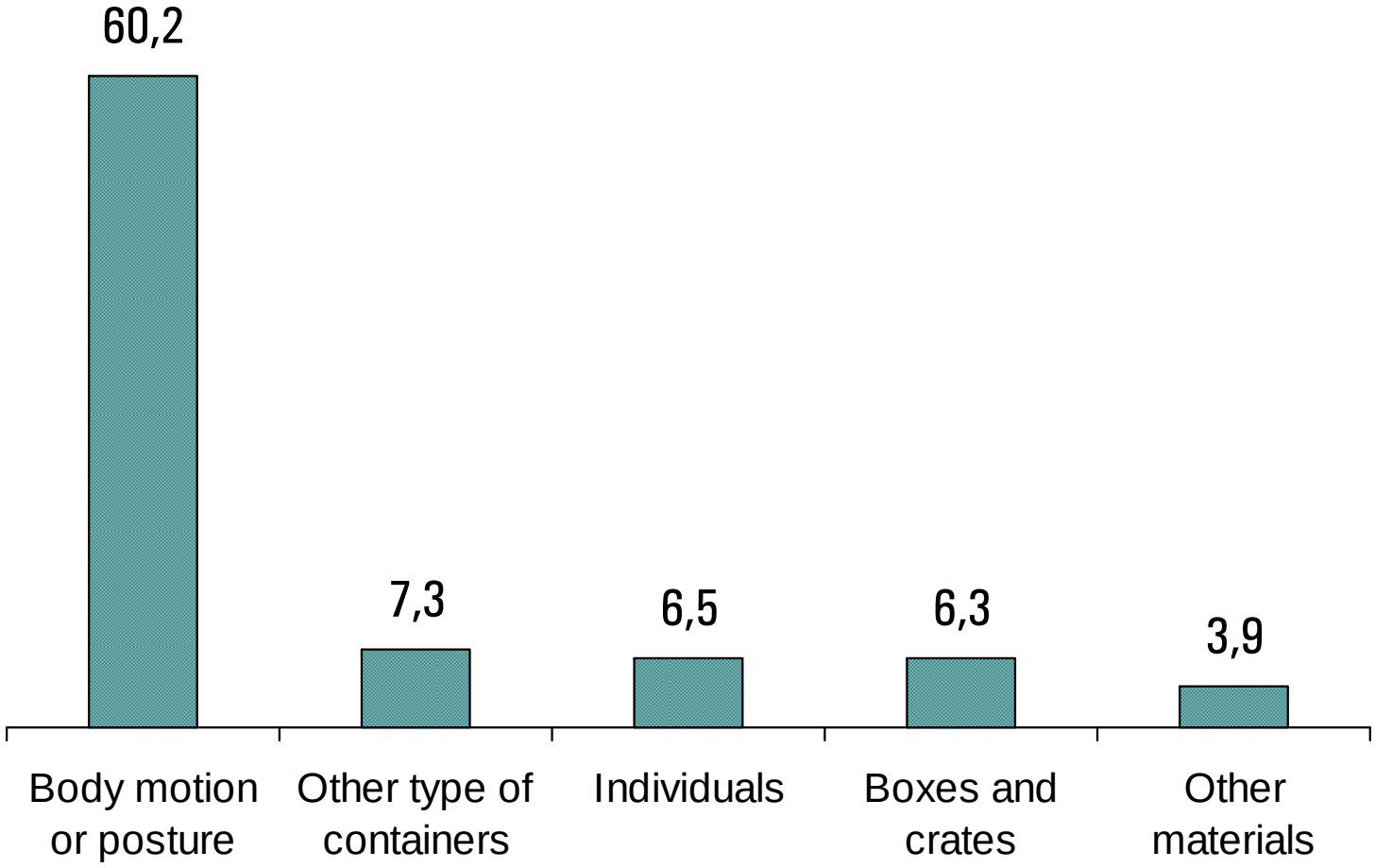
# Site of back injuries (%)

**69 % of back injuries occurred in the lumbar region**

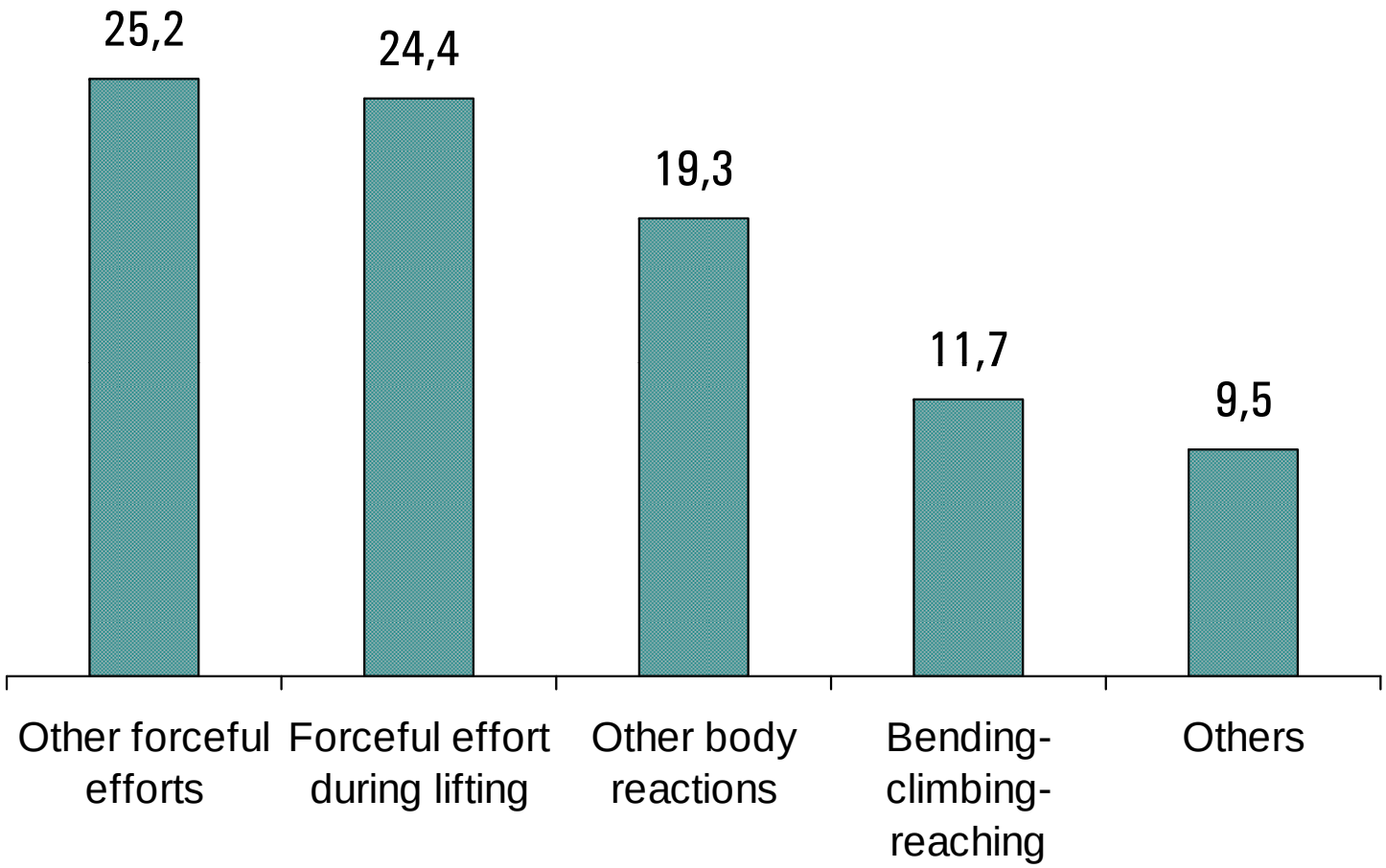


# Probable causes of MSD (%)

**60 % of MSD are related to body motion**



# Physical factors related to MSD (%)




**59 % of compensated back injuries are related to a forceful effort**

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# Statistics from CSST (2003-2007)

- Statistical data indicate that MSD account for 37% of the injuries accepted in Quebec from 2003 to 2007, or 210,458 cases (over 562 417 cases compensated.
- The proportion of MSDs due to manual material handlings (MMH) was 50% or 106,325 cases.

# Probable causes (%)

**Distribution des TMS acceptés reliés à la manutention selon l'agent causal de la lésion ou l'agent causal secondaire, Québec, cumul de 2003 à 2007**

| Agent causal de la lésion ou secondaire | Nb | % |
|---|---|---|
| P | | |
| M | | |
| O | | |
| T | | |

**Objects** **80%**

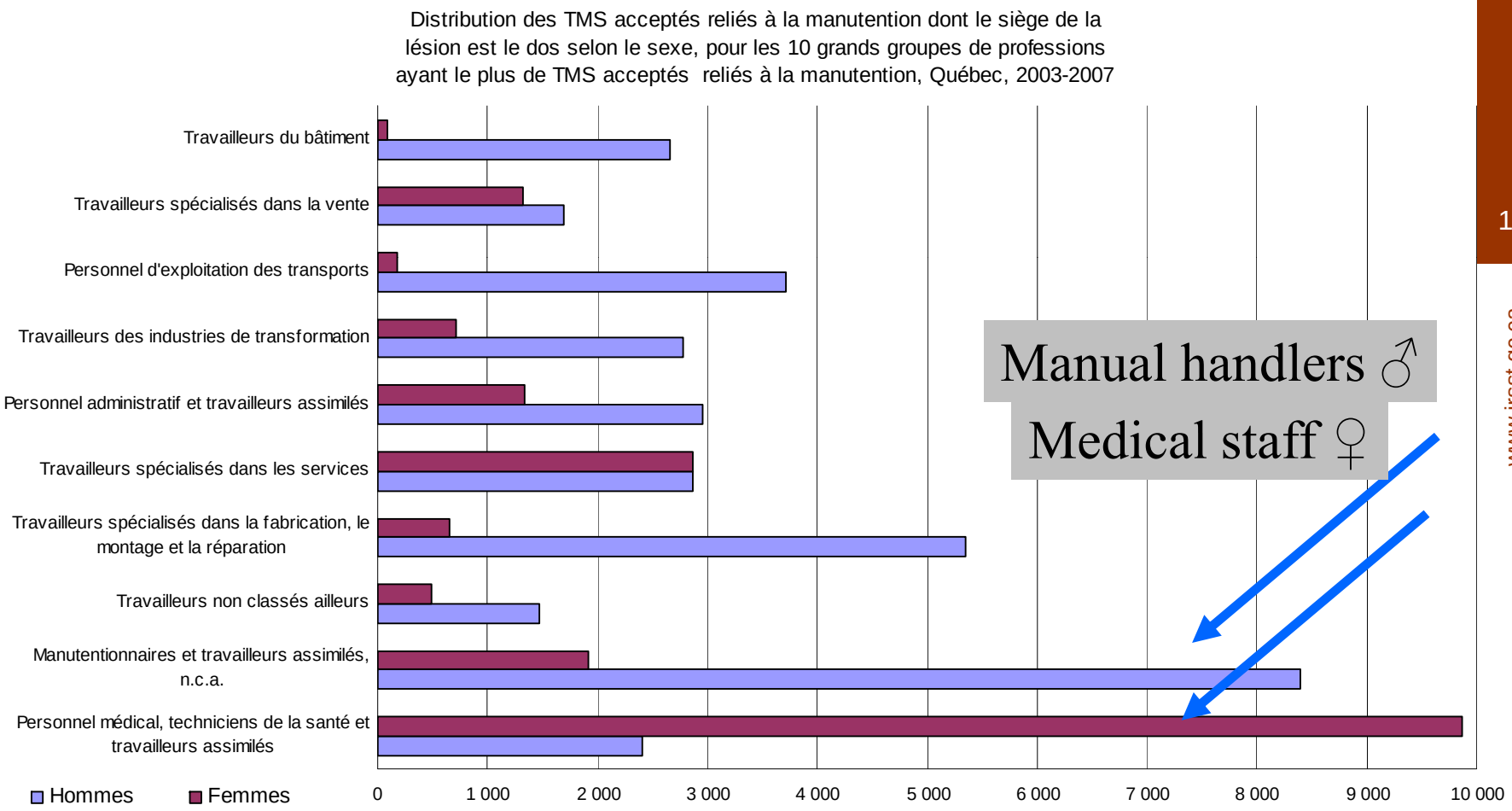


**Distribution des TMS acceptés reliés à la manutention selon le genre d'accident ou d'exposition, Québec, cumul de 2003 à 2007**

| Genre d'accident ou d'exposition | N | % |
|---|---|---|
| | 413 | 0.4 |
| nt objets | | |
| | 3 249 | 3,1 |
| Placer, saisir, déplacer de façon répét. objets, sauf outils | 3 691 | 3,5 |
| Réaction du corps et effort, n.c.a. | 9 914 | 9,3 |
| Réaction du corps et effort, non précisés | 2 186 | 2,1 |
| Total | 106 325 | 100,0 |

**Forceful effort** **82%**

# Professional handlers at risks: Back



# IRSST

- IRSST = Institut de recherche Robert-Sauvé en santé et en sécurité du travail = Occupational health and safety institute
- IRSST: Private non-profit organization
- Mission: contribute through research to the prevention of industrial accidents and occupational diseases.
- Most of its funding come from CSST.
- IRSST established a research program dedicated to the training of handlers

# Research orientations in MSDs

**Improving knowledge and practices in ergonomic intervention.**

Achieving tangible results implies a better understanding of how to encourage workplaces to carry out changes in order to reduce risks.

**Developing studies and monitoring tools**

Finally, enlightened research planning requires monitoring of both the injuries and exposure factors in certain populations of workers.

# Research orientations in MSDs

**Studying the relationship between the exposure of workers and the effects on their health**

The aim of WMSD research is to reduce these impacts in the workplace. Achieving this objective requires a better understanding and therefore a better evaluation of the relationships between exposure to risk factors and the occurrence of MSDs.

# Research program in manual material handling

#1
Research on manual material handling principles:
1) Comparison between expert and novice handlers.
2) Ergonomic observation of waste collection workers.
3) Biomechanical and ergonomic study of experienced female handlers.
4) Ergonomic and biomechanical evaluation of tire handling.
5) Physical exposure measurement of paramedics during the performance of strenuous work tasks.

#5
Development of tools to measure physical exposure in the field

#3
Implementation of a new training program in manual material handling

#4
Validation of the training program in the field

#2
Development of a training program based on expert handlers' performance:
1) Literature review
2) Internet, books and report reviews
3) Past research

#6
Research transfer


Discussion network and Internet forum

Manutention
La charge, on la partage !

# Thank you for your attention

Questions ?