



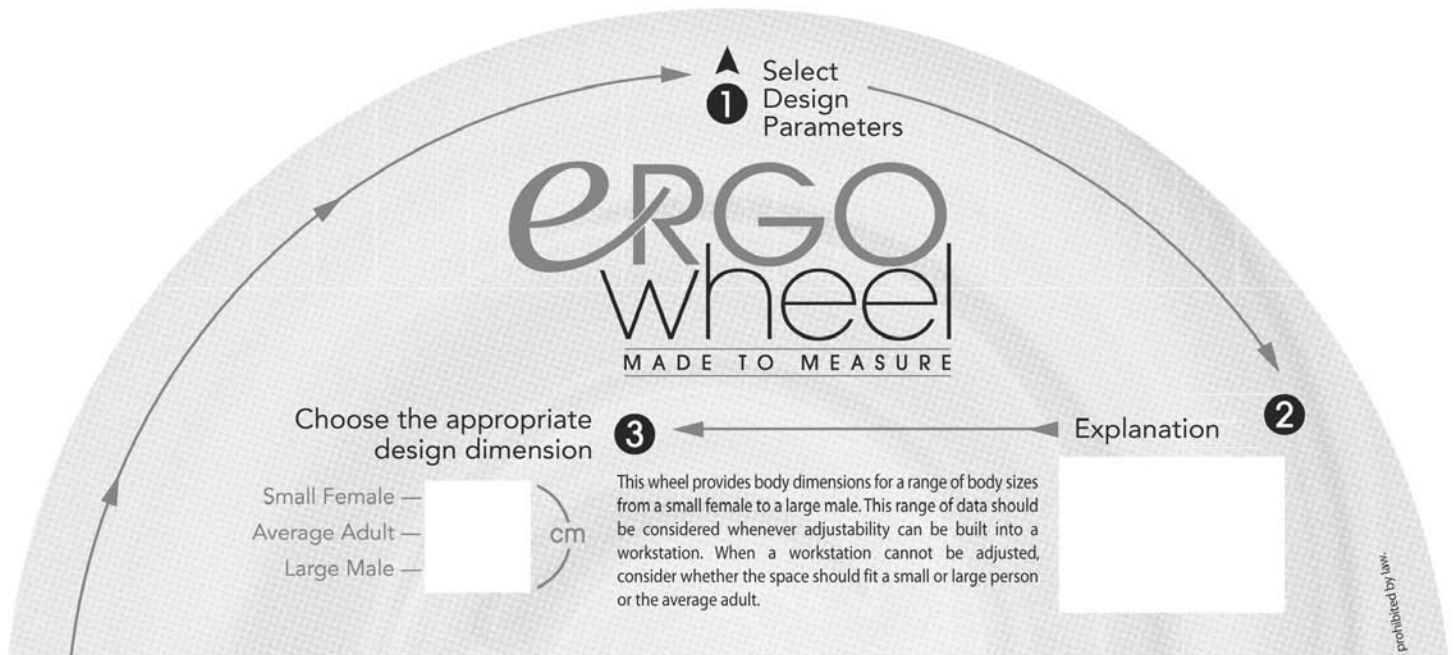
Ontario Safety Association  
for Community & Healthcare

# Ergonomics in Hospital Design



A Guide and Workbook to  
Prevent Musculoskeletal Disorders

# Ergonomics in Hospital Design: A Guide and Workbook to Prevent Musculoskeletal Disorders



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# Preface

The Ontario Safety Association for Community & Healthcare (OSACH) is a not-for-profit organization, designated as a Safe Workplace Association under the Workplace Safety and Insurance Act (S.O. 1997).

## ***The Reason for this Guide***

According to the Workplace Safety and Insurance Board, musculoskeletal disorders (MSDs) account for 57% of all lost-time injuries in the health care sector and 42% of all lost-time claims in Ontario's broad sector workplaces (Data Source: WSIB Firm Experience September 2005). Further, more than \$2.2 billion has been spent on lost-time costs associated with MSDs from 1996 to 2003 (Occupational Health & Safety Council of Ontario, 2005).

The application of ergonomic principles at the design stage is a key opportunity to control the risk factors associated with MSDs. The opportunity to apply ergonomics at the design stage rather than reactively during the post-construction phase enhances the effectiveness of this intervention.

OSACH has developed this guide, workbook and a tool we call the ***Ergo Wheel*** for occupational health and safety professionals, multidisciplinary professionals, hospital staff, joint health and safety committees, unions, planners, architects and designers to assist them with the integration of ergonomic considerations during the planning and design of hospitals and redevelopment projects. The ***Ergo Wheel*** helps users to determine work space requirements to fit the varied sizes of employees.

**“We shape our buildings and afterwards our buildings shape us.”**

**—Winston Churchill**

This guide champions the need for better ergonomic design to support the ongoing musculoskeletal well-being of our health care employees, our most valuable resource. The guide complements the Ministry of Health and Long-Term Care (MoHLTC) Capital Planning Process and outlines how ergonomics can be integrated into the various design stages to enhance the work environment and prevent MSDs.

Many other health and safety hazards in hospitals should also be addressed at the design stage. Additional resources on health and safety considerations include Health Canada's *Communicable Diseases Report on Construction-Related Nosocomial Infections in Patients in Health Care* and the Ontario Safety Association for Community & Healthcare's *Workplace Violence and Slips and Falls Prevention Programs* as well as our *Planning Guide for the Implementation of Client Mechanical Lifts*.

## ***Guide and Workbook Layout***

We explain the capital planning design process and how ergonomics can be integrated into it. We outline an ergonomic review process and provide tools to help you conduct the ergonomic review of the area being designed. The seven tools will help you to identify:

- Work areas and tasks within a department
- Workflow within the department
- Employees' perception of the work environment
- MSD risks associated with job tasks
- Employees' MSD symptoms
- Infrastructure barriers contributing to MSDs
- Equipment and workstation MSD risks

We also provide ergonomic design queries for 13 service areas. These include:

- Computer workstations
- In-patient and out-patient
- Critical Care
- Laboratories
- Pharmacies
- Diagnostic Imaging
- Health Records
- Central Processing
- Food Services
- Housekeeping
- Laundry
- Maintenance
- Shipping and Receiving

We also provide additional resources in Appendix B. These include:

- Determining the risks of lifting
- Body Postures – recommended ranges of motion
- Standing at work – body size (anthropometric) dimensions
- Seated at work – body size (anthropometric) dimensions
- Mock-up staff questionnaire

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*Note: References in this document to specific products or firms are provided for illustrative purposes only and do not indicate endorsement of these products or firms by OSACH, the hospitals participating in this project or the reviewers.*

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