



Alberta Centre for

INJURY
Control & Research

Health Issues Related to Older
Workers

Don Voaklander
School of Public Health
University of Alberta

Introduction

- We have an aging work-force in Canada
 - Average age in 2008 – 41 years
- The number of older persons working part-time post-retirement is increasing
- Some populations like farmers work well beyond “normal” retirement age
 - Average age of farm owners in Canada – 55 years

Older Workers and Injury

- Generally older workers have fewer injuries than younger workers
 - However, injuries tend to be more severe
 - More chronic injury in older workers
 - Analyses complicated by
 - Healthy worker effect
 - Task selection/assignment
 - Physiological capacity
 - Who is an older worker
 - 55+?, 45+?, 65+?

Older Workers

- Physiologic Capacity
 - Aerobic capacity declines with age
 - Accumulation of metabolic bi-products
 - Muscle soreness, stiffness
 - Maximum strength
 - Slight decline between 40 and 65
 - Declines more rapidly after 65
 - Increased fatigue
 - Inability of complete tasks
 - Musculoskeletal injury
 - May lead to heart problems
 - Altered blood flow - fainting

Older Workers

- Decreased joint mobility
 - Less range of motion with age
 - Ability to view hazards in surrounding area
 - Increased musculoskeletal injury
 - Beyond passive/active range of motion
- Posture and balance abilities decline
 - Tasks that require isometric strength in awkward positions
 - Heavy tasks on slippery or unstable surfaces
 - Unexpected positional shifts

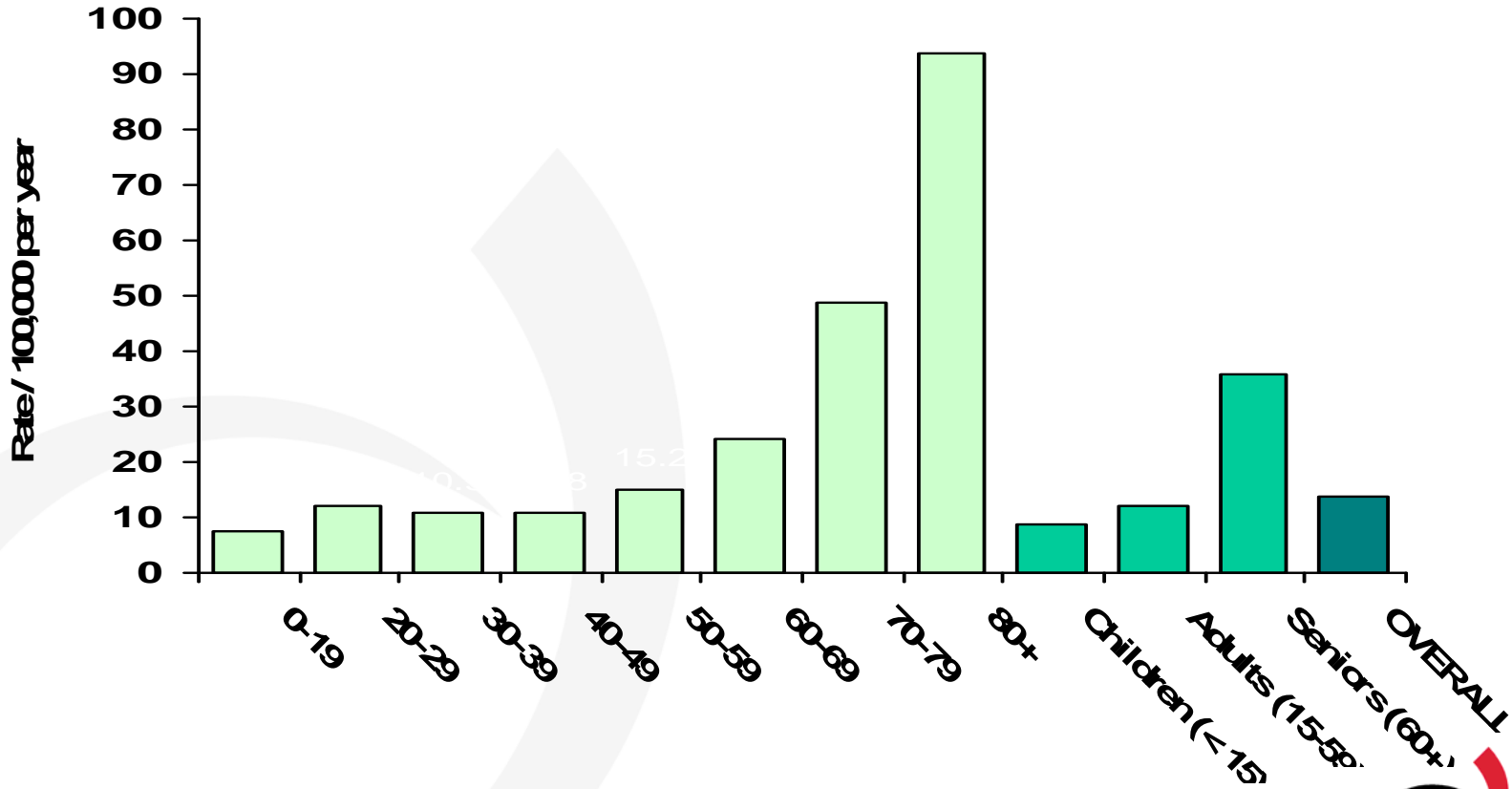
Older Workers

- Sleep Regulation
 - More recovery needed for older shift workers
- Thermoregulation
 - Limitations in aerobic capacity increases over heating at equivalent work output
 - Decreased cardiac output can limit ability to resist extreme cold

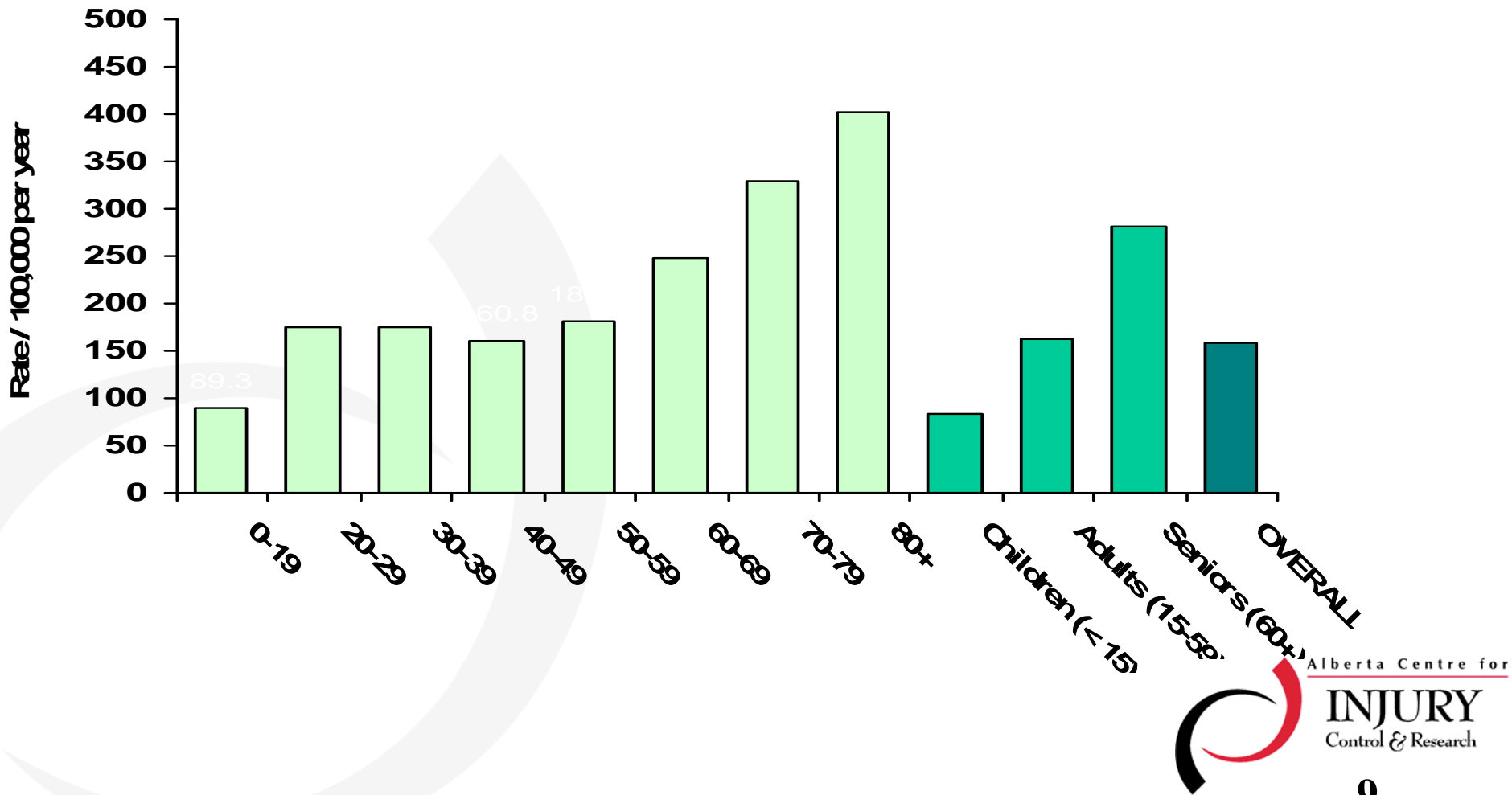
Older Workers

- Vision
 - Changes over time
 - Small text harder to read
 - Instructions not understood
 - Depth perception declines
 - Reduced night vision
 - Adjustment from light to dark areas slower
- Hearing
 - Repeated exposure to loud noise leads to declines in hearing
 - Reduced ability to distinguish voices in noisy environments

Rates of Work-Related Fatalities by Age (per 100,000 farm population)



Work Related Injury Rates by Age (per 100,000)



Disease Factors Related to Farm Injury

- Muscular-skeletal problems, back pain, previous injury
 - Inability to react to a dynamic environment
 - Guarding pain –
 - Decreased mobility
 - Balance issues
 - Insufficient strength
 - Insufficient rehabilitation and conditioning
 - Premature return to work

Disease Factors Related to Farm Injury

- Hearing deficit and tinnitus
 - Can prevent awareness of hazardous situations
 - Machinery – extraneous maintenance or blockage problems
 - Avoidance of hazards
 - Sensory awareness of environment
 - Communication of hazards between workers and bystanders

Disease Factors Related to Farm Injury

- Sleep Deprivation
 - Lack of quality sleep
 - Daytime sleepiness
 - Inattention to tasks
 - Inability to respond to the active environment
 - Frequently caused by
 - Arthritis pain, movement disorders, urinary tract disorders

Disease Factors Related to Farm Injury

- Arthritis
 - Inability to react to a dynamic environment
 - Guarding pain –
 - Decreased mobility
 - Balance issues
 - Chronic mobility problems
 - Inability to avoid animals or other hazards

Disease Factors Related to Farm Injury

- Depression
 - Inattention or dissatisfaction with farm-related job tasks
- Stress
 - High levels of cognitive activity devoted to the stressors
 - Inability to attend to tasks safely
 - Physiologic activity and elevate hormone levels
 - May lead to excessive fatigue

Disease Factors Related Farm Injury

- Other Factors
 - Asthma
 - Hypersensitivity and other allergic reactions may lead to altered reaction to mechanical stressors
 - Also related to depression/injury in other labour sectors
 - Neurotoxic exposures
 - Long term peripheral nerve damage
 - Confusion, drowsiness or poor concentration
 - Urinary tract disorders
 - Distraction
 - Lack of sleep

Medication Use and Older Persons

- Medication reaction with older persons is poorly understood
 - Pharmacokinetics
 - Process of what the body does to the drug
 - Pharmacodynamics
 - Process of what the drug does in the body
 - Polypharmacy
 - Multiple medication use
 - Prescription and over-the-counter

Pharmacokinetics

- Four Components

- Absorption

- Virtually the same for young and old

- Distribution

- Changes in body composition in older persons alter drug distribution

- Metabolism

- Slower in older persons

- Excretion

- Decreased renal blood flow leads to delayed elimination

Pharmacodynamics

- Little research has been done in this area
 - Few drug trials are conducted with older persons
 - However, there is some evidence that older persons are more sensitive to medications of the same dose when compared to younger persons
 - May be related to altered pharmacokinetics
 - Distribution, metabolism, excretion

Polypharmacy

- New or improved drug treatments are regularly added to a physicians available treatments
- Multiple diseases in older individuals predispose them to multiple treatments
 - Can be as high as 12-15 prescription and OTC medications at once
- On there own, drug side-effects are often predictable but in combination can cause unexpected:
 - Disorientation
 - Confusion
 - Altered balance abilities
 - Hypotension
 - Sedation

Medication and Injury in Farmers

- Use of any prescription medication
- Stomach medication
 - Farm stress
- Heart Medication
 - Altered blood flow/hypotension
- Anti-depressants
- Pain killers
 - Recent use related to injury
- Sleep medication/Benzodiazepines
 - Long lasting sedation
 - Lack of inhibition

Recommendations

- Musculoskeletal issues, injury and arthritis
 - Return to work should be phased in over a re-conditioning period
 - Do not stop pain or anti-inflammatory medication prematurely
- Hearing
 - Preserve hearing – PHP and environmental modifications
 - Use hearing aids to maintain sensory awareness

Recomendations

- Benzodiazepines/Sleep
 - New medications available
 - “Z-drugs (zaleplon, zolpidem, zopiclone)
 - Shorter elimination time
 - Less dependence
 - Less tolerance (escalating dosage)
 - Non-pharmacological Strategies
 - Regular bedtime
 - Avoid caffeine and alcohol
 - Exercise
 - Napping less than 30 minutes
 - Sleep area dark and quiet

Recommendations

- Polypharmacy
 - Increase awareness of physicians, nurses and pharmacists in rural areas to educate/alert farmers about potential problems
 - Monitor medication strength
 - Eg: anti-hypertensives
- Regular check-ups/screening
 - Deal with prostate issues etc.

THANK YOU

