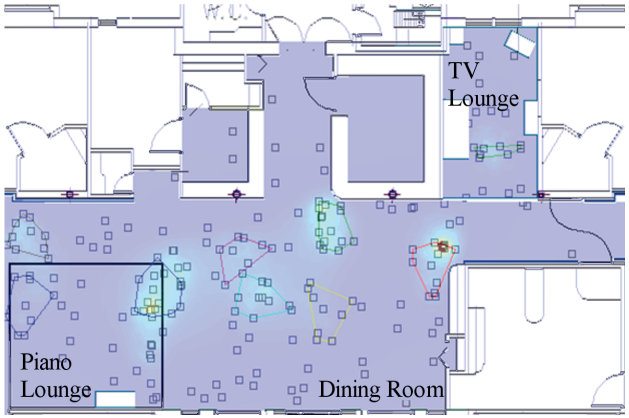
Spatial Mapping of Falls

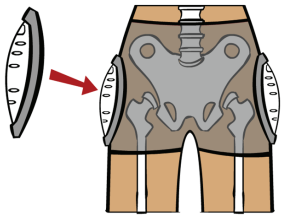


Fall "hot spots" appear brighter in colour.

Injury Prevention

Wearable Hip Protectors

- Hip protectors reduce risk for hip fracture by up to 80% if worn at the time of a fall
- Hip protectors absorb the force of a fall and divert this force from the bone
- "Stick-on" hip protector may provide more continuous and effective protection



Technology for Injury Prevention in Seniors (TIPS)

A research collaboration between
New Vista and Simon Fraser University

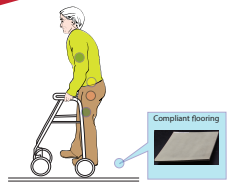
Advancing Knowledge through Community Partnerships

Wearable Sensors

Wearable sensors can detect the occurence of falls, and provide information on the cause of falls to guide prevention

- 96% sensitivity and 96% specificity in detecting falls in lab experiments
- 94% sensitivity in detecting nature of imbalance leading to falls
- Ongoing studies with residents performing daily activities while wearing sensors

Compliant Flooring



- Passive form of injury prevention
- Reduces impact force to hip by 35%, force to head by 68%
- Minimal effects on balance or mobility
- Ongoing clinical trial in long-term care

Contact us!

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or visit www.sfu.ca/tips

tips technology for injury prevention in seniors
fraserhealth
CIHR IRSC Strategic Teams in Applied Injury Research (STAIR)
CENTRE for HIP Health and Mobility
AGEWELL

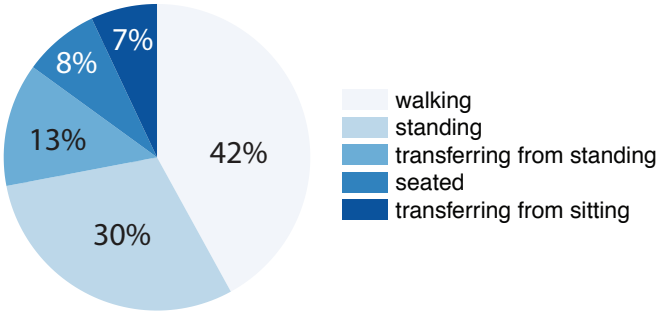
SFU SIMON FRASER UNIVERSITY
INJURY PREVENTION AND MOBILITY LABORATORY

Video Capture of Falls

Video footage is acquired from a network of cameras installed in common areas. In the event of a fall, an incident report is completed by care providers. We then review these reports to identify the location of falls, and retrieve the corresponding video footage.

Circumstances of Falls in Common Areas

Activity at the Time of Falling



- Falls were just as likely during standing and transferring as during forward walking

Head Impact from Falls

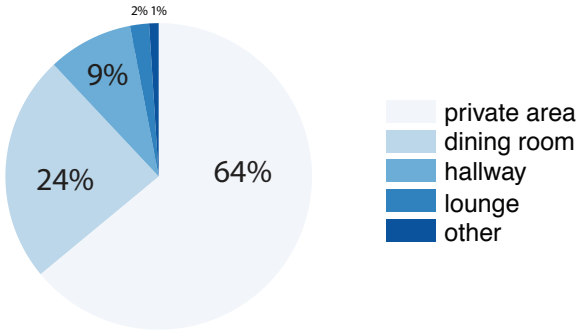
- 43% of falls resulted in head impact

Risk Factors for Head Impact

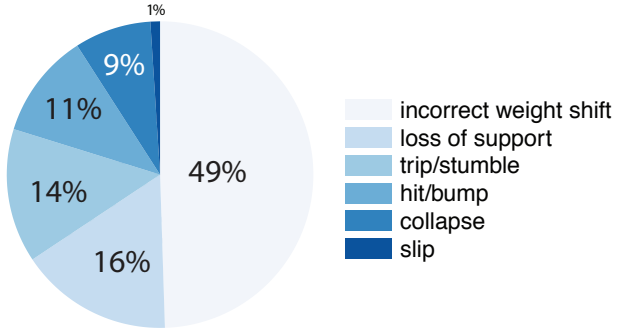
Female	2x increase
Visual impairment	2x increase
Forward fall	2x increase
Falling during walking	2x increase
Hand impact	no effect

Number and Location of Falls

- 7107 falls between 2008 and 2016
- 2563 falls in public areas
- 455 falls captured on video experienced by 187 residents



Nature of Imbalance



- 49% of falls were due to incorrect weight shifting
- 12% of falls were due to loss of support with a moving object (walker, wheelchair, chair
- 3% were caused by trips on equipment

Impact Locations