



Assessment of hip
protectors for users
at risk of falls

EXECUTIVE SUMMARY
of the ETMI report

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ISSUE

Hip fractures are common in older adults, particularly vulnerable clients living in residential and long term care centres (CHSLDs). In 95% of cases, they are caused by a fall. The two main risk factors for this type of fracture are falls and osteoporosis. According to the Institut national de santé publique du Québec – INSPQ (2019), hip fractures account for 31.3% of hospitalizations attributable to falls among people aged 65 and over in Quebec. In addition to the psychological impact, hip fractures can also lead to a limitation of activities and a decrease in mobility (Alexiou, Roushias, Varitimidis, & Malizos, 2018). In order to mitigate the impact of falls and thus reduce the risk of hip fractures, hip protectors are sometimes used. Hip protectors are devices consisting of shells put in the side pockets of underwear or clothing that can wear by people at risk of falls.

BACKGROUND

Health Technology Assessment Unit (UETMIS) of the CHU de Québec Université Laval (hereinafter CHU de Québec) was asked by the Interdisciplinary Tactical Committee on Falls, Control Measures and Constant Monitoring of the CHU de Québec to determine whether the use of hip protectors by hospitalized users with a high fall risk can help prevent hip fractures. The assessment was carried out in collaboration with the Assessment of Technologies and Methods of Intervention in Health and Social Services Unit (UETMISSS) of the CIUSSS de la Capitale Nationale. The term of reference was reviewed to include users living in residential and long-term care centres (CHSLDs) and those admitted to physical rehabilitation centres.

OBJECTIVE

The main objective of the assessment of technologies and methods of intervention was to answer the following decision question: “Should hip protectors be used at the CHU de Québec and the CIUSSS de la Capitale Nationale as a measure to prevent hip fractures in people at risk of falls who are hospitalized in an acute care centre or admitted to a CHSLD or a physical rehabilitation centre?”

To achieve this objective, six assessment questions were formulated:

1. How effective are hip protectors in reducing the occurrence of hip fractures?
2. What adverse effects are associated with the use of hip protectors?
3. What are the recommendations for good clinical practice of organizations and learned societies on the place of hip protectors among measures to prevent hip fractures?
4. What practices are currently used to prevent hip fractures, including the use of hip protectors, in health care facilities in Quebec?
5. What is the experience of users, their caregivers and care providers with the use of hip protectors?
 - Described in the literature
 - In the CHSLDs of the CIUSSS de la Capitale Nationale
6. What would be the organizational and budgetary impacts of a change in practices associated with the use of hip protectors at the CHU de Québec and the CIUSSS de la Capitale Nationale?

For more information, see the report at: https://www.ciusss-capitalenationale.gouv.qc.ca/sites/d8/files/docs/MissionUniversitaire/ETMISSS/RAPPORT_Protecteurs-hanche.pdf

METHODOLOGY

To answer the six assessment questions, several sources of data were used. **(1)** A systematic review of the literature was carried out in various bibliographic databases and websites for the period of publication from January 1, 2000 to August 23, 2022. **(2)** Contextual data on falls at the CHU de Québec and the CIUSSS de la Capitale Nationale were analyzed. **(3)** A practice survey on the use of hip protectors was conducted in facilities in Quebec’s health network. **(4)** A patient experience survey was also conducted by the Bureau d’expertise en expérience patient et partenariat of the CHU de Québec in two CHSLDs of the CIUSSS de la Capitale Nationale.

RESULTS

Table 1 summarizes all the results according to the different sources of data:

Table 1: Summary of the results

| SOURCE OF DATA | SUMMARY OF THE RESULTS |
|-----------------------|--|
| (1) Literature search | <ul style="list-style-type: none"> › 1076 documents were identified › 36 were retained: 5 practice guidelines, 7 systematic reviews, 15 randomized controlled trials, 8 observational studies, 1 economic assessment. |
| | <ul style="list-style-type: none"> › Despite various limitations, studies on the efficacy and safety of hip protectors in nursing homes indicate that they: 1) may reduce the risk of hip fractures; 2) are not associated with the risk of fractures of the pelvis or other anatomical sites; and 3) are associated with adverse effects (discomfort, skin irritation). › Overall, patient experience data report low adherence rates for wearing hip protectors with wide variations across studies (24 to 80%). › Barriers and facilitators related to the system, care providers, residents and hip protectors influence the degree of acceptance and adherence for wearing hip protectors. › Among other things, family support, the credibility given to protectors and the commitment of facilities and staff are seen as facilitators to the use of hip protectors. › The available data is insufficient to determine the impact of using hip protectors on the mortality and quality of life of residents in nursing homes. › Not-very-recent economic assessments on the use of hip protectors in nursing homes suggest a favourable cost effectiveness ratio for the prevention of hip fractures. › Based on low-to moderate quality data, three organizations recommend that hip protectors be worn by residents in nursing homes at risk of falls. › According to two organizations, the available data is insufficient to conclude on the use of hip protectors by hospitalized patients at risk of falls. |

| SOURCE OF DATA | SUMMARY OF THE RESULTS |
|---|--|
| <p>(2) Contextual data</p> | <p>CHU de Québec (fiscal years: 2019 2020; 2020 2021; 2021 2022)</p> <ul style="list-style-type: none"> › Between 2218 and 2878 falls reported depending on the year. › Falls on inpatient units accounted for approximately 86% of falls reported annually for all adult clients. › These falls resulted in an average of 3 hip fractures per year. |
| | <p>CIUSSS de la Capitale Nationale (calendar years: 2019, 2020, 2021)</p> <p>a) CHSLD:</p> <ul style="list-style-type: none"> - Between 8445 and 9298 falls were reported depending on the year. - These data represent 81% of all falls reported for adult clients. - These falls resulted in an average of 11 hip fractures per year. <p>b) Physical rehabilitation centres:</p> <ul style="list-style-type: none"> - Between 83 and 90 falls were reported per year. - These data represent less than 1% of the falls reported in the facility. - No falls caused a hip fracture or fracture of another anatomical site. |
| <p>(3) Practice survey</p> | <p>In total, 36 professionals and managers working in various health care facilities in Quebec, including 5 university hospital centres and institutes, 6 CIUSSSs (integrated university health and social services centres) and 10 CISSSs (integrated health and social services centres), participated, with response rates of 100%, 67% and 84% respectively.</p> <ul style="list-style-type: none"> › Hip protectors are not used in university hospital centres and institutes in Quebec. › Hip protectors are rarely used in rehabilitation centres (only one reported using them). › Hip protectors are used in CHSLDs in most of the CISSSs and half of the CIUSSSs that participated in the survey, in proportions of less than 10% to more than 25% of residents. › Practices for the use of hip protectors in CHSLDs are generally not standardized and no protocol for their use is available. |
| <p>(4) Patient experience survey</p> | <p>According to the health care staff of 2 CHSLDs of the CIUSSS de la Capitale Nationale:</p> <ul style="list-style-type: none"> › Good credibility is given to the effectiveness of hip protectors although they are uncomfortable. › Difficulties related to the use of hip protectors were identified: insufficient number, lack of time to put them on or residents' lack of understanding. |

FINDINGS

At the end of the assessment and in light of the data analyzed as well as the exchanges with an interdisciplinary working group, five observations can be made:

1. Although the magnitude of the effect is difficult to estimate, the use of hip protectors may help reduce hip fractures in nursing homes.
2. The available data is insufficient to conclude on the use of hip protectors in acute care facilities and physical rehabilitation centres.
3. The use of hip protectors requires consideration of the barriers, issues and facilitators associated with them.
4. The practice of wearing of hip protectors to prevent hip fractures is not very standardized and varies depending on the type of health care facility in Quebec.
5. The place of hip protectors in fracture prevention should be defined in programs for the prevention of falls and their consequences in health care facilities in the Quebec City region.

RECOMMENDATIONS

Recommendation 1

It is recommended that the Direction du soutien à l'autonomie des personnes âgées (DSAPA) – Volet hébergement of the CIUSSS de la Capitale Nationale maintain the use of hip protectors and undertake a continuous improvement process to better formalize their use for residents in CHSLDs at risk of falls and fractures, in consultation with staff, residents and their relatives.

Recommendation 2

Due the high uncertainty, it is recommended that the Comité tactique interdisciplinaire sur les chutes of the CHU de Québec not introduce the use of hip protectors into routine practice as a measure to prevent hip fractures in hospitalized patients who are at risk of falls.

Recommendation 3

Due to the high uncertainty, it is recommended that the Direction Déficience intellectuelle, trouble du spectre de l'autisme et déficience physique not introduce the use of hip protectors into routine practice as a preventive measure in the physical rehabilitation centres of the CIUSSS de la Capitale Nationale.

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