It is estimated that each year, a third of the elderly aged 65 years or more and living at home will experience a fall\(^1\). This proportion increases with age and women are almost two times more likely to fall than men. Falls among the elderly result in numerous hospitalizations, often involving a fracture of the hip. For the patient, these falls can have important physical and psychological consequences, including reduced mobility, loss of self-confidence and reductions in daily activities and functional capacities. The ability of the patient to stay at home may also be put at risk. Falls represent the primary cause of death by unintentional injuries in this population.

Are fall prevention measures effective?

Fall prevention programs have proven efficacy\(^2\) to reduce the incidence of falls and related hospitalizations. They also limit the loss of the patient's functional autonomy. Identifying at risk patients in general practice is relatively easy and allows the general practitioner to propose preventative strategies. The most effective fall prevention interventions are those that combine several strategies, target a number of risk factors and engage the support of multiple healthcare (doctors, physical and occupational therapists, pharmacists, nurses and nurses' assistants) and social (home care assistants, social workers) professionals.

What are the risk factors for falls?

A global approach to the elderly patient is needed to address the multifactorial nature of falls. The risk factors that must be taken into account can be related to the patient’s:

- age – it is estimated that almost 50% of the elderly over the age of 85 fall at least once per year;
- state of health – including balance impairment, reduced mobility, muscle weakness, acute or chronic diseases;
- lifestyle – including drug regimens (in particular, self-medication, use of 4 or more medications, psychotropics, antiarrhythmics), insufficient or inadequate diet, alcohol consumption, at risk activities, fear of falling;
- environment – both in and out of the home.

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2- Gillepsie et al., 2003.
How can a risk of falling be detected?

To make a fall prevention program as effective as possible, the intervention content should be adapted to the particular risks identified in the elderly patient. A preliminary assessment to establish the patient’s relative risk of falling will be needed. A more comprehensive assessment may be needed according to the initial level of risk detected.

All patients aged 65 and over who live at home can benefit from this assessment, even those in good health. It can be done by any care provider in only a few minutes, during an office visit, a hospital stay or at the home of the elderly patient.

The assessment consists of two steps

- **Search for a history of falls**
  
  “Have you fallen during the last year? How many times?”

  A person with a history of falls presents a significantly higher risk of falling again compared to a person who does not report a history of falls.

- **The “Timed Up and Go” (TUG) test**

  Ask the patient to rise from his or her chair without using a support, walk 3 meters, turn around and return to a seated position in the chair. Time the exercise using a watch with a second hand (or a stopwatch).

  Elderly patients living at home who do not have balance or walking impairments should be able to complete this exercise in less than 14 seconds (= negative TUG).

  A time superior to 14 seconds indicates reduced mobility and a risk of falling (= positive TUG).

The assessment allows for the identification of different relative risks in older patients

- **Individuals with a high risk of falling:** history of falls and a positive TUG (>14 s). A comprehensive, multifactorial assessment is needed for this group. This evaluation will demand the participation of several professionals (doctor, nurse, physical / occupational therapist) and an evaluation of the patient’s home environment (see the box below).

- **Individuals with a moderate risk of falling:** history of falls or a positive TUG (>14 s).

- **Individuals with a low risk of falling:** no mention of history of falls and a negative TUG (<14 s).

  The results allow the orientation of the patient toward a program adapted to the detected risk.

Comprehensive assessment in practice

Some risk factors can be easily detected and there are several tools, charts and screening tests for this. Several of these are listed in *Good Practice Guide – Prevention of falls in the elderly living at home* available for downloading by the end of 2008 from the INPES website: [www.inpes.sante.fr](http://www.inpes.sante.fr).

The original French version of this Guide is also available on the INPES website.

Examples of risk factors:

- **Drug regimen:** ask the patient for a list of his or her medications and/or to provide an inventory of his or her medicine chest;

- **Recent loss of mobility, balance;**

- **Fear of falling:** ask the patient what activities or situations he or she fears: walking outside, using public transportation, going up or down staircases, carrying groceries, hurrying, etc.

- **At risk activities:** check the patient’s footwear and glasses, use of assistive devices (cane, walker, bed alarms, etc.), regularly performed activities (stepping up on a chair or ladder, going up or down staircases, mopping, etc.);

- **Diet:** check for involuntary weight loss, a loss of appetite, a reduction in hydration, etc.

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3- Campbell, Borrie et al., 1989; Nevitt, Cumming et al., 1989; Luukinen, Koski et al., 1996; Friedman, Munoz et al., 2002.

4- Shumway-Cook, Brauer et al., 2000; Bischoff, Stahelin et al., 2003.
What program should be implemented to prevent falls?

For high-risk elderly individuals
- Address the factors identified during comprehensive assessment with a "personalized multifactorial intervention".
- The coordination between diverse medical professionals and social workers will need to be assured.

Practical suggestions:
- Review the patient’s medications and ease observance.
- Propose specific exercises to address mobility problems detected during assessment (muscle weakness, balance impairment, etc.). A physical or occupational therapist can provide training for these exercises, which should be feasible in the home environment.
- Address other detected factors: nutrition, problems with alcohol, etc.
- A follow-up assessment should be done in six month’s time to evaluate changes and encourage the elderly patient to continue with the preventative activities.

For moderate-risk elderly individuals
- Although comprehensive assessment is not needed, certain measures may be undertaken, notably for the following risk factors: chronic disease, medication and home environment hazards.

A group program providing multifactorial fall prevention activities may be proposed. For example, in France, the national health insurance\(^5\) provides "balance workshops" and some complementary insurance companies propose fall prevention programs.
- A program to promote physical activity may be proposed (equally applicable to low-risk patients). In France, certain structures of the national health insurance\(^6\) as well as complementary insurance companies propose programs that combine exercise with general tips on diet, medication management, etc. Also, some senior citizens’ organizations\(^7\) offer exercise sessions. Sports federations\(^8\) and municipalities may provide exercise activities for the elderly as well. In France, information is available through town halls or the local centers for the information and coordination for the elderly\(^9\).

For low-risk elderly individuals
- If doubts persist, it may be advantageous to examine the following risk factors: acute and chronic diseases, medication, home environment hazards.
- Risk assessment should be repeated yearly.
- Health education or health promotion programs may be available through healthcare associations, nationalized health insurance programs, complementary insurance companies or sports and leisure time associations.

How to discuss falls: A patient education approach

As a symbol of aging and loss of independence, falling is often a taboo subject. Discussing daily measures for fall prevention during an office visit or home call may be a valuable tool for minimizing the stigma of the subject and may furthermore lead to an open discussion of the elderly patient’s state of health or quality of life.

A comprehensive educative approach allows the practitioner to understand all the perceptions and behaviors related to the patient’s health. This educative approach is built upon a social, cultural, psychological, and educational diagnosis*.

Concerning falls, this diagnosis should allow the healthcare professional to:
- identify the patient’s perceptions, his or her beliefs, attitudes and knowledge concerning falls and their consequences, and also the patient’s own experience with aging and means of prevention;
- assess the patient’s stage of acceptance concerning the risk of falling;
- understand the patient’s priorities.

The relationship should not be limited to the care provider and the patient, but also include family members whenever possible.

*The educational diagnosis gives the patient and the professional an opportunity to identify together the particular needs of the patient, to grasp different aspects of his or her personality and to take into account any particular requests. The goal is to explore what the patient has, does, knows, believes, feels and wants.

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5- Assurance maladie.  
6- Caisses régionales d’assurance maladie (Cram), Unions régionales des caisses d’assurance maladie (Urcam), Caisses primaires d’assurance maladie (CPAM).  
7- Such as the French Fédération nationale des familles rurales or the Fédération nationale des aînés ruraux.  
8- Fédération française EPMM – Sports pour tous, Fédération française d’éducation physique et gymnastique volontaire (EPGV), Association SIEL Bleu (Sport, Initiative Et Loisirs).  
9- Centres locaux d’information et de coordination gérontologiques (CLIC).
Addressing balance and walking difficulties: the vital components of an exercise program

Regular exercise adapted to the patient’s needs should be encouraged. Even better, an exercise program can be proposed. To be effective, the program (1-hour sessions, two to three times per week for ten to twelve weeks) should include:

• exercises to improve flexibility (ex: stretching, no-impact gymnastics, Tai chi);
• exercises to strengthen muscle and improve balance (use of weights or resistance devices);
• mobility activities (ascending and descending stairs with handrails, accompanied walking outdoors).

Conditions for success:

• the level of difficulty should be adapted to the patient’s capacities and increase as he or she progresses. This implies follow-up evaluations;
• exercise programs should be given by professionals trained in providing exercise for the elderly;
• perseverance and the maintenance of improved health should be encouraged.

The complete document Good Practice Guide – Prevention of falls in the elderly living at home is available for downloading by the end of 2008 from the INPES website: www.inpes.sante.fr.
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