

Promoting the health of senior citizens



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Abstract

CANADA IS EXPERIENCING A DRAMATIC INCREASE in the number of older people in its population. Adopting strategies that involve physician actions, a societal approach and individual participation may substantially improve the health of senior citizens. This article presents ways to improve the quality of life and reduce the risk of premature death through manoeuvres that can be initiated by physicians in the context of the periodic health examination. The authors highlight the role of evidence in choosing the most appropriate interventions, speculate on areas of future importance and emphasize a societal approach to population health.

Résumé

LE NOMBRE DES PERSONNES ÂGÉES GRIMPE DE FAÇON SPECTACULAIRE AU CANADA. L'adoption de stratégies qui comportent des interventions des médecins, une démarche de société et la participation de l'individu peut améliorer considérablement l'état de santé des personnes âgées. Cet article présente des façons d'améliorer la qualité de vie et de réduire le risque de décès prématurés par des mesures que des médecins peuvent lancer dans le contexte de l'examen médical périodique. Les auteurs mettent en évidence le rôle des données probantes dans les choix des interventions qui conviennent le plus, formulent des hypothèses sur des questions d'importance future et mettent l'accent sur une démarche sociétale face à la santé de la population.

By the year 2030, nearly one-quarter of the population, 8 million Canadians, will be more than 65 years of age.¹ This demographic change, due to the aging of children born in the wake of the World War II, is expected to produce many social, economic and health care challenges.

The prolonging of life is a laudable goal, but if it is achieved at the cost of prolonging disability at the end of life, it is far less appealing. There is some evidence that the increasing life expectancy that we have enjoyed in the last century has been accompanied by an increasing period of disability,² and "disability-free survival" may not be increasing proportionately. For many seniors, optimizing quality of life is considered as important as maximizing quantity of life.

Because many of the determinants of health have little to do with medical care, the prolongation of disability-free life will require both an individual and a societal approach. These determinants of health include human biology (genetic and physiological characteristics), the environment (both social and physical dimensions) and lifestyle. The social environment includes education, literacy, income and shelter. The physical environment includes exposure to toxins and occupational and other hazards. The lifestyle and behaviour of the individual takes in nutrition, substance abuse, sexual practices, use of protective devices such as seatbelts, physical activity and fitness. Only a small portion of the health of a society is determined by medical care. Hence, effective promotion of health must encompass both individual and population- or society-based initiatives.

Conceptually, effective health promotion and disease prevention rest upon the following factors:

Society

Société

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- prevention or delay of premature death from preventable diseases
- improvement in quality of life by reducing the incidence of and morbidity from disabling diseases
- improvement in self-perceived health by enabling individuals to influence their own health care
- reduction of hazardous lifestyles, injury and accidents.

Public policy should be based upon the best available evidence so as to give priority to those manoeuvres that are clearly effective. If a population-based approach is used, all of the preceding factors must be addressed. Planning for enablement requires the involvement of seniors, but obtaining meaningful representation of their views remains a challenge.

Physicians have a vital role in treating illnesses as they arise, but also one in preventing disease, for example by administering periodic health examinations (PHEs) to older people. The PHE is a regularly scheduled visit during which preventive health care manoeuvres such as counselling, testing and immunization take place. In addition, preventive health care can be delivered on “opportunistic” occasions, for example, counselling about tobacco use when the patient has an upper respiratory tract infection or reviewing risk factors for falls after minor trauma. In this article, we present strategies to improve the health of older people, indicating where physicians

have a major role and where societal approaches are appropriate. We highlight those manoeuvres that are recommended, on the basis of good or fair evidence, for inclusion in the PHE (Table 1). We also discuss other areas that may be amenable to intervention in the future but for which there is as yet insufficient evidence and which remain priorities for further research.

Prevention or delay of premature death from preventable diseases

Cardiovascular and malignant diseases are the two most common causes of death in Canadians, and cerebrovascular disease is the third.³ Although genetic and environmental factors play a role in the genesis of these diseases, the individual, aided by healthy public policy and effective preventive health care, can do much to reduce the risk of their occurrence.

Tobacco use

Tobacco use is likely the most important potentially preventable contributor to cardiovascular disease. At the societal level, appropriate taxation, banning of smoking in public places and a hostile attitude to smoking in the workplace are useful measures. At the individual level

Table 1: Manoeuvres for which there is good (A) or fair (B) evidence that they should be included in the periodic health examination

Outcome to be prevented or minimized	Manoeuvre	Comments
Tobacco-related illnesses	Tobacco cessation advice (A)	Multimodel approach works best
Hypertension and complications	Blood pressure measurement (B)	Benefits uncertain after age 84
Disuse atrophy, deconditioning, osteoporosis and other conditions	Exercise counselling (B)	Regular aerobic exercise
Cardiovascular and other diet-related illnesses	Nutritional counselling (B)	Fat less than 30%; increase fibre, calcium; reduce salt
Death and morbidity due to influenza	Influenza inoculation (A)	
Pneumonia	Pneumococcal inoculation (A)	Particular problem in institutional settings
Carcinoma of breast	Clinical examination and mammography (A)	Evidence to age 69
Carcinoma of cervix	Papanicolaou smear (B)	To age 65–69
Diminished visual acuity	Snellen sight card (B)	
Hearing impairment	Inquiry, whispered voice test or test with audioscope (B)	
Osteoporotic fractures; cardiovascular conditions	Counselling about estrogen replacement therapy (B)	Individualize therapy
Problem drinking and its complications	Case-finding and counselling about alcohol use (B)	
Injury in motor vehicle accidents	Counselling about safe driving and seatbelt use (B)	Suspicion of unsafe driving reportable to provincial ministries of transport
Falls	Review of risk factors for falls (A)	Multidisciplinary approach works best



there is good evidence to recommend counselling against smoking,⁴ and every attempt should be made to discourage people from smoking. Substitution of nicotine with chewing gum or transcutaneous patches improves the cessation rate.⁵ In older people, who may have coronary artery disease or peripheral vascular disease, nicotine substitution must be prescribed with caution.

Hypertension

The prevalence of both systolic and diastolic hypertension rises sharply with age. Epidemiological studies have clearly established the relation between, on the one hand, both systolic and diastolic hypertension and, on the other, stroke, coronary artery disease and congestive heart failure. There is now ample evidence from large-scale randomized controlled trials, that treatment aimed at reducing hypertension significantly reduces the risk of all-cause mortality, stroke and various cardiovascular end-points.⁶ There is also good evidence that regular determination of blood pressure and treatment to reduce systolic pressure in excess of 160 mm Hg and diastolic pressure greater than 90 mm Hg are valuable manoeuvres. The cost-effectiveness of treating older individuals is more favourable than in younger people,⁷ because the rate of cardiovascular events increases with age. For moderate systolic or diastolic hypertension, only 13 people need to be treated for 5 years to prevent 1 stroke or death.⁸

Exercise

Regular aerobic exercise improves well-being, muscle strength and aerobic fitness. There is now evidence that exercise can increase strength and improve activity even for those in their 10th decade.⁹ It seems that a high level of exercise is not necessary for benefits to accrue. Even gentle exercise such as walking for 30 to 60 minutes each day improves cardiovascular fitness.¹⁰ Although there is no evidence from randomized controlled trials that exercise prevents cardiovascular disease, strong circumstantial evidence suggests that this is so, and the other benefits make it appropriate to counsel people to exercise regularly.¹¹

Diet and cardiovascular disease

There is evidence that dietary modifications and correction of hyperlipidemia reduce the incidence of subsequent cardiovascular end-points in those with established disease, but it is unclear whether the mortality rate from cardiovascular disease can be reduced in asymptomatic individuals. Nonetheless, it is considered prudent to reduce total fat consumption to less than 30% of total daily intake.¹² Such a dietary change may reduce the risk not only

of vascular diseases, but also of certain malignant lesions: case-control studies have suggested an association between high fat intake and the occurrence of carcinoma of the breast, colon and prostate.¹³ Other dietary modifications that are beneficial include increasing the intake of both calcium (to help prevent osteoporosis) and fibre (to reduce colonic diseases) to adequate levels. Dietary counselling, augmented by telephone follow-up or brochures, should be included in the PHE.¹⁴

Anticoagulants for atrial fibrillation

Numerous studies have established the strong association between atrial fibrillation and embolic stroke. There is as yet no evidence that screening for atrial fibrillation is an effective manoeuvre that should be included in routine health assessment, but when fibrillation is present, long-term administration of anticoagulants clearly reduces the risk of stroke.¹⁵ Overall, the annual risk of stroke is 5% in the presence of atrial fibrillation, but it is substantially higher in those with other risk factors, such as hypertension and valvular disease.¹⁶ The risk of significant hemorrhage is 1% to 2% per year and likely higher in older people who are also at risk of falls or poor adherence to anticoagulant prescriptions. In older people the risks and benefits of anticoagulation must be carefully weighed.¹⁷

Immunization

There is good evidence that annual strain-specific influenza immunization reduces the morbidity and mortality associated with influenza, and such immunization is recommended for all older individuals.¹⁸ Pneumococcal immunizations reduce the mortality from pneumonia in institutions,¹⁹ although the evidence for benefit in the older population at large is less convincing. The federal Centre for Disease Control is monitoring the incidence of pneumonia and invasive streptococcal disease since the introduction of pneumococcal immunization for all Ontario seniors.

Screening for malignant disease

There is good evidence that mammographic screening of women, at least until the age of 69 and probably beyond, reduces the mortality rate and disability due to breast cancer, by virtue of earlier detection. Screening for all women 50 to 69 years of age, in conjunction with an annual physical examination and mammography, is recommended,²⁰ although some provincial breast screening programs have reduced the frequency to alternate years. Screening for cervical carcinoma is of proven benefit in women until the age of 69, the greatest incidence of inva-



sive carcinoma occurring in postmenopausal women.²¹ Women who have not previously been screened are at particular risk, especially when additional risk factors are present (high number of consorts, young age at first intercourse, smoking, low socioeconomic status, infection with human papillomavirus). Although the optimal frequency has not been determined, a 3-year interval is generally accepted for women with previously normal smears.

The role of screening prostate-specific antigen for early detection of prostate carcinoma is controversial and such screening is not currently recommended. The sensitivity and specificity of the test have not been accurately established, and there is at present no evidence that surgery for early disease prolongs life.²²

Even though screening for carcinoma of the colon by testing for fecal occult blood produces a small cancer-specific mortality benefit, there is no benefit to all-cause mortality. Because of the large numbers that must be screened to detect early carcinomas, the evidence is not considered sufficient to recommend screening, except in those who have a strong family history, where colonoscopy is the preferred investigation.²³

Improvement of quality of life by reducing disabling diseases

Visual disability

Many older individuals suffer from loss of vision. The common reasons are cataracts, age-related macular degeneration, glaucoma and diabetic retinopathy. Because the progression of these disorders is gradual, many older people are unaware of the extent of their disability. Screening for loss of vision with a sight card should be included in periodic assessments.²⁴ The role of funduscopy in primary care is less clear. Screening tonometry is no longer recommended, but those at risk for glaucoma should be examined regularly by an optometrist or an ophthalmologist.

Hearing disability

At least 30% of people over 65 years of age have significant hearing loss. As among those with loss of vision, many are unaware of their disability. Simple screening manoeuvres such as the whisper test or use of an audioscope will identify those who should undergo further examination with a view to amplification.²⁵ There is good evidence that amplification improves the quality of life of people with hearing loss.²⁶ Many people with hearing aids need to undergo regular examinations, since the aids frequently malfunction or may become inappropriate with further deterioration.²⁷ Screening should be included in the PHE.

Frailty

Frailty is hard to define, yet we all recognize it when it is present. The concept involves an imbalance in the factors that support independence (social supports, shelter, a positive attitude to health) and those that erode it (illness, a lack of supports).²⁸ Rather than being a permanent state, frailty is often transient, for example, after an acute illness. There is now considerable interest in identifying the people who may become frail or disabled over time.^{29,30} Postal questionnaires or home visits may identify those at risk of subsequent disability or increased use of health care resources such as admission to institutions.^{31,32} The role of this type of "anticipatory care," by which a variety of manoeuvres serve to identify individuals at risk of subsequent problems, is gradually becoming clearer.³³ Simple physical manoeuvres, such as chair stands or standing and walking 3 metres then sitting, also identify healthy individuals who are destined to experience disabilities within the next 4 years.³⁴ It is not yet clear whether this type of screening or case-finding will reduce the subsequent occurrence of disability or frailty, as there have not yet been sufficient trials to examine interventions. This remains an area of active investigation, and manoeuvres that will detect subsequent disability or frailty, if proven effective, will become an important component of preventive clinical practice.

Musculoskeletal diseases

The prevalence of musculoskeletal complaints among the elderly is extraordinarily high, joint pain and stiffness being present in up to 80% of this age group.³⁵ Many seniors do not complain of these symptoms, which may be mistakenly viewed as a normal accompaniment to aging. A vigorous approach to the assessment and management of musculoskeletal complaints in older people, employing the skills of other professionals such as physical and occupational therapists, the rational use of medications, especially analgesics (although with great caution in the case of nonsteroidal anti-inflammatory drugs) and the judicious use of joint replacement surgery, will go a long way toward improving the quality of life of older patients. Osteoporosis becomes increasingly common with advancing age and is accompanied by significant morbidity due to vertebral, hip, peripheral and pelvic fractures. The risk factors for osteoporosis include female sex, a family history of the condition, insufficient intake of calcium, lack of exercise and early menopause. Evidence-based guidelines for the diagnosis and management of osteoporotic fracture have recently been published.³⁶ Hormone replacement therapy in postmenopausal women reduces not only the



risk of osteoporotic fracture, but also the risk of cardiovascular disease. Balanced against these benefits is a possible small increase in the risk of breast cancer. For these reasons, counselling individual women about the benefits and risks of hormone replacement therapy is considered an important part of the PHE.³⁷

Dementia

Although the evidence is not yet complete, a number of important developments are occurring in the field of dementia. Correcting risk factors for vascular disease may reduce the occurrence of vascular dementia and possibly improve the prognosis of affected patients. Data from case-control studies has suggested that estrogen replacement therapy may prevent or delay the progress of Alzheimer's disease.³⁸ Vitamin E may slow the progression of Alzheimer's disease.³⁹ Phase III trials are being completed for several medications for the treatment of symptomatic Alzheimer's disease, and these medications will be available in Canada in the near future. Even with the hope that pharmacological treatment of Alzheimer's disease will soon be possible and the prevention or slowing of the progress of disorders causing dementia may eventually become a reality, one must not overlook the value of enhancing caregiver support, which remains the cornerstone of management. Advocacy organizations such as the Alzheimer's Society of Canada provide valuable caregiver support. Educational programs for caregivers may delay institutional care.⁴⁰ Given that the diagnosis of dementia implies inability to perform one's social or occupational role, case-finding with functional rather than cognitive instruments may be more appropriate. There is insufficient evidence to recommend screening for cognitive impairment in the absence of dementia.⁴¹

Improvement in self-perception of health

Longitudinal studies indicate that a poor self-perceived health rating is associated with increased subsequent mortality, disability and admission to institutions.^{30,42} Could this imply that improving the self-perception of health may reduce these later complications? Undoubtedly, depression is associated with later ill health, and it might be argued that early recognition and appropriate treatment of depression could produce this benefit. At present there is no evidence that screening for depression is of benefit, although the prudent physician will be alert for symptoms that could indicate depressive illness.⁴³

Enabling individuals to become more involved in their own health care can be accomplished through health education and the promotion of healthy lifestyles by the media. Involvement with advocacy organizations such as the

Alzheimer's Society and the Parkinson Foundation of Canada encourages peer support for individuals, as well as providing political influence to bring these and other diseases to public attention. Public attention to diseases such as Alzheimer's does much to influence the behaviour of practitioners. For example, the recent publication of an article about the putative merits of vitamin E in Alzheimer's disease³⁹ has led to an enormous resurgence of interest in the use of vitamins and other supplements in this and other diseases. Although it is hard to assess the overall impact of media influences, we, as practitioners, should encourage our older patients to become better informed. Unfortunately, many sources of information are inaccurate and unreliable, a situation that places a greater obligation on the medical profession to provide current and accurate information.

Symptom recognition

Health education to improve the recognition of important symptoms may have an important role in health promotion. A classic example is breast self-examination, although randomized controlled trials have failed to demonstrate that this procedure is truly effective.²¹ Educating individuals to recognize the significance of symptoms such as transient ischemic attacks, persistent cough and change in bowel habit may help in the earlier clinical detection of associated diseases. A recent study⁴⁴ identified advanced age as a risk factor for delayed presentation of myocardial infarction. Possible educational interventions have been suggested.⁴⁵

Reduction of hazardous lifestyles

Accidents remain the fourth leading cause of death in Canada.³ Some ways in which potential hazards may be reduced include the responsible use of alcohol and motor vehicles and the avoidance of falls.

Alcohol use

There is mounting evidence that small quantities of alcohol are beneficial in terms of reducing the risk of cardiovascular and possibly other diseases.⁴⁶ Excessive alcohol use is associated with many physical diseases, cognitive abnormalities and injuries. As in other age groups, seniors often conceal their true use of alcohol, which makes the detection of problem drinking particularly difficult. Counselling about the responsible use of alcohol and use of the "CAGE"⁴⁷ or other short questionnaires to detect problem drinking may be appropriate. Short-term counselling can help prevent progression to serious alcoholism.⁴⁸



Motor vehicle driving

Although the highest rate of motor vehicle collisions occurs in young male drivers, the rate per kilometre rises again in late life.⁴⁹ This is offset by tendencies among older people to drive shorter distances, to drive more cautiously and to avoid night driving. In addition to counselling older patients about avoidance of alcohol when driving and regular use of seatbelts, physicians must be aware of conditions that may increase the risk of accidents, such as visual and locomotor disabilities and conditions that may cause loss of consciousness. In the early stages of Alzheimer's disease, the risk of collision may not be increased; however, 2 to 3 years after onset, the risk rises sharply,⁵⁰ so the provincial ministry of transport should be notified early in the course of the disease.

Falls

Falls are extremely common among older people and are frequently associated with underlying physical and cognitive diseases. Furthermore, the injury rate for falls is much higher among older people. There is good evidence that correcting the risk factors for falling (e.g., reducing sedative medications, strengthening muscles, correcting orthostatic hypotension) reduces the risk of falls.⁵¹ After a fall has occurred, a comprehensive geriatric assessment reduces the risk of subsequent falls and admission to hospital.⁵² The alert physician should be aware of remediable risk factors for falling and factors that place the patient at higher risk of falls (such as loss of vision and cognitive disabilities) and should be sure to examine carefully any patient who has already fallen.

Responsible use of medications

The use of both prescription and nonprescription medications rises sharply with age. Much of this increased use is due to the presence of acute and chronic diseases, but "polypharmacy" should be avoided whenever possible. As the prevalence of memory disorders increases and hand function becomes difficult, adherence to prescribed regimens may be affected. Limiting medications to those that are essential, reducing dosing to once or twice daily, and giving clear oral and written instructions all help to prevent the adverse reactions to drugs that are significantly more common among older people.

Evidence-based recommendations

To institute those preventive health care manoeuvres that are more likely to cause good than harm, any recommendations should be based upon best available evidence.

A rigorous protocol has been developed by the Canadian Task Force on the Periodic Health Examination to examine such evidence and formulate recommendations. This methodology has been adopted by other evidence-based panels such as the United States Preventive Services Task Force. Table 1 lists recommendations for preventive health manoeuvres in older people for which good or fair evidence exists.

Conclusions

Improving the health of older people requires a multifaceted approach and a societal perspective. The physician has an important role and must stay current with evidence-based recommendations and incorporate them into clinical practice. The prudent physician should also be aware of recommendations made by organizations and agencies that do not apply rules of evidence. Assisting older individuals to improve their quality of life by undertaking health education and making appropriate links with support organizations is another important role for physicians. Finally, advocating on behalf of our senior citizens to help overcome the nonmedical barriers to good health (e.g., ageism, poverty and illiteracy) are other ways that we may help them achieve the best possible health. After all, they deserve no less.

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A Canadian face on aging



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