dose inhalers. This is especially valuable in treating elderly people and children and is a more economical response to the problem than prescribing the more costly dry powder devices. Wheezy infants have been successfully treated with a large volume spacer with a soft plastic face mask attachment[20 21]; many 2 year olds and most 3 year olds can learn to use spacers effectively without a mask.

Large volume spacers are at least as effective as nebulisers for giving high doses of bronchodilators in acute severe asthma. Unlike nebulisers they are widely available,[22 23] cheap, easily portable, and do not require electricity. Less severe attacks of wheezing will often respond to several puffs of a bronchodilator given slowly through a spacer one puff at a time, one puff per minute, until the wheezing is relieved, side effects of tremor and tachycardia are experienced, or a stated maximum number of puffs has been given. This advice should be set out clearly in a comprehensive self management plan.[24]

Every asthmatic patient who uses a metered dose inhaler should have a large volume spacer and know how to use it. Steroid aerosols should preferably be inhaled through a spacer whatever the dose both in adults and children. General practitioners should have a spacer in their surgery for demonstration purposes and one in the boot of their car for treating acute attacks, with a spare for leaving with patients who need one in the middle of the night. The advantages of large volume spacers could feature more prominently in future national and local asthma management guidelines, and pharmaceutical companies could devote part of their advertising budget to making patients and doctors more aware of the role of these devices. Package inserts for metered dose inhalers should inform patients of the value of the volume spacers in enhancing the effectiveness of inhalers, especially during exacerbations.

By reducing the enormous waste of inhaled drugs that results from poor inhaler technique, these measures would reduce the respiratory prescribing costs. More importantly, they should improve the effectiveness and efficiency of the management of asthma and so help to reduce morbidity, the need for admission to hospital, and perhaps even mortality.

DUNCAN KEELEY

General Practitioner,
Thame,
Oxfordshire OX9 3JZ

1 Burr M, Butland B, King S, Vaughan-Williams E. Changes in asthma prevalence; two surveys 15 years apart. *Arch Dis Childhood* 1989;**64**:1452-6.
2 Burney PGJ. Asthma mortality in England and Wales: evidence for a further increase. *Lancet* 1986; ii: 323-6.
3 Holgate ST, Finnerty JP. Recent advances in understanding the pathogenesis of asthma and its clinical implications. *Q J Med* 1988;**66**:5-19.
4 Speight A, Lee D, Hay E. Underdiagnosis and undertreatment of asthma in childhood. *BMJ* 1983; **286**:1253-6.
5 Turner-Warwick M. Nocturnal asthma: a study in general practice. *J R Coll Gen Pract* 1989; **39**:239-43.
6 Jones K, Bain D, Middleton M, Mullee M. Correlates of asthma morbidity in primary care. *BMJ* 1992;**304**:361-4.
7 British Thoracic Association. Death from asthma in two regions of England. *BMJ* 1982; **285**:1251-5.
8 Crompton G. Problems patients have using pressurised aerosol inhalers. *Eur J Respir Dis* 1982; **63** (suppl 119):101-4.
9 Hilton S. An audit of inhaler technique among asthma patients of 34 general practitioners. *Br J Gen Pract* 1990;**40**:505-6.
10 Newman S. Millar A, Lennard Jones T, Moren F. Clarke S. Improvement of pressurised aerosol deposition with Nebuhaler spacer device. *Thorax* 1984;**39**:935-41.
11 Newman S, Pavia D, Garland N, Clarke SW. Effects of various inhalation mods on the deposition of radioactive pressured aerosols. *Eur J Respir Dis* 1982;**63**(suppl 119):57-65.
12 Newman S, Moren F, Trofast E, Talaee N, Clarke S. Deposition and clinical efficacy of terbutaline sulphate from Turbuhaler, a new multi-dose powder inhaler. *Eur Respir J* 1989;2:247-52.
13 Newman S Moren F, Trofast E, Talaee N, Clarke S. Terbutaline sulphate Turbuhaler: effect of inhaled flow rate on drug deposition and efficacy. *International Journal of Pharmaceutics* 1991;**74**:209-13.
14 Tobin M, Jenouri G, Danta I, Kim C, Watson H, Sackner M. Response to bronchodilator drug administration by a new reservoir aerosol delivery system and a review of other auxiliary delivery system. *Am Rev Respir Dis* 1982;**126**:670-5.
15 Cushley M, Lewis R, Tattersfield A. Comparison of three techniques of inhalation on the airway response to terbutaline. *Thorax* 1983;**38**:908-13.
16 Toogood J, Jennings B, Greenway R, Chuang L. Candidiasis and dysphonia complicating beclomethasone treatment of asthma. *J Allerg Clin Immunol* 1980;**65**:143-53.
17 Brown P, Blundell G, Greening A, Crompton G. Do large colume spacer devices reduce the systemic effects of high dose inhaled corticosteroids? *Thorax* 1990;**45**:736-9.
18 Prahl P, Jensen T. Decreased adrenocortical suppression utilising the nebuhaler for inhalation of steroid aerosols. *Clin Allergy* 1987;**17**:393-8.
19 Geddes D. Inhaled corticosteroids: benefits and risks. *Thorax* 1992;**47**:404-7.
20 O'Callaghan C, Milner A, Swarbrick A. Spacer device with face mask attachment for giving bronchodilators to infants with asthma. *BMJ* 1989;**298**:160-1.
21 Bisgaard H, Munck S, Nielsen J, Peterson W, Ohlsson S. Inhaled budesonide for treatment of recurrent wheezing in early childhood. *Lancet* 1990;**336**:649-51.
22 Morgan M, Singh B, Frame M, Williams S. Terbutaline aerosol given through a pear spacer in acute severe asthma. *BMJ* 1982;**285**:849-50.
23 Fuglsang G, Pedersen S. Comparison of Nebuhaler and nebuliser treatment of acute severe asthma in children. *Eur J Respir Dis* 1986;**69**:109-13.
24 Beasley R, Cushing M, Holgate ST. A self management plan in the treatment of adult asthma. *Thorax* 1989;**44**:200-4.

Health checks for people over 75

The doubts persist

The government introduced health checks for people over 75 with more of an eye to client satisfaction[1 2] than to the findings of research.[3] General practitioners, who are contractually obliged to provide the checks, remain uncertain of their purpose and content, what constitutes competence and satisfactory performance, and who should provide them. Two papers in this week's journal illustrate this uncertainty (p 619,[4] p 621[5]).

What is the evidence that screening elderly people improves their health? Four randomised trials have examined the question. Using a nurse to screen people over 70 in an affluent practice, Tulloch and Moore showed that screening did not change the prevalence of illness, although patients' morale and referral rates rose and admission rates fell.[6] Using a health visitor to assess people over 70, Vetter *et al* showed in an urban practice that annual screening reduced mortality, though not morbidity.[7] A Danish study showed that three monthly visits by a nurse to people over 75 reduced admissions, emergency calls, and mortality.[8] McEwan *et al* found that domiciliary visits by a nurse to people over 75 improved morale but no other measures of health.[9]

The failure of screening to improve morbidity does not mean that it is a waste of time and effort. Screening improves the quality of life.[6-10] In any case, the effects of screening on morbidity have yet to be fully evaluated: so far, easily defined measures of outcome, favouring the detection of medical disorders, have usually been chosen in preference to sensitive measures of functional disability.[11] Screening should not be regarded as having failed if the failure has been in offering effective treatment or advice.

The current consensus is that screening is useful in identifying functional disabilities, which may have received little or no medical attention. The prevalence of functional problems in elderly people—especially problems with hearing,[12 13] mobility,[12] continence,[12] vision,[14] teeth,[15] and cognitive function[16 17]—is high. For how many of these and other health problems does good evidence exist for the effectiveness of screening? The benefits of treating hypertension in elderly people are clear: the protection it offers against stroke and myocardial infarction justifies the treatment of those up to 80[18] and even beyond.[19] Given our limited resources, screening people at 75 and 78 therefore seems justified.

The United States Task Force on Periodic Health Examinations (which reviewed relevant publications and professional evidence from 1984 to 1988) has produced guidance on screening for other conditions.[20] For skin cancer only those at high risk should be screened. For breast cancer neither self examination of the breast nor mammography was thought to benefit women after 75, and the evidence for any benefit from clinical examination for breast lumps is less clear cut.

Although the task force did not support screening asymptomatic people for dementia, there is a good case for establishing a baseline of data at 75 but no evidence to repeat screening annually. Cases with unexplained changes identified opportunistically could receive more detailed assessment. Suitable tools would be the abbreviated mental test for dementia and self care (D) rating for depression.[21] The problem with such tests is that they may cause anxiety or offence if applied indiscriminately to those with full cognitive function. "Soft questions" are needed to act as a preliminary screen of cognitive function and affect, which can be unobtrusively incorporated into the conversation during the health check.

For dental disease the United States task force found little evidence of any benefit from counselling but good evidence that various measures—such as flossing, fluoride, low dietary sugar, and scaling—prevented caries and periodontal disease. Elderly people tend greatly to underestimate their dental problems. The task force recommended testing women's thyroid function but found no good evidence for routinely analysing urine. It judged the case for visual screening to be equivocal. The adequacy of simple questions to detect visual disability has been doubted[14]; ensuring that elderly people regularly consult an optometrist might be the best approach.

The task force recommended that hearing should be screened, but the validity of tests entailing whispering and listening to a ticking watch remains unproved. Pure tone audiometry is ideal but unsuitable for use by non-specialist staff in primary care. More promising are validated questionnaires from the Medical Research Council's national hearing study. A case finding approach to detecting symptomatic hearing loss is inappropriate because of the prevalence of denial, its association with depression, and agist attitudes among clients, relatives, and professionals.[13]

The value of screening for polypharmacy and its ill effects is unknown. Much evidence exists of the dangers of polypharmacy—one in four people over 75 have more than 20 new prescriptions a year, more than one third are suffering from drug toxicity, and adverse reactions occur in one fifth of those over 80.[22]

Measuring the quality of life (not mentioned in the general practice contract) is probably important but requires further research. Williams suggests simple questions for detecting problems with the home, carers, social contact, finance, wellbeing, and mobility.[23] A suitable measure would be the functional level (Bartel) activities of daily living scale.

What do the two studies in this week's journal tell us of the operation of the new contractual requirement, apart from the wide variations in performance? Uptake and patient satisfaction seem high, although general practitioners' enthusiasm for screening is low. Part of this reflects their ignorance of the value and methods of functional assessment. Many labour under the misconception that the objective of screening elderly people is to uncover unrecognised disease. Both studies highlight the enormous training needs—not only of doctors but also of practice and community nurses—and show the need for coordinating the commissioning of nursing and practice staff.

Both studies also confirmed previous findings of substantial unmet needs—especially for audiological services, occupational therapy, and chiropody. Until commissioning authorities make good the deficiencies a screening programme is arguably unethical. Assessing the scale and nature of unmet need and involving consumers in the process are critical to ensuring that services are appropriate.

General practices should be resourced to screen their elderly patients and collect data to provide a valid needs assessment for clients and purchasers. Currently not all general practices have the necessary skills. Additionally, in many cases the standards of screening tools are not established. The best way of addressing these problems may be to develop a new role of public health nurse, who has epidemiological training and experience of caring for elderly patients in hospital and the community.

The government needs to amend or relax the contractual requirements to permit different approaches after the initial assessment. Flexibility is needed to permit research into alternative ways of screening and assessing needs. National guidelines need developing and implementing. They should incorporate a standardised population screening programme for hearing loss and hypertension and strategies for recognising unmet needs (particularly those arising from problems with continence, hearing, and teeth). Also required are techniques for assessing the functional state and mental health of elderly people and recommendations on domiciliary visiting. Meanwhile, the clinical professions need to agree and review local guidelines with family health services authorities, who together should plan to meet the needs for training, personnel, and information and to establish consumer feedback. Demographic changes suggest that by the end of the century the care of today's over 75s may present the nation's greatest public health challenge.

ANDREW HARRIS

Medical Director,
Lambeth, Southwark, and Lewisham
Family Health Services Authority,
London SE1 7NT

1 Williams EI, Naylor SE. Experience in practice. *Care of the Elderly* 1990;**2**:4-6.
2 Dr Stringfellow's Team. Prevention for patients over 75: is it worth the bother? *BMJ* 1986;**292**:1243-4.
3 Perkins E. Screening elderly people: a review of the literature in the light of the new general practitioner contract. *Br J Gen Pract* 1991;**41**:382-5.
4 Brown K, Williams EI, Groom L. Health checks on patients 75 years and over in Nottinghamshire after the new GP contract. *BMJ* 1992;**305**:619-21.
5 Tremellan J. Assessment of patients aged over 75 in general practice. *BMJ* 1992;**305**:621-4.
6 Tulloch AJ, Moore V. A randomised controlled trial of geriatric screening and surveillance in general practice. *J R Coll Gen Pract* 1979;**29**:733-42.
7 Vetter NJ, Jones DA, Victor CR. Effect of health visitors working with elderly patients in general practice: a randomised controlled trial. *BMJ* 1984;**288**:369-72.
8 Hendriksen C, Lund E, Stromgard E. Consequences of assessment and intervention among elderly people: a three year randomised controlled trial. *BMJ* 1984;**289**:1522-4.
9 McEwan RT, Davison N, Forster DP, Pearson P, Stirling E. Screening elderly people in primary care: a randomised controlled trial. *Br J Gen Pract* 1990;**40**:94-7.
10 Williams EI. The birth of preventive medicine in old age. *Geriatric Medicine* 1991;**21**:8-9.
11 Freer CB. Geriatric screening: a reappraisal of preventive strategies in the care of the elderly. *J R Coll Gen Pract* 1985;**35**:288-90.
12 Iliffe S, Haines A, Gallivan S, Booroff A, Golderberg E, Morgan P. Assessment of elderly people in general practice. 2. Functional abilities and medical problems. *Br J Gen Pract* 1991;**41**:13-5.
13 Humphrey C, Gilhome Herbert KR, Farnqui S. Some characteristics of the hearing impaired elderly who do not present themselves for rehabilitation. *Br J Audiol* 1981;**15**:25-30.
14 Wormald RPL, Wright LA, Courtney P, Beaumont B, Haines AP. Visual problems in the elderly population and implications for services. *BMJ* 1992;**304**:1226-9.
15 Diu S, Gelbier S. Oral health screening of elderly people attending a community care centre. *Community Dent Oral Epidemiol* 1989;**17**:212-5.
16 Iliffe S, Booroft A, Pallivan S, Gldenberg E, Morgan P, Haines A. Screening for cognitive impairment in the elderly using the, min-mental state examination. *Br J Gen Pract* 1990;**40**:277-9.
17 Iliffe S, Haines A, Gallivans, Booroft A, Goldernerg E, Morgan P. Assessment of elderly people in general practice. 1. Social circumstances and mental state. *Br J Gen Pract* 1991;**41**:9-12.
18 Beard K, Bulpitt C, Marcie-Taylor, O'Malley K, Sever P, Webb S. Management of elderly patients with sustained hypertension. *BMJ* 1992;**304**:412-6.
19 SHEP Corporative Research Group. Prevention of stroke by antihypertensive drug treatment in older persons with isolated systolic hypertension. Final results of the systolic hypertension in elderly program (SHEP). *JAMA* 1991;**24**:3255-64.
20 Woolf SH, Kancrow DB, Laurence RS, Madalie JH, Harvey Esthes E. The periodic health examination of older adults: The recommendations of the US Preventive Forces Task Force Part II Screening Tests. *J Am Geriatr Soc* 1990;**38**:933.
21 Grace J, Hargreaves S. Screening the over 75s; the RCGP view. *Geriatric Medicine* 1981;**21**:27-32.
22 Crome P, Patterson LJ. Drugs and the elderly: adverse reactions, abuse and overdosage. In: Turner P, Vollans GN, eds. *Recent advances in clinical pharmacology and toxicology*. Edinburgh: Churchill Livingstone: 1989:159-72.
23 Williams EI. What to include in the check-up. *Geriatric Medicine* 1991;**21**:13-6.