

Is bone health in the 'too hard' basket?

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Komal Kumar is currently a trainee intern working in the Wellington region.

She undertook this research project as a summer student in the summer of 2004–5. Her interest in bone health and falls arose from an affected elderly relative and a desire to make a difference.

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New Zealand factors affecting GP uptake of bone health screening and management.

Method

One hundred and twenty GPs practising in the Hutt Valley and Wellington were invited to answer a mail survey containing Likert scale and open-ended questions, including two hypothetical case studies. Wellington GPs formed a natural comparator group for the GPs with facilitated access to bone health services (Hutt Valley).

Results

A 75% response rate was achieved. Bone health issues are not common in GP consultations and time prioritisation is an important barrier. Other barriers were: health systems factors (cost to patients, scan access and no screening programme); patient factors (co-morbidity, reticence to engage in health promotion, patient understanding and compliance); doctor factors (concerns about polypharmacy, drug subsidy issues, cost to patients, uncertainty over guidelines, self-acknowledged knowledge gap, and omitting to ask). A trend towards increased awareness and evidence-based patient bone health management was noted amongst doctors with facilitated access, but this was not significant.

Discussion

Responses of GPs demonstrated clinical pragmatism as well as uncertainty

in decision-making. Multifactorial barriers increase the risk that bone health management will be put into the 'too hard' basket for primary care. Bone care issues deserve higher visibility. This project has also provided insight into the difficulties of surveying busy doctors on a low profile topic, and has raised interesting questions for future research.

Key words

Osteoporosis screening and management, clinical implementation, primary care.

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Introduction

Osteoporosis is a silent disease poised to become an important health care issue as the New Zealand population ages. According to Osteoporosis New Zealand, over half of New Zealand women and about a third of the men over 60 years of age will suffer an osteoporotic fracture, and one third of people with hip fracture will die within a year from related complications. In addition to fracture morbidity, mortality and cost, osteoporotic fractures are a major reason for hospitalisation, loss of mobility and independence and institutionalisation,¹ but osteoporosis is asymptomatic and low bone mass often lies undetected until a fracture presentation.

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ABSTRACT

Introduction

Osteoporosis will become increasingly important in New Zealand as the population ages, but a gap currently exists in the provision of evidence-based management to patients with osteoporosis, for both males and females. The question for this project arose when researchers in a recent NZ falls assessment RCT became aware that participants were not offered intended bone health interventions, despite facilitated primary care processes within the trial protocol. The project aim was to explore the

ary prevention for osteoporosis. Secondary prevention (screening after a fracture and treatment to manage future fracture risk) is not done well in many hospitals. A postal survey of Australian patients discharged after a fracture-related hospitalisation revealed lack of awareness, of both patients and hospital clinicians, of the importance of osteoporosis screening and treatment.² Primary health care services remain the safety net to ensure that patients receive remaining investigations and management after fracture-related hospital discharge. Primary prevention (early detection and management to slow bone density loss and reduce future fracture risk) is also mainly undertaken in primary care.

The gold standard for the diagnosis of osteoporosis currently is the dual-energy x-ray absorptiometry (DEXA) scan. DEXA scans can detect osteoporosis in time to commence treatment to decrease fracture rates and thereby reduce physical, financial and social burdens on patients and society.³ An American study conducted a decade ago revealed that clinicians (including GPs) experienced barriers in use of bone densitometry: unfamiliarity with guidelines; uncertainty over clinical applicability; restricted availability and cost concerns.⁴ Such factors still impact on osteoporosis detection and subsequent management. A recent general practice study of Australian women with more than one postmenopausal fracture found that less than a third had received osteoporosis treatment.⁵ Adequate dietary calcium intake, regular exercise, avoidance of risk factors such as smoking and excessive alcohol intake have modest efficacy for preventing osteoporosis⁶ and guidelines recommend pharmacological therapy for low bone mineral density,^{7,8,9} as lifestyle interventions alone are insufficient to prevent fractures. Barriers to clinical implementation can have cumulative effects on bone health management in primary care and consequently pa-

tients at risk might remain undetected or sub-optimally managed.

In the falls assessment clinical trial (FACT), an RCT conducted in New Zealand during 2005/6,¹⁰ participants were elderly patients who had fallen in the previous 12 months, recruited from Hutt Valley practices. The trial gave their GPs access to free DEXA scans regardless of osteoporosis risk, but researchers became aware very early in the trial that many participants were not being referred for bone densitometry. This necessitated a protocol change to ensure that it was offered. A medical student (KK) undertook a summer research project to explore the factors affecting GP uptake of bone health screening and management in New Zealand.

Method

A comprehensive literature search, including an Internet search for non-peer reviewed literature, informed the development of a two-page questionnaire. The questionnaire was a mixture of Likert scale and open-ended enquiries (Table 1). GP-respondents were asked to nominate barriers to detection and treatment from both their own perspective and their perception of patient perspective. Two case studies were included to prompt GPs for treatment-related management issues.

The questionnaire was piloted by GPs and medical students at the Wellington School of Medicine and Health Sciences and then faxed with a covering letter to all practising GPs in the Hutt Valley and Wellington areas during December 2005. The only GP exclusion criterion was no fax facility. A reminder was faxed to non-respondents after one week, and a phone call was made to the practice manager of group practices (or receptionist if the practice manager was unavailable), to ensure that all their GPs had received a copy. After a further two weeks the questionnaire was mailed to non-respondents on coloured paper and with a confectionary inducement.

GP participants were self-selected, through return of the questionnaire. Hutt Valley GPs had received CME sessions on falls and bone health at the introduction of FACT within their DHB, in anticipation of increased demand for densitometry during the trial. Wellington GPs formed a natural comparator group, being geographically close with similar health service access, but they were not involved in FACT. The Wilcoxon two-sample ranked test was used for significance of Likert scale comparisons between these two GP groups.

Results

A total of 120 GPs were invited to be surveyed: 66 practising in Hutt Valley and 54 in Wellington. The overall response rate was 75% (cumulative response rates 13%, 49%, 75% after two faxes and mailed reminder letter respectively). The Wellington respondents included more GP locums (18) compared to the Hutt Valley (5) $p=0.043$. This was the only 'significant' difference between Hutt and Wellington respondents and small numbers make it a possibility that this is a chance difference.

Bone health issues are not commonly raised in GP consultations: 55% of the Hutt Valley GPs and 48% of the Wellington GPs stated that they 'sometimes' cover bone health issues with their patients. With the FACT trial underway, most Hutt Valley GPs had discussed bone health issues with patients 'weekly' (45%), but 'monthly' was the option selected most often amongst Wellington GPs (38%). This difference was not statistically significant, but Hutt GPs did rank consultation time as a barrier more frequently compared to Wellington GPs ($p=0.002$) (Figure 1). Hutt Valley GPs also perceived time as a barrier for their patients.

Both groups of GPs were more likely to refer patients who are elderly, postmenopausal, with previous low energy fracture, on long-term high dose steroids and with a family

Table 1. Questionnaire

Bone Health Questionnaire for Wellington General Practitioners*Please read the following questions and circle ONE answer, unless otherwise specified.***1A. What type of GP practice is yours?**

Urban solo Urban group Rural solo Rural group

1B. Are you a:

Partner Associate Locum Trainee Other

1C. Are you:

Male Female

1D. Please indicate your age group:

25–34 35–44 45–54 55 and over

2. Do you feel there is a need to cover bone health issues with your patients?

Always Frequently Sometimes Seldom Never

3. How often do bone health issues arise with your patients?

Weekly Fortnightly Monthly Yearly Never

4. Do you find limited consultation time a problem when discussing bone health issues with your patients?

Always Frequently Sometimes Seldom Never

5. What would prompt you to order a DEXA scan on a patient?**6. Is the cost of a DEXA scan a factor in how often they are used?**

Yes No Maybe (please explain)

7. What would prompt you to discuss treatment for osteoporosis with a patient?**These are two theoretical case studies we would like your opinion on:***Choose one or more of the following treatment plans (please indicate the option/s chosen next to the question below):*

- A No treatment
- B Lifestyle advice
- C Multivitamin tabs/ over the counter remedies
- D Vitamin D and calcium tabs
- E Bisphosphonates (e.g. Alendronate)

Case 1: A 60-year-old female with a DEXA scan ($t < -2.5$) and no history of, or current fractures.

Option/s chosen: _____

Case 2: A 60-year-old female with a DEXA scan ($t < -2.5$) and a recent hip fracture.

Option/s chosen: _____

8. What are the barriers for GPs' in detecting osteoporosis in patients?**9. What are the barriers for GPs' in managing osteoporosis in patients?****10. What barriers do you think exist for your patients in having their osteoporosis detected?****11. What do you think are the barriers to your patients in having their osteoporosis treated?**

Thank you for your time,

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*This project has been approved by the University of Otago Ethics Committee (category B process for research involving human participants).***Department of Primary Health Care & General Practice**

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history of osteoporosis for densitometry (Table 2).

Both the Hutt Valley and Wellington GPs identified cost, funding and availability of a DEXA scan as barriers to usage, with no statistically significant differences between the two regions (Figure 2).

The questionnaire highlighted many other factors that play a role in implementation of osteoporosis investigation and management. Systems factors included costs to patients for GP appointments, prescriptions and scans, absence of national screening protocol as well as the DEXA scan access mentioned above.

Patient factors included patient reticence to consult for health promotion reasons, multiple comorbidities (which impacted on priority afforded to their bone health), non-compliance in investigation and treatment, GP perception of low patient understanding of the significance of osteoporosis. Doctor factors included doctors' awareness of own knowledge gap, confusion over recommendations, concern for the cost to patients, polypharmacy considerations, and forgetting or omitting to ask. Almost a third of all respondents (21 Hutt and 17 Wellington GPs) nominated more than one factor as a barrier to detection of osteoporosis. GPs reported that availability of funded medications had been a major barrier in treating patients' with osteoporosis until PHARMAC changed the criteria for accessing bisphosphonates.

The two case studies also highlighted barriers to treatment. Respondents made a choice of one or more options to manage each patient (Table 1).

Figures 3 and 4 show the distribution of treatment choices for Case 1 and 2 respectively. There was no clear consensus, but most respondents preferred vitamin D and calcium, or lifestyle advice with vitamin D and calcium for Case 1 and bisphosphonates for Case 2. There was a trend toward Hutt GPs wanting to treat more aggressively although the differences

Figure 1. Consultation time is a factor

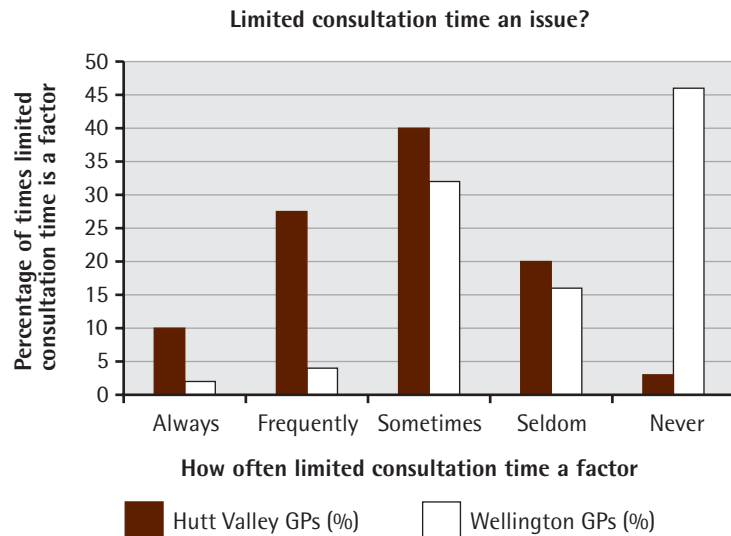


Table 2. Patient presentations prompting a DEXA scan*

	Hutt Valley GP responses (n=66)	Wellington GP responses (n=45)
Major risk factors for osteoporosis:		
Didn't specify risk factors	8	3
Post menopausal	14	25
Low body weight	6	8
Prior low trauma fracture	30	26
High dose steroids	16	20
Low dietary calcium intake	3	2
Minimal physical activity	0	1
Family History	12	11
Falls	2	0
Age	17	16
Sex	6	3
Racial (Caucasian)	1	2
smoker	8	6
Specific patient request	3	6
Indicative symptoms		
Height loss	4	1
Back pain	2	6
Kyphosis	2	1
Xray report of osteopenia	7	9
Interval follow up scan	1	1
Need a t-core for bisphosphonate application	1	0

* note more than one response on characteristics allowed

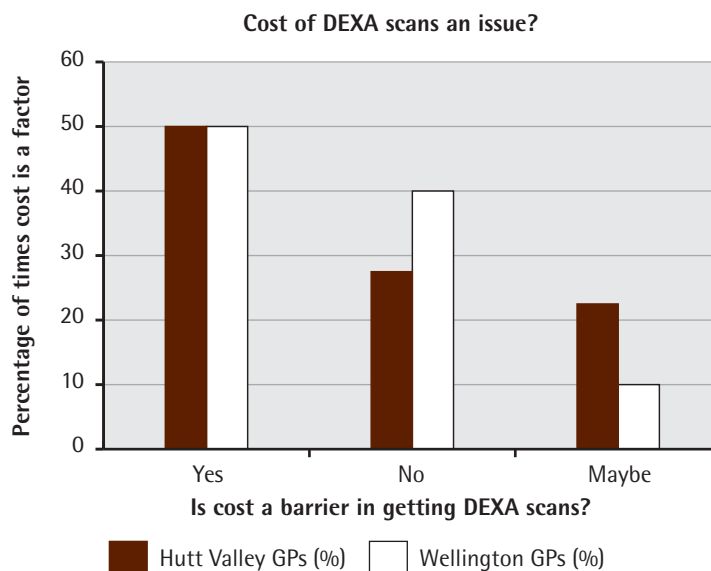
were not significant. In Case 1 more Hutt GPs (13%) than Wellington GPs (8%) chose a combination of bisphosphonates with lifestyle advice, vitamin D and calcium tabs (95% confidence interval = -0.086, 0.176) and in Case 2 this option was selected by 21% of Hutt GPs vs 6% of Wellington GPs (95% confidence interval = -0.002, 0.287).

Comments to the open-ended questions provided evidence of clinical pragmatism as well as uncertainty in decision-making about osteoporosis. GPs mentioned health systems factors (cost to patients, scan access and no screening programme); patient factors (co-morbidity, reticence to engage in health promotion, patient understanding and compliance); doctor factors (concerns about polypharmacy, drug subsidy issues, cost to patients, uncertainty over guidelines, self-acknowledged knowledge gap, and omitting to ask about bone health).

Discussion

The barriers operating in New Zealand to deter the detection of osteoporosis are similar to those over-

Figure 2. Is cost a barrier to DEXA scanning?



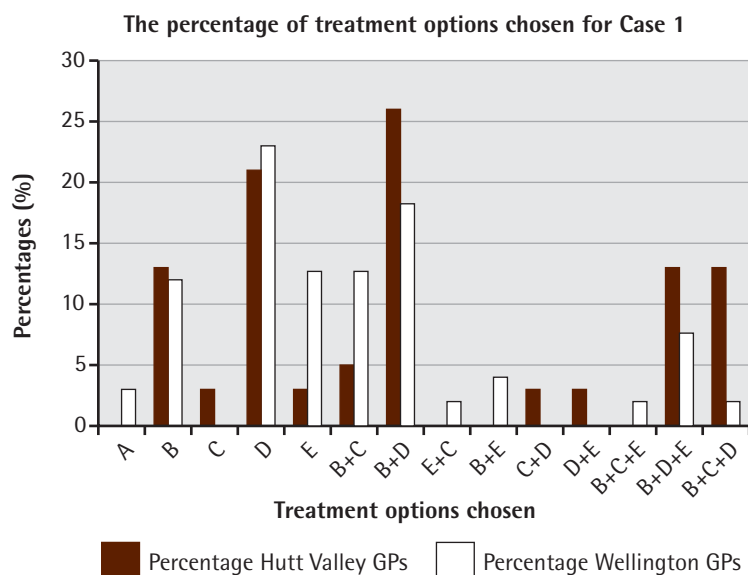
seas: cost and availability of densitometry, demands on consultation time, awareness and prioritisation of osteoporosis as an important health issue by both patients and GPs.

Hutt Valley GPs seemed more aware of time required to discuss bone health issues, which may have been due to demand generated by the fall assessment trial in their DHB. Lim-

ited consultation time is an important consideration for bone health as it is for other community-based health promotion initiatives, and a difficult barrier to overcome.

An unexpected finding was that GPs in both regions identified investigation-related limiting factors, although the falls trial protocol had made provision for access to free DEXA scans for GPs in the Hutt DHB. An existing pharmaceutical-company scheme allowing GPs to offer free DEXA scans to patients meeting specific criteria is not well known or well used. Reliance on the sponsorship of a pharmaceutical company is of concern to both doctors and their medical organisations.^{11,12} A change to DHB policy and/or health service funding criteria would be preferable to reliance on any pharmaceutical company. Local primary care initiatives which already exist for better primary care management of chronic conditions (Care Plus http://www.moh.govt.nz/moh.nsf/wpg_Index/-Primary+Health+Care+Care+Plus) could and should include osteoporosis: enabling practice nurses to provide lifestyle advice and support, take a more active role in screening, compliance and side effects monitoring, particularly for patients on treatment after a known fracture.

Figure 3. Preferences for treatment: Case 1



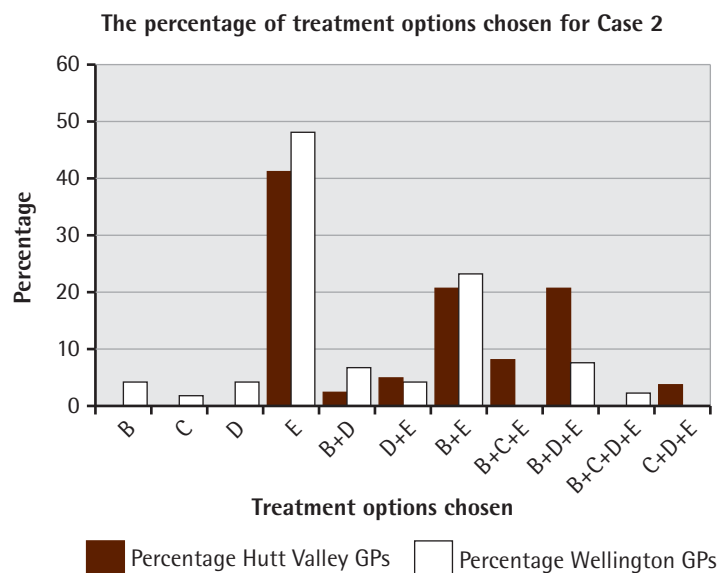
Key: A=No treatment; B=Lifestyle advice; C=Multivitamin tabs/over the counter remedies; D=Vitamin D and calcium tabs; E=Bisphosphonates (e.g. Alendronate).

Primary prevention of osteoporosis is difficult, not just because bone mineral loss is initially silent. A weighty argument against any Bone Health screening programme is consideration of number-needed-to-treat. Although early treatment can reduce bone mass loss, and bone mineral density is an accurate predictor of fracture risk, many individuals would be exposed to the cost of screening and cost and side effects of treatment to realise benefit. USA estimates are that about 750 bone density tests would be needed on postmenopausal Caucasian women between 50 and 59 years to prevent one hip/vertebral fracture over a five-year treatment period.⁹ To do this, the cost per person would be high: routine screening alone would include costs for the scan and consultations before and after, and treatment for five years would also require clinical monitoring in addition to the direct and indirect costs to the patients. Screening in an older population will raise the diagnostic gain since bone mineral loss accompanies ageing, routine screening can also be targeted to patients with two or more known risk factors, but treatment gains become less achievable when osteopenia is already established.

Treatment-related barriers for GPs improved one year prior to this study, with new PHARMAC rules allowing an initial application for alendronate from a vocationally registered GP or specialist. Once weekly alendronate is easier to prescribe and easier for patients to remember than the cyclical etidronate regime (14 days every three months, taken with water, two hours before or after food, and not to be taken simultaneously with calcium). However patient treatment recommendations in NZ Guidelines⁷ differ from PHARMAC eligibility criteria (www.pharmac.govt.nz). For this reason there can be no 'correct' answers to the hypothetical case studies.

Case study results indicate that local treatment of osteoporosis is not as aggressive as it could be. Most respondents would prescribe vitamin

Figure 4. Preferences for treatment: Case 2



Key: A=No treatment; B=Lifestyle advice; C=Multivitamin tabs/over the counter remedies, D=Vitamin D and calcium tabs; E=Bisphosphonates (e.g. Alendronate).

D and calcium for a patient with a DEXA scan result $t < -2.5$ and no history of a fracture or current fractures, even though these have been shown to be ineffective in preventing fractures.^{14,15} Accompanying comments indicated a pragmatic reaction to the current funding criteria for bisphosphonates and also, in part, low GP confidence, experience in and mandate for bone health. The current New Zealand Guidelines⁷ focus on prevention of fractures, with emphasis on risk assessment, risk identification and falls prevention programmes. In that guideline bone health treatment recommendations follow best practice in international literature, avoiding the NZ pharmaceutical subsidy considerations that GPs must wrestle with. According to Australian guidelines specifically for general practitioner treatment of postmenopausal osteoporosis⁸ the best evidence-based treatment for both Cases 1 and 2 would be a combination of lifestyle advice, vitamin D and calcium tabs and bisphosphonates. However, similar restrictions apply in Australia where bisphosphonates can be prescribed on the Pharmaceutical Benefits

Scheme (PBS) for secondary prevention, but not primary prevention, and prescribers must first call the PBS to ensure their patient qualifies. (Schedule of Pharmaceutical Benefits, <http://www1.health.gov.au/pbs/index.htm>).

The case study findings indicate a need for pragmatic modification of evidence-based guidelines to defuse the uncertainty that GPs face with regard to bone health management. Further research might help to clarify the role of GP knowledge and confidence in managing osteoporosis. It is possible that problems of time, funding, confidence and experience similarly influence GP uptake of management of other 'difficult' patients such as those with mental health problems, addiction and chronic pain.

It was notable that treatment options selected by Hutt and Wellington GPs for the case studies did not significantly differ, despite the practice-based education delivered to Hutt GPs at the commencement of the falls assessment trial. The FACT trial did not include patient-based education programmes, although focused patient education has been shown to enhance patient-physician dialogue, improv-

ing patient care outcome as measured by increased densitometry use.¹³ Patient-focussed education therefore has potential to enhance GP involvement in bone health in a manner that does not undermine autonomy.

Both groups of GPs identified potential barriers for their patients. There clearly are limitations in interpreting data about issues for patients given from a GP's perspective. It is unclear if GP concern for cost to patients relates to consultation fees for monitoring and repeat prescriptions, costs of scan or drugs (when not subsidised) or a combination of these.

Multiple factors do operate as barriers to bone health management in primary care, with the cumulative effect that bone health may lie in the too-hard basket for primary care, which would increase the risk of osteoporosis remaining undetected and/or sub-optimally managed. Bone health issues are currently under-investigated and under treated in Wellington and the Hutt Valley, and there is no reason to suspect that this would not apply across New Zealand.

Answering questionnaires can in itself be in the 'too hard basket' for GPs especially at the end of the year. That an overall 75% response rate was obtained from such busy people was very encouraging. This

project did demonstrate the lengths that are necessary to get responses from GPs when the topic is not seen as a high priority issue. Questionnaire design for busy GPs requires careful balance since open-ended questions allow detailed answers but also render the questionnaire more time consuming. An Australian study¹⁶ identified factors that assist in improving GP response rate: short surveys of special interest, personalised to the respondents, resending to non-respondents and use of incentive to reply (as our experience has also shown).

The lack of significant differences between results from the two groups in our study could be related to small group size. Power calculations determine the optimum size of comparator groups needed to show significant difference where it exists. Such calculation was not possible in this study, which investigated an observed phenomenon for the first time: the size of the effect, if any (impact of a DHB Bone Health RCT on GP bone health awareness and osteoporosis management), was unknown. There was a consistent but non-significant trend toward the intervention GPs (Hutt) giving osteoporosis more consultation time and managing it more aggressively than their controls. This

is a phenomenon that deserves further investigation.

The project has raised other interesting areas for further research: how GPs prioritise conflicting demands on consultation time; the impact of time pressure on attention to this and other 'silent' conditions; should public health policy (presence or absence of guidelines, screening programmes) influence GP practice?

Bone health issues deserve greater visibility in primary care and it is over to patients, health professionals and PHO management to make sure it does not languish in the 'too hard' basket.

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Competing interests

None declared.

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