Letters

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Travelling in Palestine

I was interested in Dr Shaw's response[1] to my essay, describing our family's personal experience of passing through an Israeli checkpoint.[2] We did not simply have to 'wave a British passport'.

I also made it clear that we have friends in both Palestine and Israel who are committed to a peaceful co-existence. As in all situations, the more individual contact there is between people of different backgrounds and cultures, and the more we question unhelpful stereotypes based on fear, the more hope there is for peace.

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Improving the sensitivity of the Dutch guidelines for case finding in osteoporosis

In a previous paper[1] we reported on the poor validity of the Dutch case finding method for GPs to identify patients with osteoporosis for Dual energy X-ray absorptiometry (DXA) measurement (NHG guidelines for osteoporosis[2]), as sensitivity was 19.5% and positive predictive value (PPV) was 18.6%.[2] We suggested that a more appropriate tool is needed to apply case finding for osteoporosis.

The problem, however, is that many GPs have poor knowledge of the different case finding methods that are available.[3] Instead of designing a new method, one might rather evaluate alternative usage of current guidelines to achieve better results. Hence the aim of this research letter is to investigate alternative usage of the Dutch guidelines to select osteoporosis patients for DXA.

As we discussed in our previous paper, the poor validity of the Dutch guidelines might result from the definition of the weighted scores. Therefore, we performed receiver operating characteristic (ROC) curves to evaluate whether '4' is the best cut-off score to be used. As only 64 males were included, data analyses were performed of 345 females. Osteoporosis was diagnosed according to the World Health Organization (WHO) guidelines (T score ≤ –2.5 SD) and, in addition, according to the Dutch guidelines, using the WHO criteria in patients younger than 70 years and Z-scores in patients over 70 years (≤ –1.0 SD) to define osteoporosis. Osteopenia was not defined within this age group. We calculated sensitivity, specificity, and predictive value of the guidelines using varying cut-offs; 95% confidence intervals were calculated using binomial expansion. Statistical analyses were performed using SPSS (version 16.0) software. The ROC curve, as well as the results of sensitivity, specificity, and predictive value (Table 1), showed that the best cut-off for the current Dutch instrument is '1'. Using this cut-off and the WHO criteria of osteoporosis, sensitivity improved to 88%, specificity was 40%, PPV 14%, and NPV 97%. Slightly lower values were calculated if DXA outcome was based on the Dutch criteria of osteoporosis (using Z-scores in patients aged ≥70 years.

If the optimal threshold is '1', it can be concluded that the weighted scores are of no added value. Moreover, it implies that screening is always recommended above the age of 60 years. In contrast, the US guidelines have recommended

Table 1. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the original Dutch osteoporosis guidelines in 345 women.

Cut-off	Criteria[a]	Sensitivity, % (95% CI)	Specificity, % (95% CI)	PPV[b], % (95% CI)	NPV[b], % (95% CI)
1	WHO	88 (77–99)	40 (35–46)	14 (9-18)	97 (95–99)
	Dutch	83 (68–98)	39 (34–45)	9 (5–13)	97 (95–99)
2	WHO	63 (47–80)	67 (62–73)	17 (10–24)	95 (91–99)
	Dutch	50 (30–70)	65 (60–71)	10 (5–15)	95 (91–99)
3	WHO	36 (20–35)	88 (84–91)	24 (12–35)	93 (86–100)
	Dutch	29 (11–47)	83 (79–88)	14 (4–23)	93 (86–100)
4	WHO	21 (7–35)	90 (87–93)	18 (6–31)	92 (83–100)
	Dutch	20 (10–37)	90 (86–93)	13 (3–24)	94 (86–102)

[a]*WHO-criteria: DXA outcome is always based on T-scores. Dutch-criteria: DXA outcome is based on T-scores if age <70 years and on Z-scores of age ≥70 years.*

screening in women over 65 years, based on cost-effectiveness analysis.[4] In addition, treatment of women with risk factors other than a prior fracture is cost-effective after the age of 65 years according to the European guidance.[5] Therefore, we have investigated the validity of the Dutch guidelines in women, after changing the original model: in the original guidelines, 1 risk point is given for the age 60–70 years and 2 points for the age of ≥70 years. Instead, we now gave 1 risk point for the age of ≥65 years. The original and adapted guidelines are shown in Table 2. Sensitivity, specificity, and predictive values of the adjusted guidelines for women are summarised in Table 3. Values were slightly higher if WHO criteria were used to define osteoporosis instead of the Dutch criteria. Furthermore, Table 3 shows that, when using a cut-off of 1, there is little benefit if age is increased from 60 to 65 years. However, instead of 60 (original), the use of 65 years (adapted) as a risk factor is recommended when taking into account cost-effectiveness.[5]

We showed that the clinical performance of the Dutch case finding instrument majorly improves with alternative use; sensitivity largely increases from 18% to 84%. Instead of missing five patients for each patient that is found with osteoporosis,[2] only one patient is missed for each six patients that are found. This implies that the majority of patients with osteoporosis will be referred for DXA and hence are properly diagnosed. However, PPV and specificity remain low. Low PPV can be explained by the low prevalence of osteoporosis in our relatively young population. Moreover, as we discussed in our previous paper,[2] an instrument with high sensitivity can be of great practical interest in primary care, even if PPV is low.

So far, there is no universal policy on case finding in Europe. We suggest that the Dutch College of General Practitioners revises its policy on prevention and case finding for osteoporosis.

Table 2. The original and adjusted Dutch osteoporosis guidelines for women.

Risk factor	Original score	Adjusted score
Established vertebral fracture	4	1
Long-term use of high dose of corticosteroids (>3 months; >7.5 mg/day)	2	1
Fracture after age of 50 years	2	1
Age >60 years	1	–
Age ≥65 years	–	1
Age >70 years	2	–
Hip fracture in first-degree family member	1	1
Weight <60 kg	1	1
Severe immobility	1	1

Table 3. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the adjusted Dutch osteoporosis guidelines in 345 women.

Cut-off	Criteria[a]	Sensitivity, % (95% CI)	Specificity, % (95% CI)	PPV[b], % (95% CI)	NPV[b], % (95% CI)
1	WHO	85 (73–97)	51 (45–56)	15 (10–21)	97 (94–99)
	Dutch	79 (63–95)	49 (44–55)	10 (6–15)	97 (94–99)
2	WHO	48 (31–66)	84 (80–88)	24 (14–35)	94 (88–100)
	Dutch	46 (26–66)	83 (79–87)	17 (8–26)	95 (90–100)
3	WHO	24 (10–39)	89 (86–93)	19 (7–31)	91 (83–100)
	Dutch	25 (8–42)	89 (85–92)	14 (4–25)	94 (87–101)
4	WHO	21 (7–35)	91 (88–94)	19 (7–32)	92 (83–101)
	Dutch	21 (5–37)	90 (87–94)	14 (3–25)	94 (9–102)

[a]*WHO-criteria: DXA outcome is always based on T-scores. Dutch-criteria: DXA outcome is based on T-scores if age<70 years and on Z-scores of age ≥70 years.*

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A fractured service: will NOGG mend it?

Alun Cooper rightly points out the burdens of fragility fractures and the