

# Awareness and perceptions of published osteoporosis clinical guidelines - a survey of primary care practitioners in the Cape Town metropolitan area

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## Abstract

**Background:** Despite the widespread production and dissemination of clinical practice guidelines, both worldwide and in South Africa, they have not resulted in the expected improvements in quality of care and patient outcomes. There are limited studies concerning the impact of South African-developed guidelines on local physician behaviour and knowledge. Awareness of a guideline is a necessary prerequisite for its successful implementation. This study aimed to survey primary care practitioners in Cape Town employed in both the private and state sectors on their awareness and perceptions of the Osteoporosis Clinical Guidelines, published in the South African Medical Journal in September 2000.

**Methods:** A descriptive, cross-sectional survey design was used. A telephonic survey of 150 randomised Cape Town primary care practitioners was conducted (100 private general practitioners and 50 public sector primary care practitioners). A survey instrument developed for the study was applied in a standardised manner. The respondents' levels of awareness and perceptions of the published guideline on osteoporosis were evaluated.

**Results:** A total of 18.7% (95% confidence interval 12.5-24.9%) of the respondents reported being aware of the clinical guidelines. Of the primary care practitioners who were surveyed, 12.7% (95% confidence interval 7.4-18%) reported having read the guidelines. There was no difference in reported awareness of the guidelines between doctors working in the private and public sectors. The respondents who had read the guidelines were generally well disposed towards them. Significantly fewer public sector primary care practitioners felt able to implement the guidelines than private general practitioners - organisational barriers were most commonly cited as barriers to implementation.

**Conclusion:** Passive dissemination of the Osteoporosis Clinical Guidelines resulted in low levels of awareness among the surveyed group. This result has implications regarding future clinical guideline dissemination and implementation in South Africa. Further attention needs to be focused on developing implementation and dissemination strategies of evidence-based guidelines in South Africa.

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## Introduction

There has been a proliferation of clinical practice guidelines published both internationally and in South Africa in recent years. Clinical practice guidelines are generally defined as “systematically developed statements to assist practitioner and patient decisions about appropriate healthcare for specific clinical circumstances”.<sup>1</sup> A clinician faces a mass of potential information of varying quality due to massively increased research – MEDLINE annually indexes over 560 000 new articles and Cochrane Central adds about 20 000 new randomised trials a year, resulting in a recognised gap between new scientific evidence and daily clinical practice.<sup>2</sup> Few clinicians have been trained to appraise published research critically. It has been suggested that 30 to 40% of patients do not receive care complying with current scientific evidence, and that 20 to 25% of care provided is unneeded or even potentially harmful.<sup>3,4,5</sup> Through the use of expert panels and critical appraisal of the available evidence, guidelines seek to improve the current standards of care and outcomes of medical interventions by closing the gap between current scientific evidence and current clinical practice.<sup>6</sup>

In South Africa, guidelines have been developed and published on a variety of medical topics.<sup>7–35</sup> Numerous other guidelines are being developed, whilst some are being redeveloped or updated. There are considerable time, financial and organisational costs involved in developing these guidelines. These costs are particularly relevant in emergent countries such as South Africa. It has been suggested that primary care has the potential for the largest gains if evidence-based guidelines regarding treatment, screening and health promotion are adopted because of the breadth of their scope and the numbers of patients that can be treated.<sup>36,37</sup> This has particular relevance for South Africa, given the recent increased government focus on primary care. In Australia, for example, studies have shown that, despite this emphasis, guidelines do not seem to be popular with many practitioners, and numerous attitudinal barriers to implementation have been identified.<sup>38,39</sup>

A comprehensive literature search was conducted using MEDLINE, the Cochrane Library (EPOC-Cochrane Effective Practice and Organisation of Care Group), databases of international guideline groups –the National Institute of Clinical Studies (NICS),<sup>40</sup> the National Health and Medical Research Council (NHMRC) of Australia,<sup>41</sup> the National Institute for Health and Clinical Excellence (NICE) of the United Kingdom (UK),<sup>42</sup> the National Guideline Clearinghouse (USA),<sup>43</sup> the Guidelines Advisory Committee (CAG) of Ontario, Canada,<sup>44</sup> and the Guidelines International Network (G-I-N),<sup>45</sup> focusing particularly on guideline dissemination and implementation.

The literature regarding the process, variety and merits of different methods of guideline development is well established. The AGREE instrument has been internationally validated for critically evaluating the methods for developing guidelines, the contents of their final recommendations and the factors linked to their uptake.<sup>46</sup> External assessments of published guidelines using such instruments reveal that they are not of uniform high quality and that no relationship can be found between the characteristics of guideline developers and the quality of the guidelines they develop.<sup>47,48</sup> In an assessment of 431 guidelines published by specialty societies, Grilli et al concluded that they were generally unsatisfactory.<sup>49</sup> Leading guideline authorities have concluded that “you can’t judge a guideline by its cover”.<sup>48</sup> Unresolved

development issues include: when to develop an evidence-based guideline, the composition of the development group and the most effective format of presenting the guideline.<sup>39,48,50</sup>

An overview of systematic reviews of professional behaviour change, published in 1999, concluded that passive dissemination of guidelines was generally ineffective. It was unlikely to result in behaviour change when used alone, but it may be useful in raising awareness of the described behaviour change.<sup>51</sup> Other reviews have supported the suggestion of greater efficacy of multifaceted interventions vs single interventions on the basis that they address multiple barriers to implementation.<sup>50,52,53</sup>

A 2001 systematic review of 235 studies of guideline dissemination and implementation strategies observed a median 10% improvement in process-of-care indicators across all studies, suggesting that it is indeed possible to change the behaviour of healthcare providers and to improve the quality of care.<sup>54</sup> This review revealed that most dissemination and implementation strategies resulted in small to moderate improvements in care and, contrary to others, that multifaceted interventions did not appear to be more effective than single interventions.<sup>54,55</sup>

It was previously thought that the mere passive distribution of guidelines by post did not result in a change in clinical practice.<sup>56</sup> Grimshaw et al’s recent systematic review suggests, however, that “educational materials (i.e. published guidelines) may have a modest effect on guideline implementation that may be short-lived”. They found an average 8.1% improvement in performance in four cluster randomised comparisons of the dissemination of educational materials.<sup>54</sup>

There are thus a number of conflicting reviews and meta-analyses regarding the effectiveness of many implementation strategies, suggesting an imperfect evidence base supporting decisions regarding which dissemination and implementation strategies are likely to be efficient under different circumstances. What appears to work well for one guideline under certain circumstances might not work for another guideline under other circumstances. It has been stressed that there are no “magic bullet”<sup>48</sup> implementation strategies that can be relied upon to change practice in all circumstances and settings. Grol and Buchan believe that this should be interpreted as meaning that no one strategy is superior.<sup>57</sup>

Numerous other implementation strategies are described, of which the following are relevant in a South African context – the use of local opinion leaders, interactive educational meetings, audit and feedback, CPD with incentives with CPD points, computerised decisional support systems and administrative interventions, such as funding medications/ investigations only according to guideline protocols.<sup>48,57,58,59</sup>

It has been observed that many current approaches to guideline implementation are based on the participants’ beliefs and “gut instincts” rather than evidence about the likely effectiveness of different approaches.<sup>60</sup> Grol and Grimshaw have challenged healthcare systems to develop and utilise a robust evidence base to support the choice of implementation strategies, stating that “evidence-based medicine should be complemented by evidence-based implementation”.<sup>61</sup>

There is very limited data available concerning the impact of South African clinical guidelines on physician behaviour and clinical outcomes

in South Africa. A qualitative study in the Western Cape using focus groups and in-depth interviews audited the responses and examined the attitudes of healthcare professionals (doctors and professional nurses) towards the South African Guidelines for Hypertension and Diabetes. Several attitudinal barriers to the implementation of these guidelines were identified.<sup>62</sup> A recent study by Ernst revealed that private practitioners and state primary healthcare physicians in Pretoria did not adhere to the American JNC VI Hypertension Guidelines when treating hypertensive patients. This study only tested the respondents' knowledge of the JNC VI report and did not seek to explore reasons for the failure of implementation of this particular guideline.<sup>63</sup>

There are no published reports quantifying the levels of awareness of physicians of South African-published clinical guidelines. There is minimal literature available on the attitudes to and perceptions of locally produced guidelines, effective local implementation strategies and the evaluation of the effect of guidelines among South African primary care physicians. There are thus large gaps in current published knowledge and awareness of South African clinical guidelines, despite their dissemination.

### Aim and objectives

As awareness of published guidelines is necessary for the success of any guideline, the principle aim of this study was to quantitatively assess the levels of awareness of a recently published South African clinical guideline on osteoporosis aimed at primary care practitioners in the private and public sectors.

In addition, the study sought to determine:

- i. Physicians' perceptions of the quality, clarity and length of the guideline
- ii. The ready availability of the guideline to the physician
- iii. Agreement with the guideline
- iv. Perceived changes in physician knowledge about the condition
- v. Perceived benefit of the guideline to patients
- vi. Perceived ability of the physician to implement the guideline

### Method

#### Study design

A descriptive, cross-sectional survey was used. The survey instrument was developed to assess the awareness of and the attitudes towards the published osteoporosis clinical guidelines in primary care. It contained questions about the doctors' demographic and practice characteristics, and their general attitudes towards the guidelines. In addition, perceptions of the guidelines were evaluated using a seven-point Likert scale. This research did not attempt to measure the actual knowledge of the published guideline. The survey instrument was piloted telephonically using three general practitioners unknown to the researcher in order to exclude ambiguity; to check that the survey instrument could be implemented; and that the questions were easily understood. The pre-test results were included in the final results, as the questionnaire was administered and completed as intended. The pre-testing of the survey instrument took place three weeks before the collection of data. The data was collected over a 12-week period from July to September 2001.

#### Sampling

Systematic random sampling was utilised to identify every third consecutive general practitioner in the medical section of the Cape

Town telephone directory (2000/2001). Every third consecutive practitioner was contacted telephonically and the survey instrument was applied in a standardised manner (see Appendix 1). One hundred private general practitioners were contacted. To eliminate contamination of the results and to ensure independent sampling, only a single doctor from any group practice was sampled. Prior knowledge of practices in the Cape Town area and a scrutiny of the telephone numbers and addresses meant that duplication within practices could be avoided. A list of all community health centres (day hospitals) in the Cape Metropole was supplied by the administrative offices of the Community Health Services Organisation (now Department of Health, Metro District Health Services, Directorate Primary Health Care). All 42 day hospitals with on-site doctors were contacted telephonically and the survey instrument was applied in the standardised manner to one doctor at each day hospital. The person answering the telephone was asked to call an available clinician. At eight of the largest community health centres (day hospitals), a second doctor was contacted telephonically; again the most available, previously un-surveyed clinician was asked to come to the phone and the survey instrument was applied. Fifty state medical officers were contacted in this way. A total of 150 primary healthcare practitioners (100 private general practitioners/50 state medical officers) were contacted telephonically and the survey instrument applied. This number was selected to ensure adequate power. Assuming that 20% of the respondents would be aware of the guidelines, a sample of 150 respondents would provide a 95% confidence interval of 14%–27% around the point estimate of 20%.<sup>64</sup>

#### Statistical analysis

The results obtained were entered into a Microsoft Excel spreadsheet and the statistical programme in Excel was used to analyse the results (Microsoft Office Excel, Microsoft Office Professional Edition, Microsoft Corporation, 2003). An on-line statistical calculator provided additional statistical calculations.<sup>65</sup> Where appropriate, 95% confidence intervals were calculated.

### Results

A total of 150 primary care practitioners – 100 private general practitioners and 50 public sector primary care practitioners – were surveyed as intended (see Table I). Two private general practitioners declined to respond to the survey instrument, citing time constraints as reasons for non-response; they were replaced by two other private general practitioners identified using the above sampling method.

**Table I:** Demographics of responding practitioners

|                        | Total<br>% (n = 150) | Private<br>% (n = 100) | Public<br>% (n = 50) |
|------------------------|----------------------|------------------------|----------------------|
| Male                   | 79.3 (119)           | 83                     | 72 (36)              |
| Female                 | 20.7 (31)            | 17                     | 28 (14)              |
| Mean age               | 46.2                 | 46.7                   | 45.2                 |
| Years since graduation | 18                   | 17.5                   | 18.5                 |

Of the surveyed primary care practitioners, 18.7% reported being aware of the publication of the Osteoporosis Clinical Guidelines. There was no statistically significant difference in the levels of awareness of private and public primary care practitioners ( $p = 0.83$ ) (see Table II). The mean age of the respondents reporting awareness of the guidelines was 47.8.

**Table II:** Survey results of private and public primary care practitioners

|                               | Total<br>% (n = 150) (95% C.I.) | Private<br>%<br>(n = 100) | Public<br>%<br>(n = 50) | Fisher's<br>Exact<br>Test |
|-------------------------------|---------------------------------|---------------------------|-------------------------|---------------------------|
| Awareness of guidelines       | 18.7 (28) (12.5–24.9)           | 18                        | 20 (10)                 | P = 0.83                  |
| Recall of publication         | 14.7 (22) (9.1–20.3)            | 14                        | 16 (8)                  | P = 0.80                  |
| Read guidelines               | 12.7 (19) (7.4–18)              | 13                        | 12 (6)                  | P = 1.0                   |
| Keep copy                     | 6.7 (10)                        | 7                         | 6 (3)                   | P = 1.0                   |
| Keep copy – home              | 2 (3)                           | 1                         | 4 (2)                   | P = 0.26                  |
| Keep copy – work              | 4.7 (7)                         | 6                         | 2 (1)                   | P = 0.43                  |
| Agree with guidelines         | 12 (18)                         | 12                        | 12 (6)                  | P = 1.0                   |
| Treat patients with condition | 11.3 (17)                       | 11                        | 12 (6)                  | P = 1.0                   |
| Can implement guidelines      | 7.3 (11)                        | 10                        | 2 (1)                   | P = 0.10                  |

**95% C.I. = 95% confidence intervals**

Of the primary care practitioners surveyed, 14.7% could recall when and where the guidelines were published, with no statistically significant difference in recollection of publication details between the private and public sector groups ( $p = 0.80$ ).

A total of 12.7% of the total respondents reported having read the guidelines – there was no statistically significant difference between the two groups ( $p = 1.0$ ).

Of the primary care practitioners surveyed, 6.7% kept a copy of the guidelines. Of those who had read the guidelines, 52.6% reported keeping a copy – 70% of these respondents kept the copy at work and 30% kept it at home (see Table III). Although more private GPs kept their copies at work than did public physicians, the difference was not statistically significant.

Of the surveyed primary care practitioners, 12% agreed with the recommendations in the guidelines. Of those who had read the guidelines, 94.7% agreed with them (see Table III).

A total of 89.5% of the respondents who had read the guidelines treated patients with osteoporosis. All the public sector practitioners who had read the guideline stated that they treated patients with the condition.

Of the primary care practitioners surveyed, 57.9% who had read the guidelines stated that they would be able to implement them. Statistically significantly fewer public sector practitioners (16.7%) than private general practitioners (76.9%) stated they were able to implement the guidelines ( $p$  value = 0.04).

Reasons highlighted by private GPs for their inability to implement the guidelines were predominantly financial (such as costs of investigations and medications). Organisational barriers cited were medical aid benefit limits and logistical issues relating to chronic medication. Public sector practitioners noted similar financial barriers; but organisational barriers were most commonly cited as reasons for inability to implement the guidelines in this group. These included the lack of

availability of medication (“not on code”) and limited access to relevant investigations and specialist clinics.

**Table III:** Survey results of respondents who had read the osteoporosis guidelines

|                               | Total<br>19<br>%<br>(number) | Private<br>13<br>%<br>(number) | Public<br>6<br>%<br>(number) | Fisher's Exact<br>Test |
|-------------------------------|------------------------------|--------------------------------|------------------------------|------------------------|
| Read guidelines               | 100 (19)                     | 100 (13)                       | 100 (6)                      |                        |
| Keep copy                     | 52.6 (10)                    | 53.8 (7)                       | 50 (3)                       | NS ( $p = 1.0$ )       |
| Keep copy – home              | 15.8 (3)                     | 7.7 (1)                        | 33.3 (2)                     | NS ( $p = 0.22$ )      |
| Keep copy – work              | 36.8 (7)                     | 46.2 (6)                       | 17 (1)                       | NS ( $p = 0.33$ )      |
| Agree with guidelines         | 94.7 (18)                    | 92.3 (12)                      | 100 (6)                      | NS ( $p = 1.0$ )       |
| Treat patients with condition | 89.5 (17)                    | 84.6 (11)                      | 100 (6)                      | NS ( $p = 1.0$ )       |
| Can implement guidelines      | 57.9 (11)                    | 76.9 (10)                      | 16.7 (1)                     | S ( $p = 0.04$ )       |

NS = Not significant;  $p$  value > 0.05

S = Significant;  $p$  value < 0.05

**Perceptions**

Of the respondents who reported having read the guidelines, 94.7% stated that the length of the guidelines was “just right”.

The respondents were moderately familiar (median score 4/7 – scale 1–7) with the contents of the guidelines (see Table IV). There was no difference between median scores for private and public practitioner familiarity. The respondents reported a moderate (median score 4/7 – scale 0–7) improvement in their understanding of the management of patients with osteoporosis.

The respondents felt that their patients had benefited moderately (median score 3/7 – scale 0–7) from the publication of the guidelines. The respondents perceived that the guidelines were only slightly confusing (median score of 2/7 on a scale of 0–7, where 7 represents least clarity). There was strong agreement with the recommendations of the guidelines (median score 5/7 – scale 1–7). Private general practitioners agreed more strongly (median score 6/7) than public sector physicians (median score 4/7) with the recommendations of the guidelines. The overall assessment of the guidelines by the respondents was good (median score 5/7 – scale 0–7).

**Table IV:** Perceptions of the osteoporosis guidelines among private and public primary care practitioners

|  | Median score | Private median score | Public median score |
|--|--------------|----------------------|---------------------|
| Familiarity with Guideline (Scale 0–7)       | 4            | 4                    | 4                   |
| Improvement of understanding (Scale 0–7)     | 4            | 4                    | 4                   |
| Perception of patients' benefit (Scale 0–7)  | 3            | 4                    | 3                   |
| Guideline clarity (Scale 0–7)                | 2            | 2                    | 2.5                 |
| Agreement with guidelines (Scale 0–7)        | 5            | 6                    | 4                   |
| Overall assessment of guidelines (Scale 0–7) | 5            | 5                    | 4.5                 |

**Discussion**

Passive dissemination of the Osteoporosis Clinical Guidelines in the September 2000 South African Medical Journal (SAMJ) resulted in

low self-reported awareness of the guidelines among primary care practitioners 10 months after publication. There was no difference in awareness between doctors practising in the private and state sectors. Levels of awareness of guidelines measured in other international studies have ranged from 99% awareness to 16% awareness, with a median of 54.5%.<sup>67</sup> No quantitative study has been published previously regarding levels of awareness of South African-published guidelines.

The osteoporosis guideline was disseminated as a supplement to the South African Medical Journal (SAMJ) of September 2000. This journal is distributed free of charge on a monthly basis to members of the South African Medical Association (SAMA) as well as non-member subscribers. Only 16 248 out of an estimated 28 800 active doctors in South Africa are members of SAMA. The SAMJ has a monthly distribution of 14 200 copies. An estimated 50% of doctors practising in SA are excluded from directly receiving the guidelines via this method of dissemination.

The study measured self-reported awareness of the guidelines and not actual knowledge of the content. It has previously been reported that self-reporting of behaviour is not necessarily a true measure of actual behaviour.<sup>39,66</sup> The results thus represent a 'best case scenario' and are likely to overestimate the true level of awareness. It may also be argued that a more meaningful measure of awareness in this study is the percentage of respondents who had claimed to have read the guidelines.

The limitations of passive acquisition of knowledge have been well described.<sup>54,55,56</sup> A telephonic method was chosen to administer the survey instrument as opposed to a postal questionnaire. The reasons for this are a higher anticipated response rate, time efficiency and cost savings. Limitations of the telephonic method of sampling include a limit on the number of questions because of responder burden – thus less detail may be obtained than in a lengthy postal questionnaire. Responder obsequiousness might also positively bias the results. The interval from publication of the guidelines to the survey was 10 months. Since knowledge of a guideline is likely to be greatest within the first year of publication and wane thereafter, the results are unlikely to represent an underestimate of awareness, and may overestimate subsequent awareness (i.e. more than one year after publication).

A plethora of bodies has been established internationally to assist in guideline development, implementation and dissemination.<sup>40–45</sup> Internationally, academic departments have been created in the fields of clinical epidemiology and clinical effectiveness. Consideration should be given to the establishment of institutions in South Africa similar to the Australian National Institute of Clinical Studies (NICS),<sup>40</sup> whose core business is to help close gaps between the best available current clinical evidence and current clinical practice in health care. The costs of such an undertaking would probably be high in a developing country like South Africa, but the opportunity costs of not translating this evidence into practice outweigh the implementation expenses.

Public sector physicians felt significantly less able to implement the guidelines, due mainly to local organisational barriers. SIGN (the Scottish Intercollegiate Guidelines Network) sponsors the modification of its national guidelines to local protocols for local application<sup>67</sup> – this local ownership step has been shown to increase the uptake of protocols by addressing unique local barriers to implementation.<sup>71</sup> The results of the study suggest that, in the South African context it would

be necessary to redevelop the generic national guideline into one that can be implemented in the public sector. The essential aspects of the guideline that cannot be changed need identifying.<sup>39,68</sup> This sector adaptation would be in keeping with emerging trends in evidence-based guideline implementation.

Few of the respondents kept a copy of the guidelines, and fewer still had them at hand to refer to at work. The availability of appropriate guidelines as close as possible to the area where care is provided has been shown to increase guideline adoption.<sup>39</sup> The establishment of a free access guideline website would allow ready access to South African-developed guidelines, as well as links to other rigorously developed guideline sites. This will help enhance the "brand value" of South African-developed guidelines. It will also empower patients to make informed choices regarding their healthcare treatment, as well as inform them if effective treatment is not being offered because of rationing of resources both by the private and state sectors.<sup>38,39</sup> Current information technology and internet access could feasibly increase the ready availability of guidelines, rather than having them available only as paper-based options. These so-called "points-of-care interventions" have been suggested as possible strategies to promote evidence uptake.<sup>39</sup>

The overall assessment of the guidelines by the respondents was good. This may reflect a true state of affairs, but the question is prone to obsequious bias. This result is in keeping with the findings of a recent systematic review of clinician's attitudes to clinical practice guidelines,<sup>53</sup> which consistently reported high satisfaction and a belief that they were likely to improve quality of care. Although the guidelines were favourably perceived by practitioners in this study (see Table IV), this perception has not translated into widespread awareness and readership of the guidelines.

It is debatable whether these findings are generalisable to other published South African clinical guidelines, all of which have been disseminated similarly in the SAMJ. Some have been subjected to additional ad hoc publicity and dissemination by pharmaceutical companies and other bodies, particularly in the private sector, but not in any systematic manner. Worldwide, such additional unplanned, untargeted and uncoordinated ad hoc strategies have seldom proven effective.<sup>54,69,70</sup> The subject matter of certain guidelines could conceivably result in greater receptiveness by the targeted audience.<sup>39,71</sup> It appears likely that the results of the study are representative of other South African published guidelines, with obvious implications for future South African guideline development, accreditation, dissemination and implementation.

## Conclusions

There was low self-reported awareness of the published osteoporosis clinical guidelines. The study found that the scope and method of dissemination were identified as major contributors to low self-reported awareness. The estimates of the study likely represent an overestimation of the true levels of awareness as a result of several potential sources of bias.

Further research is needed to review the information requirements of South African primary healthcare physicians to determine and prioritise future guideline topics. This "bottom-up" approach is suggested as opposed to a "top-down" approach, in which guideline information that might not necessarily meet their information needs is imposed on primary healthcare physicians. Increased attention

needs to be focused on understanding how to change a physician's clinical behaviour rather than simply continuing to publish guidelines. International collaboration could help to address these complex research issues more comprehensively.

Evaluation of the effectiveness of clinical guidelines in the South African setting requires further research. The target audience, objectives, implementation and dissemination strategies and outcome measures of future guidelines need to be clearly identified and determined prior to their development, as should budgets for the dissemination, implementation and evaluation of future guidelines.

### Declaration

We declare that we have no financial or personal relationship(s) which may have inappropriately influenced us in writing this paper

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## APPENDIX 1 SURVEY INSTRUMENT

|               |  |   |                 |
|---------------|--|---|-----------------|
| Name:         |  |   |                 |
| Study number: |  | Gender:   |                 |
| Phone number: |  | Year of Qualifying<br>(obtaining undergraduate degree): |                 |
| Age:          |  | Employment Category:                                    | Private / State |

Hello, I am Dr McKechnie, phoning on behalf of the University of Stellenbosch. We are currently doing some clinical research at the primary healthcare level in South Africa and would greatly value a few minutes of your time to answer 12 short questions.

The following questions are not a test of you or your education. Rather, they are intended to critically look at our systems for improving knowledge at the primary healthcare level. Please answer the questions as honestly as you can this will help us improve.

1. Are you aware of any recently published guidelines concerning the management of osteoporosis at the primary healthcare level in South Africa?  
YES / NO

2. If YES, do you recall where and when they were published?

If NO, thank you for your time in answering the questions.

If Answer No to Question 2 End Interview  
If answer Yes to question 2 proceed to question 3

3. Have you read the guideline on Osteoporosis? YES / NO. If Yes, on a scale from 1 to 7, how familiar are you with the contents?

1 = minimally familiar  
7 = extremely familiar  
1 2 3 4 5 6 7

4. Do you keep a copy to refer to? YES / NO. If Yes, do you keep a copy at HOME or WORK?

5. On a scale from 0 to 7, how much have these guidelines improved YOUR understanding of the management of patients with osteoporosis?

0 = no improvement  
7 = the greatest improvement you can imagine  
0 1 2 3 4 5 6 7

6. On a scale from 0 to 7, how much do you think YOUR patients with osteoporosis have benefited from the publication of these guidelines?

0 = no benefit  
7 = the greatest benefit you can imagine  
0 1 2 3 4 5 6 7

7. Are the guidelines TOO SHORT, JUST RIGHT or TOO LONG?

If too short or long, on a scale from 1 to 7, by how much is this too short/long?  
1 = minimally too short/long  
7 = extremely too short/too long  
1 2 3 4 5 6 7

8. On a scale from 0 to 7, how clear are the guidelines?

0 = perfect  
1 = minimally confusing  
7 = extremely confusing  
0 1 2 3 4 5 6 7

9. Do you agree with the recommendations? YES / UNCERTAIN / NO

If yes/no, on a scale from 1 to 7, how strongly do you agree or disagree  
1 = very mildly  
7 = very strongly  
1 2 3 4 5 6 7

10. What is your overall assessment of the guidelines? (On a scale from 0 to 7)

0 = useless  
7 = perfect  
0 1 2 3 4 5 6 7

11. Do you treat any patients for osteoporosis in your practice? YES / NO

12. Do you think you will be able to implement the guidelines in your practice? YES / NO

If NO WHY NOT?