

A sample of Canadian orthopedic surgeons expressed willingness to participate in osteoporosis management for fragility fracture patients

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Objective: The orthopedic community is in a unique position to initiate and provide osteoporosis care in fragility fracture patients to prevent future hip fractures in a high-risk population. The attitudes and intentions of Canadian orthopedic surgeons in the domain of osteoporosis care are unknown. Our objective was to identify current attitudes and osteoporosis management practices and to determine their overall willingness to participate in osteoporosis care for fragility fracture patients. **Methods:** A real-time interactive polling session was conducted at the 58th Annual Meeting of the Canadian Orthopaedic Association. **Results:** Of the orthopedic surgeons who responded, 90.4% agreed that the current emphasis on osteoporosis in orthopedic practice is appropriate; 85.2% of surgeons indicated that they currently refer or personally investigate for osteoporosis, or both, in fragility fracture patients. **Conclusion:** Most of the Canadian orthopedic surgeons sampled consider themselves to be currently engaged or ready to engage in osteoporosis care for fragility fracture patients. Focus should now shift from education and persuasion to program support through provision of resources and system modification that will enable Canadian orthopedic surgeons to effectively manage osteoporosis in their fracture patients.

Objectif : Les milieux orthopédiques sont particulièrement bien placés pour initier le traitement de l'ostéoporose chez les patients qui ont eu une fracture de fragilité, afin de prévenir de futures fractures de la hanche dans une population à risque élevé. On ne connaît pas les attitudes et les intentions des chirurgiens orthopédistes canadiens face au traitement de l'ostéoporose. Nous voulions déterminer les pratiques et les attitudes courantes face à la prise en charge de l'ostéoporose, et savoir dans quelle mesure les chirurgiens orthopédistes sont disposés en général à participer au soin de l'ostéoporose chez les patients qui ont subi une fracture de fragilité. **Méthodes :** On a organisé une séance de sondage interactive en temps réel au cours de la 58^e assemblée annuelle de l'Association canadienne d'orthopédie. **Résultats :** Parmi les chirurgiens orthopédistes qui ont répondu, 90,4 % ont reconnu que l'importance attachée actuellement à l'ostéoporose dans la pratique de l'orthopédie est appropriée; 85,2 % des chirurgiens ont indiqué que leur pratique actuelle consiste à référer les patients qui ont eu une fracture de fragilité ou à tester eux-mêmes pour déterminer s'il y a ostéoporose, ou les deux. **Conclusion :** La plupart des chirurgiens orthopédistes canadiens sondés considèrent qu'ils s'occupent de l'ostéoporose chez les patients qui ont subi une fracture de fragilité ou qu'ils sont disposés à le faire. Il faudrait maintenant réorienter les efforts d'éducation et de persuasion vers le soutien des programmes en fournissant des ressources et en modifiant le système de façon à permettre aux chirurgiens orthopédistes canadiens de prendre en charge efficacement l'ostéoporose chez leurs patients qui ont subi une fracture.

Among practitioners and professional associations in Canada and elsewhere, interest is growing in the diagnosis and management of osteoporosis in patients who have sustained a fragility fracture. Prevalent fragility fracture is increasingly identified in the literature as the most predictive element for future hip

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Accepted for publication Oct. 20, 2006

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fracture.¹⁻⁶ It is now well established that treatment of osteoporosis is effective in preventing subsequent hip and vertebral fractures in high-risk populations.⁷⁻¹⁵

Patients who are at high risk for future hip fractures by virtue of prevalent fragility fracture, and therefore in need of osteoporosis therapy, present daily to orthopedic surgeons in fracture clinics. No other body of health care professionals is engaged in treating the complications of osteoporosis (i.e., fragility fracture) as often as the orthopedic community. When treating a fragility fracture, orthopedic surgeons have a unique opportunity to alter long-term health outcomes (i.e., the prevention of hip fracture) by referring the patient or by personally initiating investigation and treatment of osteoporosis. However, published studies have demonstrated that the proportion of fragility fracture patients who receive appropriate osteoporosis investigation and treatment from any physician is low,¹⁶ and a perception exists that orthopedic surgeons are not engaged in osteoporosis care. For example, investigation of osteoporosis by bone mineral density testing was reported to be low: 14 of 16 studies reported investigation of less than 32% of patients.¹⁶ Further, there was only moderate use of calcium and vitamin D (8%–62%, median 18%) and bisphosphonates (0.5%–38%) in patients who were investigated for osteoporosis following fragility fracture.

The Canadian Orthopaedic Association (COA) formally endorsed the 2002 clinical practice guidelines for the management and treatment of osteoporosis produced by the scientific body of the Osteoporosis Society of Canada.¹⁷ At an annual meeting of the COA, orthopedic surgeons were polled to assess their current attitudes and practices with respect to osteoporosis referral and management in patients with a fragility fracture.

Methods

The 58th Annual Meeting of the COA in Winnipeg, Manitoba, which

took place October 3–5, 2003, included an osteoporosis symposium, a 90-minute plenary session on the key topics in osteoporosis care that are relevant to orthopedic practitioners. This was followed by a real-time interactive polling session.

Polling questions (Appendix 1) were designed to identify current attitudes and osteoporosis management practices of attendees and to determine their overall willingness to participate in osteoporosis care for fragility fracture patients. Demographics obtained included health profession (used as the primary identifier), age, geographic region and community size. Additional information collected included current management and prescribing practices for patients with a fragility fracture, attitudes toward the growing emphasis on osteoporosis in orthopedic practice and concerns regarding medicolegal issues.

To compare the sample of ortho-

pedic surgeon respondents with the general population of Canadian orthopedic surgeons, we obtained demographic information from the Royal College of Physicians and Surgeons of Canada (Table 1).

Results

The osteoporosis symposium was attended by more than 150 registrants, of whom 110 participated in the polling session and answered some or all of the questions.

Demographics

Of the 104 individuals who responded to the question on practitioner type, 70 (67.3%) identified themselves as orthopedic surgeons; 16 (15.4%) as students, graduate students or residents; 13 (12.5%) as allied health professionals; and 5 (4.8%) as orthopedic research scientists. The major-

Table 1

Members of the Royal College of Physicians and Surgeons of Canada identified as orthopedic surgeons

Category	No. of orthopedic surgeons		
	Age, y		Total (n = 1088)
	≤ 44 (n = 451)	≥ 45 (n = 637)	
University appointment			
No university appointment	133	251	384
Yes, no details provided	44	146	190
Yes, full-time	54	45	99
Yes, part-time	6	32	38
Yes, clinical	51	69	120
Yes, other	10	5	15
Data not provided	153	89	242
Practice type			
Group	55	82	137
Solo	108	258	366
Group, full-time	49	46	95
Group, part-time	2	8	10
Group, other	0	0	0
Solo, full-time	0	0	0
Solo, part-time	46	76	122
Solo, other	0	18	18
Full-time	0	0	0
Part-time	0	0	0
Other	23	28	51
Data not provided	168	121	289

ity (49 of 69, 71%) of orthopedic surgeons were aged 45 years or older; nonorthopedic surgeons were predominantly 44 years old or younger (29 of 41, 70.7%).

One-half (34 of 68) of orthopedic surgeons indicated that they were in academic practice (Table 2); the

remaining surgeons were either from a large city or community practice (19 of 68, 27.9%) or from a small city or rural environment (15 of 68, 22.1%). Orthopedic surgeons were predominantly from Ontario (23 of 67, 34.3%) and the Prairie provinces (21 of 67, 31.3%) (Table 3). Results

for all questions were similar for respondents from the 5 regions of Canada surveyed (Table 3).

There are currently 1088 orthopedic surgeons registered with the Royal College of Physicians and Surgeons of Canada, 956 of whom report that they are in full-time

Table 2

Survey responses: orthopedic surgeons by age

Responses	No. (and %) of orthopedic surgeons		
	All	Age, y	
		≤ 44	≥ 45
My working environment is:			
Small city or rural	15 (22.1)	7 (36.8)	8 (16.7)
Large city	19 (27.9)	3 (15.8)	16 (33.3)
Academic	34 (50.0)	9 (47.4)	24 (50.0)
Total	68	19	48
I work in:			
British Columbia	10 (14.9)	5 (25.0)	5 (10.9)
Prairie provinces	21 (31.3)	6 (30.0)	14 (30.4)
Ontario	23 (34.3)	3 (15.0)	20 (43.5)
Quebec	7 (10.4)	3 (15.0)	4 (8.7)
Atlantic provinces	6 (9.0)	3 (15.0)	3 (6.5)
Total	67	20	46
My current practice when treating a patient who has a fragility fracture is to:			
Not address the OP problem	8 (14.8)	1 (7.7)	7 (17.5)
Refer the patient for OP investigation and treatment	32 (59.3)	12 (92.3)	19 (47.5)
Investigate (densitometry, DXA) and refer OP patients	10 (18.5)	0 (0.0)	10 (25.0)
Investigate and treat OP	4 (7.4)	0 (0.0)	4 (10.0)
Total	54	13	40
As an orthopedic surgeon treating a patient who has a fragility fracture and OP, I feel comfortable prescribing:			
Calcium	5 (7.6)	3 (15.0)	2 (4.4)
Calcium and vitamin D	26 (39.4)	4 (20.0)	22 (48.9)
Calcium, vitamin D and bisphosphonate	18 (27.3)	4 (20.0)	13 (28.9)
Calcium, vitamin D, bisphosphonate and HRT	2 (3.0)	0 (0.0)	2 (4.4)
None of the above	15 (22.7)	9 (45.0)	6 (13.3)
Total	66	20	45
In my opinion, the growing emphasis on OP in orthopedic practice is:			
Appropriate: orthopedic surgeons should treat OP	53 (84.1)	18 (90.0)	34 (81.0)
Appropriate: orthopedic surgeons should identify and refer OP patients	4 (6.3)	1 (5.0)	3 (7.1)
Inappropriate: orthopedic surgeons are being asked to take responsibility for care beyond their expertise	3 (4.8)	1 (5.0)	2 (4.8)
Inappropriate: orthopedic surgeons are too busy to do OP investigation, referral or treatment	3 (4.8)	0 (0.0)	3 (7.1)
Total	63	20	42
Regarding medicolegal issues on OP in orthopedic practice, I am:			
Concerned: if I treat OP, I could be sued	6 (10.2)	3 (18.8)	3 (7.1)
Concerned: if I don't identify and treat OP, I could be sued	17 (28.8)	6 (37.5)	11 (26.2)
Not concerned: no Canadian surgeon has been sued re: OP	18 (30.5)	5 (31.3)	13 (31.0)
Not concerned: I give calcium (mineral), D (a vitamin) and refer appropriately	18 (30.5)	2 (12.5)	15 (35.7)
Total	59	16	42

OP = osteoporosis; DXA = dual energy x-ray absorptiometry; HRT = hormone replacement therapy.

orthopedic practice (Table 1). The polling respondents represent only 7.3% (70 of 956) of the total; however, the respondents' age distributions are similar to the age profile of the Canadian membership. The

academic or community practice self-report of the respondents (50% and 50%; Table 2) corresponds to the Royal College of Physicians and Surgeons of Canada data regarding practice type (Table 1).

Treatment and prescribing practices

Of the 54 orthopedic surgeons who responded, 32 (59.3%) reported that they refer for investigation and

Table 3

Survey responses: orthopedic surgeons by region

Responses	No. (and %) of orthopedic surgeons				
	British Columbia	Prairie provinces	Ontario	Quebec	Atlantic provinces
My working environment is:					
Small city or rural	2 (20.0)	4 (20.0)	4 (18.2)	0 (0.0)	3 (50.0)
Large city	3 (30.0)	8 (40.0)	5 (22.7)	2 (28.6)	1 (16.7)
Academic	5 (50.0)	8 (40.0)	13 (59.1)	5 (71.4)	2 (33.3)
Total	10	20	22	7	6
My current practice when treating a patient who has a fragility fracture is to:					
Not address the OP problem	1 (14.3)	4 (25.0)	2 (10.0)	0 (0.0)	1 (16.7)
Refer the patient for OP investigation and treatment	5 (71.4)	8 (50.0)	14 (70.0)	2 (66.7)	3 (50.0)
Investigate (densitometry, DXA) and refer OP patients	1 (14.3)	2 (12.5)	4 (20.0)	0 (0.0)	2 (33.3)
Investigate and treat OP	0 (0.0)	2 (12.5)	0 (0.0)	1 (33.3)	0 (0.0)
Total	7	16	20	3	6
As an orthopedic surgeon treating a patient who has a fragility fracture and OP, I feel comfortable prescribing:					
Calcium	1 (10.0)	1 (4.8)	0 (0.0)	2 (40.0)	1 (16.7)
Calcium and vitamin D	5 (50.0)	5 (23.8)	11 (50.0)	1 (20.0)	2 (33.3)
Calcium, vitamin D and bisphosphonate	2 (20.0)	7 (33.3)	5 (22.7)	1 (20.0)	3 (50.0)
Calcium, vitamin D, bisphosphonate and HRT	0 (0.0)	2 (9.5)	0 (0.0)	0 (0.0)	0 (0.0)
None of the above	2 (20.0)	6 (28.6)	6 (27.3)	1 (20.0)	0 (0.0)
Total	10	21	22	5	6
In my opinion, the growing emphasis on OP in orthopedic practice is:					
Appropriate: orthopedic surgeons should treat OP	8 (88.9)	15 (78.9)	19 (90.5)	4 (66.7)	4 (80.0)
Appropriate: orthopedic surgeons should identify and refer OP patients	1 (11.1)	1 (5.3)	1 (4.8)	0 (0.0)	1 (20.0)
Inappropriate: orthopedic surgeons are being asked to take responsibility for care beyond their expertise	0 (0.0)	1 (5.3)	1 (4.8)	1 (16.7)	0 (0.0)
Inappropriate: orthopedic surgeons are too busy to do OP investigation, referral or treatment	0 (0.0)	2 (10.5)	0 (0.0)	1 (16.7)	0 (0.0)
Total	9	19	21	6	5
Regarding medicolegal issues on OP in orthopedic practice, I am:					
Concerned: if I treat OP, I could be sued	2 (20.0)	1 (6.3)	2 (9.1)	1 (25.0)	0 (0.0)
Concerned: if I don't identify and treat OP, I could be sued	4 (40.0)	2 (12.5)	6 (27.3)	2 (50.0)	1 (25.0)
Not concerned: no Canadian surgeon has been sued in regard to OP	0 (0.0)	7 (43.8)	8 (36.4)	1 (25.0)	2 (50.0)
Not concerned: I give calcium (mineral), D (a vitamin) and refer appropriately	4 (40.0)	6 (37.5)	6 (27.3)	0 (0.0)	1 (25.0)
Total	10	16	22	4	4

OP = osteoporosis; DXA = dual energy x-ray absorptiometry; HRT = hormone replacement therapy.

treatment of osteoporosis in fragility fracture patients, 10 (18.5%) personally investigate and then refer for treatment, and 4 (7.4%) personally investigate and treat (Table 2). The individuals who personally investigate for osteoporosis were all aged 45 years or older.

When asked about their prescribing practices for treating a patient with fragility fracture and osteoporosis, 66 orthopedic surgeons responded (Table 2); 26 (39.4%) indicated they were comfortable prescribing calcium and vitamin D, while 18 (27.3%) would also prescribe bisphosphonates and only 2 (3.0%) reported that they would prescribe hormone replacement therapy. Of 20 surgeons aged 44 years or younger, 9 (45%) indicated that they were not comfortable prescribing any of these treatments.

Attitudes and perceptions

Of the 63 orthopedic surgeons who responded, 57 (90.4%) agreed that the current emphasis on osteoporosis in orthopedic practice is appropriate (Table 2); 84.1% (53 of 63) felt that orthopedic surgeons should treat patients with osteoporosis, compared with 6.3% (4 of 63) who felt they should only identify and refer.

The majority of orthopedic surgeons (36 of 59, 61.0%) were not concerned about medicolegal liability arising from actively participating in osteoporosis care (Table 2); older surgeons were more likely to be unconcerned than younger ones (28 of 42, 66.7% v. 7 of 16, 43.8%, respectively). The rest were concerned about medicolegal liability; however, more felt at risk from not taking action regarding osteoporosis (17 of 59, 28.8%) than from pursuing osteoporosis interventions (6 of 59, 10.2%).

Discussion

A high proportion of Canadian orthopedic respondents identified themselves as supporting the current

emphasis on addressing osteoporosis in fragility fracture patients; most were unconcerned about medicolegal issues related to doing so. Most said they were engaged in osteoporosis care, either through referral or personal investigation, and were comfortable with prescribing treatments including calcium, vitamin D and, to a lesser degree, bisphosphonates. Of note was the finding that older surgeons were more likely than younger surgeons to personally investigate and treat for osteoporosis.

These findings collectively suggest that at least this sample of Canadian orthopedic surgeons is committed to osteoporosis care. However, previous studies demonstrate that in Canada and in other economically advanced countries only a small proportion of fragility fracture patients are receiving appropriate osteoporosis care.¹⁶ The discrepancy between attitudes and former behaviours may relate to difficulties in achieving osteoporosis interventions in busy fracture clinics and inpatient orthopedic environments. It may also reflect a recent change in attitudes resulting from various Canadian and international initiatives to inform orthopedic surgeons about this type of management.

Barriers to osteoporosis care for fragility fracture patients include cost of therapy, time and cost of diagnosis and treatment, concerns about the effectiveness of medications and lack of clarity about who is responsible for the initiation and management of these medications.¹⁶ Several Ontario programs are currently targeting osteoporosis management in the fragility fracture patient population. The Osteoporosis Exemplary Care Program at St. Michael's Hospital, Toronto, uses a full-time osteoporosis coordinator and has improved the rate of osteoporosis referral to over 95% for both inpatient and outpatient populations.¹⁸ The Ontario Orthopaedic Association-Osteoporosis Canada "Lucky Break" program, implemented in all 72 Ontario fracture clinics where there

is orthopedic involvement, increased clinic staff awareness of osteoporosis in fragility fracture patients.¹⁹ Several other programs across Canada are also addressing postfracture osteoporosis care.²⁰⁻²³ The Ontario Ministry of Health and Long-Term Care has announced funding for a provincial osteoporosis strategy that will include postfracture osteoporosis screening in fracture clinics.

A potential source of bias is that orthopedic surgeons most interested in osteoporosis care possibly self-selected to attend the COA plenary session and participate in the polling. The circumstances surrounding the meeting represent another potential source of selection bias; it was originally planned to take place in Toronto but was moved to Winnipeg owing to the SARS situation, with a consequent lower attendance rate. Finally, the lower response rate to 2 questions in this real-time poll (regarding current practice when treating a patient who has a fragility fracture and medicolegal issues) introduces a level of uncertainty to interpreting the data for these questions. Possibly, some attendees briefly stepped out of the room and missed a question, the available responses might not have been clear, or they could not decide which response best reflected their own practices.

The polling results at this conference demonstrate that the orthopedic representatives who participated (and possibly the wider Canadian orthopedic community) consider themselves to be currently engaged or ready to engage in osteoporosis care for fragility fracture patients. The polling results suggest that Canadian orthopedic surgeons are highly aware of osteoporosis in fragility fracture patients and largely positive about participation in care. Interested parties should now shift focus to identifying and providing the resources and system modifications that are required to support these attitudes and to enable Canadian orthopedic surgeons to effectively

provide osteoporosis care to their fragility fracture patients.

Acknowledgements: We thank the Canadian orthopedic surgeons who participated in the polling. Merck Frosst Canada, Procter & Gamble Pharmaceuticals Ltd. and Eli Lilly Canada Inc. provided an unrestricted educational grant to support the symposium and polling session. Victoria Elliot-Gibson, Dagmar Gross and Megan Morrison assisted in the preparation of the manuscript.

Competing interests: None declared.

Contributors: Dr. Bogoch designed the study. Both authors acquired and analyzed the data. Both authors wrote and revised the article, and both gave final approval for the article to be published.

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Appendix 1. Polling questions	
1) I am a(n):	
a) Orthopedic surgeon	
b) Orthopedic research scientist	
c) Allied health professional	
d) Student, graduate student, or resident	
2) I work in:	
a) British Columbia	
b) Prairie provinces	
c) Ontario	
d) Quebec	
e) Atlantic provinces	
3) How old are you? My age is:	
a) Under 35	
b) 35-44	
c) 45-55	
d) Over 55	
4) My working environment is:	
a) Small city or rural	
b) Large city, community practice	
c) University	
5) My current practice when treating a patient who has a fragility fracture is to:	
a) Not address the OP problem	
b) Refer the patient for OP investigation and treatment	
c) Investigate (densitometry, DXA) and refer for OP treatment	
d) Investigate and treat OP	
6) In my opinion, the growing emphasis on OP in orthopedic practice is:	
a) Appropriate: orthopedic surgeons should treat OP	
b) Appropriate: orthopedic surgeons should identify and refer OP patients	
c) Inappropriate: orthopedic surgeons are being asked to take responsibility for care beyond their expertise	
d) Inappropriate: orthopedic surgeons are too busy to do OP investigation, referral or treatment	
7) What are your current prescribing practices for patients with fragility fractures and osteoporosis? As an orthopaedic surgeon treating a patient who has a fragility fracture and OP, I feel comfortable prescribing:	
a) Calcium	
b) Calcium and vitamin D	
c) Calcium, vitamin D and a bisphosphonate	
d) Calcium, vitamin D, bisphosphonate and HRT	
e) None of the above	
8) Re: medicolegal issues on osteoporosis in orthopedic practice, I am:	
a) Concerned: if I treat OP, I could be sued	
b) Concerned: if I don't identify and treat OP, I could be sued	
c) Not concerned: no Canadian surgeon has been sued re: OP	
d) Not concerned: I give calcium (mineral), D (a vitamin) and refer appropriately	
OP = osteoporosis; DXA = dual energy x-ray absorptiometry; HRT = hormone replacement therapy.	

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