

# What Are the Research Priorities of Canadian Dentists?

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## A b s t r a c t

A joint CDA–Institutes of Musculoskeletal Health and Arthritis study was undertaken to evaluate the dental research priorities of Canadian dentists. A self-complete questionnaire was sent to all dentists in Canada with the December 2001 JCDA. This last article in a 3-part series presents the results on funding priorities. By April 1, 2002, 2,788 questionnaires, representing a response rate of approximately 16%, had been returned. Of 8 broad areas of research, respondents identified areas related to treatments as the most important: 77% cited the evaluation of the effectiveness of techniques and treatments as high priority, 76% the development of treatments and 70% the development of materials. The areas judged less important were improvements in access to care (42%) and a better understanding of patient behaviour (25%). With respect to more specific research topics, the highest priority subjects were dental materials other than amalgam and periodontal diseases.

**MeSH Key Words:** attitude of health personnel; dental research; dentists

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The principal federal funding agency for health research recently underwent a major restructuring, with the former Medical Research Council of Canada reincarnated as the 13 institutes of the Canadian Institutes of Health Research (CIHR). As part of this process, responsibility for overseeing dental research was placed under the Institute for Musculoskeletal Health and Arthritis (IMHA). IMHA recently decided to increase its partnership with a larger number of groups and sought the opinion of health care professionals in determining future research priorities for itself and CIHR. As part of this initiative, and in collaboration with CDA, a study was undertaken to identify the dental research priorities of Canadian dentists. This article, the last in a 3-part series, presents their dental research priorities.

### Methodology

A questionnaire and a prepaid envelope were sent to Canadian dentists with the December 2001 JCDA. The questionnaire contained questions on sociodemographics; research utility; research accessibility; and dental research priorities. The section on dental research priorities comprised 3 questions asking dentists to: prioritize 8 broad

research areas; prioritize 27 more specific research topics; and identify the 3 most important dental research topics.

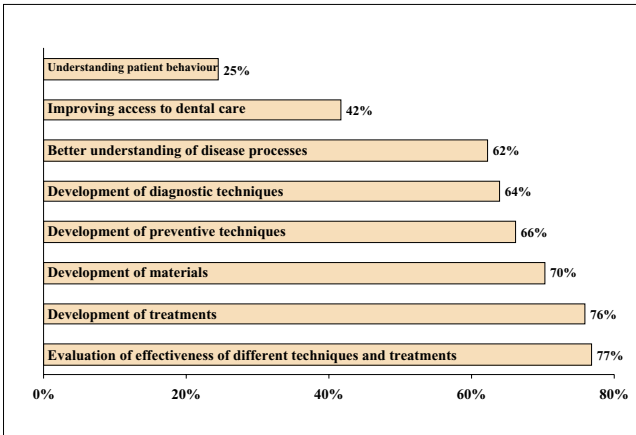
By April 1, 2002, 2,788 questionnaires had been returned, representing a response rate of approximately 16%. No second mailing or follow-up was performed. **Tables 1 and 2** compare the study sample with the dentist population of Canada by gender and practice location.

Analyses for this article were performed on data from 2,595 respondents, who described themselves as clinical dentists (101 teachers/researchers and 92 other non-clinical dentists were excluded). **Table 3** describes the study sample in terms of practice location, type of practice, gender and age.

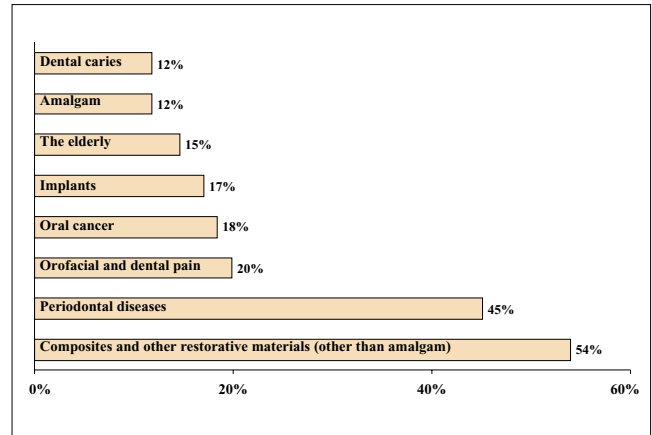
### Results

Most dentists identified 2 broad research areas as future funding priorities: evaluating the effectiveness of treatments and developing new treatments and materials (**Fig. 1**). The least important areas were improving access to care and improving understanding of patient behaviour.

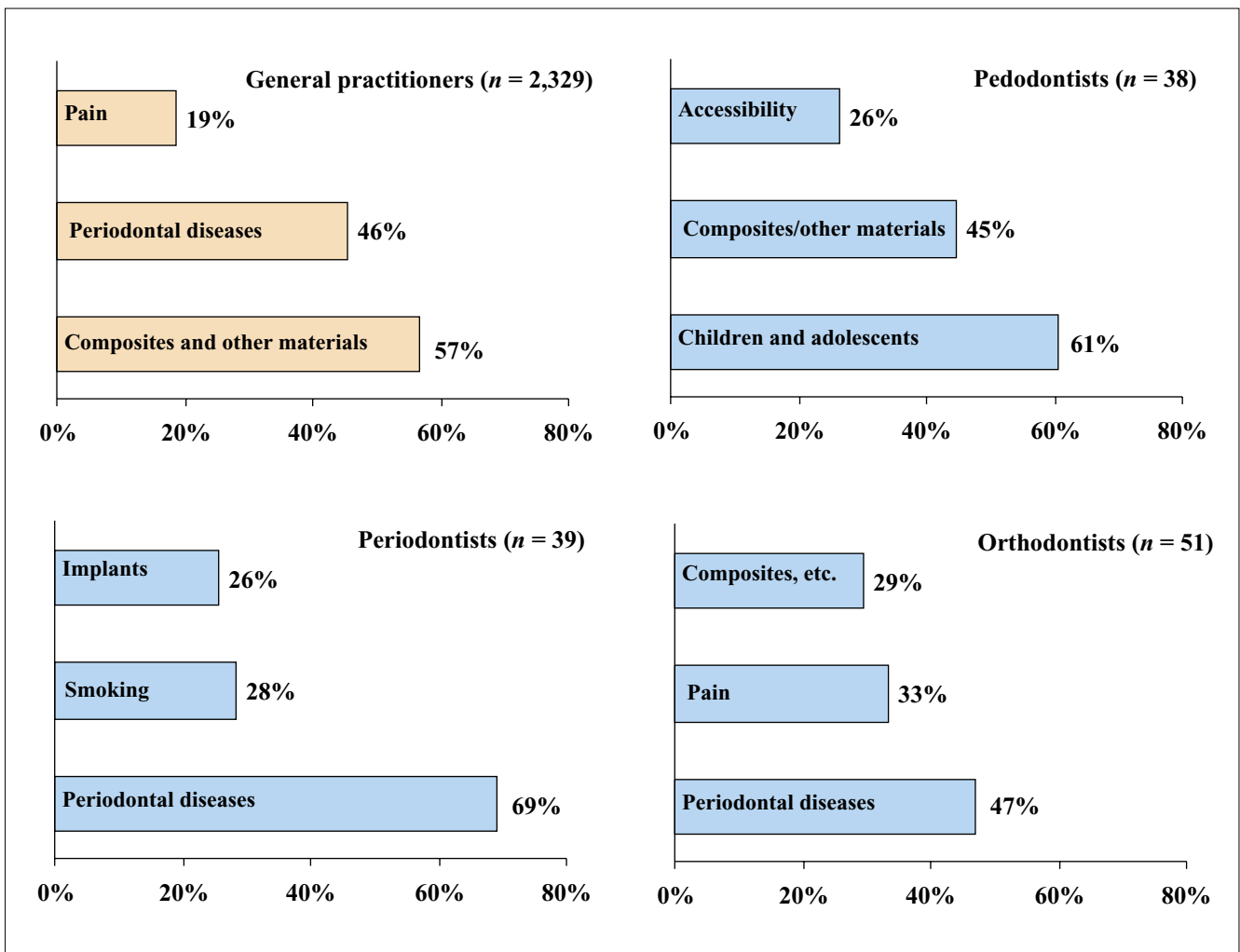
With respect to more specific research topics, 54% of dentists cite research into dental materials other than amalgam among their top 3 priority topics (**Fig. 2, Table 4**), while 45% cite periodontal diseases as one of the 3 most



**Figure 1:** Dental research areas identified as high-priority funding areas (% of respondents). Responses to question 15: "In terms of research funding priorities, please give your opinion on the priority level of each of the following areas of dental research."



**Figure 2:** Dental topics most commonly cited among the top 3 priorities for future dental research (% of respondents). Responses to question 17: "Among the 27 topics mentioned above, or alternatives not included in the list, please indicate what you think are the 3 most important topics for dental research in the future."



**Figure 3:** Top 3 priorities for future dental research categorized by type of practice (% of respondents). Responses to question 17: "Among the 27 topics mentioned above, or alternatives not included in the list, please indicate what you think are the 3 most important topics for dental research in the future."

**Table 1** Response rates of clinical dentists and teachers/researchers by geographic location and gender ( $n = 2,696$ )<sup>a</sup>

Practice location	Number of dentists in Canada		Distribution of respondents by location and gender <sup>b</sup>		Response rates (%)	
	Women	Men	Women	Men	Women	Men
Alberta	339	1,357	62	235	18.3%	17.3%
British Columbia	532	2,104	111	391	20.9%	18.6%
Manitoba	88	459	12	86	13.6%	18.7%
New Brunswick	69	197	19	46	27.5%	23.4%
Newfoundland	26	131	4	23	15.4%	17.6%
Northwest Territories	8	34	0	5	0.0%	14.7%
Nova Scotia	115	355	25	76	21.7%	21.4%
Ontario	1,578	5,730	207	700	13.1%	12.2%
P.E.I.	12	48	3	12	25.0%	25.0%
Quebec	1,246	2,735	206	367	16.5%	13.4%
Saskatchewan	73	276	22	65	30.1%	23.6%
Yukon Territory	5	15	0	3	0.0%	20.0%
<b>Total</b>	<b>4,091</b>	<b>13,441</b>	<b>671</b>	<b>2,009</b>	<b>16.4%</b>	<b>14.9%</b>

<sup>a</sup>The 92 respondents who were neither clinical dentists nor teachers/researchers were excluded from this analysis.

<sup>b</sup>Two questionnaires from Nunavut were not included in the table because of the absence of population data for that territory.

**Table 2** Response rates of clinical dentists and teachers/researchers by geographic location and type of dental practice ( $n = 2,696$ )<sup>a</sup>

Practice location	Number of dentists in Canada		Distribution of respondents by location and gender <sup>b</sup>		Response rates (%)	
	Generalists	Specialists	Generalists	Specialists	Generalists	Specialists
Alberta	1,528	168	259	36	17.0%	21.4%
British Columbia	2,421	242	442	63	18.3%	26.0%
Manitoba	480	87	78	19	16.3%	21.8%
New Brunswick	241	25	61	4	25.3%	16.0%
Newfoundland	152	11	26	0	17.1%	0.0%
Northwest Territories	45	0	4	1	8.9%	—
Nova Scotia	389	72	91	13	23.4%	18.1%
Ontario	6,467	884	798	112	12.3%	12.7%
P.E.I.	56	5	12	3	21.4%	60.0%
Québec	3,623	371	496	77	13.7%	20.8%
Saskatchewan	319	38	76	11	23.8%	28.9%
Yukon Territories	20	4	3	0	15.0%	0.0%
<b>Total</b>	<b>15,741</b>	<b>1,907</b>	<b>2,346</b>	<b>339</b>	<b>14.9%</b>	<b>17.8%</b>

<sup>a</sup>The 92 respondents who were neither clinical dentists nor teachers/researchers were excluded from this analysis.

<sup>b</sup>Two questionnaires from Nunavut were not included in the table because of the absence of population data for that territory.

important areas of research. Only 12% of dentists rate amalgam in their top 3 priorities.

Priorities vary according to the primary work of the respondents. The majority of general practitioners (57%) chose dental materials as the most important research topic; 61% of pedodontists chose research on dental disease in adolescents and children; and 69% of periodontists chose periodontal disease. Among orthodontists, 47% of respondents also chose periodontal disease as the most important topic, with malocclusion (28% of respondents) coming in fourth place (Fig. 3, Table 5). (Data for other specialists were not calculated because of small numbers.)

## Discussion

The low response rate means we must be careful in generalizing the results. However, the respondents clearly indicate that they prioritize research according to its usefulness for their daily practice. For the majority, the most important areas of research were evaluating the effectiveness of treatments and developing new treatments and materials. Far fewer dentists chose improving access to care and understanding patient behaviour. With respect to more specific topics, most dentists identified work on dental materials (other than amalgam) and periodontal diseases as research priorities. ♦

**Table 3** Characteristics of clinical dentists who responded to the survey compared to characteristics of the dentist population in Canada

Variables	Sample (n = 2,595)	Percentage of total sample	Percentage of the dentist population
<b>Practice location</b>			
Alberta	287	11.1	9.6
British Columbia	495	19.1	15.1
Manitoba	86	3.3	3.2
New Brunswick	65	2.5	1.5
Newfoundland	26	1.0	0.9
Northwest Territories	5	0.2	0.3
Nova Scotia	96	3.7	2.6
Nunavut	2	0.1	---
Ontario	889	34.3	41.6
P.E.I.	15	0.6	0.3
Quebec	544	21.0	22.6
Saskatchewan	82	3.2	2.0
Yukon Territories	3	0.1	0.1
<b>Total</b>	<b>2,595</b>	<b>100.0</b>	<b>100.0</b>
<b>Type of practice</b>			
General practitioner	2,329	90.0	89.2
Specialist	260	10.0	10.8
Periodontist	47	1.8	1.7
Prosthodontist	26	1.0	1.0
Endodontist	34	1.3	1.0
Pedodontist	44	1.7	1.1
Orthodontist	68	2.6	3.6
Oral surgeon	29	1.1	1.9
Public health	7	0.3	0.4
Oral medicine	5	0.2	0.2
<b>Total</b>	<b>2,589</b>	<b>100.0</b>	<b>100.0</b>
<b>Gender</b>			
Men	1,931	74.8	76.7
Women	652	25.2	23.3
<b>Total</b>	<b>2,583</b>	<b>100.0</b>	<b>100.0</b>
<b>Age</b>			
30 years or less	272	10.5	-
31 to 45 years	1,126	43.4	-
46 to 60 years	1,002	38.6	-
61 years or more	193	7.4	-
<b>Total</b>	<b>2,593</b>	<b>100.0</b>	-

**Table 4** Priority ranking of 27 specific dental research topics (% of respondents)

List of topics	Low priority (%)	Medium priority (%)	High priority (%)
Amalgam	45.3	28.9	25.8
Composites	2.9	21.7	75.5
Other restorative materials	5.1	36.4	58.4
Fluoride therapies	28.0	51.5	20.5
Dental instrumentation	32.3	53.1	14.7
Implants	8.8	42.6	48.5
Dental caries	12.3	44.5	43.2
Periodontal diseases	2.5	22.5	74.9
Tooth loss	17.5	46.1	36.4
Orofacial and dental pain	5.6	39.7	54.7
Infectious mucosal lesions	11.0	50.3	38.7
Oral cancer	5.4	30.2	64.4
Malocclusions	16.6	56.2	27.2
Major malformations (e.g. clefts)	22.1	55.6	22.3
Trauma and acquired anatomic defects	20.9	55.0	24.1
Smoking and dental disease	17.7	42.0	40.4
Nutrition and dental disease	16.9	47.8	35.3
Organization of dental services	45.5	42.7	11.8
Access to dental services	36.5	40.1	23.4
Patient/dentist communication	30.2	45.0	24.8
Infection control	15.0	43.3	41.7
Dental disease in children and adolescents	11.6	51.4	37.0
Dental disease in adults	10.2	57.5	32.4
Dental disease in the elderly	8.4	46.6	45.0
Dental disease in the disabled	15.4	55.3	29.3
Dental disease in First Nation's peoples	26.2	51.8	22.0
Dental disease in the poor	19.3	53.2	27.5

**Table 5** Future dental research priorities identified by type of practice (% of respondents with 95% confidence intervals)

Type of dentist	Items	Percentage of respondents	95% confidence interval
General practitioner	Composites and other restorative materials (other than amalgam)	57	54–59
	Periodontal diseases	46	43–48
	Orofacial and dental pain	19	17–21
Pedodontist	Dental disease in children and adolescents	61	44–77
	Composites and other restorative materials (other than amalgam)	45	28–61
	Access to dental services	26	12–41
Periodontist	Periodontal diseases	69	54–84
	Smoking and dental disease	28	13–43
	Implants	26	11–40
Orthodontist	Periodontal diseases	47	33–61
	Orofacial and dental pain	33	20–47
	Composites and other restorative materials (other than amalgam)	29	16–42

**Acknowledgments:** The authors wish to thank the Institute of Musculoskeletal Health and Arthritis and the Canadian Dental Association for their financial and logistical support for this project, and Drs. J.P. Lund and J. O'Keefe for their help in designing the questionnaire and organizing the study.

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The views expressed are those of the authors and do not necessarily reflect the opinions or official policies of the Canadian Dental Association.

**16. In terms of research funding priorities, please give your opinion on the priority level of each of the following specific fields of dental research**

	Low priority	Medium priority	High priority	Don't know
1. Amalgam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Composite materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Other restorative materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Fluoride therapies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Dental instrumentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Implants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Dental caries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Periodontal diseases	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Tooth loss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Orofacial & dental pain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Infectious mucosal lesions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Oral cancer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Malocclusion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Major malformations (e.g. clefts etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Trauma & acquired anatomical defects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Smoking & dental disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Nutrition & dental disease	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Organization of dental services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Access to dental services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Patient/dentist communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Infection control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Dental disease in children & adolescents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Dental disease in adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Dental disease in the elderly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Dental disease in the disabled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Dental disease in First Nation's peoples	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Dental disease in the poor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**17. Among the 27 topics mentioned above, or alternative topics not included in the list, please indicate what you think are the three most important topics for dental research in the future**

	Number	Alternative topic not included in list above
First	_____	_____
Second	_____	_____
Third	_____	_____



## A QUESTIONNAIRE ON CANADIAN DENTAL RESEARCH PRIORITIES



Canadian health research has recently undergone a major re-organization with the creation of the thirteen Canadian Institutes of Health Research (CIHR). Dental research falls under the mandate of the Institute of Musculoskeletal Health and Arthritis (IMHA). An important part of this re-organizing process is an evaluation of future health research priorities for Canada. In deciding upon these future priorities, the IMHA wishes to consult as widely as possible and this includes the input of dentists. We therefore ask you to take 10 minutes of your time to complete this questionnaire, the results of which could have a very important bearing upon the future of dental research in Canada. The questionnaire is anonymous and the absolute confidentiality of your response is assured. Once you have completed the questionnaire, please return it in the prepaid envelope provided. If you have any questions about the questionnaire or any related issues, please contact one of the survey organisers, Dr. Paul Allison of McGill University at (514) 398-7203 ext. 00045.

Thank you for your time,

J.P. Lund (Advisory Board, IMHA)

J.P. O'Keefe (Editor-in-Chief, JCDA)

### 1. How old are you?

- 30 yrs or younger       31-45 yrs       46-60 yrs       61 yrs or older

### 2. Are you?.....

- Female       Male

### 3. What is your principal work role? (please tick only one box)

- Clinical dentist       Teacher       Researcher       Other

### 4. In which field of dentistry do you principally work? (please tick only one box)

- General practice       Periodontics       Prosthodontics       Endodontics  
 Pediatric dentistry       Orthodontics       Oral surgery  
 Dental public health       Oral medicine/pathology or radiology

### 5. In which province/territory do you principally work? (please tick only one box)

- British Columbia       Yukon       Alberta       Northwest Territories  
 Saskatchewan       Manitoba       Nunavut       Ontario  
 Quebec       New Brunswick       Nova Scotia       Prince Edward Island  
 Newfoundland and Labrador

**6. In your opinion, are the results of dental research.....**

- a) easily available to you     No     Yes     Don't know
- b) useful to you     No     Yes     Don't know

**7. Would you like the results of dental research to be more easily available to you?**

- No     Yes     Don't know/no interest

**If yes, how?**

*(N.B. You may tick more than one)*

- Through written media (e.g. journals)
- Through the Internet
- Through continuing education and meetings
- Other (specify.....)

**8. What are your principal sources of information concerning dental research?**

- Research doesn't interest me; I have no principal source *(N.B. You may tick more than one)*
- Continuing education courses
- Local dental society/study clubs
- Dental conferences/congresses
- The Journal of the Canadian Dental Association
- Other general dental journals
- Other specialist clinical and/or research journals
- The Internet
- Visits by representatives of pharmaceutical, equipment and other private companies
- Other (specify.....)

**9. When reading about research, which of the following formats is preferable for you?**

- Don't know/no interest *(N.B. You may tick more than one)*
- No preference
- A conventional report of one study
- An abstract/resumé of one study
- A commentary with a series of abstracts (e.g. the "Clinical Abstracts" series in the JCDA)
- A detailed systematic review on a subject
- Translation of research into clinical practice guidelines

**10. Have you ever altered an element of your clinical practice as a result of learning the results of some form of research?**

- No     Yes     Not applicable

**If yes, how?**

*(N.B. You may tick more than one)*

- A material (e.g. restorative, endodontic, prosthetic, surgical)
- A treatment technique (e.g. restorative, endodontic, prosthetic, surgical)
- A diagnostic technique (e.g. for caries, periodontal disease)
- A medical treatment (e.g. antibiotics, chlorhexidine, fluoride)
- An educational message (e.g. for caries, oral cancer)
- An overall management strategy (e.g. caries risk assessment)
- Other (specify.....)

**11. How could the CDA help promote dental research in Canada? *(N.B. You may tick more than one)***

- Set up a mechanism for funding research
- Advocate for research funding at the federal level
- Publish more reports of research activities in Canadian dental schools
- Disseminate the findings of Canadian dental research through its media contacts
- The organization of continuing education forums on research issues
- Other (specify.....)

**12. Would you like to be involved in research in any way; e.g. in deciding on research projects or as a facilitator (i.e. permitting access to your patients)?**

- No     Yes     Don't know

**13. How big an impact does research have on the general health of Canadians?**

- None     A small impact     Quite a big impact     A very big impact     Don't know

**14. How big an impact does research have on the oral health of Canadians?**

- None     A small impact     Quite a big impact     A very big impact     Don't know

**15. In terms of research funding priorities, please give your opinion on the priority level of each of the following areas of dental research**

	Low priority	Medium priority	High priority	Don't know
Better understanding of disease processes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better understanding of patient behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development of preventive techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development of diagnostic techniques	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development of treatments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Development of materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evaluation of effectiveness of different techniques and treatments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Improving access to dental care	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>