

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1

Public report: gathering and collection of Davis Highway

AD-A286 026



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1. AGENCY

3. REPORT TYPE AND DATES COVERED

4. TITLE AND SUBTITLE
Continuing Education Needs of Non-Specialty-Trained Army General Dentists

5. FUNDING NUMBERS
WR-028-94

6. AUTHOR(S)
Chisick, M.C.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
US Army Dental Research Detachment, Walter Reed Army Institute of Research, Ft. George G. Meade, MD 20755

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
US Army Medical Research and Development Command
Ft. Detrick, Frederick, MD 21702-5012

10. SPONSORING / MONITORING AGENCY REPORT NUMBER



11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION / AVAILABILITY STATEMENT
APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

This survey polled preferences for dental continuing education (C.E.) topics among non-specialty-trained Army general dentists and their supervisors. Among general dentists, preferences for dental C.E. topics were found to vary across level of training, assignment location, experience, and presence of specialists in clinic of assignment. C.E. preferences of general dentists were found to be more narrowly clinically focused than those that their supervisors think they need. All groups ranked Management of Medical Emergencies as the most needed dental C.E. topic. The current inventory of Army dental C.E. courses is meeting the needs expressed by survey respondents with the exception of human relations courses. Topics such as Motivating Co-Workers, Management of Job Stress, and Working with Difficult People, which received high ratings in this survey, should be incorporated into the Army dental C.E. system.



14. SUBJECT TERMS
continuing education, dentistry, general dentists, preference survey

15. NUMBER OF PAGES

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT

18. SECURITY CLASSIFICATION OF THIS PAGE

19. SECURITY CLASSIFICATION OF ABSTRACT

20. LIMITATION OF ABSTRACT

Continuing Education Needs of Non-Specialty-Trained Army General Dentists

LTC Michael C. Chisick, DC USA

In this survey, preferences for dental continuing education (C.E.) topics for non-specialty-trained Army general dentists were explored across personal and practice characteristics and were compared with C.E. topics that their supervisors think they need. Among general dentists, preferences for dental C.E. topics were found to vary across level of training, assignment location, experience, and presence of specialists in clinic of assignment. C.E. preferences of general dentists were found to be more narrowly clinically focused than those that their supervisors think they need. All groups ranked Management of Medical Emergencies as the most needed dental C.E. topic. The current inventory of Army dental C.E. courses is meeting the needs expressed by survey respondents with the exception of human relations courses. Topics such as Motivating Co-Workers, Management of Job Stress, and Working with Difficult People, which received high ratings in this survey, should be incorporated into the Army dental C.E. system.

Introduction

Although the U.S. Army Dental Corps has maintained a continuing education (C.E.) program for its non-specialty-trained general dentists for years, there has never been any attempt to determine, in advance of course offerings, what the continuing dental education preferences of Army general dentists are. While written critiques are routinely solicited after every Army dental C.E. course, these critiques have been used to evaluate instructors and to refine course content rather than to survey C.E. topic preferences in general.

As dental techniques, materials, and scientific advances have evolved over time, the inventory of Army dental C.E. courses has undergone change. However, fundamental questions about the inventory of Army dental C.E. courses remain unanswered, such as: Is the mixture of courses offered by the Army Dental Corps fulfilling the needs of its work force? Are there topics not covered that should be? If so, which continuing education courses should be retained and which should be dropped? The purpose of this study was to answer these questions by surveying the dental C.E. preferences of non-specialty-trained Army general dentists and their supervisors. This survey was conducted in the spring of 1990 at the request of the Assistant Surgeon General for Dental Services and Chief of the Army Dental Corps.

Chief, Epidemiology Section, U.S. Army Institute of Dental Research, Fort George G. Meade, MD 20755.

This paper was presented at a poster session at the 23rd Annual Tri-Service Dental Society Meeting at the U.S. Naval Academy, Annapolis, MD, on April 16, 1993.

The views of the author do not purport to reflect the views of the Department of the Army or the Department of Defense (para. 4-3, AR 360-5).

This manuscript was received for review in May 1993. The revised manuscript was accepted for publication in November 1993.

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Methods

The 92 dental continuing education topics assessed in this survey were selected with the assistance of the Chief of Graduate Dental Education and the Consultant on General Dentistry for the Chief of the Army Dental Corps. The topics were identified by drawing on published studies of needs assessment for continuing dental education by civilian dentists¹⁻⁵ as well as current course listings of several dental C.E. organizations including the Army. In reviewing C.E. topics, unique aspects of dentistry as practiced in the military setting were considered. Dental C.E. topics irrelevant in the military setting (e.g., collecting past-due accounts) were deleted, while topics unique to dentistry in the military environment (e.g., nuclear, biological, and chemical decontamination) were retained. In drafting the questionnaire, value-loaded words such as "update," "new techniques," and "current concepts" were omitted to minimize bias. Survey respondents were asked to rate level of need for each dental C.E. topic using a Likert-type scale of 0 (no need) to 3 (high need).

Four distinct groups were surveyed—non-specialty-trained general dentists, including dentists who have completed a 1-year general practice residency (GPRs) and those who have not (63As), commanders, and clinic chiefs. These four groups were surveyed because it was anticipated that they may hold different opinions on which dental C.E. topics non-specialty-trained general dentists would need. The continuing education needs of specialty-trained dentists were not surveyed because these dental officers obtain their annual dental C.E. from non-Army sources. Additional data on personal and practice demographic characteristics were collected to determine whether differences in need for continuing dental education exist across these characteristics.

Potential survey respondents were identified with the assistance of the Army Dental Corps Career Activities Office. In the spring of 1990, surveys were mailed to Dental Activities (DENTACs) worldwide, where local project officers distributed surveys to individual dentists and returned completed surveys to the U.S. Army Health Care Studies and Clinical Investigations Activity, Fort Sam Houston, Texas. The data were analyzed on a mainframe computer using the Statistical Analysis System by computing mean scores for each of the 92 continuing education topics on a 0 to 100% scale and then rank ordering the topics by mean need score.⁵

Results

Although participation in this survey was voluntary, the response rate was high. Roughly 71% of commanders and clinic chiefs and 61% of non-specialty-trained general dentists returned completed survey questionnaires. Table I lists the rank order of the top 15 dental C.E. topics as rated by Dental Activity

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TABLE I
DENTAL CONTINUING EDUCATION SURVEY RANK ORDER OF MEAN SCORES FOR TOP 15 RATED TOPICS FOR COMMANDERS, CLINIC CHIEFS, 63As, AND GPR GRADUATES

Rank	Question	Topic	Mean	Rank	Question	Topic	Mean
Commanders only (n = 55)				63As only (n = 332)			
1	Q1	Management of Medical Emergencies	82.42 ^a	1	Q1	Management of Medical Emergencies	78.45 ^a
2	Q9	Diagnosis and Treatment of Orofacial Infections	80.61 ^a	2	Q9	Diagnosis and Treatment of Orofacial Infections	76.91 ^a
3	Q59	Antibiotics	79.39 ^a	3	Q58	Management of Impactions and Complicated Extractions	73.69 ^b
4	Q13	Oral Surgery for the General Dentist	78.79 ^a	4	Q13	Oral Surgery for the General Dentist	73.29 ^a
5	Q69	Infection Control	78.18 ^c	5	Q6	Management of Medically Compromised Patients	72.79 ^a
6	Q85	Management of Soft Tissue Wounds	76.97 ^c	6	Q59	Antibiotics	72.32 ^a
7	Q84	Shock Prevention	76.36	7	Q65	Diagnosis and Management of Dento-Alveolar Trauma	71.18 ^a
8	Q92	Management of Military Dental Clinics	76.36 ^a	8	Q52	Esthetic Dentistry and Bonding	71.00 ^b
9	Q3	CPR	75.76	9	Q72	Drug Interactions	69.59
10	Q65	Diagnosis and Management of Dento-Alveolar Trauma	75.15 ^a	10	Q66	Analgesics	69.18
11	Q68	Management of HIV Patients	74.55 ^c	11	Q79	Management of Maxillofacial Injuries	69.18
12	Q6	Management of Medically Compromised Patients	73.94 ^a	12	Q73	Diagnosis and Management of Common Oral Lesions	67.88 ^b
13	Q67	Hepatitis	73.94	13	Q85	Management of Soft Tissue Wounds	67.77 ^c
14	Q73	Diagnosis and Management of Common Oral Lesions	73.94	14	Q17	Basic Clinical Oral PATH/MED	67.47 ^b
15	Q90	Motivating Co-Workers	72.84 ^c	15	Q92	Management of Military Dental Clinics	67.17 ^a
Chiefs only (n = 200)				GPR graduates only (n = 186)			
1	Q1	Management of Medical Emergencies	81.33 ^a	1	Q1	Management of Medical Emergencies	76.34 ^a
2	Q13	Oral Surgery for the General Dentist	79.90 ^a	2	Q52	Esthetic Dentistry and Bonding	75.99 ^b
3	Q9	Diagnosis and Treatment of Orofacial Infections	78.50 ^a	3	Q51	Glass Ionomers	74.01
4	Q59	Antibiotics	76.83 ^a	4	Q9	Diagnosis and Treatment of Orofacial Infections	71.89 ^a
5	Q69	Infection Control	76.67 ^c	5	Q90	Motivating Co-Workers	71.51 ^c
6	Q6	Management of Medically Compromised Patients	74.83 ^a	6	Q92	Management of Military Dental Clinics	70.43 ^a
7	Q68	Management of HIV Patients	74.71 ^c	7	Q91	Principles of Management	70.09
8	Q92	Management of Military Dental Clinics	73.10 ^a	8	Q59	Antibiotics	69.35 ^a
9	Q58	Management of Impactions and Complicated Extractions	72.39 ^b	9	Q58	Management of Impactions and Complicated Extractions	68.64 ^b
10	Q88	Working with Difficult People	71.86	10	Q73	Diagnosis and Management of Common Oral Lesions	68.11 ^b
11	Q85	Management of Soft Tissue Wounds	71.17 ^c	11	Q17	Basic Clinical Oral PATH/MED	68.10 ^b
12	Q89	Job Stress	71.00	12	Q68	Management of HIV Patients	67.92 ^c
13	Q17	Basic Clinical Oral PATH/MED	70.83 ^b	13	Q6	Management of Medically Compromised Patients	67.39 ^a
14	Q65	Diagnosis and Management of Dento-Alveolar Trauma	70.18 ^a	14	Q65	Diagnosis and Management of Dento-Alveolar Trauma	66.67 ^a
15	Q90	Motivating Co-Workers	70.17 ^c	15	Q13	Oral Surgery for the General Dentist	66.49 ^a

^aTopics shared in common among commanders, clinic chiefs, GPR graduates, and 63As.

^bTopics shared in common between GPR graduates and 63As.

^cTopics shared in common between commanders and clinic chiefs.

commanders, clinic chiefs, 63As, and 1-year GPR graduates. While the precise rank order may differ, all four groups rated the following 7 C.E. topics among their top 15:

- Management of Medical Emergencies
- Diagnosis and Treatment of Orofacial Infections
- Antibiotics
- Oral Surgery for the General Dentist
- Management of Military Dental Clinics
- Diagnosis and Management of Dento-Alveolar Trauma
- Management of Medically Compromised Patients

For all groups, Management of Medical Emergencies was the top-rated C.E. topic.

With regard to common C.E. preferences in their top 15 ratings, the degree of agreement between commanders and clinic chiefs and between 63As and 1-year GPR graduates (both pairs sharing 11 of 15 top-rated topics) is much greater than the degree of agreement across all four groups (7 of 15 top-rated topics). Comparing the 11 commonly shared top 15 picks of commanders and clinic chiefs with those of 63As and GPR graduates reveals that the four topics that differed between these groups reflects a preference for more narrowly focused clinical topics by the general dentists. Commanders and clinic chiefs selected the following topic that general dentists did not:

Infection Control

The general dentists selected the following topic that commanders and clinic chiefs did not:

Esthetic Dentistry and Bonding

Management of HIV Patients and Motivating Co-Workers were selected by commanders, clinic chiefs, and GPR graduates but not by 63As. Management of Soft Tissue Wounds was selected by commanders, clinic chiefs, and 63As but not by GPR graduates. Management of Impactions and Complicated Extractions and Basic Clinical Oral Pathology were selected by all groups but commanders, while Diagnosis and Management of Common Oral Lesions was selected by all groups except clinic chiefs.

Commanders and clinic chiefs tended to give higher scores to their top 15 topics than general dentists did. For all groups, the top 15 rated topics fell within a narrow spread of roughly 10 percentage points. Thus, the difference in perceived need for these 15 topics is minimal.

Tables II-IV present results for general dentists across three key practice characteristics: assignment location (Table II), number of years practicing dentistry (Table III), and presence of dental specialists in clinic of assignment (Table IV). Again, ignoring precise rank order, the degree of agreement between groups within a key practice characteristic is very high. All but three or four of the top-rated topics are shared in common by groups within a key practice characteristic. For all groups, the spread of scores among top- or bottom-rated topics was roughly within 10 percentage points, reflecting minimal difference in the perceived need for continuing education courses for topics within the top cluster of need.

Despite the high level of agreement between groups within key practice characteristics, a striking difference in preference for management-related C.E. topics is present between groups with respect to assignment location and presence of specialists in clinic of assignment. Overseas-stationed (OCONUS) dentists listed two more management-related topics (Management of Military Dental Clinics and Principles of Management) in their top 15 dental C.E. topics than continental United States-stationed (CONUS) dentists did. Dentists assigned to clinics without specialty support listed four more management-related topics (Management of Military Dental Clinics, Principles of Management, Motivating Co-Workers, and Working with Difficult People) than dentists assigned to clinics with specialty support did.

Discussion

A major finding of this study is that a significant gap exists between general dentists and their supervisors in the perceived need of continuing dental education topics for non-specialty-trained Army dentists. General dentists tend to have a greater preference for narrowly rather than broadly defined clinical topics than their immediate or general supervisors do. This difference is not surprising given that job requirements for supervisors force them to think more broadly. The perspectives of both of these groups should be considered in shaping dental continuing education programs at the DENTAC and the Dental Corps level. Perhaps the general dentist's view should prevail at the DENTAC level and the supervisor's view should prevail at the Dental Corps level.

Another major finding from this study is that continuing education preferences for general dentists assigned OCONUS or to clinics lacking specialists reflect a greater desire for management-related topics. Most likely these respondents were assigned to remote one- or two-man clinics where good management skills are vital.

A third major finding from this study is the high ratings that topics in human relations received. The current inventory of Army dental continuing education courses is lacking in courses such as Motivating Co-Workers, Job Stress, and Working with Difficult People. Such courses should be added to the Army continuing dental education system.

Finally, another major finding is that a majority of the high-priority topics identified by all groups in this survey

TABLE II

DENTAL CONTINUING EDUCATION SURVEY RANK ORDER OF MEAN SCORES FOR TOP 15 RATED TOPICS FOR DENTISTS BY ASSIGNMENT LOCATION

Rank	Question	Topic	Mean
CONUS Dentists (n = 460)			
1	Q1	Management of Medical Emergencies	77.83 ^a
2	Q9	Diagnosis and Treatment of Orofacial Infections	75.09 ^a
3	Q52	Esthetic Dentistry and Bonding	72.91 ^a
4	Q6	Management of Medically Compromised Patients	71.90
5	Q58	Management of Impactions and Complicated Extractions	71.74 ^a
6	Q59	Antibiotics	71.62 ^a
7	Q13	Oral Surgery for the General Dentist	71.16 ^a
8	Q65	Diagnosis and Management of Dento-Alveolar Trauma	69.64 ^a
9	Q66	Analgesics	68.41
10	Q17	Basic Clinical Oral PATH/MED	68.34
11	Q72	Drug Interactions	67.90 ^a
12	Q68	Management of HIV Patients	67.83
13	Q73	Diagnosis and Management of Common Oral Lesions	67.76 ^a
14	Q79	Management of Maxillofacial Injuries	67.76 ^a
15	Q90	Motivating Co-Workers	67.54 ^a
OCONUS Dentists (n = 64)			
1	Q1	Management of Medical Emergencies	76.88 ^a
2	Q92	Management of Military Dental Clinics	75.66
3	Q9	Diagnosis and Treatment of Orofacial Infections	74.60 ^a
4	Q58	Management of Impactions and Complicated Extractions	73.02 ^a
5	Q52	Esthetic Dentistry and Bonding	72.49 ^a
6	Q91	Principles of Management	71.43
7	Q73	Diagnosis and Management of Common Oral Lesions	70.37 ^a
8	Q90	Motivating Co-Workers	70.37 ^a
9	Q72	Drug Interactions	69.84 ^a
10	Q65	Diagnosis and Management of Dento-Alveolar Trauma	69.31 ^a
11	Q79	Management of Maxillofacial Injuries	69.31 ^a
12	Q59	Antibiotics	68.78 ^a
13	Q13	Oral Surgery for the General Dentist	68.25 ^a
14	Q51	Glass Ionomers	68.25
15	Q11	Perio-Endo Problems	67.72

^aTopic shared in common between CONUS and OCONUS dentists.

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TABLE III

DENTAL CONTINUING EDUCATION SURVEY RANK ORDER OF MEAN SCORES FOR TOP 15 RATED TOPICS FOR DENTISTS BY YEARS OF PRACTICE

Rank	Question	Topic	Mean
Dentists practicing 3 years or less (n = 156)			
1	Q1	Management of Medical Emergencies	78.67 ^a
2	Q58	Management of Impactions and Complicated Extractions	75.36 ^a
3	Q13	Oral Surgery for the General Dentist	74.74 ^a
4	Q9	Diagnosis and Treatment of Orofacial Infections	73.75 ^a
5	Q52	Esthetic Dentistry and Bonding	73.08 ^a
6	Q59	Antibiotics	68.54 ^a
7	Q73	Diagnosis and Management of Common Oral Lesions	68.33
8	Q65	Diagnosis and Management of Dento-Alveolar Trauma	68.12 ^a
9	Q18	Esthetics and Prosthodontics	67.08
10	Q6	Management of Medically Compromised Patients	66.05 ^a
11	Q14	Diagnosis and Treatment of Endo Problems	66.05
12	Q66	Analgesics	65.84 ^a
13	Q72	Drug Interactions	65.63 ^a
14	Q79	Management of Maxillofacial Injuries	65.63 ^a
15	Q90	Motivating Co-Workers	65.21 ^a
Dentists practicing 4 or more years (n = 362)			
1	Q1	Management of Medical Emergencies	77.29 ^a
2	Q9	Diagnosis and Treatment of Orofacial Infections	75.60 ^a
3	Q6	Management of Medically Compromised Patients	73.04 ^a
4	Q52	Esthetic Dentistry and Bonding	72.76 ^a
5	Q59	Antibiotics	72.48 ^a
6	Q92	Management of Military Dental Clinics	71.19
7	Q58	Management of Impactions and Complicated Extractions	70.35 ^a
8	Q65	Diagnosis and Management of Dento-Alveolar Trauma	70.26 ^a
9	Q17	Basic Clinical Oral PATH/MED	69.72
10	Q72	Drug Interactions	69.25 ^a
11	Q66	Analgesics	69.07 ^a
12	Q13	Oral Surgery for the General Dentist	69.06 ^a
13	Q90	Motivating Co-Workers	69.06 ^a
14	Q79	Management of Maxillofacial Injuries	68.98 ^a
15	Q51	Glass Ionomers	68.23

^aTopic shared in common between dentists practicing 3 years or less and dentists practicing 4 years or more.

are related to oral surgery or oral pathology. The high desire for C.E. in these topics most likely reflects a recognition of the importance of these procedures (or problem areas) in the daily function of a dental clinic or Dental Activity.

A limitation of this study is that it cannot be compared with similar surveys of civilian dentists. However, this was never a research objective for several reasons. First, civilian studies typically include all practicing dentists in a given locality, so they include specialists and general dentists. Second, unlike their civilian counterparts, Army general dentists do not have to pay to attend dental C.E. courses. The way a civilian dental

TABLE IV

DENTAL CONTINUING EDUCATION SURVEY RANK ORDER OF MEAN SCORES FOR TOP 15 RATED TOPICS FOR DENTISTS WITH ACCESS TO DENTAL SPECIALISTS IN CLINIC OF ASSIGNMENT

Rank	Question	Topic	Mean
Specialists available in clinic (n = 430)			
1	Q1	Management of Medical Emergencies	77.39 ^a
2	Q9	Diagnosis and Treatment of Orofacial Infections	74.65 ^a
3	Q52	Esthetic Dentistry and Bonding	73.10 ^a
4	Q59	Antibiotics	71.34 ^a
5	Q58	Management of Impactions and Complicated Extractions	71.32 ^a
6	Q6	Management of Medically Compromised Patients	70.94 ^a
7	Q13	Oral Surgery for the General Dentist	70.47 ^a
8	Q65	Diagnosis and Management of Dento-Alveolar Trauma	69.30 ^a
9	Q79	Management of Maxillofacial Injuries	68.38
10	Q72	Drug Interactions	67.99
11	Q73	Diagnosis and Management of Common Oral Lesions	67.91 ^a
12	Q66	Analgesics	67.83 ^a
13	Q17	Basic Clinical Oral PATH/MED	67.68 ^a
14	Q68	Management of HIV Patients	67.52
15	Q51	Glass Ionomers	66.98
No specialists available in clinic (n = 85)			
1	Q1	Management of Medical Emergencies	80.39 ^a
2	Q9	Diagnosis and Treatment of Orofacial Infections	77.78 ^a
3	Q92	Management of Military Dental Clinics	77.51
4	Q58	Management of Impactions and Complicated Extractions	74.90 ^a
5	Q91	Principles of Management	74.21
6	Q90	Motivating Co-Workers	73.33
7	Q13	Oral Surgery for the General Dentist	72.94 ^a
8	Q59	Antibiotics	72.16 ^a
9	Q6	Management of Medically Compromised Patients	71.76 ^a
10	Q65	Diagnosis and Management of Dento-Alveolar Trauma	71.76 ^a
11	Q52	Esthetic Dentistry and Bonding	70.63 ^a
12	Q88	Working with Difficult People	70.20
13	Q17	Basic Clinical Oral PATH/MED	69.41 ^a
14	Q66	Analgesics	69.41 ^a
15	Q73	Diagnosis and Management of Common Oral Lesions	69.41 ^a

^aTopic shared in common between dentists with specialists practicing in clinic of assignment and dentists without specialists practicing in clinic of assignment.

practitioner values a dental C.E. topic is no doubt influenced by its direct (registration, accommodation, and travel fees) and indirect (income lost from not working) costs. Also, many civilian dental C.E. needs assessments include topics on practice management that are irrelevant in the military setting (e.g., third-party payment, how to enhance collection of fees, etc.).

Conclusion and Recommendations

The way dentistry is practiced changes over time. Some of these changes are radical. In the last 15 years, for example,

AIDS was discovered, infection-control procedures became more paramount, personal computers permeated into dental practice, sealants were discovered, and fiber-optic handpieces were developed. All of these events have had major impacts on the profession. These changes and their pace underscore the importance of dental continuing education as well as issue a challenge. For a dental continuing education system to stay current, it must evolve over time. Yet, results from this study indicate that a dental C.E. program must also retain courses that solidly cover basic knowledge and clinical skills, especially in areas of high demand such as oral surgery and oral pathology.

Continuing education courses offered by the Army Dental Corps try to meet this challenge. Part of that challenge is determining whether the mix and scope of dental C.E. courses offered by the Army Dental Corps is meeting the needs of its

workforce. However, because the perceived needs for C.E. by general dentists and their supervisors are not static, it is recommended that a survey similar to this one be conducted periodically.

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