Dental Assisting National Board, Inc.

Measuring Dental Assisting Excellence®

Content Validation Study Reports

This report describes the content validation studies (CVSs) completed for the following Dental Assisting National Board, Inc. (DANB®) exams:

Infection Control (ICE®)

General Chairside Assisting (GC)

Orthodontic Assisting (OA)

Radiation Health and Safety (RHS®)

Updated 01/26/2018

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Since 1948, DANB, a nonprofit organization, has worked within, and with the support of, the dental community. DANB is recognized by the American Dental Association (ADA) as the national certification and credentialing agency for dental assistants. DANB has over 37,000 certificants nationwide. The purpose of DANB exams is to ensure individuals have demonstrated that they have acquired the knowledge required to perform tasks on which competent performance is important to protect the health and safety of patients and oral healthcare workers alike.

DANB is responsible for assuring the content of its exams is current and reflects current practice within the dental assisting field. To this end, DANB conducts a CVS for each of its national exams every five to seven years.

A CVS is conducted to determine or validate the content and the weighting of the content to be assessed on each exam.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Infection Control Exam
Content Validation Study Summary Report

Introduction

The most recent ICE exam CVS was completed in 2016. The ICE exam is one component of three certification programs. The ICE exam is one of:

- three component exams that lead to the National Entry Level Dental Assistant (NELDA®) certification (ICE, Anatomy, Morphology and Physiology [AMP] and RHS exams)
- three component exams that lead to the Certified Dental Assistant™ (CDA®) certification (ICE, RHS and GC exams)
- two component exams that lead to the Certified Orthodontic Assistant (COA®) certification (ICE and OA exams)

Earning the ICE certificate of knowledge-based competence demonstrates that the individual meets at least the minimum national standard for knowledge in infection control believed to be a prerequisite to competence.

Background

The DANB ICE exam is required or recognized as meeting regulatory requirements* in Connecticut, Iowa, New Hampshire, New York and North Dakota, and as a component of the CDA certification program in 33 states, plus the District of Columbia (D.C.). Beginning in August 2008, the U.S. Air Force Dental Service (AFDS) incorporated the ICE exam into its dental assisting curriculum.

**Additional requirements may apply. Please check with your state's dental board for complete information.*

Exam Development

DANB began administering the ICE exam in paper and pencil format in 1993 as a component of the CDA certification program and in 1994 as part of the COA certification program. DANB began administering its exams by computer in 1995.

In 2015, DANB convened the ICE exam committee, a committee of subject matter experts (SMEs) to conduct the CVS to review and update (if needed) the ICE exam outline. The ICE exam committee comprises CDA certificants, dentists and dental infection control specialists.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Job Analysis Survey Development

DANB Exam Development staff and the ICE exam committee created a list of tasks using the following sources:

- Job descriptions for related job titles
- Tasks legally delegable to dental assistants within state-specific rules and regulations
- SME knowledge and experience
- Vetted dental references

Job descriptions were reviewed from online job databases for 48 states and D.C. Two states (Vermont and West Virginia) and D.C. were not included, as staff could not locate job descriptions for dental assistants in those states and D.C. at the time. A review of the task list created was compared to the current ICE exam outline to ensure all applicable tasks were included on the job analysis survey. The draft survey was administered to a group of known SMEs for feedback.

Task List from the Job Analysis Survey

1. Update and review patient medical histories for transmissible diseases.
2. Use immunizations to reduce the risk of communicable diseases.
3. Perform hand hygiene.
4. Perform surgical hand hygiene.
5. Check/assess patients for allergies (e.g., latex, vinyl).
6. Select the appropriate glove for a procedure.
7. Place and remove gloves.
8. Wear protective personal equipment (PPE).
9. Protect patient with PPE.
10. Use in-office or commercial laundry to clean contaminated PPE.
11. Apply protective barriers.
12. Prepare and use chemical disinfecting agents according to manufacturer's instructions.
13. Apply disinfectants.
14. Clean and disinfect dental treatment equipment.
15. Maintain dental handpieces.
16. Sterilize dental handpieces.
17. Clean and disinfect clinical surfaces.
18. Break down/turn over a dental treatment area.
19. Clean housekeeping surfaces.
20. Use pre-procedural mouth rinses on a patient.
21. Use evacuation technique to control aerosols.
22. Use a dental dam during a procedure.
23. Use appropriate tray setups to prevent cross-contamination.
24. Maintain asepsis of reusable devices (e.g., curing lights).
25. Perform aseptic retrieval of materials.
26. Monitor dental unit water lines.
27. Maintain dental unit evacuation lines.
28. Monitor water quality.
29. Use best practices for safely using amalgam.
30. Clean the evacuation trap.
31. Dispose of regulated waste.
32. Dispose of biohazardous waste.
33. Dispose of extracted teeth.
34. Use and dispose of single-use devices (SUD).
35. Select the proper method for instrument processing based on manufacturer's instructions for use (IFU).
36. Clean instruments before sterilization.
37. Package cleaned instruments for sterilization (i.e., bagging, wrapping).
38. Label sterilization package (e.g., date of sterilization).

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Task List from the Job Analysis Survey (cont'd)

39. Monitor the function of an ultrasonic cleaner.
40. Monitor the function of an instrument washer.
41. Prepare instrument processing solutions.
42. Monitor sterilizer functionality.
43. Monitor sterilizer temperature.
44. Monitor sterilizer cycle time.
45. Monitor sterilizer pressure.
46. Interpret a sterilizer error message.
47. Maintain a sterilizer.
48. Perform a biological indicator (BI) test (e.g., spore test).
49. Check a BI test.
50. Document BI test results.
51. Visually inspect sterile packages for integrity.
52. Visually inspect instruments for cleanliness and corrosion.
53. Check the sterility of a package (e.g., peel pouch, cassette, wrap).
54. Update sterilization logs/records.
55. Store sterile supplies and instruments.
56. Disinfect dental impressions and dental appliances.
57. Clean and disinfect the dental laboratory and equipment.
58. Use aseptic techniques for acquiring conventional radiographic images.
59. Use aseptic techniques for acquiring digital radiographic images (e.g., sensors).
60. Use aseptic techniques when processing radiographic images.
61. Maintain automatic processors.
62. Maintain manual processors.
63. Perform asepsis of nitrous oxide/oxygen delivery systems.
64. Maintain the eye wash station.
65. Follow OSHA's Bloodborne Pathogen Standard to protect the worker from an exposure.
66. Follow CDC guidelines to protect the patient and the worker from an exposure.
67. Report occupational exposure injuries to appropriate office personnel.
68. Follow proper first aid protocols after an injury.
69. Use needle safety/sharps practices.
70. Dispose of non-reusable sharps (scalpel blades, suture needles) in sharps containers.
71. Maintain sharps containers.
72. Follow OSHA's Hazardous Communication Standard to protect the worker from potential harm.
73. Use a Safety Data Sheet (SDS).
74. Label secondary containers.
75. Report quality assurance (e.g., quality improvement) suggestions.
76. Maintain an exposure control plan.
77. Monitor the infection control process for breaches and implement any corrective actions as needed.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Scales
Respondents were asked to use the following scales to assess each task:

Scale 1
Use this scale to indicate how often you personally perform each task.
At least once per day
At least once per week
At least once per month
At least once per year
Never (Not responsible)

Scale 2
How important is competent performance of the following task to the safety and protection of patients and dental healthcare personnel?
Of no importance
Of little importance
Moderately important
Extremely important

Survey Distribution
In March 2016, DANB emailed an invitation to a stratified random sample of 10,000 CDA certificants with an email address in DANB's database to ask them to participate in the finalized job analysis survey.

Return Rate
A total of 476 surveys were returned by the end of April 2016, for a return rate of 5%.

Descriptive Data of Respondents
Of the 476 respondents, 375 listed a work state. These 375 individuals represented 46 states and D.C. While DANB did not receive surveys from representatives practicing in all states, DANB did receive surveys from each region of the country.

The results of the survey indicated that:

- 40% worked in a private practice
- 50% worked in a general dentistry practice
- 39% have been employed as a dental assistant for 16 or more years
- 44% graduated from a Commission on Dental Accreditation (CODA)-accredited dental assisting program

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Results of the Job Analysis Survey

The results of the survey were used by DANB to generate a draft of the ICE exam outline domains and weights. The draft was reviewed and edited by the ICE exam committee using their dental assisting experience to decide what a minimally competent dental assistant should be knowledgeable in to perform infection control tasks in a dental setting. The resulting exam outline and domain weightings were independently reviewed, validated and approved by DANB's Board of Directors at its 2016 August Board meeting.

The most significant change to the ICE exam outline was to the number of reporting domains. Previously, there were six (6) reporting domains; the 2018 ICE exam outline was updated to reflect four (4) reporting domains. This change was made so that DANB can provide more reliable (valuable) domain performance ratings to exam candidates who fail the exam. Domain performance rating reliability is increased by increasing the number of items in a given domain (see Tables 1 and 2 below).

Table 1: **2008-2017** ICE exam domain weightings

#	DOMAIN	PERCENT OF EXAM
I	Patient and Dental Healthcare Worker Education	10%
IIA	Prevention of Cross-Contamination and Disease Transmission	20%
IIB	Maintain Aseptic Conditions	10%
IIC	Demonstrate an Understanding of Instrument/Device Processing	15%
IID	Demonstrate an Understanding of Asepsis Procedures	15%
III	Occupational Safety	30%

Table 2: **2018** ICE exam domain weightings

#	DOMAIN	PERCENT OF EXAM
I	Standard Precautions and the Prevention of Disease Transmission	20%
II	Prevention of Cross-Contamination during Procedures	34%
III	Instrument/Device Processing	26%
IV	Occupational Safety/Administrative Protocols	20%

Review of changes reflected on the 2018 ICE exam outline

- No new content was added to the ICE exam outline
- No content was removed from the ICE exam outline
- The outline was reorganized to be in a more logical order in relationship to when the tasks are performed in practice to help exam candidates to prepare to take the exam
- Some of the content in the 2008-2017 exam outline was moved to other categories on the 2018 exam outline where it more appropriately fit

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Summary

While there was no new content reflected on the ICE exam outline (that is, the job analysis survey validated that the content of the exam is current in practice today), the exam outline does look different because of the reorganization of content. The new ICE exam outline, which was effective with exams administered beginning **Jan. 1, 2018,** can be found at www.danb.org or by contacting us at danbmail@danb.org or 1-800-367-3262.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Introduction

The most recent GC exam CVS was completed in 2017. The GC exam is one component of the CDA certification.

Passing the GC exam demonstrates that the individual meets at least the minimum national standard for knowledge in general chairside assisting believed to be a prerequisite to competence. A general chairside assisting certificate of knowledge-based competence is not issued so as not to be confused by the public with the CDA certification.

Background

DANB's CDA certification is recognized or required to perform specified functions* in 33 states, plus D.C.

**Additional requirements may apply. Please check with your state's dental board for complete information.*

Exam Development

DANB began administering the GC exam in paper and pencil format in 1948 as a component of the CDA certification program. DANB began administering its exams by computer in 1995.

In 2016, DANB convened the GC exam committee, a committee of SMEs to conduct the CVS to review and update (if needed) the GC exam outline. The GC exam committee comprises CDA certificants and dentists.

Job Analysis Survey Development

DANB Exam Development staff and the GC exam committee created a list of tasks using the following sources:

- Job descriptions from online job databases for 50 states and D.C.
- Allowable duties from DANB's *State Fact Booklet*
- SME knowledge and experience
- Vetted dental references

The GC exam committee created a draft task list from the state tasks and based on their own expertise. A review of the task list created was compared to the current GC exam outline to ensure all applicable tasks were included on the job analysis survey. The final task list was presented for comments and edits to all current SMEs serving on a DANB exam committee to ensure all general dental assisting-related tasks were included on the survey.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Task List from the Job Analysis Survey

1. Assess patient's physical condition
2. Review and/or take a dental/health history
3. Take, monitor and record vital signs
4. Read patient's chart for medical alerts (e.g., allergies, drug interactions) that could complicate dental care
5. Perform mouth mirror inspection of the oral cavity to inspect intraoral anatomy
6. Chart existing conditions (e.g., missing teeth) and/or restorations
7. Communicate essential patient information to the dentist
8. Document patient treatment
9. Review and explain a treatment plan to the patient
10. Respond to basic medical emergencies (e.g., syncope, heart attack, drug reaction)
11. Respond to basic dental emergencies (e.g., avulsed tooth, toothache)
12. Maintain an emergency kit
13. Evaluate the patient's well-being throughout the dental procedure
14. Help the patient to manage his/her anxiety during a procedure
15. Manage patients, including those with diverse or special needs
16. Manage pain without medication (e.g., distraction techniques)
17. Assist with application of topical anesthesia
18. Assist with administration of local anesthesia
19. Assist with administration of nitrous oxide/oxygen analgesia
20. Monitor the patient during the administration of nitrous oxide/oxygen analgesia
21. Set up the operatory (including chair) for the patient
22. Prepare armamentarium (e.g., setup tray with instruments and required materials) for a procedure
23. Select rotary instruments for a dental procedure
24. Use proper ergonomic positions
25. Use the concepts of four-handed dentistry for general procedures
26. Perform isolation procedures (e.g., cotton rolls, dental dam, suction)
27. Perform and/or assist with a vitality test (e.g., cold, percussion, electronic)
28. Place or assist with placement of topical fluoride
29. Perform bleaching using various methods
30. Perform and/or assist with coronal polishing
31. Assist with oral prophylaxis
32. Apply and/or assist with application of pit and fissure sealants
33. Assist with cavity preparation
34. Select restorative dental materials
35. Prepare restorative dental materials
36. Place and/or assist with the placement and removal of retraction cord
37. Assist with the placement and removal of and/or place and remove matrix bands
38. Assist with placement of or place, cure and finish composite restorations
39. Fabricate and/or assist with fabrication of a temporary crown
40. Assist with sizing and fitting of and/or size and fit stainless steel crowns
41. Assist with temporary cement placement/removal
42. Perform and/or assist with an occlusal registration
43. Take intra- and extraoral photographs

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Task List from the Job Analysis Survey (cont'd)

44. Select sedative/palliative dental materials
45. Prepare sedative/palliative dental materials
46. Assist with interceptive orthodontic procedures (e.g., space maintainer)
47. Assist with prosthodontics
48. Assist with restorative dentistry
49. Assist with periodontal procedures (e.g., root planing)
50. Assist with placement and removal of periodontal dressings
51. Assist with endodontic procedures
52. Assist with implant procedures
53. Assist with oral surgical procedures
54. Monitor and respond to post-surgical bleeding
55. Assist with placement of or remove sutures
56. Assist with placement of or remove post-extraction dressings
57. Assist with and/or take preliminary impressions
58. Assist with or take final impressions
59. Fabricate custom impression trays
60. Pour impressions
61. Trim models
62. Evaluate the quality of diagnostic casts
63. Fabricate mouth guard and/or bleach trays
64. Clean and polish removable and/or fixed appliances
65. Fill out lab prescription
66. Send, monitor and receive cases sent to the lab
67. Provide preventive education to the patient (e.g., nutrition, oral hygiene)
68. Provide verbal oral hygiene instruction to the patient
69. Provide verbal pre- and/or post-operative instructions to the patient
70. Maintain equipment (e.g., reservoirs, handpieces, suction traps)
71. Manage inventory (e.g., determine a schedule to reorder supplies)
72. Manage patients' financial accounts (e.g., billing)
73. Prepare pretreatment authorization (e.g., insurance)
74. Perform front desk duties (e.g., answer phones, schedule appointments)
75. Refer patients as needed to a dental specialist
76. Manage risk for the dental office as it relates to following federal and state regulations
77. Manage risk for the dental office as it relates to patient confidentiality (e.g., HIPAA)
78. Manage risk for the dental office as it relates to legal documents (e.g., informed consent, waivers)

Scales

How often do you personally perform each task? At least once per
Day
Week
Month
Year
Never (Not responsible)

How important is competent performance of the following task to the safety and protection of patients and dental healthcare personnel?
Not at all
Moderately
Extremely

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Survey Distribution
In May 2017, DANB emailed an invitation to 10,000 (CDA certificants and candidates who passed the GC exam) candidates with an email address in DANB's database to ask them to participate in the job analysis survey.

Return Rate
A total of 1,227 surveys were returned by June 2, 2017, for a return rate of 8%.

Descriptive Data of Respondents
Of the 956 respondents who identified themselves as primarily dental assistants, 840 listed a work state. These 840 individuals represented all 50 states and D.C.

The results of the survey indicated that:

- 49% worked in a solo or small private practice (less than 10 employees)
- 28% worked in a large dental practice (10 or more employees)
- 67% worked in a general dentistry practice
- 21% have been employed as a dental assistant for three to five years
- 59% graduated from a CODA-accredited dental assisting program

Results of the Content Validation Study

The SMEs reviewed the performance of the GC job analysis survey tasks. After discussing the tasks, the SMEs removed the following three tasks:

- Task 46 — Assist with interceptive orthodontic procedures (e.g., space maintainer)
  - Reason: General dental assistants are not performing these types of tasks. Orthodontics is specialized and only basic knowledge is necessary in a general dental office and is most often taught on the job.
- Task 50 — Assist with placement and removal of periodontal dressings
  - Reason: Periodontal dressings are no longer commonly used in the dental office.
- Task 72 — Manage patient financial accounts (e.g., billing)
  - Reason: While dental assistants should have general knowledge of billing, they should not be managing financial accounts (Note: *No tasks on the current 2018 outline tested this knowledge; therefore, no content was removed from the outline based on removing this task*).

The following content of the 2018 GC exam outline was removed by the SMEs based on the misfitting tasks above:

IIB2u. Chairside and dental emergency procedures, including but not limited to: *periodontal surgical dressing placement/removal*. (Task 50)

IIIA3ai. Describe how to prepare, mix and store sedative/palliative materials, including but not limited to: *periodontal surgical dressings*. (Task 50)

IIB2p. Chairside and dental emergency procedures, including but not limited to: interceptive orthodontics. (Task 46)

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

The following areas of the 2018 GC exam outline were also removed by the SMEs:

IIB2x. rotary instruments.

IIC13. Identify and change rotary instruments in dental handpieces.

VA1p. ulcers.

VIA2. Describe how to maintain security and records of controlled substances.

VIC1. communicate effectively and establish working relationships with patients and members of the dental care team.

VIC7. receive and dismiss patient and visitors.

IIB2x. **rotary instruments** and IIC13. **Identify and change rotary instruments in dental handpieces** were removed by the SMEs since these tasks are redundant, as changing and identifying rotary instruments is part of either understanding the armamentarium necessary for a procedure (IIIB. **Demonstrate understanding of how to select and prepare armamentarium for chairside dental and/or emergency dental procedures**) or part of assisting with a procedure (IIIC. **Demonstrate understanding of how to assist with and/or perform intraoral procedures**).

VA1p. **ulcers** was removed because ulcers are neither an emergency condition nor a cause of complications during dental treatment.

VIC1. **communicate effectively and establish working relationships with patients and members of the dental care team** and VIC7. **receive and dismiss patient and visitors** are soft skills that are hard to test on a knowledge-based assessment.

The remaining content of the GC 2018 exam outline was included in the new GC 2019 exam outline ensuring significant linkage between the current outline and the new outline.

The SMEs added "*traps and suction lines*" for clarification under IIB5**. Describe how to maintain equipment/instruments, including but not limited to**.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

The most significant change to the GC exam outline is to the number of domain reporting categories. Previously, there were six (6) domains; the 2019 GC exam outline was updated to reflect four (4) domains. This change was made so that DANB can provide more reliable (valuable) domain performance ratings to exam candidates who fail the exam. Domain performance rating reliability is increased by increasing the number of items in a given domain.

Table 1: **2018** GC exam domain weightings

Task#	Domain	Percent of exam
I	Collection and Recording of Clinical Data	10%
II	Chairside Dental Procedures	45%
III	Chairside Dental and Laboratory Materials	13%
IV	Patient Education and Oral Health Management	10%
V	Prevention and Management of Patient Emergencies	12%
VI	Office Operations	10%

Table 2: **2019** GC exam domain weightings

Task#	Domain	Percent of exam
I	Patient Preparation and Documentation	17%
II	Patient Management and Administrative Duties	17%
III	Four-Handed Chairside Dentistry	50%
IV	Diagnostic and Laboratory Procedures and Materials	16%

The GC 2019 exam outline will go into effect Jan. 1, 2019.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Review of changes reflected on the 2019 GC exam outline

- **Ulcers** was removed because ulcers are neither an emergency condition nor a cause of complications during dental treatment

- **Communicate effectively and establish working relationships with patients and members of the dental care team** and **Receive and dismiss patient and visitors** were removed from the exam, as they are soft skills that are hard to test on a knowledge-based assessment

- Under **Describe how to maintain equipment/instruments, including but not limited to**, "*traps and suction lines*" was added for clarification

- "Collection and Recording of Clinical Data and Prevention" and "Management of Patient Emergencies" were combined and changed to "Patient Preparation and Documentation" and was decreased from 22% to 17% of the exam, in part because some sub-sections were moved to other areas of the exam outline

- "Patient Education and Oral Health Management" and "Office Operations" were changed to "Patient Management and Administrative Duties" and went from 20% to 17% of the exam, in part due to some soft skills being removed from the exam outline (as noted previously)

- "Chairside Dental Procedures" was changed to "Four-Handed Chairside Dentistry" and increased from 45% to 50% of the exam, in part because assisting with dental emergency procedures was added to this section

- "Chairside Dental and Laboratory Materials" was changed to "Diagnostic/Laboratory Procedures and Dental Materials" and increased from 13% to 16% of the exam, in part due to moving some content from "Chairside Dental Procedures" to this section

Summary

While there is no new content reflected on the GC exam outline (that is, the job analysis survey validated that the current content of the exam remains current in practice today), the exam outline does look different because of the reorganization of content and the removal of nonessential information. The GC exam outline, which will be effective with exams administered beginning **Jan. 1, 2019,** can be found at www.danb.org or by contacting us at danbmail@danb.org or 1-800-367-3262.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Introduction

The most recent OA exam CVS was completed in 2016. The OA exam is one component of the COA certification. The ICE exam is the other component.

Passing the OA exam demonstrates that the individual meets at least the minimum national standard for knowledge in orthodontic assisting believed to be a prerequisite to competence. An orthodontic assisting certificate of knowledge-based competence is not issued so as not to be confused by the public with the COA certification.

Background

DANB's COA certification is recognized or required to perform specified functions* in Connecticut, Maryland, Massachusetts, New Jersey and Oregon. There are over 1,400 COA certificants nationwide.

**Additional requirements may apply. Please check with your state's dental board for complete information.*

Exam Development

DANB began administering the COA exam in paper and pencil format in 1986, and began testing nationwide in a computer-based format in 1995. In June 1986, the RHS component exam was added to the COA exam, which was then composed of the OA and RHS component exams. In June 1987, the RHS exam component was no longer required as part of the COA certification program, as the content was not always appropriate for an orthodontic assistant, and instead radiation health and safety exam content specific to orthodontic assisting was incorporated into the OA exam outline. In June 1994, the ICE component exam was added as a requirement to earn the COA certification. Both component exams (OA and ICE) must be passed within five years to qualify to earn COA certification.

In 2015, DANB convened the OA exam committee, a committee of SMEs to conduct the CVS to review and update (if needed) the OA exam outline. The OA exam committee comprises COA certificants and orthodontists.

Job Analysis Survey Development

DANB Exam Development staff and the OA exam committee created a list of tasks using the following sources:

- Current OA exam outline
- Job descriptions from online job databases for 50 states and D.C.
- Allowable duties from DANB's *State Fact Booklet*
- SME knowledge and experience
- Vetted dental references

The OA exam committee reviewed 47 job descriptions from online job databases for 43 states and D.C. Seven states (Delaware, Indiana, Mississippi, Montana, Nebraska, West Virginia and

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Wyoming) were not included, as job descriptions for orthodontic assistants in these states were not available at that time. The committee reviewed DANB's *State Fact Booklet* to include allowable orthodontic duties for orthodontic assistants by state. Any applicable tasks were added to the initial task list. Vetted dental references were checked to ensure there were no other tasks that had been inadvertently omitted. A review of the task list created was compared to the current OA exam outline to ensure all applicable tasks were included on the job analysis survey.

Task List from the Job Analysis Survey

1. Record the medical/health history (e.g., medications [over-the-counter and prescription], physical and mental conditions, allergies, previous diagnostic medical results).
2. Review and record updated medical/health history.
3. Record patient concerns/chief complaint.
4. Observe a patient's general physical condition, noting any abnormal characteristics (e.g., eating disorders, substance or physical abuse, age-related changes).
5. Observe patient's behavior.
6. Obtain/verify patient's informed consent for routine and/or emergency treatment.
7. Document patient refusal of recommended routine and/or emergency treatment or noncompliance.
8. Ask if the patient has had recent exposure to dental radiation.
9. Record the dental history including patient oral evaluations, noting intraoral/extraoral conditions.
10. Record dental treatment information, plans, progress and/or clinical notes.
11. Record patient exam findings, including compliance.
12. Chart the condition of the oral cavity (e.g., structures, restorations, lesions, periodontal probing depths, missing/abnormal teeth, oral condition [tissue], malocclusions, cleft palate, TMJ, radiographs, hygiene, habits, facial structure, smile evaluation, skeletal and facial and profile findings).
13. Record tooth anatomy and physiology using the Palmer system, quadrant charting, tooth identification, classification of occlusion, periodontal conditions and caries classification.
14. Note potential pathology in the head and neck (e.g., temporomandibular joint disorder manifestation).
15. Obtain diagnostic records (e.g., photographs [facial, intraoral/extraoral], radiographs, intraoral measurements, digital scans, jaw relation, vertical dimensions).
16. Assess the patient for unusual anatomical variations (e.g. tori, exostosis), removable appliances or foreign objects prior to placing image receptors.
17. Acquire intraoral radiographic images (e.g., bitewings, periapical, occlusal, FMX).
18. Acquire extraoral radiographic images (e.g., panoramic, cephalometric).
19. Acquire radiographic images on patients with special needs (i.e., patients with physical, mental or emotional handicaps).
20. Acquire radiographic images on patients with a severe gag reflex.
21. Process conventional radiographic images (i.e., automatic and/or manual).
22. Use standard precautions and personal protective equipment (PPE) during conventional film processing.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Task List from the Job Analysis Survey (cont'd)

23. Perform maintenance, cleaning and quality control checks for automatic film processing.
24. Perform maintenance, cleaning and quality control checks for manual film processing.
25. Maintain/store conventional film.
26. Recycle radiographic materials/chemicals (e.g., lead foil and processing solutions) following EPA regulations.
27. Examine and clean intensifying screens used with panoramic films.
28. Inspect and clean x-ray viewing lights (also called a view box).
29. Manipulate digital radiographic images.
30. Mount and label radiographic images.
31. Evaluate radiographic images for diagnostic quality.
32. Practice radiation safety (e.g., correct patient positioning, follow safety regulations and ALARA) and use protective equipment (e.g., lead aprons) for patient protection.
33. Practice radiation safety (e.g., follow safety regulations and ALARA) and use precautions for operator safety.
34. Use standard precautions during the radiographic exposure procedure to protect the patient/operator (e.g., use of infection control barriers and proper disinfection procedures).
35. Clean and disinfect a lead apron and/or thyroid collar.
36. Use personal protective equipment (PPE) during the radiographic exposure procedure to protect the operator.
37. Perform cephalometric tracings (i.e., landmark identification).
38. Acquire cone-beam computed tomography (CBCT) radiographic images.
39. Use a dental office radiation safety manual.
40. Maintain the dental office radiation safety manual.
41. Perform quality control (QC) checks for radiographic equipment and instruments.
42. Adjust radiographic equipment.
43. Document acquired radiographic images in the dental record.
44. Wear a radiation monitoring badge (i.e., dosimeter).
45. Fabricate a custom impression tray.
46. Take an impression (e.g., PVS, alginate).
47. Take a bite registration (e.g., occlusal registration).
48. Take facebow transfers.
49. Perform laboratory procedures with appropriate material (e.g., gypsum, waxes, acrylic, acrylic substitutes).
50. Pour, trim, evaluate and mount casts (i.e., diagnostic, models, study).
51. Appropriately store laboratory materials (e.g., gypsum, acrylic, bonding agents).
52. Fabricate retainers.
53. Construct fixed or removable appliances (e.g., mouth guards, splints).
54. Fill out laboratory authorization forms.
55. Track laboratory orders.
56. Debride, polish and repair fixed or removable appliances and prostheses.
57. Weld or solder orthodontic bands.
58. Prepare armamentarium setups for orthodontic procedures.
59. Prepare and perform preventive maintenance on equipment used for orthodontic procedures.
60. Prepare the treatment room to receive and treat a patient.
61. Prepare patient for treatment.
62. Place and remove orthodontic separators.
63. Polish teeth before and after placement of bands/brackets.
64. Etch enamel to prepare for bonding.
65. Maintain field of operation (e.g., retraction, suction, irrigation, drying, cotton rolls).
66. Size bands.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Task List from the Job Analysis Survey (cont'd)

67. Select and prepare cement/bonding agent.
68. Assist in bonding of bands.
69. Assist in bonding of orthodontic appliances' brackets.
70. Remove supragingival cement after bonding (brackets or bands).
71. Perform and/or assist with bracket placement.
72. Check for and remove loose or broken bands/brackets.
73. Assist with debanding/debonding procedures.
74. Perform and/or assist with archwire formation (e.g., bending).
75. Perform and/or assist with archwire placement and removal.
76. Insert, secure archwires with ligatures, including cutting and tucking.
77. Place and remove elastics (e.g., chains, interarch).
78. Assist with placement/fitting of intraoral and extraoral orthodontic appliances (e.g., clear aligners and headgear).
79. Perform directed orthodontic adjustments including emergency adjustments.
80. Assist with orthodontic emergencies (e.g., broken wires or appliances).
81. Assist with pre- and post-surgical treatment (e.g., temporary anchorage devices [TADs]).
82. Assist with and/or apply topical anesthetic agents.
83. Respond to medical emergencies according to an action plan.
84. Prevent potential health-related and/or procedure-related emergencies that can occur in an orthodontic office.
85. Provide patient with verbal/written oral hygiene instructions/orthodontic considerations (e.g., after-care instructions [pre- and post-treatment] and appliance care).
86. Provide patient and/or parent/guardian with information on the importance of dental healthcare during orthodontic treatment.
87. Assess patient attitudes regarding oral hygiene care.
88. Explain the effects of all types of fluoride, the advantages of the various modalities of administration, and the dangers and results of overdosage.
89. Incorporate motivational techniques during orthodontic treatment.
90. Explain the relationship of orthodontic treatment to other dental procedures (e.g., extractions, restorations, orthognathic surgery).
91. Provide patient education, including clarifying procedures, tooth anatomy, occlusion, basic nutritional needs and caries education.
92. Provide patient and/or parent/guardian with information on infectious diseases and their relationship to infection control.
93. Provide patients with information regarding the purpose of radiographic exposures.
94. Calm and reassure an apprehensive patient and/or parent/guardian.
95. Manage all types of patients (e.g., children and compromised patients).
96. Perform basic office support (e.g., data entry, appointments, answering phones, recording patient communication).
97. Maintain inventory and proper storage procedures for inventory.
98. Patient accounting (e.g., third-party payments, collecting fees).
99. Begin referral procedures for patient.
100. Follow state/federal regulations.
101. Follow HIPAA requirements (e.g., for radiographic records).
102. Follow legal obligations (e.g., reporting child abuse, illegal procedures).
103. Follow legal requirements for documentation.
104. Correctly manage records (e.g., storing and lending records).
105. Protect the dental practice from malpractice risk.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Scales
Use this scale to indicate how often you personally perform each task.
At least once per day
At least once per week
At least once per month
At least once per year
Never (Not responsible)

How important is competent performance of the following tasks to the safety and protection of the public?
Of no importance
Of little importance
Moderately important
Extremely important

Survey Distribution
In July 2015, DANB emailed an invitation all current COA certificants with an email address in DANB's database (905) to ask them to participate in the job analysis survey.

Return Rate
A total of 112 surveys were returned by Aug. 9, 2015, for a return rate of 12%.

Descriptive Data of Respondents
Of the 112 respondents, 82 listed a work state. These 82 individuals represented 29 states and D.C. While DANB did not receive surveys from representatives practicing in all states, DANB did receive surveys from each region of the country.

The results of the survey indicated that:

- 60% worked in a private practice
- 61% worked in an orthodontic practice
- 43% have been employed as an orthodontic assistant for 16 or more years
- 25% graduated from a CODA-accredited dental assisting program

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Results of the Content Validation Study

The most significant change to the OA exam outline was to the number of domain reporting categories. There were formerly eight (8) domains; the 2017 OA exam outline was updated to reflect four (4) domains. This change was made so that DANB can provide more reliable (valuable) domain performance ratings to exam candidates who fail the exam. Domain performance rating reliability is increased by increasing the number of items in a given domain (see Tables 1 and 2 below).

Table 1: **2009-2016** OA domain weightings

TASK#	DOMAIN	PERCENT OF EXAM
I	Collection and Recording of Clinical Data	15%
II	Orthodontic Procedures	36%
III	Chairside Dental Materials	5%
IV	Laboratory Materials and Procedures	5%
V	Patient Education and Oral Health Management	10%
VI	Prevention and Management of Emergencies	5%
VII	Office Operations	5%
VIII	Dental Radiation Health and Safety	19%

Table 2: **2017** OA exam domain weightings

TASK#	DOMAIN	PERCENT OF EXAM
I	Collection and Recording of Clinical Data	21%
II	Dental Radiation Health and Safety	18%
III	Orthodontic Procedures	35%
IV	Patient Education and Office Management	26%

Review of changes reflected on the 2017 OA exam outline

- No new content areas were added to the OA exam outline
- No content was removed from the OA exam outline
- The content areas were reorganized to be in a more logical order in relationship to when the tasks are performed in practice to better help exam candidates to prepare to take the exam
- Radiology remains a stand-alone domain. The percentage of items in this category went from 19% to 18%
- Collection and Recording of Clinical Data increased from 15% to 21% of the exam
- Orthodontic Procedures now includes Chairside Dental Materials, Laboratory Materials and Procedures, and Prevention and Management of Emergencies. These domains were 51% of the exam and are now 35%. Note that some of the content in these areas was moved to other categories where they fit more appropriately (e.g., Collection and Recording of Clinical Data or Patient Education and Office Management)
- Patient Education and Office Management includes Patient Education and Oral Health Management and Office Operations, and includes Patient Management, which was formerly within the Orthodontic Procedures domain. This combined area was 15% of the exam and is now 26% of the exam

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Summary

While there was no new content reflected on the OA exam outline (that is, the job analysis survey validated that the current content of the exam remains current in practice today), the exam outline does look different because of the reorganization of content. The OA exam outline, which was effective with exams administered beginning Jan. 1, 2017, can be found at www.danb.org or by contacting us at danbmail@danb.org or 1-800-367-3262.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Radiation Health and Safety Exam
Content Validation Study Summary Report

Introduction
The most recent RHS exam CVS was completed in 2014. The RHS exam is one component of the CDA and NELDA certification programs.

Earning the RHS certificate of knowledge-based competence demonstrates that the individual meets at least the minimum national standard for knowledge in radiation health and safety believed to be a prerequisite to competence.

Background
The DANB RHS exam is required or recognized as meeting regulatory requirements***** in 22 U.S. states and D.C., and as a component of the CDA certification program in 33 states, plus D.C. Beginning in September 2009, the U.S. Air Force Dental Service (AFDS) incorporated the RHS exam into its dental assisting curriculum.

**Additional requirements may apply. Please check with your state's dental board for complete information.*

Exam Development
DANB began administering the RHS exam in paper and pencil format in 1982 as a component of the CDA certification program and from June 1, 1986, to May 31, 1987, as part of the COA certification program. DANB began administering by computer in 1995.

In 2013, DANB convened the RHS exam committee, a committee of SMEs to conduct the CVS to review and update (if needed) the RHS exam outline.

Job Analysis Survey Development
DANB Exam Development staff and the GC and RHS exam committees created a list of tasks using the following sources:

- Current RHS exam outline
- Job descriptions from online job databases for 50 states and D.C.
- Allowable duties from DANB's *State Fact Booklet*
- SME knowledge and experience
- Vetted dental references

The DANB GC exam committee created an initial task list at their September 2013 meeting. The RHS exam committee reviewed and edited the initial GC exam committee list of RHS tasks via webinar. The final task list was presented for comments and edits to all current SMEs serving on a DANB exam committee to ensure no radiological-related tasks were missing from the survey. The RHS exam committee comprises CDA certificants, dentists and specialists in dental radiation and safety.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Task List from the Job Analysis Survey

1. Acquire CBCT radiographic images.
2. Acquire intraoral radiographic images (e.g., bitewings, periapical, occlusal, FMX).
3. Acquire extraoral radiographic images (e.g., panoramic, cephalometric).
4. Review a patient's health history prior to taking x-rays.
5. Inspect the patient's head and neck region for removable appliances and foreign objects prior to the beginning of the exposure process.
6. Assess the patient for unusual anatomical variations prior to placing image receptors (e.g. tori, exostosis).
7. Perform a step-wedge test.
8. Perform a coin/safelight test.
9. Check for and validate an x-ray prescription.
10. Evaluate images for diagnostic quality.
11. Document acquired radiographic images in the dental record.
12. Acquire radiographic images on patients with severe gag reflexes.
13. Acquire radiographic images on patients with special needs (i.e., any patients with physical, mental or emotional handicaps).
14. Perform user maintenance and cleaning of automatic processors.
15. Inspect the darkroom.
16. Dispose of radiographic processing materials/chemicals following EPA regulations.
17. Maintain a silver recovery system for an automatic processor.
18. Dispose of the lead foil from conventional film.
19. Make duplicates of conventional films.
20. Examine and clean intensifying screens used with panoramic films.
21. Inspect and clean x-ray viewing lights (also called a view box).
22. Maintain conventional film inventory.
23. Maintain processor chemical inventory.
24. Mount and label radiographic images.
25. Follow HIPAA when transferring radiographic images.
26. Adjust radiology equipment following ALARA concepts.
27. Maintain a dental office radiation safety manual.
28. Place a lead apron.
29. Place a lead thyroid collar.
30. Inspect a lead apron for cracks, rips and tears.
31. Inspect a thyroid collar for cracks, rips and tears.
32. Instruct patients on the importance (e.g., purpose) of dental radiographs.
33. Instruct patients on the safety of radiographic exposure.
34. Document informed consent for or refusal of radiographic exposures.
35. Protect OHCPs from occupational radiation (e.g., scatter radiation).
36. Clean and disinfect a lead apron.
37. Clean and disinfect a thyroid collar.
38. Sterilize image receptor holders.
39. Place and dispose of infection control barriers.
40. Use standard precautions during the radiographic exposure process to protect the patient.
41. Use personal protective equipment PPE during the radiographic exposure process to protect the operator.
42. Use standard precautions and PPE during conventional film processing.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Scales

How often do you personally perform each task?
Use this scale to indicate how often you personally perform each task.
Never (Not responsible)
At least once per day
At least once per week
At least once per month
At least once per year

How important is competent performance of each task?
How important is competent performance of the following tasks to the safety and protection of the public?
Of no importance
Of little importance
Moderately important
Extremely important

Survey Distribution
In December 2013, DANB emailed an invitation to a stratified random sample of 5,000 CDA certificants with an email address in DANB's database to ask them to participate in the job analysis survey.

Return Rate
A total of 669 surveys were returned by Dec. 17, 2013, for a return rate of 14%.

Descriptive Data of Respondents
Of the 669 respondents, 609 listed a work state. These 609 individuals represented 40 states. While DANB did not receive surveys from representatives practicing in all states, DANB did receive surveys from each region of the country.

The results of the survey indicated that:

- 61% worked in a private practice
- 62% worked in a general dentistry practice
- the median years of experience as a dental assistant was 22.25 years
- 50% graduated from a CODA-accredited dental assisting program

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Results of the Content Validation Study

The resulting exam outline and content weightings were independently reviewed, validated and approved by DANB's Board of Directors at its 2014 Winter Board meeting.

The most significant change to the RHS exam outline was to the number of domain reporting categories. Previously, there were five (5) domains; the 2015 RHS exam outline was updated to reflect four (4) domains. This change was made so that DANB can provide more reliable (valuable) domain performance ratings to exam candidates who fail the exam. Domain performance rating reliability is increased by increasing the number of items in a given domain (see Tables 1 and 2 below).

Table 1: **2014** RHS exam domain weightings

TASK#	DOMAIN	PERCENT OF EXAM
I	Expose and Evaluate	42%
II	Conventional Film Processing	13%
III	Mount and Label	11%
IV	Radiation Safety – Patient	21%
V	Radiation Safety – Operator	13%

Table 2: **2015** RHS exam domain weightings

TASK#	DOMAIN	PERCENT OF EXAM
I	Expose and Evaluate	26%
II	Quality Assurance and Radiology Regulations	21%
III	Radiation Safety for the Patient and Operator	31%
IV	Infection Control	22%

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org

Review of changes reflected on the 2015RHS exam outline

- No new content areas were added
- No content was removed
- The outline was reorganized to be in a more logical order in relationship to when the tasks are performed in practice to help exam candidates to prepare to take the exam
- Some of the content in the 2008-2014 exam outline was moved to other categories on the 2015 exam outline where it fit more appropriately
    - The “Expose and Evaluate” section now contains content that was previously in the “conventional film processing” and “mount and label” sections
    - The new “Quality Assurance and Radiology Regulations” section contains content that formerly appeared in the “expose and evaluate, conventional film processing and mount and label” sections
    - The “radiation safety-patient” and “radiation safety-operator” sections have been combined into one (“Radiation Safety for the Patient and Operator”)
    - All of the infection control content as it relates to radiology (and is currently tested on the RHS exam) has been pulled together in one new domain, “infection control”

Summary

While there was no new content reflected on the RHS exam outline (that is, the job analysis survey validated that the current content of the exam remains current in practice today), the exam outline does look different because of the reorganization of content. The RHS exam outline, which was effective with exams administered beginning **Jan. 1, 2015,** can be found at www.danb.org or by contacting us at danbmail@danb.org or 1-800-367-3262.

444 N. Michigan Ave., Suite 900, Chicago, IL 60611-3985 • 1-800-367-3262 • Fax: 312-642-8507 • danbmail@danb.org • www.danb.org