



National Dental Specialty Examination (NDSE)

Technical Report

2024 Examination Cycle



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1.0 Overview of the NDSE

1.1 Purpose of the NDSE Technical Report

This Technical Report is a summary of the processes followed by the Royal College of Dentists of Canada (RCDC) to develop, administer, and score the National Dental Specialty Examination (NDSE) administered in 2024. It provides a summary of the information needed to support the validity and reliability of the NDSE. Any background information is included to assist in understanding the development of RCDC's NDSE processes.

This report serves as a reference for the members of the NDSE Committee, the RCDC Board of Directors, and the Provincial Dental Regulatory Authorities (DRAs). The processes described in this report may differ from those used in other years.

1.2 Purpose of the NDSE

The purpose of the NDSE is to test entry-level competencies required of specialists. The NDSE covers general specialty knowledge including basic sciences, clinical diagnosis, and treatment planning. The level of knowledge required is consistent with Commission on Dental Accreditation of Canada (CDAC) requirements in each of the specialties.

Successful completion of the NDSE will allow an individual to obtain licensure as a specialist anywhere in Canada.

There are ten nationally recognized dental specialties in Canada:

1. Dental Public Health
2. Endodontics
3. Oral and Maxillofacial Surgery
4. Oral Medicine and/or Oral Pathology
5. Oral and Maxillofacial Radiology
6. Orthodontics and Dentofacial Orthopedics
7. Pediatric Dentistry
8. Periodontics
9. Prosthodontics
10. Dental Anesthesia (the first administration will be in 2026)

RCDC is responsible for developing, administering, and scoring the examinations. To do this, the NDSE Committee who, along with the Specialty Examination Team Leads and staff, oversee all aspects of the examination processes.

1.3 NDSE Committee

The NDSE Committee is a Standing Committee of RCDC. It will provide oversight of the NDSE through examination standard setting, policy development, and financial management. The Committee is responsible for ensuring the integrity of the examination through management of the development, administration, quality assurance and evaluation of the NDSE.

1.3.1 NDSE Committee Membership

Committee members must possess expertise in the domain of assessments or psychometrics. The Chair of the Committee will be independently selected by consensus of RCDC and the rest of the Committee, as non-voting members

- 2 Royal College of Dentists of Canada Representatives
- 3 Dental Regulatory Authorities Representatives
- Public Member
- Association of Canadian Faculties of Dentistry Member
- Commission on Dental Accreditation of Canada Member
- National Dental Examining Board of Canada Member
- Canadian Dental Specialty Association Member
- NDSE Credentials Committee Chair
- NDSE Appeals Committee Chair

Non-voting Members include RCDC Managing Director and NDSE Psychometrician.

1.4 NDSE

The NDSE is a six-hour examination, delivered electronically, with one or more breaks. The number of questions and question values will vary depending on the specialty. Specifics for each dental specialty can be found in the corresponding parts of the NDSE protocol. Each NDSE was administered in one day at examination centers in Canada and the United States.

Resources on the NDSE can be found on the NDSE website and include, but are not limited to:

- The examination formats
- The NDSE Protocol including the blueprint and exam regulations
- The NDSE Policies and Procedures
- Information on scoring and appeals
- A list of reference texts commonly used in Canadian dental specialty programs
- A demo examination and platform training video

1.5 NDSE Certification

A person shall be granted an NDSE Certification and have their name entered in the NDSE Certification Registry if they fulfill both of the following criteria:

- Provide proof of completion of a dental specialty training program or a Dental Specialty Assessment and Training Program (DSATP) for internationally qualified dental specialists.
- AND
- Successfully challenge the NDSE for their respective specialty.

2.0 NDSE Blueprints

The NDSE evaluates a candidate’s knowledge and clinical competence at the entry specialty level. The blueprint for each specialty shows the domains and approximate percentage of questions covered in each domain. The blueprints were reviewed prior to initiation of the examination development cycle by the Examiner-in-Chief, the Specialty Examinations Team Lead and a Psychometrician. The NDSE blueprints were approved by the NDSE Committee following this review.

2.1 Dental Public Health Blueprint

Dental Public Health Blueprint	Approximate % of questions
Assess community oral health status, needs, and resources	5-15%
Diagnose community oral health problems and identify the cause or strength of contributing factors	10-20%
Assess policies, strategies, programs, services, and devices that affect oral health and the provision of oral health services	15-25%
Plan activities or programs that would be worthwhile in improving oral health within the given ethical, legal, political, social, demographic, economic, and environmental context.	10-20%
Manage oral health programs and human resources providing oral health care services, including conduct quality assurance programs and program evaluation.	5-15%
Assemble, synthesize, and communicate relevant, accurate and clear information that will enable individuals, families, communities, public and private health organizations, and government decision-makers to improve oral health.	15-25%
Conduct education on and research into community oral health problems and services to assure a diverse and competent public oral health workforce and advancement of the specialty.	5-15%
Total	100%

2.2 Endodontics Blueprint

Endodontics Blueprint	Approximate % of questions
Biomedical sciences: a comprehensive understanding and strong foundation in the following: anatomy, physiology, oral histology, oral pathology, oral histopathology, oral microbiology, immunology, biomaterials.	15-25%
Nonsurgical root canal therapy: proficiency in the procedures and materials used in nonsurgical endodontic treatment, such as instrumentation, cleaning, shaping, and obturation of root canals, as well as complications and their management.	15-25%
Surgical root canal therapy: principles and techniques of micro-endodontic apical surgery and other surgical interventions related to endodontic treatment. Demonstrating expertise in the procedures and materials/grafting used in surgical endodontic treatment, including the management of complications.	5-15%
Diagnosis, treatment planning, and patient management: accurate diagnoses and developing comprehensive treatment plans while considering the individual needs of patients. Emphasizing the holistic approach to patient care and effective management.	10-20%
Pharmacology: pain management, infection control and knowledge of pharmaceutical agents and their application in endodontic practice.	6-10%
Trauma: management of dento-alveolar injuries, including splinting, post-operative care, and follow-up protocols for patients who have experienced traumatic dental injuries.	5-9%
Anesthesia: knowledge of various anesthesia techniques, local anesthetics (including composition and pharmacological properties), and pain management in endodontics; patient comfort and safety through effective anesthesia is a key focus.	4-8%
Treatment of medically compromised patient: endodontic care to patients with various medical complexities. It involves understanding and addressing the unique needs and potential challenges posed by medically compromised patients.	2-6%
Radiology: basic radiographic physics, various radiographic techniques, advanced imaging modalities like CBCT, error recognition/artifacts, and radiographic interpretation. The focus will be on the ability to interpret radiographic images accurately and utilize them effectively in diagnosis and treatment planning.	5-15%
Research methods: basics of research methodology, fundamental aspects of evidence-based endodontics, statistics, and their application in the field of endodontics.	0-4%
Miscellaneous topics (includes prosthodontics, periodontics, orthodontics, ethics, asepsis & sterilization, implantology); foundational understanding of these related areas, recognizing their potential relevance to endodontics and patient care.	2-6%
Total	100%

2.3 Prosthodontics Blueprint

Prosthodontics Blueprint	Approximate % of questions
Removable complete dental prosthesis	5-15%
Removable partial dental prosthesis	5-15%
Fixed dental prosthesis supported by natural teeth	15-25%
Dental implant supported prosthesis	25-35%
Maxillofacial prosthetics	2-8%
General prosthetic topics (including basic sciences, medical management of dental patients, dental management of medically compromised patients, tooth wear, theories of occlusion, materials).	20-30%
Total	100%

2.4 Pediatric Dentistry Blueprint

Pediatric Dentistry Blueprint	Approximate % of questions
Growth and development	5-11%
Cariology, preventive dentistry, and anticipatory guidance	5-15%
Restorative dentistry and oral rehabilitation	8-18%
Child development & non-pharmacological behaviour guidance	5-11%
Pharmacological behaviour guidance	5-11%
Pharmacology	2-8%
Oro-facial trauma	5-15%
Medical management	5-15%
Oral diagnosis, oral pathology, oral medicine, oral radiology	5-15%
Periodontology	0-4%
Pulp Therapy	5-15%
Infection Control and occupational hazards	0-4%
Biostatistics and epidemiology	0-4%
Record keeping and informed consent	0-4%
Total	100%

2.5 Orthodontics Blueprint

Orthodontics Blueprint	Approximate % of questions
Anatomy, growth, and development	12-22%
Physiology	2-8%
Patient management and treatment	35-45%
Statistics	3-9%
Biology and physical science	5-15%
Diagnosis	17-27%
Total	100%

2.6 Oral and Maxillofacial Surgery Blueprint

Oral and Maxillofacial Surgery Blueprint	Approximate % of questions
Temporomandibular disorders	2-8%
Implants	5-15%
Cleft lip and palate, and craniofacial syndromes	2-8%
Dentoalveolar and preprosthetic surgery	5-15%
Medicine	5-15%
Pathology	5-15%
Orthognathic surgery	5-15%
Reconstructive surgery	5-15%
Trauma	10-20%
Anesthesia and sedation	10-20%
Total	100%

2.7 Oral and Maxillofacial Radiology Blueprint

	Oral and Maxillofacial Radiology	Approximate % of questions
Part 1	Interpretation of diagnostic imaging of the maxillofacial region	50-60%
Part 2	Radiation sciences: Include but are not limited to radiation physics, projection geometry, the biological effect of radiation, radiation safety, dose and quality assurance.	10-15%
	Imaging techniques: Include all the imaging modalities and emerging technologies that are pertinent to Oral and Maxillofacial Radiology: -Techniques and procedures -Uses, application and limitations -Factors affecting image quality and artifact formation -Optimization of imaging techniques	5-10%
	Head and neck anatomy	10-15%
	General head and neck pathology	10-15%
Total		100%

2.8 Periodontics Blueprint

Periodontics Blueprint	Approximate % of questions
Nonsurgical therapy: Plaque control/behaviour modification e.g. Smoking cessation; SRP; Pharmacotherapeutics e.g., LAA, systemic antibiotics, host modulation therapy; Stress reduction/sedation; Occlusal therapy; Periodontal maintenance therapy	15-20%
Regeneration surgical therapy: Bone replacement grafting; Barrier therapy e.g. GTR; Combination graft and barriers; Use of biologics/growth factors/dermal matrices; Soft tissue grafting/pedicle flaps/barrier or combinations	15-20%
Resective surgical therapy: Gingivectomy and gingivoplasty; Open flap debridement; Osseous resective (ostectomy/osteoplasty); Root resection; Tooth extraction	15-20%
Dental implants: Site preparation; Placement; Loading protocol; Provisionalization/definitive restorations; Maintenance; Peri-implantitis/complications	25-30%
Interdisciplinary therapy: Restorative dentistry/prosthodontics consideration such as crown lengthening; Endodontics consideration; Orthodontics consideration such as canine exposure and forced eruption	10-15%
Oral/systemic interrelationships: Oral medicine/pathology/biopsy; Medicine/medically compromised; Medical emergencies	10-15%
Total	100%

2.9 Oral Medicine Blueprint

Oral Medicine Blueprint	Approximate % examination
Basic Medical Sciences <ul style="list-style-type: none"> ● General and systemic pathology, orofacial anatomy and physiology ● Pharmacology and therapeutics ● Immunology ● Microbiology ● General medicine 	10-20%
Diseases and conditions of the maxillofacial region <ul style="list-style-type: none"> ● Developmental conditions ● Teeth abnormalities ● Infection ● Physical and chemical injuries ● Allergies and immunologic diseases ● Epithelial ● Salivary glands ● Soft tissue ● Hematologic ● Bones and joints ● Odontogenic ● Dermatologic ● Oral manifestations of systemic diseases ● Benign and malignant tumours 	40-50%
Temporomandibular disorders	5-15%
Oral and dental management of patients with complex medical conditions	10-20%
Orofacial pain and neurosensory disorders	10-20%
Total	100%

2.10 Oral Pathology Blueprint

Oral Pathology Blueprint	Approximate % examination
Microscopic examination	45-55%
Basic medical sciences <ul style="list-style-type: none"> ● General and systemic pathology, orofacial anatomy and physiology ● Pharmacology and therapeutics ● Immunology ● Microbiology ● General medicine 	10-20%
Diseases and conditions of the maxillofacial region <ul style="list-style-type: none"> ● Developmental conditions ● Teeth abnormalities ● Infection ● Physical and chemical injuries ● Allergies and immunologic diseases ● Epithelial ● Salivary glands ● Soft tissue ● Hematologic ● Bones and joints ● Odontogenic ● Dermatologic ● Oral manifestations of systemic diseases ● Benign and malignant tumours 	27-37%
Laboratory pathology (including gross pathology, molecular, immunohistochemistry, tests, electron microscopy, laboratory management)	1-5%
Total	100%

2.11 Oral Medicine and Oral Pathology Blueprint

Oral Medicine and Oral Pathology Blueprint	Approximate % examination
Microscopic examination	45-55%
Basic medical sciences <ul style="list-style-type: none"> • General and systemic pathology, orofacial anatomy and physiology • Pharmacology and therapeutics • Immunology • Microbiology • General medicine 	4-10%
Diseases and conditions of the maxillofacial region <ul style="list-style-type: none"> • Developmental conditions • Teeth abnormalities • Infection • Physical and chemical injuries • Allergies and immunologic diseases • Epithelial • Salivary glands • Soft tissue • Hematologic • Bones and joints • Odontogenic • Dermatologic • Oral manifestations of systemic diseases • Benign and malignant tumours 	24-34%
Oral and dental management of patients with complex medical conditions Orofacial pain and neurosensory disorders Orofacial disorders arising from aging, systemic disease, and medical therapies	6-16%
Laboratory pathology (including gross pathology, molecular, immunohistochemistry, tests, electron microscopy, laboratory management)	1-5%
Total	100%

3.0 Test Construction Process and Validity Evidence

3.1 Examination Content

Examiners are content experts at Canadian Faculties of Dentistry or specialists recommended by the key stakeholder groups, including the DRAs, NDEB and the Canadian Forces. Examiners were sent training and preparatory material for review prior to a content development workshop.

Examiners were provided with the question development targets and assignments for writing content in specific blueprint categories prior to the workshop. Examiners also developed scoring rubrics and scoring rules for new items. During the question development workshops, Examiners reviewed, revised, and modified items as required. They ensured the items were in accordance with the blueprint and were at the entry to practise level for a specialist in Canada. The examinations consisted of a combination of new items and previously used items. The Examiner-in-Chief or Associate Examiner-in-Chief were present at of the majority of the question development workshops.

In 2024, there were eleven examination forms built in the nine specialties as the umbrella discipline of oral medicine and pathology has three different possible examinations: oral medicine, oral pathology, and oral medicine and pathology.

3.2 Examination Format

The examination formats used were single correct answer multiple-choice questions and one or more correct answers multiple-choice questions for all specialties. Some specialties had also constructed-response questions. All specialties except Dental Public Health had case-based questions that were associated with images.

All examinations used ExamStudio as the examination delivery platform. The following specialties also used additional software:

- Dental Public Health - One component of the Dental Public Health NDSE is a data analysis of dental epidemiologic data delivered through an IBM SPSS® Statistics software data set provided on a PC laptop computer with a standard mouse (no candidates in 2024).
- Oral & Maxillofacial Radiology - One component of the Oral and Maxillofacial Radiology NDSE consists in the radiographic interpretation of images. In 2024, they were presented as CBCT volumes with Anatomage Invivo Dental Viewer or simple images. The files were provided on a PC laptop computer with a standard mouse.
- Oral Pathology/Oral Medicine and Oral Pathology - One components of these two examinations include a microscopic evaluation of tissue sections using Leica Aperio ImageScope pathology slide viewing software. The tissue sections were provided on a PC laptop computer with a standard mouse.

3.3 Item Selection, Review, Verification, and Production

Following question development, a selection and review workshop was held with a team of Examiners to select questions and verify the technical accuracy of the items. This included identifying items of similar content that should not be on the same examination and verifying the representativeness of the content domain and the significance of the content being tested.

During this review, questions were subjected to analysis to verify the wording and the correct answer. Should a question need to be reworded, it was either revised for the examination or replaced. Furthermore, items were selected based on several criteria including consistency with the blueprint, taxonomy of cognitive levels, and statistical properties available for any previously used items.

For the selection and review meeting, an electronic examination form was built by the NDSE staff. The examination was reviewed for accurate transcription by staff, and then was reviewed by Specialty Examination Team Lead and the Examiners. The layout of the questions and the quality of the images were verified. The review focused on three things. First, the technical content of the question was verified to ensure that it is consistent with acceptable practices and supported by the literature. Second, a sensitivity review was done to ensure that the question content was not offensive and did not discriminate against candidate subgroups. Third, a language review was done to ensure that the content did not exceed the language level needed to practise dentistry safely and effectively in Canada. All required changes were made, and a second version of the examination was created.

3.4 Translation

All NDSEs are offered in both official languages. This includes all forms and preparation materials on the NDSE website.

Examinations with candidates registered in French were translated. RCDC has partnered with an ISO-certified, high-quality translation agency that specializes in the translation of high-stakes assessment in the health care industry. The translation of the NDSE is a multi-stage process. The examination is first translated by the partner translation organization. Then, a review is conducted by a French Examiner (French Reviewer) who is a content expert specialist. The list of French Reviewers was developed in consultation with the Ordre des dentistes du Quebec (ODQ) and the National Dental Examining Board of Canada (NDEB). Prior to the administration of the examination, a final review of the French is conducted by one or more RCDC staff.

RCDC has developed a detailed glossary of translated terms. The glossary is made available to the translation partners and French Reviewers to ensure that candidates writing in either official language have equal opportunity to demonstrate their competence. The translation process ensures consistency between English and French versions of the questions.

The examinations administered in 2024 in English and French are found in the Table below.

Table 1 - 2024 NDSE Languages for Exams Administration

Specialty	English	French
Endodontics	√	
Oral and Maxillofacial Radiology	√	
Oral and Maxillofacial Surgery	√	√
Oral Medicine	√	
Oral Pathology	√	
Oral Pathology and Oral Medicine	√	
Orthodontics	√	√
Pediatric Dentistry	√	√
Periodontics	√	√
Prosthodontics	√	

The candidate volumes for the examinations administered in 2024 in English and French are found in the table below.

Table 2 - NDSE Registrations per Choice of Testing Language in 2024

English	French
144	9

3.5 Final Review

The final versions of the examinations were reviewed by the Specialty Examination Team Lead and RCDC staff. Additional information sections were added to the final version of the examinations in the examination delivery platform. The first section consisted of information on the number of sections, time allowed per section, and break(s). The second section was a non-disclosure agreement, which candidates must accept to continue. There were instruction sections before each part of the examination, and a break screen between parts.

Before the examinations were administered, on-site technical testing took place. NDSE staff ensured that the examination functions as expected and that the various tools provided in the examination software are working.

4.0 Staff Support

The following is a summary of the roles involved in RCDC's test construction and production processes.

4.1 Chief Examiner/Assistant Chief Examiner

The Chief Examiner is responsible for providing assessment subject matter-level expertise and guidance on assessment and NDSE processes to the Specialty Examination Team Leads and Examiners through the development and grading of the examination.

4.2 NDSE Registrar

The Registrar is responsible for final approval of candidate applications including evaluating their credentials. In addition, the Registrar advises the Board of Directors with respect to allegations of candidate misconduct.

4.3 Specialty Examination Team Lead

The Specialty Examination Team Lead is responsible for the key examination development activities including coordination of question development, question selection, monitoring the item bank and engagement in the post-administration processes.

4.4 Director of Examinations

The Director of Examinations is responsible for staff supervision and the implementation of all policies approved by the NDSE Committee to ensure the process operates efficiently and effectively. The Director of Examinations is responsible for the oversight of the examinations department.

4.5 NDSE Staff

The NDSE staff manage the operational delivery of the examinations. This includes, corresponding with Examiners, developing administration instructions, production and translation of the examinations, maintenance of the question banks, and arrangements with host institutions and third-party test centres. All staff is responsible for carrying out directives from the NDSE Committee as approved by the Board of Directors.

5.0 Test Validity and Reliability

Validity is the degree to which the inferences made about a candidate's knowledge and professional competence based on their examination score are accurate and meaningful. In high-stakes testing, examination items must have a direct link to the domain being assessed. The validity of credentialing examinations is based primarily on how well the examination content reflects the concepts it is intended to measure as outlined in the blueprint. Thus, the goal of a well-constructed NDSE is to make a valid assessment about clinical competence through a representative sampling of the content outlined in the blueprint. The content categories or domains reflect both educational programs and the requirements of specialty practice, and specialists select the content for the NDSE. In addition, each form is built to match the specialty's NDSE blueprint approved by the NDSE Committee and contained in the protocols.

5.1 Reliability

Test reliability refers to the degree to which examination scores for a group of candidates are consistent over repeated administrations of the examination and are therefore considered to be dependable and consistent for an individual candidate. Reliability is estimated using a reliability coefficient, which is a unit-free indicator that reflects the degree to which scores are free of random measurement error.

In 2024, reliability with Cronbach's alpha was estimated for the specialty exams with sufficient sample size for the estimator (20 candidates or greater). Reliability was deattenuated for range restriction (Fife, Mendoza & Terry, 2012). The adjustment was based on an average standard deviation of 9% for licensure exams.

Orthodontics had the reliability of .88 (uncorrected .80). Pediatric Dentistry had the reliability of .88 (uncorrected .83). Prosthodontics had the reliability of .89 (uncorrected .89). Oral and Maxillofacial Surgery had the reliability of .90 (uncorrected .84). As a general guideline, the reliability of 0.80 or higher is desirable for a high-stakes assessment (Fabrey & Hartigan, 2009), which the above specialty examinations met. This information is reflected in table 3.

Table 3 - NDSE Reliability for Exams With More Than 20 candidates

Specialty	2024 Corrected (Uncorrected)
Endodontics	NA
Oral and Maxillofacial Radiology	NA
Oral and Maxillofacial Surgery	0.90 (0.84)
Oral Medicine	NA
Oral Pathology	NA
Oral Pathology and Oral Medicine	NA
Orthodontics	0.88 (0.80)
Pediatric Dentistry	0.88 (0.83)
Periodontics	NA
Prosthodontics	0.89 (0.89)

5.2 Documentation

Evidence of examination validity is collected through multiple means, one of which is the documentation of development and administration procedures. RCDC makes these documents publicly available. Only confidential material or material that could jeopardize the integrity of the examination is retained internally. To support the various sources of validity evidence RCDC produces the NDSE Policies and Procedures and the NDSE Protocol.

5.2.1 NDSE Policies and Procedures

The NDSE Policies and Procedures contain sections related to RCDC’s examination programs. Information in the NDSE Policies and Procedures includes, but is not limited to the following areas:

- NDSE eligibility
- Misconduct
- NDSE credentialling requirements
- Candidate application process
- Appeals
- Test accommodations
- Credentialing and examination fees
- Withdrawals and refunds

The NDSE Policies and Procedures are available in English and French on the NDSE website.

5.2.2 NDSE Protocol

The NDSE Protocol contains all the information the candidate needs to prepare to write the NDSE. In addition to providing logistical information, this document is meant to reduce construct irrelevant variance related to the examinations. The document details the purpose and intended

use of the examination. Candidates acquire advance information on examination content, instructions, and other procedures. At a high level, the NDSE Protocol for each specialty contains the following information:

- Specialty blueprint
- Content and format
- Instructions
- Sample questions
- Reference texts
- Examination regulations
- Scoring and passing standard
- Results
- Appeals and rescoring

The NDSE Protocols are available in English and French on the NDSE website.

6.0 Examination Administration

6.1 Locations and Procedures

The NDSE was administered at third-party test centres in Canada and the United States. All examinations were administered in professional testing environments where candidates were optimally able to demonstrate their competence on the examinations.

RCDC tried to accommodate location preferences and added 4 additional test centres to accommodate candidate preferences. The language the candidate chose to challenge the NDSE did not limit their ability to select their preferred test centre location. The NDSE was administered on June 18, 2024.

Examination locations and number of candidates for the 2024 NDSE are shown in the table below.

Table 4 - June 2024 NDSE Locations and Candidate Numbers

Canadian Locations	Total Candidates at Canadian Locations	US Locations	Candidates at US Locations
Calgary, AB	112	Dallas, TX	41
Edmonton, AB		Dearborn, MI	
Halifax, NS		Houston, TX	
London, ON		Jersey City, NJ	
Mississauga, ON		Lakewood, CO	
Québec City, QC		Madison, WI	
Toronto, ON		New York, NY	
Vancouver, BC		Philadelphia, PA	
Westmount, QC		Riverside, CA	
Winnipeg, MB		South Boston, MA	
		St. Paul, MN	
	Woburn, MA		
	Washington, DC		
	Houston, TX		

6.2 Candidate Orientation and Registration

Detailed information regarding the NDSE was provided on the NDSE website. This included, but was not limited to:

- Examination format
- NDSE protocol
- Registration information
- Credentialing and examination fees
- A demonstration examination and platform training video

After completing the NDSE credentialing and application process, based on their identified preferred test centre location, the NDSE staff registered the candidate for their preferred test centre.

Several webinars and communications were available to candidates to orient them to both the examination platform and what to expect on the date of the NDSE administration.

A standard on-site verification and registration process was in place for all candidates at each test centre. Candidates were reminded of the rules of conduct. No variation from the examination administration was allowed unless a test accommodation was granted by the RCDC.

6.3 Examination Administration Test Centre Staffing

Each third-party test centre had designated staff for the NDSE. Their primary responsibility was to ensure the examinations are administered according to NDSE policies and procedures.

The RCDC has developed standard administration procedures for each of the examinations. These procedures were communicated to the third-party delivering the examinations. For the test centres that were delivering examinations that required additional technology to support the administration, a separate meeting was conducted to review the examination administration procedures. RCDC staff was available during the examinations, by phone, to assist proctors with registration issues and misconduct.

RCDC staff was also available during the examination to assist the third-party command centre staff in addressing issues such as permissions, exam authorization problems, technology issues, and emergency situations.

6.4 Reporting

The third-party proctors were responsible for completing a report following the administration of the examinations. The reports included any irregularities that occurred that may have disrupted the administration of the examination. The reports also included details regarding any misconduct that occurred prior, during, or after the examination.

6.5 Test Accommodations

As per the NDSE Policies and Procedures, the examination forms or administration conditions may be modified to accommodate candidates requiring examination accommodations. The purpose of test accommodations is to remove construct-irrelevant barriers that would interfere with a candidate's ability to demonstrate their competence. Accommodations may be provided for a medical condition or religious reason. Candidates must submit a written request prior 60 days prior to the NDSE administration and are required to provide supporting documentation.

Examination accommodations represent the only allowable variations in administration conditions, and these variations are documented in detail. In recent years, the number of examination accommodations has been increasing, and most accommodations involve no modifications to examination materials.

There were 3 examination accommodations granted for the June 2024 NDSE.

7.0 Examination Scoring

7.1 Standards for Pass/Fail

It is RCDC's responsibility to award certification for those who are qualified to enter a dental specialty profession in Canada. In the interest of public health RCDC establishes standards necessary to ensure competency.

7.2 Standard Setting and Rescaling

Standard setting was performed for each specialty examination. During the standard setting, teams of specialty examiners established a recommended passing score for the 2024 NDSE in each specialty. The passing standard reflects the level of performance required of the minimally competent specialist.

For all standard setting meetings, the modified Angoff method (Angoff, 1971) was used to establish a single passing point (or "cut score") for new specialty examination forms (i.e., the score in the examination that differentiates competent from not-yet-competent performance).

7.3 Passing Score

Passing scores for the specialties were recommended by the Specialty Examination Team Leads and approved by the NDSE Committee on August 15, 2024.

The RCDC uses a standardized (rescaled) passing score of 70 for the NDSE. Rescaling the passing score has no impact on the difficulty or reliability of the NDEB's examinations.

7.4 Scoring

Multiple choice questions were automatically graded in the examination software. For constructed-response questions, examiners were assigned a number of questions to grade remotely in ExamStudio. Several examiners were involved in the grading for OMR, Prosthodontics OM, OMOP and OP.

All candidates' marks and responses for every question were verified for accuracy by staff. A third-party psychometrician reviewed the NDSE spreadsheet and identified questions that should be reviewed based on statistical performance.

7.5 Statistical Analysis

For each specialty, a key validation review workshop was convened that included the Examiner-in-Chief or Associate Examiner-in-Chief, the Specialty Examination Team Lead, at least 1 additional Specialist from the respective specialty and RCDC staff. During this meeting, the following were reviewed:

- Question Performance – item average (difficulty) and item discrimination values
- Comments from the graders about individual items
- Examination Performance
- Candidate Performance

The accuracy of the answer keys was verified, and non-performing or compromised items were eliminated from the examination.

Considering the small number of candidates for many specialty examinations, items were flagged based on:

- their difficulty level (i.e., p-value below 0.30);
- or having a negative discrimination index.

As a result of the key validation, some items were zero-valued (i.e., removed from scoring), some items had one or more distractors zero-valued, some items were re-keyed, and the remaining flagged items were deemed accurate and fair to candidates, and as a result, the items were included in the candidates' results.

7.6 Subgroup Differences

Due to the small number of candidates taking each NDSE, in particular the small number of French candidates, no formal statistical analysis of the difference between English and French candidates at the item and examination level was performed.

8.0 Reporting

8.1 Candidate Results

Results were posted on a secure website within ten weeks of the administration date.

Candidates accessed their results by logging in to their online profile. Candidates received an email notification when results were posted. Successful candidates were given only provided with a rescaled score and the passing score. Unsuccessful candidates received their rescaled score, the passing score and a summary of performance. They were also provided with instructions on how to appeal their score.

Candidate results and records are kept pursuant to RCDC's internal document retention policies and procedures. All information related to the NDSE (e.g., test protocol, reports) is retained.

8.2 NDSE Certification Registry

Successful candidates who have provided all the required documentation will have their name and NDSE certificate information included in the NDSE Certification Registry. Canadian dental regulatory authorities can consult the NDSE Certification Registry to confirm that an individual is certification status.

9.0 Appeals

Candidates who received a failing grade could, within 30 days of the release of results, request either a rescore or a regrade. A fee was charged for manual rescoring and for manual regrades. Fees were posted in the NDSE Policies and Procedures, which the candidate can access on the NDSE website.

9.1 Rescore

A rescore is the verification of the calculation of the final grade. The purpose is to confirm that no errors were made during the scoring process. The score produced by the manual rescore is the final grade.

9.2 Regrade

A regrade is a re-evaluation of performance using the original grading rubric. Only examinations with constructed responses, including Dental Public Health, Oral and Maxillofacial Radiology, Prosthodontics, Oral Medicine, Oral Pathology, and Oral Medicine and Oral Pathology examinations were eligible for regrades. During a regrade, two examiners who are specialists in the discipline and were not involved with the initial grading of the NDSE individually regraded the examination using the original answer key. They then met with staff and the Examiner-in-Chief, who acted as a facilitator, to ensure consistency and alignment of the outcomes. A new NDSE score was then calculated. The score produced by the manual regrade was the final mark.

9.3 Other Appeals

Within a specified timeframe, candidates may appeal to the Board or Executive Committee in writing, with an accompanying filing fee, for the following:

- a decision of the Examinations Committee regarding misconduct
- compassionate grounds
- procedural grounds (conduct of an examination)

A summary of all 2024 NDSE appeals can be found in table 5.

Table 5 – June 2024 NDSE Appeal Requests

Type of Appeal	Number Received
Regrade	4
Rescore	1
Other Appeal Requests	7

10.0 Security

RCDC undertakes several measures to ensure the security of its processes.

10.1 Credential Verification

Credential verification of applicants is performed to ensure that the applicant is compliant with all requirements and are eligible for participation in the examination. The credentialing process involves the candidate submitting the following documentation for review and verification:

- Proof of eligibility:
 - Canadian AND US graduates
 - An original official academic record. The final academic record must indicate the date the degree was conferred; OR
 - An original letter, issued by the Registrar's Office, confirming completion of all components of the specialty program, the senate decision date, and the degree to be awarded. The letter must be signed by the Registrar.
 - Graduates of a DSATP or a Residency Program in the US:
 - An original letter issued by the Dean's Office, confirming completion of all program components and the program and completion dates, submitted to the RCDC directly from the university. The letter must be signed by the Dean.

A Special Consideration Application Form is required if more than 60 months have lapsed since the date your specialty degree was issued. The form is available for download on the RCDC website and outlines all application requirements. All candidates must also submit the following documents to support the credentialing process:

- Original Statement(s) of good standing from all jurisdictions from which they have been licensed directly from the licensing body (not educational licenses)
- Self-disclosure forms for licensure (re disciplinary action)
- A contact at their respective university for the purpose of verification of submitted documents.

Documents are required to be submitted in English or French. If documents provided were not originally issued in English or French, an accurate, word-for-word translation of the document is also required.

Once the specialty programs documents have been verified by the University, the NDSE Registrar reviews each candidate file and makes a determination if the candidate has fulfilled the eligibility requirements.

In 2024, the credentials of 164 applicants to the NDSE were verified.

10.2 Candidate Information

In 2024, RCDC launched an online candidate portal using a third party platform. Candidate accounts are password protected.

In-house, RCDC has candidate information stored on secure RCDC servers. This information is only accessible to staff with valid network accounts and drive permission.

10.3 NDSE Administration

RCDC staff are in regular communication with on-site staff to keep them apprised of changes to administration processes and emphasize the importance of security measures such as standardized check-in procedures and restricted items. Proctors, Test Administrators, and invigilators are trained to identify, manage, and report misconduct.

10.4 On-site Security

The NDSE is delivered electronically by a third party and the candidate must engage in on-site registration and security procedures in place at each of the test centres prior to entry into the examination room. Proctors patrol the test room regularly and monitor candidates by video. Proctors document any irregularities and communicate with the RCDC as necessary on and after the examination.

10.5 Examination Content Security

RCDC's sensitive information is stored on a restricted server and in secure restricted databases. Examination files and applications are not accessible to all those who work for RCDC but are limited to those users who require access.

There are guidelines for the retention of examination materials.

11.0 Outcome Summaries

This report provides summary information on the structure of the 2024 NDSE, as well as statistical summaries at the examination level.

Each NDSE sample of candidates consists of first-time Canadian-trained, first-time American-trained candidates, first-time candidates trained in non-accredited programs that completed DSATP, along with repeat candidates.

11.1 NDSE Candidates

Table 6 provides a breakdown of the candidate volume by specialty.

Table 6 - Candidates by Specialty

Specialty	2024 Candidates
Endodontics	14
Oral and Maxillofacial Radiology	9
Oral and Maxillofacial Surgery	20
Oral Medicine	2
Oral Pathology	1
Oral Pathology and Oral Medicine	1
Orthodontics	37
Pediatric Dentistry	33
Periodontics	15
Prosthodontics	21
153	

As a Canadian examination program, the target candidate group (or “reference group”) for calculating overall pass rates is candidates who are graduates of Canadian programs. One should expect non-target trained candidates, such as graduates of American programs, and those candidates retaking an examination to perform more poorly than the Canadian reference group. Table 7 shows the performance of candidates trained in Canadian programs compared to that of candidates trained in American programs. The column “Canadian programs” and “American programs” include candidates that have completed a Dental Specialty Assessment and Training Program (DSATP).

Table 7 - Candidates by Country of Specialty Program

2024 Cohort		
Graduates of Canadian Programs	Number of test takers	82
	Pass rate%	90%
Graduates of American programs	Number of test takers	71
	Pass rate%	64%
Total	Number of test takers	153
	Pass rate%	78%

11.2 Results by Specialty

The following is a summary of the results for each specialty. Numbers are based on all candidates who sat the examination. Because of the very small number of candidates, statistical results are not provided for Dental Public Health, Oral and Maxillofacial Radiology, Oral Medicine, Oral Medicine and Oral Pathology to maintain confidentiality.

Table 8 - 2024 Statistics for the NDSE in Endodontics

Results of the NDSE in Endodontics	
Number of Candidates	14
Pass (#)	14
Pass (%)	100%
Total Angoff Standard Error of Measurement (%)	3.88
Rescaled Score Range	68-84

Table 9 - 2024 Statistics for the NDSE in Oral and Maxillofacial Surgery

Results of the NDSE in Oral and Maxillofacial Surgery	
Number of Candidates	20
Pass (#)	18
Pass (%)	90%
Total Angoff Standard Error of Measurement (%)	3.87
Rescaled Score Range	56-81

Table 10 - 2024 Statistics for the NDSE in Orthodontics

Results of the NDSE in Orthodontics	
Number of Candidates	37
Pass (#)	33
Pass (%)	89%
Total Angoff Standard Error of Measurement (%)	3.75
Rescaled Score Range	49-78

Table 11 - 2024 Statistics for the NDSE in Pediatric Dentistry

Results of the NDSE in Pediatric Dentistry	
Number of Candidates	33
Pass (#)	30
Pass (%)	91%
Total Angoff Standard Error of Measurement (%)	4.03
Rescaled Score Range	56-84

Table 12 - 2024 Statistics for the NDSE in Periodontics

Results of the NDSE in Periodontics	
Number of Candidates	15
Pass (#)	13
Pass (%)	87%
Total Angoff Standard Error of Measurement (%)	4.11
Rescaled Score Range	40-75

Table 13 - 2024 Statistics for the NDSE in Prosthodontics

Results of the NDSE in Periodontics	
Number of Candidates	21
Pass (#)	7
Pass (%)	33%
Total Angoff Standard Error of Measurement (%)	3.00
Rescaled Score Range	21-68

Appendix - References

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