2024

Technical Report

Assessment of Fundamental Knowledge (AFK®)

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Introduction

Organizations who administer high-stakes examinations must be concerned with validity, reliability, and fairness because these measures are required in making pass/fail decisions affecting candidates for licensure or certification. Fairness to candidates and protection of the public are the foremost concerns for the NDEB and the NDEB has an obligation to provide the highest quality examination program possible.

This Technical Report is a summary of the processes followed by the NDEB to develop, administer, and score the Assessment of Fundamental Knowledge (AFK) administered in 2024. It provides a summary of the information needed to support the validity and reliability of the AFK. For additional information, key references are included in Appendix A. Any background information is included to assist in understanding the development of the NDEB's examination processes.

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

Background

The NDEB Equivalency Process was established in 2011 at the request of the Canadian Dental Regulatory Authorities Federation (CDRAF) to provide an alternative pathway toward licensure for dentists trained in non-accredited dental programs. At that time, the only existing pathway was the completion of a Qualifying Program (QP) at selected Faculties of Dentistry across Canada. QPs were established in 1997-1998 and were originally intended to be 22-month non-degree programs. Over time, they were all converted to degree completion programs of a 2.5 or 3 year duration, and the number of positions available across Canada per year never exceeded one hundred.

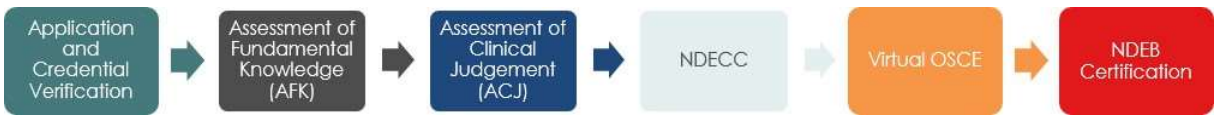
In Canada, the Commission on Dental Accreditation of Canada (CDAC) is the organization responsible for accrediting dental education programs. CDAC develops and maintains national accreditation requirements for educational programs and evaluates programs using defined processes. The general dentistry programs accredited by CDAC, the American Dental Association's Commission on Dental Accreditation (CODA), the Australian Dental Council (ADC), the Dental Council of New Zealand (DCNZ) and the Irish Dental Council are considered accredited.

Graduates of accredited programs have undergone a dental education program that demonstrably met the requirements of the CDAC. In contrast, graduates of non-accredited programs have undergone dental education programs that have not demonstrably met the requirements of the CDAC. Dental education and clinical experience vary widely around the world. Non-accredited programs may differ from accredited programs in terms of the scope of the programs, clinical experience, the evaluation of students, etc.

The purpose of the three examinations of the NDEB Equivalency Process is to verify that graduates of non-accredited programs are equivalent to graduates of accredited programs prior to allowing them to pursue the certification examination.

The following diagram illustrates the Equivalency Process pathway for a graduate of a non-accredited dental program to obtain NDEB certification.

Entry to Practice: Graduates of Non-Accredited Dental Programs[1]



[1] *The Virtual OSCE replaced the Written Examination and OSCE in 2023*

Part A: Exam Development

Purpose and Format of the AFK

The purpose of the AFK is to test biomedical science and applied clinical science knowledge. The AFK serves a dual purpose; it is both an admission requirement for some Canadian Degree Completion Programs, and one of the examinations in the Equivalency Process. A passing grade is required before a candidate can continue to the other examinations in the Equivalency Process.

The AFK is administered as both a computer-based test and a paper and pencil test. The examination contains 200 questions administered in two two-hour sessions with a break in between.

Blueprint

The blueprint below shows the content areas and approximate percentage of questions in each area.

Table 1: AFK Blueprint

Content Area	Approximate % of Questions
Pharmacology & Therapeutics, Local Anesthesia, Medical Emergencies, Medicine including Physiology	24
Orthodontics, Pediatric Dentistry, Geriatric Dentistry, Special Needs Patient including Oral Embryology, Growth and Development	10
Periodontics including Microbiology and Immunology	10
Endodontics	6
Oral Medicine/Oral Pathology including Histology, Oral Radiology	17
Evidence-based Dentistry, Prevention, Infection Control, Ethics & Jurisprudence	7
Oral Surgery, Trauma, Oral Facial Pain, Dental Emergencies including Applied Anatomy	10
Cariology including Microbiology, Biochemistry, Restorative, Prosthodontics, Implants	16
Total	**100%**

Test Construction Process and Validity Evidence

The examination development process follows the NDEB's development plan used to support the creation of defensible examination content. Specific elements of that plan are detailed below.

Examination Content

Examiners who are subject matter experts were sent copies of the Examiner's Manual and other preparatory material for review prior to a question development workshop. Questions were constructed by the examiners ahead of the workshops and then reviewed and edited by the team during the workshop. Examiners were directed to write items that assess higher cognitive processes such as application and problem-solving. They were further instructed to avoid trivial questions and avoid recall questions whenever possible. In addition, all new items were reviewed and, if required, edited by the Chief Examiner and senior staff.

AFK items are stored in a third-party software platform. The software platform is also used for exam creation.

Item Selection

The Chief Examiner, the Assistant Chief Examiner and at least one additional experienced examiner pre-selected approximately 1.5 times the number of items required from the item bank. Examiners who are general practitioners selected the final items from the preselected items for the examination in accordance with the blueprint. At least one examiner was a member of the Ordre des dentistes du Québec (ODQ). For previously used items (common items), the results of past item analyses were used as a guide in the item selection process. Items were selected based on several criteria including consistency with the blueprint, taxonomy of cognitive levels, the need for common items, and statistical properties of the items.

Item Review, Verification and Translation

After test items were selected, the items were reviewed and translated using a multi-stage process.

The items were reviewed and validated by groups of examiners who verified the technical accuracy of the items. They also consulted with additional subject matter experts when required. This included identifying item enemies which are items of similar content that should not be on the same exam and verifying the representativeness of the content domain and the significance of the content being tested. During this review, items were subjected to intensive analysis to verify the wording and the correct answer. When an item needed to be reworded, it was either revised for the examination or replaced. The review focused on three areas. First, the technical content of the question was verified to ensure that it was consistent with acceptable practices and supported by the literature. Second, a sensitivity review was done to ensure that the question content is not offensive and does not discriminate against candidate subgroups.

Third, a language review was done to ensure that the content does not exceed the language level needed to practice dentistry safely and effectively in Canada.

All examinations are available in both official languages. This includes all forms and preparation materials. Test items were translated by dentists familiar with the vocabulary used on the examinations. The questions and the translations were reviewed by a group which included bilingual subject matter experts who are approved by the ODQ. In addition, the NDEB has developed a detailed glossary of translated terms. This glossary is updated annually. This process ensures 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.

Trained examiners performed a second review to verify that the changes have been made to the items and that the French translation is accurate. Additional changes were made if required to ensure that all items were finalized.

Production

The AFK is delivered in a booklet format and using an electronic platform. There are slight variations in production for both delivery methods.

Paper Version

Following the item review and translation, the examination was structured in the final paper format. Multiple versions of the examination were produced using an automated process that results in a random sequence of questions in each of the four versions. Each book contained identical items that were presented in a different order to limit potential cheating. Examiners reviewed the four paper versions in English and French to ensure that the format, numbering of questions and distractors in each version was correct. Additional changes were made if required.

A cover page was then added to the documents. Finalized documents were saved as PDF files. Before final print, NDEB staff performed a final quality check on all versions. All books were printed on site. After printing batches of books, a random check of documents was performed to verify that no errors had been made during the printing process. After this verification, a book seal was placed on every examination booklet.

Computer-generated labels indicating candidate names, NDEB identification numbers, and assigned seat numbers were affixed to the front of each book.

Electronic Version

Following the second review, the examination was assessed by examiners in the electronic platform. Various information screens were added to this version. The first screen consisted of

information on the number of sections, time allowed per section, and break. The second screen was a non-disclosure agreement, which candidates must accept to continue. There were instruction screens before each part of the exam and a break screen between parts.

Any issues found were corrected immediately and another version of the exam was published and reviewed, if required.

Before the examination was administered, technical testing took place at a third-party run site. NDEB staff ensured that the exam functioned as expected and that the various tools provided in the examination software were working.

Staff Support

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

Chief Examiner/Assistant Chief Examiner

The Chief Examiner is responsible for the development of the examination including coordination of question development, question selection, monitoring the item bank and results within the guidelines and parameters established by the NDEB as stipulated in the protocol.

Executive Director and Registrar

The Executive Director and Registrar is responsible for staff supervision and the implementation of all policies approved by the Board to ensure the processes operate efficiently and effectively.

NDEB Staff

The Director of Examinations is responsible for the oversight of the examinations department. The Director of Examinations and NDEB 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 questions banks, and arrangements with host institutions and third-party test centres.

Staff is responsible for carrying out directives from the Examinations Committee as approved by the Board.

Test Validity and Reliability

Validity

The primary purpose of establishing content validity of credentialing examinations is to show that the process and results underlying their development are a valid reflection of that part of professional competence that the examinations purport to assess. That is, construct validity is about the relationships between the construct of professional competence and the examination instruments. The examination content categories reflect both educational programs and the requirements of practice, and general practitioners select the content for the examinations. In addition, each form is built to match the blueprint approved annually by the Board and contained in the protocols.

Reliability

Test reliability refers to the degree to which examination scores for a group of candidates are consistent over repeated administrations of the test 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. Based on the data provided in the results section of this Technical Report, NDEB examinations display evidence of continued strong reliability.

Documentation

Evidence of test validity is collected through multiple means, one of which is the documentation of development and administration procedures. The NDEB makes these documents publicly available. Only confidential material or material that could jeopardize the integrity of the examination is retained internally. These documents are also updated frequently (generally on an annual basis) to reflect the most recent information. References for these documents can be found in Appendix A.

To support the various sources of validity and reliability evidence, the NDEB produces the following documents:

NDEB By-laws

The NDEB By-laws contain sections related to the NDEB's examination programs. Examples of relevant information include:

- Certification eligibility
- the Board's certification and equivalency processes
- Examinations
- Misconduct and appeals policies

- Terms of Reference for various examination-related committees
- Test accommodations

The By-laws are available on the NDEB website (www.ndeb-bned.ca).

The NDEB Knowledge Skills and Abilities for the Entry-Level Dentist in Canada (NDEB KSAs) (Appendix B)

In 2015, the NDEB undertook the development of the KSAs required for entry-level dentists in Canada. The KSAs were validated through a practice analysis survey of Canadian dentists and led to the development of blueprints for the Virtual OSCE and NDECC, and revision of the blueprints for the AFK and ACJ. The KSAs identify the body of knowledge that is assessed by NDEB's examinations. A clearly outlined body of knowledge is key to establishing the content validity of examinations by providing a link between practice and the examination. The alignment between the KSAs and the competencies of the ACFD can be reviewed in the ACFD Educational Framework for the Development of Competency in Dental Programs.

Assessment of Fundamental Knowledge (AFK) Protocol

Updated annually, the AFK Protocol contains the information the candidate needs to prepare to write the AFK. In addition to providing logistical information, this document is meant to reduce construct-irrelevant variance related to testing. 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 AFK Protocol contains the following information:

- Check-in procedures
- Content and format
- Sample questions
- Reference texts
- Examination regulations
- Misconduct
- Passing standard
- Results
- Appeals and rescores
- Repeats

This document is available in English and French on the NDEB's website (www.ndeb-bned.ca).

Examiner's Manual - AFK

Reviewed and updated as required, the examiner's manual for the AFK is an internal document that describes the question writing and selection philosophy and guidelines for question format and style.

Instructions for Proctors at Third-Party Test Centres

The NDEB has developed standard administration procedures for each of the examinations. These procedures were communicated to the third party delivering the examinations and were included in a document called Client Practices made available to all proctors. The document contains uniform directions for proctors such as the schedule for the examination and security protocols that should be undertaken during the examination. This document ensures that candidates have a similar experience when completing the examination, regardless of where they write. Client Practices are reviewed on a regular basis and as required.

Instructions for Invigilators at NDEB-Run Test Centre

Prior to the administration, invigilators reviewed any new NDEB policies or procedures in relation to the administration of the examination.

All invigilators were required to adhere to the NDEB's instructions and regulations. These documents clearly outline the responsibility of the invigilators and examination day procedures allowing for standardized administration across all centres. Invigilators were encouraged to communicate with NDEB staff with questions or concerns regarding the administration or their responsibilities.

A powerpoint presentation was provided to NDEB staff attending and Test Administrators prior to the examination administration. A binder containing multiple documents pertaining to examination day was also provided to Test Administrators. The purpose of the document and powerpoint were to describe, in detail, the procedures to follow before, during and after the administration of the AFK. This ensured that candidates had a similar experience when completing the examination, regardless of where they took the exam. This also enhanced security by providing a detailed quality assurance protocol.

The presentation contained:

- instructions prior to the examination
- instructions for examination day (which includes verbal instructions)
- procedures to follow during the administration of the examination
- procedures to follow at the end of the examination
- instructions following the examination

Part B – Administration

Locations and Procedures

The AFK was administered in February and in August. The examination was administered on the same day at centres across North America and the following day in Australia. All examinations were written in a distraction-free and comfortable environment where candidates were able to demonstrate their competence.

Examination locations and number of candidates for the February 2024 and August 2024 examinations are shown in Table 2.

Table 2: 2024 AFK locations and candidate numbers

Locations	February 2024 Candidates	August 2024 Candidates
Prometric centres - Canada	488	429
Prometric centres - USA	69	70
Prometric centres - Australia/NZ	22	8
Toronto, ON	132	124
Ottawa, ON	126	129
Vancouver, BC	N/A	79
Montreal, QC	80	N/A
Edmonton, AB	87	N/A
Total	**1004**	**839**

Candidate Orientation

Detailed information regarding the AFK is provided on the NDEB website. This includes test format, examination protocol, registration information, and fees. After registering for the exam, candidates are provided additional site-specific exam information.

For candidates who are taking the examination electronically, an electronic examination orientation is available on the website.

NDEB-Run Test Centres

Standard check-in procedures were in place for all candidates at each test centre. A set of standardized instructions was read to all candidates in their language of choice prior to the commencement of the examination. Candidates were reminded of the rules of conduct and provided the opportunity to remove prohibited items from their person before the examination started. No variation from the examination administration was allowed unless a test accommodation had been granted by the NDEB.

Third-Party Test Centres

Standard check-in procedures were 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 had been granted by the NDEB.

Exam Administration Staff

NDEB-Run Test Centres

NDEB-run test centres had one or more designated Test Administrator(s). The Test Administrator's primary responsibility was to ensure the examinations were administered according to NDEB procedures.

Third-Party Test Centres

Each test centre had a designated proctor employed by the third party. The proctor's primary responsibility was to ensure the examinations were administered according to NDEB procedures.

NDEB staff was available during the examinations, by phone, to assist proctors with registration issues and misconduct. They were also available to assist the third-party command centre staff in addressing issues such as permissions, exam authorization problems, technology issues, and emergency situations.

Reporting

Each proctor and/or Test Administrator is responsible for completing a report on the administration of the examination. The report includes any irregularities that occurred that may have disrupted the administration of the examination. The report also includes details regarding any misconduct that occurred prior to, during, or after the examination.

Test 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 disability, medical condition, or religious reason.

Pursuant to the NDEB By-laws and policies, test forms or administration conditions may be modified to accommodate candidates requiring test accommodations. Candidates must submit a written request prior to the registration deadline and are required to provide supporting documentation.

Accommodations may include an alternate date, separate examination room, a reader, or longer examination times. The number of requests for these types of accommodations is small, and as such, the NDEB is unable to establish the validity of these modified examination forms for this specific population.

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

A list of test accommodations granted for the 2024 AFK is in the table below.

Table 3: 2024 AFK Test Accommodations

Accommodation	Number requested	Number granted
Food permitted	1	1
Alternate schedule	1	1
Religious accommodation	2	2
Approved item in exam room (medical supplies, cushion, etc)	2	2

Part C – Scoring

Standards for Pass/Fail

It is the NDEB's statutory obligation to certify only those who are qualified to enter the dental profession in Canada. In the interest of public health, the NDEB establishes standards necessary to ensure competency.

Standard Setting

A standard setting meeting for the AFK was held in February 2024, after the February 2024 examination, to review performance level descriptors and cut scores. Thirteen subject matter experts were involved in the standard setting procedures. The modified Angoff method (Angoff, 1971) was used to establish a single passing point (or "cut score") for the AFK examination form (i.e., the score in the examination that differentiates competent from not-yet-competent performance).

A passing score was recommended by the Examinations Committee and approved by the Board in March 2024.

Passing Score

The standard reflecting the minimally-competent candidate was applied to the February 2024 examination. The passing score for subsequent AFKs was determined through statistical chain equating.

In line with national standards, the NDEB uses a standardized (rescaled) passing score of 75 for all its examinations. Rescaling the passing score has no impact on the difficulty or reliability of the NDEB's examinations.

Scoring

Each of the two hundred multiple-choice items in the AFK is scored as correct (1) or incorrect (0).

Paper Version

All answer sheets were scored centrally at the NDEB offices using a scanning program. Several quality assurance steps are taken to ensure that the scoring is done accurately. For example, several scores were manually verified to ensure accuracy. In addition, a sample of answer sheets was also selected for manual verification.

Electronic Version

As with the paper examinations, NDEB staff performed multiple quality assurance steps. Several scores were checked to confirm their accuracy. The answers were compared to the master answer key, and all calculations were verified.

Initial Statistical Analysis

After verification, initial results processing, and reviewing any procedural abnormalities, an initial statistical analysis was performed. Reports generated from the initial statistical analysis were produced:

- Candidate Performance by Exam Summary
- Question Performance by Exam Summary
- Exam Performance Detail
- Question Performance – Top/Low/Biserial Distribution (Condensed) (required for examinations which include multi-answer test items)
- Common Drift Analysis
- Cheating Report

Items were flagged for the following reasons:

- Difficulty: Less than 0.3
- Biserial: Less than 0.05 (unless the difficulty is greater than 0.95)

Review and Final Statistical Analysis

Reports generated from the initial statistical analysis were provided to the Chief Examiner and/or Assistant Chief Examiner, and other examiners at a statistical review meeting. At least one examiner was a member of the Ordre des dentistes du Québec (ODQ). Items flagged during the initial item analysis were reviewed in depth. If determined to be flawed, non-performing or compromised after review, the items were removed from further analyses.

Flagged items are reviewed to:

- confirm the accuracy of the answer key
- identify potential ambiguities, including the possibility of multiple correct answers
- identify potential "trick" items or unclear wording
- identify a possible English-French translation issue
- identify item drift as evidenced by an unusual increase or decrease in percent correct

Examiners use their expert judgement to determine if an item will be excluded and take into consideration the purpose of the question.

A final statistical analysis was performed, and results calculated with those items excluded. Results were validated by third-party psychometricians.

Equating and Rescaling

Test equating is a standardized statistical process that is used to ensure each version of an examination is of equal difficulty. In addition to the passing score, candidate scores are also re-scaled. Several data quality assurance steps are taken to ensure that the equating and re-scaling is done in a fair manner while respecting the statistical assumptions that underly these mathematical procedures. The Pass or Fail scores of candidates are determined by their total score on the examination and where it falls in relation to the exam pass score. A total score equal to or greater than the pass score results in a Pass and a total score less than the pass score results in a Fail.

Pilot Testing

The NDEB embeds new questions into examinations as pilot test items. These items are new and have not been evaluated by the candidate population. Pilot items that perform well from a statistical perspective count toward the candidate's score, while those items that do not perform well are excluded.

In addition, item statistics are used to improve items for future use. Due to the NDEB's pilot testing methodology, items are exposed to a live candidate population, which includes all relevant subgroups. The pilot questions are not identified as pilots in the exam.

Reporting

The results of the examination are posted on a secure website within eight weeks of the administration date. Candidates access their results by logging in to their online profile. When results are posted, candidates receive an email notification. If there is an anticipated delay in the release of results, candidates are notified by email. Candidates are informed if they have passed or failed the examination. Results are reported as Pass/Fail. Successful candidates are given a Pass result. Candidates who fail will also receive their test equated, re-scaled score on the failed examination and the pass mark for the examination. This allows candidates to determine how close they were to passing. They are also provided with instructions on how to appeal their score.

Candidate results and records are kept pursuant to the NDEB's internal document retention policies and procedures.

Other Reporting

A general statistical performance report for the AFK is prepared and presented to the Examinations Committee and the Board annually.

The total number of test takers and pass percentage is posted on the NDEB website annually.

All information related to the AFK (e.g., test protocol, reports) is retained as per the document retention policy.

Appeals

The appeal mechanism for the AFK is a verification of score. This is a verification of the grade calculations. Responses are manually compared with the answer key followed by a manual recalculation of the score.

Candidates who receive a failing grade on the AFK can request a verification of score within one month of the release of results by applying to the Board to have their examination score verified.

A fee is charged for a score verification. Fees are posted on the NDEB website.

Other Appeals

Within a specified timeframe, candidates may appeal to the Board or Executive Committee in writing regarding:

- a decision of the Examinations Committee regarding misconduct
- compassionate grounds
- the conduct of the examination

A summary of appeals received for the 2024 AFK can be found in Table 4.

Table 4: 2024 AFK Appeals

Type of Appeal	Number received	Granted	Grades Changed
Verification of Score	126	-	0
Compassionate Appeal	-	-	-
Conduct of the Examination	5	1	-

Part D - Security

The NDEB undertakes several measures to ensure the security of its processes.

Credential Verification

Credential verification of applicants is performed to ensure that applicants to all processes are eligible for participation. While the credential verification process differs depending on the process applied for, each process includes source verification with the university to confirm the applicant's credentials.

Candidate Information

Candidates create an online account in the NDEB's online portal called NDEBConnect. Candidate accounts are password protected.

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

Administration

The NDEB is 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. Test Administrator and invigilators are trained to identify, manage, and report misconduct.

On-site Security

The NDEB stores all physical examination material in a secure, locked area. All electronic materials are on secure password-protected servers.

During the examinations, proctors/invigilators monitor the candidates in the examination room and document any irregularities. For NDEB-run sites, all materials are returned to the NDEB office by courier. NDEB staff verify the return of all materials. These security measures help maintain the integrity of the examinations by limiting exposure to examination items before and after the administration of the examination.

For examinations at a third-party test centre, proctors use hand-held metal detector wands to scan all candidates in the test centres prior to each entry into the test room. Proctors patrol the

test room regularly and monitor candidates by video. Proctors document any irregularities and communicate with the NDEB as necessary during and/or after the exam.

Exam Security

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

The NDEB has a policy that written exam content under development is never sent via email. Rather, these files are uploaded to our password-protected secure sites for sharing and collaboration. Users are limited to what they can view, edit, upload and download based on their roles.

All NDEB portable devices use encryption so no one can access anything on the device without the proper credentials.

During the examination, candidates were reminded that disclosure of confidential examination material, or engagement in any other form of cheating is unacceptable and that such behaviour may result in sanctions.

There are guidelines for the retention of test materials.

Security Analysis

During exam processing, a test analysis program is applied to the item results of all candidates. Those with extreme values are flagged for attention. In rare cases, candidates are informed that results of the examination will be delayed pending a review.

Part E - Outcome Summaries

This report provides summary information on the structure of the AFK, as well as statistical summaries at the item and test levels.

Number of Examination Items by Category

Table 5: 2024 AFK Questions by Content Area

Blueprint Category	February 2024	August 2024
Pharmacology	48	42
Orthodontics	20	17
Periodontics	19	20
Endodontics	12	7
Oral Medicine/Oral Pathology	28	31
Evidence-based Dentistry	14	14
Oral Surgery	19	19
Cariology	32	30
Total Scored	192	180
Rejected	8	20
Total	**200**	**200**

Table 6: 2024 AFK Exams Statistical Analysis

	Attempt	February 2024	August 2024
Number of Candidates	1	632	594
	2	269	191
	3	103	54
	Total	**1004**	**839**
Pass (#)	1	203	211
	2	67	83
	3	26	20
	Total	**296**	**314**
Pass (%)	1	32.1	35.5
	2	24.9	43.5
	3	25.2	37.0
	Overall	**29.5**	**37.4**
Passing Raw Score (%)		**59.89**	**64.26**
Mean Raw Score (%)	1	53.4	58.0
	2	52.9	59.5
	3	54.3	60.2
	Overall	**53.4**	**58.5**
Range Rescaled	1	38-92	34-98
	2	43-84	40-91
	3	49-91	41-86
	Overall	**38-92**	**34-98**
Mean Rescaled Score	1	68.1	68.3
	2	67.5	69.8
	3	68.9	70.4
	Overall	**68.0**	**68.8**
KR 20/ Cronbach's Alpha		**0.91**	**0.93**

Note: Numbers are based on all candidates who sat the examination. This includes candidates who have later been withdrawn as a result of a compassionate appeal.

Part F – Appendices

Appendix A – Key Supporting References

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Appendix B – Knowledge Skills and Abilities (KSAs) Framework

This document lists 43 KSAs that are required for the safe and effective practice of a beginning dental practitioner in Canada. The KSAs in this document are organized into three groups and 15 categories:

GROUP A: Multi-discipline (23 KSAs)

These KSAs apply to more than one discipline or area of practice. The KSAs in this group are organized into two categories: *Patient Assessment and Treatment Plan* and *Management*.

GROUP B: Discipline-specific (11 KSAs)

These KSAs are specific to dentistry practice in one of 9 disciplines/areas of practice: *Oral Medicine and Pathology*, *Radiology*, *Periodontics*, *Endodontics*, *Prosthodontics*, *Orthodontics*, *Operative*, *Oral Surgery*, and *Pain*.

GROUP C: General (9 KSAs)

The KSAs are organized into four categories: *Scientific Literature*, *Communication*, *Professionalism and Practice*, and *Health Promotion*.

GROUP A: Multi-Discipline KSAs

1	**Patient assessment and treatment plan**
1.1	**Exam**
1.1.1	Obtain the patient's chief complaint, medical, psychosocial, and dental histories.
1.1.2	Perform a clinical examination.
1.1.3	Assess patient-specific risk factors for oral disease or injury.
1.2	**Diagnosis**
1.2.1	Differentiate between normal and abnormal hard and soft tissues of the maxillofacial complex.
1.2.2	Interpret the findings from the patient's chief complaint, medical, psychosocial, and dental histories, along with the clinical and radiographic examinations, and diagnostic tests.
1.2.3	Develop a problem list and establish diagnoses.
1.3	**Treatment Plan**
1.3.1	Determine when consultation, referral, and/or further diagnostic testing are indicated.
1.3.2	Communicate relevant patient information for consultation/referral with health care professionals.
1.3.3	Develop treatment options based on the evaluation of all relevant data (i.e., obtained from the patient's chief complaint, medical, psychosocial, and dental histories, along with the clinical and radiographic examinations, and diagnostic tests).
1.3.4	Engage the patient in the discussion of the findings, diagnoses, etiology, risks, benefits, time requirements, costs, responsibilities, and prognoses of the treatment options.
1.3.5	Develop a comprehensive, prioritized and sequenced treatment plan.
1.3.6	Obtain and record informed consent.
2	**Management**
2.1	**Prevention**
2.1.1	Promote measures to prevent oral disease/injury in response to identified risk.
2.1.2	Provide therapies for the prevention of oral disease/injury.
2.1.3	Implement measures to prevent medical emergencies from occurring in dental practice.
2.1.4	Implement measures to prevent the transmission of infectious diseases.

2.2	Treatment
2.2.1	Manage the anxious or fearful patient.
2.2.2	Manage dental emergencies.
2.2.3	Manage medical emergencies that occur in dental practice.
2.2.4	Manage trauma to the orofacial complex.
2.2.5	Manage occlusal function.
2.2.6	Prescribe and administer pharmacotherapeutic agents used in dentistry.
2.2.7	Manage complications, outcomes and continuity of care.

GROUP B: Discipline-Specific KSAs

3	Oral medicine and pathology
3.1	Manage oral mucosal and osseous diseases.
4	**Radiology**
4.1	Prescribe, make and interpret radiographs.
5	**Periodontics**
5.1	Manage conditions and diseases of the periodontium.
6	**Endodontics**
6.1	Manage diseases and injury of the pulp.
7	**Prosthodontics**
7.1	Manage partially and completely edentulous patients.
8	**Orthodontics**
8.1	Manage abnormalities of orofacial growth and development.
9	**Operative**
9.1	Restore carious lesions and manage other defects in teeth.
10	**Oral surgery**
10.1	Manage surgical procedures related to oral soft and hard tissues.

11	Pain
11.1	Achieve local anesthesia for dental procedures.
11.2	Manage odontogenic pain.
11.3	Manage non-odontogenic pain.

GROUP C: General KSAs

12	Scientific literature
12.1	Evaluate the scientific literature and justify management recommendations based on the level of evidence available.
13	**Communication**
13.1	Communicate effectively with patients, parents, guardians, staff, peers, other health professionals and the public.
14	**Professionalism and practice**
14.1	Know ethical and legal obligations (e.g., confidentiality requirements, task delegation, commitment to continued professional development, patient-centred care).
14.2	Maintain accurate and complete patient records.
14.3	Manage occupational hazards related to the practice of dentistry.
14.4	Take appropriate action when signs of abuse and/or neglect are identified.
14.5	Know principles of practice administration, financial and personnel management.
15	**Health promotion**
15.1	Recognize the determinants (influencing factors) of oral health.
15.2	Promote oral health within communities.

Appendix C – Publications

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