



## Applicant Handbook 2019

Examination Session  
April 4th – April 6th, 2019

Applications Welcomed  
November 5th, 2018 – January 21st, 2019

*A Computer-Based Exam available at Prometric Test Sites  
located throughout the world*



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## **Mission of the Medical Dosimetry Certification Board**

The mission of the Medical Dosimetrist Certification Board (MDCB) is to steer the advancement of the Medical Dosimetry profession by establishing and maintaining certification and continuing education standards to enhance quality patient care.

## **Nondiscrimination Policy**

The MDCB does not discriminate on the basis of age, color, disability, ethnic or national origin, gender, race, religion, sex, sexual orientation or any other protected classification under USA state or federal law in administration of its application, examination or certification activities.

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## GENERAL INFORMATION

### Description of the Medical Dosimetrist

The Medical Dosimetrist is a member of the radiation oncology team working in collaboration with the medical physicist and radiation oncologist. Through knowledge of radiation oncology treatment machines and equipment and application of principles of physics, anatomy and radiobiology, the dosimetrist generates life-saving radiation therapy treatment plans.

### What is Certification?

Certification is a voluntary process by which a nongovernmental agency formally recognizes specialized knowledge, skills and experience in a designated area. Certification establishes the minimum standard in the specialty and offers recognition for those who have met this standard.

Certification in Medical Dosimetry offered by the MDCB represents a recognized standard of knowledge and education. Professionals working in the field of Medical Dosimetry can therefore demonstrate mastery of their specialization by meeting the MDCB's eligibility criteria, passing the examination and participating in the MDCB's ongoing Maintenance of Certification program.

A primary purpose of certification is protection of the public by providing a means of measuring knowledge through a standardized comprehensive examination. Because the Medical Dosimetrist provides services of critical importance to individuals facing life-threatening illnesses, it is beneficial for the general public as well as other healthcare providers to be able to recognize Medical Dosimetrists who have demonstrated minimal knowledge in the necessary subject areas. Certification is intended to define the field of Medical Dosimetry and to protect and promote the safety and health of individuals requiring the services of a Medical Dosimetrist.

Clinical experience in the area of Medical Dosimetry is therefore required for initial certification. The exam is designed for an individual who has successfully achieved a course of study in Medical Dosimetry. Current clinical experience in Medical Dosimetry is identified by the knowledge and skills described in the test specifications matrix included in this Handbook. Each candidate must therefore assess their own body of knowledge, skills and understanding of the specialty in deciding when to apply for the exam.

### Potential Benefits of Certification

Certification offers potential benefits for the professional, the employer and the public which may include:

- Creating a standard for professionals in a particular discipline.
- Identifying professional achievement.
- Offering validation of skills and knowledge and increasing professional credibility.
- Furthering knowledge in targeted areas.
- Assuring the public and employers that the certificant has met rigorous requirements.
- Providing possible employment advantages over non-certified job candidates.

## How was the Certification Exam Developed?

The MDCB was formed more than 30 years ago to address a need identified by the Dosimetry community in the United States to develop a certification exam that characterized Medical Dosimetry as a distinct clinical specialty. The MDCB remains dedicated to the validation, through certification, of a specialized body of knowledge for all professionals working in the field of Medical Dosimetry. The MDCB exam has been administered since 1988. Initially, volunteer subject matter experts identified areas of knowledge and practice for testing, assisted with validation of the examination, developed appropriate test questions.

The examination continues to be updated for relevancy to current practice through a Job Analysis Survey conducted at a minimum of every five (5) years by Prometric. This methodology is designed to meet stringent certification industry standards and recognized best practice guidelines. An electronic survey examines more than 150 work-related task and knowledge statements, and is distributed to all MDCB certificants and AAMD members totaling more than 5,000 professionals in the field of Medical Dosimetry. Volunteer content experts use this data to identify areas of knowledge for testing from the content domains identified and write exam questions to target those areas.

As required by best practices, following the conduct of a Job Task Analysis a Cut Score Study is conducted to determine a passing score. The passing score identifies what the minimally qualified candidate will know. Each candidate's ability is measured against the determined cut score.

## Use of the CMD Designation

Certified Medical Dosimetrist (CMD) is the professional designation granted by the MDCB. The CMD credential signifies that an individual has passed the MDCB examination and properly maintains certification in good standing. The MDCB grants limited permission to individuals who have met all of the certification eligibility criteria, passed the exam, and received the notification of certification from the MDCB to use the CMD designation that has been granted to them. Use of the CMD credential by individuals who have not been granted certification, or who have failed to properly maintain certification in good standing is prohibited. Improper use of the credential may result in disciplinary action.

## The Certification Handbook

Note: The Certification Handbook ("the Handbook") is updated for each test administration and describes what is required of each candidate preparing to take the certification exam including valuable information about logistics, content, eligibility, and required procedures. Refer to it for guidance and instructions. For additional information please visit [www.mdcb.org](http://www.mdcb.org).

**Each applicant must be aware of the information outlined in the handbook and the most current information in regard to exam administration, eligibility, application requirements, deadlines, and adherence to the Ethical Standards of the MDCB. Candidates must meet the eligibility requirements in effect at the time of application. Applicants are solely responsible for the timely submission of complete applications.**

The MDCB reserves the right to amend or modify the terms or conditions of testing and nothing contained in this Handbook shall be deemed a guarantee or warranty of any type or kind. The MDCB will settle any disputes, which may arise, based on information in

the Handbook as well as information provided by Prometric, the testing company that administers the examination for MDCB.

## EXAM APPLICATION AND CONDUCT

### The Application

The application for the examination is an online process linked to [www.mdcb.org](http://www.mdcb.org). You may modify and/or supplement your application with additional information at any time during the application process. With the exception of the request for the Route 2 re-applicant work history references, the MDCB will communicate only with the exam applicant regarding the application. **It is the personal responsibility of each exam candidate to ensure completion of the application by the deadlines outlined. All required elements (application, supporting documentation and full payment) must be submitted before review of your application will commence.**

**Documentation not provided as outlined in the instructions for completing your application may result in the denial of your application.** Electronic copies of required documentation must be in pdf, tiff, bmp or jpg format. Submission of large or inaccessible file formats may delay or prevent review of your application. **If your information remains incomplete at the time of the final application deadline it will be denied.** The application and all supporting documents received by the MDCB will be reviewed by the MDCB Eligibility Committee and staff only and will remain confidential.

Residents of Cuba, Libya, Sudan, North Korea, Iran Syria and Crimea or any other country or region to which the U.S. has embargoed goods are not eligible to apply for the exam.

### Route 1 Eligibility Criteria

- First-time certification candidates must be graduates of a USA Joint Review Committee on Education in Radiologic Technology (JRCERT) accredited Dosimetry program of at least twelve (12) months and hold a Bachelor's degree. A copy of the **official diploma** and its corresponding **official transcript** from the JRCERT accredited Dosimetry program must be submitted. For applicants who have completed a certificate program, in addition to the JRCERT program official diploma, an **official Bachelor's degree diploma** must be provided. The name on these documents must match the name on the application or an official name change decree must accompany your application.

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Please note:

The MDCB will provide an aggregated score report for each JRCERT accredited Dosimetry program. The purpose of providing the score report is only for programmatic assessment, evaluation, and accreditation. The report is not to be used to either publically report or determine individual student results. The MDCB expects each program director to use their score report in a moral and ethical manner.

A current listing of JRCERT accredited Dosimetry programs is located at <http://www.jrcert.org/>.

## International Eligibility Criteria

- Graduation from a Non-U.S. academic program with a Bachelor of Science degree in Radiation Therapy, Radiation Science or Radiography.
- A minimum grade of C or 70-79% in Anatomy and/or Physiology, Brachytherapy, Clinical Lab, Computer Technology, Cross-sectional Anatomy, Radiation Oncology, Radiation Physics, Radiobiology and Treatment Planning.
- Completion of 1,000 clinical curriculum hours in Medical Dosimetry treatment planning during Bachelor of Science degree (or higher) course of study.

Only candidates practicing outside the U.S. should apply as an international candidate. Individuals with non-US degrees practicing in the US must apply as Route 1 candidates. It is the responsibility of the candidate to submit all required documentation in English and to demonstrate "foreign equivalency" of the related science degree submitted by providing documentation from **only** one of the following organizations recognized by the MDCB: **The Foundation for International Services, Inc. (FIS), OR the International Education Research Foundation (IERF)**. All documentation that is reviewed by the FIS or IERF must be evaluated on a "course-by-course" basis. Foreign equivalency documentation from any other organization will not be considered. Canadian applicants will not be required to submit foreign equivalency evaluation.

***Please note: Beginning in 2022, international candidacy eligibility will be eliminated.***



## Eligibility Criteria for Re-examination

- Applicants will be required to submit a full application if the prior application (or re-application) preceded the September 2011 exam. **Second and third attempt re-applicants whose original application was prior to 2011 and submitted ARRT registry (or foreign equivalent), Bachelor's degree or Bachelor of Science degree as the educational requirement are able to again submit ARRT registry (or foreign equivalent), Bachelor's degree or Bachelor of Science degree for the educational criteria using the Route 2 application.**
- Dates of all previous MDCB exam applications must be provided as part of the application.
- Beginning in 2017, all re-applicants will be required to show evidence of 8 CEU. The CEU cannot be CEUs previously submitted and must have been completed within three years of the re-application.

If you have taken the exam in the past and failed more than 3 times since 2006 you must comply with the **"Three Attempt Rule"** as follows:

Starting in 2006, all exam candidates will be subject to a three attempt rule in which a candidate who has failed the exam on the third attempt will not be eligible for examination for two calendar years. After the two year waiting period the applicant may submit another full application. The prevailing eligibility requirements will apply. A "no show" or withdrawal for any exam administration will not be counted as an attempt.

## Instructions for Completing the Application

The Application is available at <https://mdcb.learningbuilder.com>.

- **At no time should an applicant with a previous record create a new record. Applicants unable to access a prior record/application should contact the MDCB office at [info@mdcb.org](mailto:info@mdcb.org) with the subject line "Applicant Unable to Access Application".**
- First time applicants, click on the orange button "Register as an Applicant" on the index page at <https://mdcb.learningbuilder.com>.
- **Please make note of your login and password information.** This is how you will access the system to review the progress of your application and make any updates to your application or contact information.
- Please note the 7-digit MDCB number that is generated upon beginning your application. This will be your MDCB Identification number and will also be used by Prometric, the test vendor.
- Complete all the fields of the profile information. The information provided will be used to generate mailings. Improper formats or incomplete information may result in the delay of your communication with the MDCB and Prometric.
- **Complete your name as it appears on the government photo identification that you will be presenting at the test center on the day of your exam or you will not be permitted admission to write the exam at that time. This includes any designation such as Jr. II, etc.**
- Include the email address with which the MDCB and Prometric, the test vendor should communicate with you. Please add [info@mdcb.org](mailto:info@mdcb.org) to your email address book to assure receipt of all notifications.
- Include a mailing address.
- If your name is now different than the name that appears on the documentation you will be providing to complete your application, once you click on the Submit Application button, upload the legal document that references your name change.
- If you require ADA accommodations, before submitting your application, once you click on the Submit Application button, upload signed documentation from the licensed medical professional that can attest to your requirements.
- Once you have completed your profile information, select the appropriate application, i.e. Route 1 or re-application and complete the "Examination Fee" portion of the application. For re-applicants who have previously applied with ARRT registry, Bachelor's degree or Bachelor of Science degree for the educational criteria, applicants will be asked if they have ever applied for the exam between 2006 - 2010. Once previous status is confirmed, access to the Route 2 application will be provided.
- Documentation not provided as required by the early deadline will result in "Request for Additional Information" status and will be returned to the candidate for correction by the late deadline. Submission of additional documentation does not guarantee approval. All applicants are notified on the same date of exam status. Documentation not provided as required after the early deadline will result in denial status, whereby candidates will be required to submit an appeal with documentation to supplement the appeal.

### Route 1 Candidates:

Submitting Academic Requirements:

- Select the JRCERT accredited Dosimetry program you attended from the drop down menu.
- Enter the date the program ended.
- Confirm your agreement to release your scores to your program director.

- Upload a scan of your **official JRCERT diploma/certificate** in a pdf, tiff, bmp or jpg format only. Be sure the entire document is visible in the scanned document. *Applications with documents that are not a scan will be returned to the applicant for update.*
- Upload a scan of your **official transcript** with a confer date which corresponds to your certificate/diploma in a pdf, tiff, bmp or jpg format only. Be sure the entire document is visible in the scanned document. Applications with documents that are not a scan will be returned to the applicant for update.
- *Upload a scan of your Bachelor's degree diploma in a pdf, tiff, bmp or jpg format only if the JRCERT program you attended was a certificate program.*

**Submit** Your Application when payment and all the steps outlined above are completed. Once you click on the "**Submit Application**" button you will be able to upload the following if applicable to you:

- Name change documentation
- ADA documentation.

Once you have uploaded all required documentation, click the "Submit Application" Button.

### **International Candidates:**

Submitting Academic Requirements:

- Complete the name of the institution from which you received your Bachelor of Science degree.
- Identify the major you completed at the institution, i.e. Radiation Therapy, Radiation Science, Radiography, Physics or Medical Physics.
- Upload a scan of your **official diploma** in a pdf, tiff, bmp or jpg format only. The official diploma must include the graduation (confer) date. Diplomas that do not include the confer date must be accompanied by a letter from the institution printed on letterhead that confirms the confer date. Be sure the entire document is visible and clear in the scanned document.
- Upload a scan of your **official transcript** that corresponds to your diploma in a pdf, tiff, bmp or jpg format only. The official transcript must include the graduation (confer) date. The confer date should correspond to the diploma confer date. Transcripts should include all courses completed with grade earned for each course and an explanation of the grading scale. Transcripts that do not include grades earned for each course, grading scale and the confer date must be accompanied by a letter from the institution printed on letterhead that confirms grades, grading scale and the confer date. The letter should include the title and contact information of the signatore. Be sure the entire document is visible and clear in the scanned document.
- Upload your foreign equivalency evaluation from either FIS or IERF only. Foreign equivalency evaluation must be evaluated on a "course-by-course" basis to ensure the applicant has achieved a minimum grade of C or 70-79% in Anatomy and/or Physiology, Brachytherapy, Clinical Lab, Computer Technology, Cross-sectional Anatomy, Radiation Oncology, Radiation Physics, Radiobiology and Treatment Planning.

Submitting Clinical Hours:

- Upload documentation that confirms completion of 1,000 clinical curriculum hours in treatment planning during Bachelor of Science degree (or higher) course of study. Documentation provided must be


official documentation either in the form of a transcript or a letter from the institution printed on letterhead indicative of 1,000 clinical hours in medical dosimetry treatment planning during the completion of the degree. The letter should include the title and contact information of the signatory. Hours for: (1) treatment delivery, (2) on the job training or (3) which the candidate received a salary do not qualify as in-curriculum hours.

Submitting Additional Requirements:

- Indicate the country in which you are currently practicing.
- Upload a signed letter from your current employer on organizational letterhead indicating your dates of employment.

### **Re-application Candidates:**

Candidates with a prior application that does not precede the September 2011 exam  
Candidates submitting a re-application must have a prior application or re-application that does not precede the September 2011 exam.

- Submitting the Continuing Education Requirement:
  - Determine what activities are approved for CE at <https://mdcb.learningbuilder.com/>.
  - On your application, click on the blue "Add Activity" button.
  - Enter your Search criteria and select the orange "Search" button. Start with a Broad Search by using Keyword or Course Number and no other Search criteria.
  - Click the orange "Select" button for the Course you wish to add to your Application. The activity submitted must have been completed no more than three (3) years prior to the year of the application deadline, January 21st, 2019. Now that it is added to your learning plan, you can upload a file and submit the activity for review.
  - You will need to add and submit documentation for a minimum of 8 credits to your application that **have not previously been submitted on an application:**
    1. The documentation you provide must be a transcript in pdf, tiff, bmp or jpg format only and must include your name, the name of the provider and the date the activity was completed, number of credits and the MDCB activity name and number.
    2. The activity number for the activity you select must correspond to the activity number on your documentation.
    3. All activities submitted for review MUST BE PRE-APPROVED MDCB activities listed in the directory of courses.
    4. Several activities from a single provider must be presented in a transcript format, not individual certificates, for each activity.
    5. The date you completed the activity must be between the activity start and end dates identified. Please click on the blue button  next to the activity number to determine the start and end date.
    6. If an activity you have submitted is rejected, you can determine the reason for rejection by clicking on the "list" icon next to the activity and reviewing the rejection message.

- Indicate the dates of your previous attempts.

Re-applicants with a prior application not preceding the September 2011 exam can **submit the application** when payment and all the steps outlined above are completed.

Route 1 re-applicants whose initial application preceded the September 2011 exam:

- Will be required to submit a Route 1 application.
- Submitting Academic Requirements;
  - Select the JRCERT accredited Dosimetry program you attended from the drop-down menu.
  - Enter the date the program ended.
  - Confirm your agreement to release your scores to your program director.
  - Upload a scan of your **official JRCERT diploma/certificate** in a pdf, tiff, bmp or jpg format only. Be sure the entire document is visible in the scanned document window. Applications with documents that are not a scan will be returned to the applicant for update.
  - Upload a scan of your **official transcript** which corresponds to your diploma in a pdf, tiff, bmp or jpg format only. The confer date (graduation date on your diploma should correspond to the confer date on your diploma/certificate. Be sure the entire document is visible and clear in the scanned document window. Applications with documents that are not a scan will be returned to the applicant for update.
  - Upload a scan of your Bachelor's degree diploma in a pdf, tiff, bmp or jpg format only if the JRCERT program you attended was a certificate program.

**Submit** Your Application when payment and all the steps outlined above are completed.

Route 2 re-applicants whose initial application preceded the September 2011 exam will be required to submit a Route 2 application:

- Select either the "ARRT or Foreign Equivalent" **OR** "Academic Transcript for Bachelor's Degree" or Bachelors of Science degree option that corresponds to the eligibility criteria for which you qualify. **ARRT or Foreign Equivalent** applicants select the organization that is applicable from the drop down menu.

ARRT applicants:

- Provide your registration number for the organization.
- Provide the expiration date of your registration with the organization.
- Submit a scan of your current ARRT card or foreign equivalent with an expiration date of January 21, 2019 or later. **No substitution will be accepted for the ARRT card or foreign equivalent.**

Bachelor Degree or Bachelor of Science Degree applicants:


- Complete the name of the institution from which you received your Bachelor of Science or Bachelor of Applied Science Degree.
- Identify the major you completed at the institution.
- Upload a scan of your **official diploma** in a pdf, tiff, bmp or jpg format only. Be sure the entire document is visible in the scanned document window. Applications with documents that are not a scan will be returned to the applicant for update.

- Upload a scan of your **official transcript** that corresponds to your diploma in a pdf, tiff, bmp or jpg format only. The confer date (graduation date on your diploma should correspond to the confer date on your diploma/certificate. Be sure the entire document is visible and clear in the scanned document window. Applications with documents that are not a scan will be returned to the applicant for update.
- If you received your Bachelor, Bachelor of Science or Bachelor of Applied Science Degree in an institution outside the US or Canada, please upload your foreign equivalency evaluation from either FIS or IERF only.

#### Submitting Clinical Experience\*:

- Identify the institution(s) where you completed a minimum of 5,460 full-time hours experience in Medical Dosimetry. Work History must have been completed no more than six (6) years prior to the year of the application deadline, January 21, 2019.
- Identify your job title.
- Identify dates you worked at each institution.
- Identify the number of total hours worked at each institution.
- Provide two references for each job experience with their role (CMD or Physicist) and a work email address for each reference. **Applications that do not include the references work email address will be returned to the applicant for update.**

#### Submitting Continuing Education:

- Click on the blue "Add Activity" button.
- Enter your Search criteria and select the orange "Search" button. Start with a Broad Search by using Keyword or Course Number and no other Search criteria.
- Click the orange "Select" button for the Course you wish to add to your Application. The activity submitted must have been completed no more than three (3) years prior to the year of the application deadline, January 21, 2019.
- Now that it is added to your learning plan, you can upload a file and submit the activity for review.
- You will need to add and submit documentation for a minimum of 24 credits to your application:
  1. A maximum of 16 credits will be approved for applications training courses.
  2. The documentation you provide must be a transcript in pdf, tiff, bmp or jpg format only and must include your name, the name of the provider and the date the activity was completed, number of credits and the MDCB activity name and number.
  3. The activity number for the activity you select must correspond to the activity number on your documentation.
  4. All activities submitted for review **MUST BE** Pre-approved MDCB activities listed in the directory of courses and documentation must include the MDCB number.
  5. Several activities from a single provider must be presented in a transcript format, not individual certificates, for each activity.
  6. The date you completed the activity must be between the activity start and end dates identified. Please click on the blue button  next to the activity number to determine the start and end date.
  7. If an activity you have submitted is rejected, you can determine the reason for rejection by clicking on the "list" icon next to the activity and reviewing the rejection message.

**Submit** Your Application when payment and all the steps outlined above are completed.

**\*Please note: For exam eligibility purposes, “active clinical Medical Dosimetry experience in the field” is defined by the MDCB as experience in a medical setting creating clinically deliverable treatment plans for radiation oncology patients under the direction of two employees within your department who must be either certified Medical Dosimetrists (with active status on the CMD Verification page linked to the MDCB website) or Medical Physicists. These two references will be contacted directly by the MDCB to attest to the length and content of your experience to supplement your online application. The total length of clinical experience required by your eligibility route must be verified by these two references. For each work experience needed to meet the clinical Medical Dosimetry experience requirement two references must be identified. For example, if you have worked in different institutions during this time, two additional people will be required to verify the second portion of your experience.**

Detailed instructions will be provided during the online application process which is located at [www.mdcb.learningbuilder.com](http://www.mdcb.learningbuilder.com).



## Application Deadlines

Applications may be submitted from November 5th, 2018 to January 21st, 2019:

- 1) Regular Application Deadline (without late fee) at 11:59 pm EST, January 11th, 2019. Deadline for "Request for Additional Information" status. *All foreign applicants must submit their application by this deadline.*
- 2) Final Application Deadline (with late fee of \$75) at 11:59 pm EST, January 21, 2019. Deadline to submit corrective documentation for "Request for Additional Information". *U.S. applicants only.*

**ALL APPLICATIONS THAT ARE INCOMPLETE OR UNPAID AFTER THE FINAL APPLICATION DEADLINE WILL BE DEEMED INELIGIBLE.**

## Fees

Payment must be made when submitting the online application with a credit card in U.S. dollars. Debit cards are not accepted.

**Application Fee:** \$ 200

An application fee is required of all candidates.

**Exam Fee:** \$ 375

An exam fee must be submitted for each request to take the exam, including re-applications.

**Late Fee:** \$ 75

A late fee is required for applications submitted after the Regular Application Deadline until the Late Application Deadline. Applications received from 12:00 am EST November 12th, 2018 until 12:00 am EDT, January 21, 2019 will be deemed late.

**Absolutely no refunds will be issued FOR ANY REASON once payment has been submitted whether applicant submits application, is deemed ineligible, withdraws the application, withdraws from the exam once deemed eligible or is a "no-show" on the day of the exam. A candidate who arrives 15 minutes or more after the scheduled exam start time will be considered a "no show." A \$250 "no-show" fee will be assessed on the succeeding application.**

## The Application Process

Before candidates can sit for the exam, they must:

- (A) Submit a complete application that meets the MDCB's eligibility requirements and pay for the exam by the final registration deadline and deemed eligible.
  - (B) Receive an Authorization to Test (ATT).
  - (C) Contact Prometric to schedule a location at which to take the computer-based exam.
- (A) Submitting a complete application:
- All applications must be submitted online through the MDCB CE Center at <https://mdcb.learningbuilder.com>.
  - Review the criteria for the routes to eligibility carefully to determine the documentation required to submit an application.
  - Submit your application **only** once to avoid duplication of fees. You may initiate your application and modify and/or supplement it with additional information later.



- All candidates will be required to confirm adherence to the MDCB Ethical Standards and terms and conditions stated in the handbook in conjunction with submission of exam fees.
- Electronic copies of required supplementary documentation should be uploaded in pdf, tiff, bmp or jpg format only. Submission of large or inaccessible file formats may delay or prevent review of your application.
- All supporting documentation must be legible.
- All regular communication with candidates will be via the application website only.
- **All required elements (application, supporting documentation and full payment) must be submitted before review of your application will commence. If your information remains incomplete at the time of the final application deadline it will be denied.**
- **It is the candidate's responsibility to ensure his/her application is complete and accurate, including the submission of any attachments applicable.**
- The MDCB is the sole and only judge of each candidate's qualifications to sit for the MDCB Certification Exam. In consideration of the individual exam candidate's application, the moral, ethical and professional standing will be reviewed and assessed by the MDCB Board; the Board may make inquiry of the persons named in the application form and of such persons as the Board deems appropriate with respect to moral, ethical and professional standing.

## Testing Accommodations

The MDCB will provide reasonable accommodations for exam candidates with disabilities that are covered under the Americans with Disabilities Act (ADA). Requests for testing accommodations must be made as indicated during the online application process.

- (B) Receiving the Authorization to Test (ATT)
- For applications that have been reviewed and accepted, exam candidates will receive an emailed Authorization to Test letter (ATT) no later than 35 days before the exam.
  - If the MDCB has approved a Testing Accommodations Request, the candidate will receive a Notice of Approval from the MDCB and the Authorization to Test.
  - If any candidate whose application has been accepted loses the confirmation or has not received a confirmation well in advance of the test date, he/she should immediately contact the MDCB via email to [info@mdcb.org](mailto:info@mdcb.org) with the subject line, "Missing ATT."

## How to Appeal Denied Application Status

- Responses to all candidates will be initially forwarded via email on **February 15th, 2019**.
- Written responses will also be sent via certified mail to all US candidates, regular mail to Canadian candidates and email only to international candidates.
- Denied status notifications will indicate the reason for denial and how to submit an appeal to contest a decision of ineligibility.
- If an applicant has been denied, he/she will be provided one (1) appeal attempt for the current application process.
- Applicants who believe that they have met the eligibility requirements as stated may appeal decisions of ineligibility once only. The eligibility requirements themselves may not be appealed, only the ability to meet the criteria can be appealed.
- Appeals submitted requesting reconsideration of applications must indicate the specific findings of ineligibility being contested and provide evidence of meeting

those findings. Candidate must provide documentation that supports his/her claim. The eligibility committee will review the appeal and furnish a decision.

- Appeal documentation must be submitted to the appeals portion of the application by the MDCB by 11:59 pm EST **February 8th, 2019**.
- Responses to appeals will be provided by **February 15th, 2019**.
- The decision regarding appeals is final and cannot be reversed.
- If the applicant is still deemed ineligible, he/she may register again and submit another examination fee at a later date.

(C) Contacting Prometric to schedule a computer-based exam location

- Prometric will not schedule an exam location unless you are in possession of an ATT and the test registration #, which is your MDCB number. Instructions on how to schedule an exam location with Prometric will be included with the ATT. For more information about Prometric test centers, visit the website: [www.prometric.com](http://www.prometric.com).
- Once the candidate has completed online scheduling of an exam location with Prometric, an electronic confirmation will be sent to the candidate containing the candidate's name, identification number, address of the test center, the date of the test, and name of the test.
- If the candidate is registering by phone using the toll-free number, the candidate must give the Prometric operator his or her email address to receive an electronic confirmation.
- The exam will be administered at Prometric computer-based test centers throughout the US and Canada. Prometric also has many other international test site locations.
- The MDCB does not provide recommendations for hotels near test centers. It is the exam candidate's responsibility to make his/her own hotel and travel arrangements for the exam.
- If the MDCB has approved a Testing Accommodations Request, the candidate will receive a Notice of Approval from the MDCB along with the Authorization to Test letter. Candidates who have had Testing Accommodations Requests approved by the MDCB must call Prometric's special conditions coordinator at 800-967-1139 to schedule an exam location.

## Communication Regarding the Authorization to Test

After eligibility status has been determined, the candidate will be notified by email. If you do not receive your Authorization to Test (ATT) within 35 days in advance of the scheduled test date, please forward an email to [info@mdcb.org](mailto:info@mdcb.org) with the subject line: "Missing ATT" to expedite receipt of your ATT.

## TEST CENTER REQUIREMENTS

- Original, valid (unexpired), government issued photo and signature bearing identification is required in order to take an exam. **Name on identification must match name on application.**
- The Prometric scheduling confirmation.
- Exam candidates may be subject to the following security measure upon every entry into the test room:
  - Scanning with a metal detector wand prior.
  - Raising of pants legs above ankles, emptying and turning all pockets inside-out and raising shirt sleeves above wrists.

Please see the "Prepare for Test Day" pages at [www.prometric.com](http://www.prometric.com).

## Examination Arrival Time

Candidates must arrive 30 minutes prior to the test time. The total seat time is 270 minutes. The total test time is 230 minutes. Candidates will be required to review a tutorial prior to the exam and complete a post-exam survey.

## Late Arrival

Candidates will not be permitted to take the exam if they present themselves more than fifteen (15) minutes after the scheduled start time of the exam. Admittance will be refused to the exam and candidates will be required to re-apply as a re-applicant and submit all fees. Please familiarize yourself with the location of the exam site before the day of the test.

## Rescheduling

Applicants approved to sit for the exam for a specific exam date are required to sit for the exam for which they have been approved. Any applicant who determines she/he requires a change in date to sit for the exam must request a date change in writing addressed to the MDCB headquarters office prior to the late application deadline. Candidates will not be able to postpone their exam date any further than the next immediate exam date. **Once the late application deadline passes, no applicant will be able to reschedule their exam nor will a refund be issued for either the exam or application fee.** A fee of \$125 will be assessed for rescheduling. In addition, if the candidate chooses not to sit for the rescheduled exam date, the applicant must apply as a re-applicant and resubmit all fees.

## Withdrawal

A candidate who has been deemed eligible to sit for the MDCB exam may withdraw at any time **prior to the day of the exam**. Candidates who intend to withdraw before the exam date, must email intent to withdraw to [info@mdcb.org](mailto:info@mdcb.org) with the subject line "Intent to Withdraw." No refund will be issued to candidates who have been approved to sit for the exam but withdraw from the exam prior to the exam date. Candidates who withdraw will be required to reapply to sit for exam and will incur a **rescheduling fee** of \$125. If a candidate reports for the exam he/she can no longer withdraw.

## Test Center Rules

**Candidates are required to be professional, civil and respectful at all times while on the premises of the test center. All exams are continuously monitored by video and audio recording, physical walk-throughs and through the observation window. The Test Center Administrator (TCA) is authorized to dismiss you from the test session for a violation of any of the Test Center Regulations, including exhibiting abusive behavior towards the TCAs or other candidates. If you are found to have violated any of the regulations during your exam, the TCA is required to notify Prometric and the MDCB. Prometric, alone or in conjunction with the MDCB, shall then take any further action necessary to sanction your conduct, up to and including invalidation of your test score and/or pursuit of civil or criminal charges.**

To ensure that all candidates are tested under equally favorable conditions, the following regulations and procedures will be observed at each test center:

- Candidates should not call their individual test centers regarding instructions to take the exam. **Test centers are not advised of MDCB protocols until just before the exam date.**
- Candidates are admitted only to their assigned test center.
- Candidates should arrive 30 minutes prior to their scheduled exam time for registration and check in.
- Candidates arriving more than 15 minutes after the scheduled exam will not be admitted.
- All candidates will receive a green colored locker key tag upon check in. The green key tag indicates that the candidate has full access to all belongings in locker. Instructional color key tag signage will be placed near the lockers for candidate reference.
- **CANDIDATES WILL BE REQUIRED TO BRING A SILENT, HAND-HELD, SOLAR OR BATTERY-OPERATED SCIENTIFIC CALCULATOR TO PERFORM MATHEMATIC CALCULATIONS RELATED TO TEST QUESTIONS. Alpha, programmable or paper-tape calculators are NOT permitted. The use of a calculator that does not meet this description constitutes grounds for immediate dismissal from the test. Candidates must supply their own equipment. PROMETRIC, THE TEST VENDOR, WILL NOT PROVIDE A CALCULATOR. Borrowing of equipment during the test is NOT permitted. All calculators will be checked prior to the examination.**
- Candidates will be provided with two (2) erasable note boards to use during the examination. The note board must be returned to the test center administrator at the completion of testing or the candidate will not receive a score report. Due to security concerns the color of the boards alternate depending on the day of the week.
- Candidates will be provided with a survey at the end of the exam to comment on any question they believe is misleading or deficient in accuracy or content or comments on the exam administration.
- The MDCB exam does not provide for a scheduled break. Each time you leave the test room you must sign-out.
- All candidates must inform the TCA before accessing a stored item during a break, including medicine. Repeated or lengthy departures from the test room will be reported to the MDCB.
- Upon return from a break, without exception, you will be subject to all security checks, present valid ID, sign-in and, if required by the test sponsor, provide a fingerprint to be re-admitted to the test room.
- You must return to your assigned, original seat after any break.

## Prohibited Items and Examinee Conduct in the Test Center

- **Weapons are not allowed in any Prometric Test Center. In the state of Georgia, however, where right to carry laws, supersede test center rules, exam candidates who are in possession of a concealed firearm will be permitted into test labs. In such cases test center staff will file a Center Process Report to report that the candidate was permitted to test with a weapon in compliance with state law. In the event that an individual violates the law by failing to keep a firearm concealed, Standard Operating Procedure provides steps for test center staff to follow to de-escalate the situation as quickly and as safely as possible.**
- Unauthorized personal items may not be brought into the test room. Such items include, but are not limited to: outerwear, hats, food, drinks, purses, briefcases, notebooks, pagers, watches, cell phones, recording devices and photographic equipment.
- Written notes, published materials and other testing aids are strictly prohibited, except where allowed by the MDCB. Test center staff will refer to the applicable Client Practices for allowances.
- Only soft ear plugs (with no wires/cords attached) and center-supplied tissues are permitted in the test room.

- Clothing or jewelry items allowed to be worn in the test room must continue to be worn at all times. Removed clothing or jewelry items must be stored in the locker provided during check-in.
- All materials issued by the TCA must be returned at the conclusion of testing. If scratch paper is provided, it must be returned before new scratch paper will be issued by the TCA during your exam.
- Talking to other candidates in the test room, referring to their screens, testing materials or written notes is strictly prohibited.

**Test sponsor practice policies shall supersede these regulations if a conflict exists.**

## Emergencies

Every attempt will be made to administer all examinations as scheduled. However, should any problems occur due to the testing vendor Prometric, the exam will be rescheduled as determined by the MDCB at no cost to the candidate.

If the exam is unable to be administered or if any candidate is unable to arrive at a designated exam site because of inclement weather, terrorist acts, a natural disaster or other unforeseen emergencies beyond control of the candidate as determined by the MDCB, the candidate may receive an extended testing window (to be determined on an individual basis) and be allowed to reschedule the examination without incurring a re-examination fee.

During a severe weather event, candidates should check [www.prometric.com](http://www.prometric.com) under the Severe Weather Alert button before heading to their local test center.

## MDCB EXAMINATION DESIGN

### Structure

The examination contains 155 questions. The time allowed for completion is 3 hours and 50 minutes. The examination is administered in English only. A small percentage of randomly imbedded un-scored items are included on the exam to obtain and evaluate statistical information for new items. These items are not included in the score calculation. This practice is consistent with industry standards for this type of exam. All scored items have previously been vetted for reliability and validity.

The test content outline below identifies the areas that will be included in the exam (as derived from the 2014 Job Task Analysis). The percentage of scored questions in each of the major categories is shown below.

## Test Specification Matrix\*

MDCB Test Specifications Matrix Derived from the 2018 Job Task Analysis	
Domain	Weight
<b>I. Radiation Physics</b>	<b>16%</b>
1. Radioactive decay	
2. Production of X rays and particle beams	
3. Characteristics of X rays and particle beams	
4. Interaction of radiation with matter	
5. Treatment machine characteristics: LINAC (e.g., MR, proton, photon, orthovoltage and superficial X rays, gamma source)	
6. Geometric characteristics (e.g., magnification, minification)	
7. Radiation measurement	
8. Imaging modalities (e.g., MRI, PET, CT, ultrasound, SPECT, KV/MV, CBCT)	
9. Hounsfield unit conversion to CT density table in treatment planning systems	
10. Radiation units (e.g., activity, exposure, absorbed dose, and dose equivalent)	
<b>II. Localization</b>	<b>8%</b>
1. Acquisition of patient data	
2. Patient positioning	
3. Patient immobilization and motion management techniques	
4. Treatment simulations, TPS localization of patient	
5. Rigid image registration, deformable registration, image fusion	
6. IGRT (e.g., SGRT, CBCT, ultrasound guidance, KV-KV, MV-MV, infrared, fluoroscopy, CT on rails, fiducials)	
<b>III. Treatment Planning</b>	<b>40%</b>
1. Isodose distributions and dose metrics	
2. Site specific clinical oncology (e.g., disease, anatomy, modes of spread, common treatment techniques, dose and fractionation schemes)	
3. Radiobiology (e.g., dose tolerances, hypofractionation, time dose fractionation calculation, BED, RBE, LET)	
4. Cross-sectional anatomy	
5. Treatment delivery systems machine differences, limitations, and advantages	
6. Special treatment procedures (e.g., TBI, TSEI/TBE, IORT, SRS, SBRT)	
7. Planning methodologies (e.g., forward, inverse, compensator, robust planning)	
8. DICOM data transfer	
9. Computer systems management (e.g., archiving and backup, routine maintenance, scripting)	
10. Adaptive radiotherapy	
11. Autoplanning	
12. Autocontouring	
13. Implanted devices	
14. The accuracy and limitations of IGRT techniques	

<b>IV. Dose Calculation Methods</b>	15%
1. External beam dose calculation and algorithms	
2. Effects of beam modifying devices (e.g., wedges, bolus, partial transmission blocks, compensators, MLC)	
3. Special calculations (e.g., off axis, re-treatments, gap calculations, entrance/exit dose)	
4. Corrections for tissue inhomogeneities and density overrides	
5. Deformable dose accumulations	
6. Sources of uncertainty and limitations in computer-based treatment planning (e.g., effects of dose grid matrices)	
<b>V. Brachytherapy</b>	6%
1. Radioactive source characteristics	
2. HDR and LDR treatment planning	
3. HDR and LDR delivery systems	
4. Brachytherapy treatment device verification (e.g., seeds applicators)	
5. Secondary/independent calculation	
6. Surveying (e.g., background pre and post implant, shielding, bedside dose)	
7. Regulatory requirements for radioactive sources (e.g., NRC vs state requirements)	
<b>VI. Radiation Protection</b>	7%
1. ALARA and maximum permissible dose equivalent based on NCRP recommendations, regulatory guidelines (e.g., ICRU, NCRP)	
2. Radiation monitoring for personnel and patients	
3. Treatment vault shielding requirements	
<b>VII. Quality Assurance and Standard of Care</b>	8%
1. TPS commissioning and quality assurance	
2. Clinical data: plan checks, chart reviews, image reviews	
3. Measurement equipment (e.g., diodes, ion chambers, TLD, survey meters)	
4. Record and verify systems and EMR	
5. Treatment beam QA measurement and analysis (e.g., IMRT, electron cut out factors)	
6. AAMD Scope of Practice	
7. Incident reporting for patient safety (e.g., quality improvement, RO-ILS, root cause analysis, process improvement)	
8. Factors and limitations of deliverable plans	
9. QA requirements of simulation and treatment equipment	

**All images on test questions are provided in a head first supine position unless otherwise noted.**

## Sample Questions Multiple Choice Questions

This section contains questions or incomplete statements followed by four options. Choose the best option in each case.

1. A cork or bite block should be placed in the patient's mouth to avoid unnecessary irradiation of the tongue and floor of mouth when simulating and treating the:
  - A. Tonsillar area.
  - B. maxillary antrum.
  - C. larynx.
  - D. patorid.
2. In a lateral radiograph of the pelvis, the prostate gland can generally be localized at the level of the:
  - A. roof of the acetabulum.
  - B. sacral promontory.
  - C. trochanteric area of the femur.
  - D. coccyx.
3. The average life of a radioactive isotope with a half-life of 8 days would be:
  - A. 4.0 days.
  - B. 5.5 days.
  - C. 11.5 days.
  - D. 16.0 days.
4. A patient is to be given a 4600 cGy midplane dose in 23 fractions by parallel opposed fields to the mediastinum. The dose to the spinal cord each fraction is 209 cGy. If a spinal cord block is added to the posterior field only, the dose to the spinal cord each fraction is 94 cGy. The spinal cord dose through the treatment course is limited to 4000 cGy. How many fractions must the posterior cord block be inserted?
  - A. 4 fractions
  - B. 5 fractions
  - C. 6 fractions
  - D. 7 fractions
5. Based on clinical experience with total body irradiation (TBI) before bone marrow transplantation and hemibody irradiation, the most important dose-limiting tissue is the:
  - A. lens of the eye.
  - B. spinal cord.
  - C. lung.
  - D. skin.
6. The energy loss rate of a 10 MeV electron in water is approximately:
  - A. 0.51 MeV/cm.
  - B. 0.69 MeV/cm.
  - C. 1.25 MeV/cm.
  - D. 2.00 MeV/cm.
7. Which of the following clinical machines produce(s) photon beams?
  - A. Mobetron
  - B. Cyberknife
  - C. Synchrotron
  - D. Cyclotron
8. The standard Clarkson technique for irregular field calculations corrects the scatter component for which of the following?
  - A. patient contour
  - B. inhomogeneities
  - C. large field size



D. lateral electron equilibrium

### Sample Drag & Drop Questions

In a Drag & Drop question, the exam candidate will be asked to match a "source box" to a "target box" as per the sample below. The target box is outlined in red. The source box is outlined in blue.

9. Match the labels to the anatomy identified in the graphic below by moving the source to the target with your cursor.



1

3

4

5

cerebellum

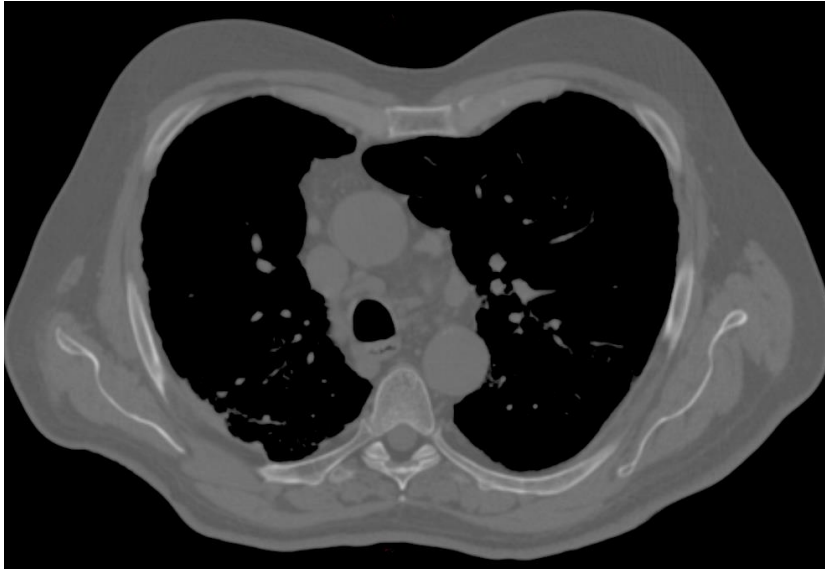
parotid gland

cervical  
spinal cord

oropharynx

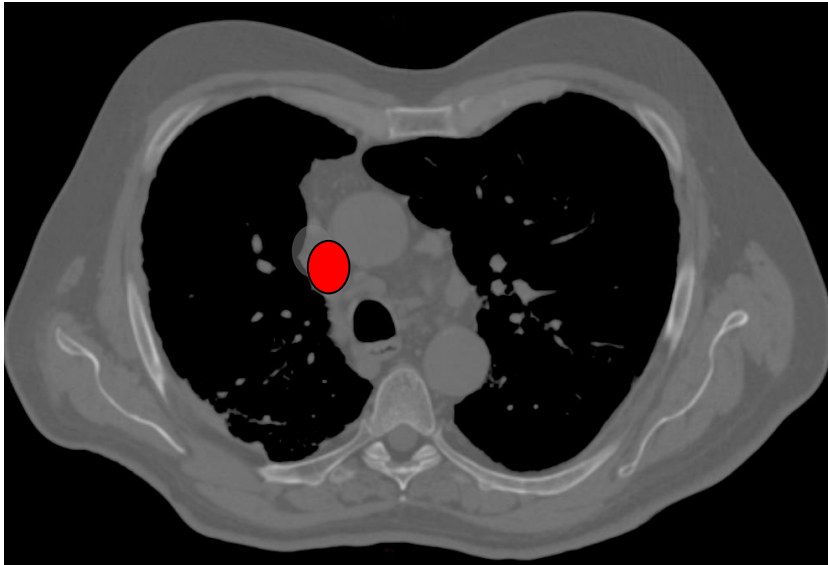
## Sample Hot Spot Questions

On the axial CT below, identify and click on the Superior Vena Cava with your Cursor:



### Answers to Sample Questions

1. B
2. C
3. C
4. D
5. C
6. D
7. B
8. A
9. 1 – cervical spinal cord, 3 – parotid gland, 4 – oropharynx, 5 – cerebellum.
- 10.



## MDCB Practice Tests for Purchase

The MDCB publishes study guides periodically which may be purchased at [www.MDCB.org](http://www.MDCB.org).

**The MDCB does not endorse pass rates guaranteed by any Medical Dosimetry review course provider. Only the MDCB can warrant the validity of pass rates for the MDCB exam.**

## REFERENCE MATERIAL

References used for MDCB exam item writing include popular textbooks covering subjects in radiobiology, physics, dosimetry, cross sectional anatomy, and principles of radiation oncology practice such as the following:

- Khan, Faiz M. The Physics of Radiation Therapy. 5th ed. 2014.
- Khan, Faiz M. Treatment Planning in Radiation Oncology. 4th ed. 2016.
- Perez, Carlos A. and Brady, Luther W. Principles and Practice of Radiation Oncology. 6th ed. 2014.
- Fleckenstein, P. Anatomy in Diagnostic Imaging, 3rd ed. 2014.

Other popular texts can be found at the AAMD store and Medical Physics Publishing websites. In addition, item writers draw questions from reports that are relevant to current dosimetry practice published by the AAPM, ABS, ASTRO, ICRU, ICRP and NCRP as well as published RTOG clinical trials and NCCN guidelines. Because the practice of medical dosimetry and radiation technology evolves rapidly, it is not possible for MDCB to rely solely on textbooks and published reports for up-to-date information in all subject areas. Dosimetrists are expected to be aware of recent advances in the field and have a general knowledge of topical literature including key journal articles that have impacted the practice. In addition, dosimetrists should understand recent technological advances in radiation delivery equipment and imaging such as Cyberknife, TomoTherapy, GammaKnife, cone beam CT, etc.

Examples of relevant recent journal articles include the following:

- QUANTEC Special Issue. International Journal of Radiation Oncology Biology Physics. Volume 76, Issue 3, Supplement, S1-S160 March 2010.
- Otto K. Volumetric Modulated Arc Therapy: IMRT in a Single Arc. Med Phys. 35. 310-317 (2008).

## STYLE GUIDE

The following common terms/acronyms will be utilized on the exam wherever applicable:

**2D, 3D, 4D** – two 3-dimensional, three-dimensional, four-dimensional coordinate system  
**AAPM** – American Association of Physicists in Medicine  
**AIDS** – acquired immunodeficiency syndrome

**ALL** – Acute Lymphocytic Leukemia  
**AML** – Acute Myelogenous Leukemia  
**ARRT** – American Society of Radiologic Technologists  
**ART** – adaptive radiotherapy  
**AVG** – average intensity projection  
**BED** – biologically effective dose

**BID** – bi-daily

**BIRADS** – Breast Imaging, Reporting and Data System

**BMD** – bone density meter

**bremsstrahlung**

**BSF** – backscatter factor

**CBCT** – cone beam computed tomography

**CE** – continuing education

**CET** – coefficient of equivalent thickness

**cGy** – Gray

**CI** – Conformality Index

**CLL** – Chronic Lymphocytic Leukemia

**CMD** – certified medical dosimetrist

**CML** – Chronic Myelogenous Leukemia

**CNS** – central nervous system

**CRT** – conformal radiation therapy

**CSF** – cerebral spinal fluid

**CT** – computed tomography; computed tomographic (image)

**CTDI** – CT dose index

**CTV** – Clinical Target Volume

**Curie** (mili Curie)

**D** – absorbed dose

**DIBH** – deep inspiration breath hold

**DICOM** – digital imaging and communications

**DIR** – Deformable Image Registration

**DRR** – digitally reconstructed radiograph degree

**d<sub>max</sub>** – depth

**D<sub>max</sub>** – dose

**DVH** – dose volume histogram

**EDW** – enhanced dynamic wedge

**EUD** – effective uniform dose

**EPID** – electronic portal image detector

**FDA** – Food and Drug Administration

**FDG** – fluorodeoxyglucose

**FFF** – flattening free filter

**FOV** – field of view

**GI** – gastrointestinal

**GU** - genitourinary system

**GTV** – Gross Target Volume

**GYN** – gynecological

**H** – dose equivalent

**HDR** high dose rate high energy [adj]

**HIPAA** – Health Insurance Portability and Accountability Act of 1996

**HIV** – human immunodeficiency virus

**HU** – Hounsfield units

**HVL** – half value layer

**ICRU** – International Commission on Radiological Units

**IGRT** – image guided radiation therapy

**IDL** – isodose line

**IMRT** – (Intensity-Modulated Radiation Therapy)

**ITV** – Internal Target Volume

**IV** – intravenous; intravenously

**lateral scatter spread**

**JRCERT** – *Joint Review Committee on Education in Radiologic Technology*

**kV CBCT** – kilovoltage cone beam computed tomography

**kV** - kilovoltage

**LAN** – local area network

**LDR** – low dose rate

**LET** – linear energy transfer

**LINAC** – linear accelerator

**MALT** – mucosa-associated lymphatic tissue

**MeV** – mega electron volts

**mg-Ra-eq** – milligram radium equivalent (mg-Ra-eq)

**MIN** – minimum intensity projection

**MIP** – maximum intensity projection

**MLC** – multileaf collimation; multileaf collimators

**mR/h** – Roentgen mili

**MRI** – magnetic resonance imaging

**MSAD** – multiple scan

**MSF** – multiple static fields

**mSv** – (mili Seivert)

**MTD** – maximum tolerance dose

<b>MU</b> – monitor units	<b>RTOG</b> – Radiation Therapy Oncology Group
<b>MVCT</b> - megavoltage CT Imaging	<b>SAD</b> – source-to-axis distance
<b>MV</b> – (photons)	<b>SAR</b> – scatter-air ratio
<b>NCCN</b> - National Comprehensive Cancer Network	<b>SBRT</b> – stereotactic body radiation therapy
<b>NCRP</b> – In the United States, the National Council on Radiation Protection and Measurements	<b>SCD</b> – source to collimator
<b>NRC</b> – In the United States, the Nuclear Regulatory Commission	<b>SDD</b> – source-to-diaphragm distance
<b>NSAIDs</b> – nonsteroidal anti-inflammatory drugs	<b>SFD</b> – source-to-film
<b>NTCP</b> - Normal Tissue Complication Probability	<b>SRS</b> – <i>stereotactic radiosurgery</i>
<b>OAF</b> – off-axis factor	<b>SSD</b> – source-surface skin distance
<b>OAR</b> – organ at risk	<b>STIR</b> – short tau inversion recover or short T1
<b>ODI</b> – optical distance indicator	<b>TAD</b> – target-to-axis distance
<b>OER</b> – oxygen enhancement ratio	<b>TAR</b> – tissue-air ratio
<b>off-axis dose</b>	<b>TBI</b> – total body irradiation
<b>OSLD</b> – optically stimulated luminescence dosimeters	<b>TCP</b> – tumor control probability
<b>P</b> – permissible dose equivalent	<b>TD</b> – tolerance dose
<b>PACS</b> – picture archiving system	<b>TE</b> – echo time
<b>PDD</b> – percentage depth dose	<b>TERMA</b> – total energy released per unit
<b>PET</b> – position emission tomography	<b>TG</b> – Task Group (i.e. AAPM TG Reports)
<b>PHI</b> – protected health information	<b>TGF</b> – transforming growth factor
<b>Power law</b>	<b>TLD</b> – thermoluminescent device
<b>PRV</b> – Planning Risk Volume	<b>TMR</b> – tissue-maximum ratio
<b>PSA</b> – prostate-specific antigen	<b>TNM</b> – tumor node metastasis
<b>PTV</b> – Planning Target Volume	<b>TPR</b> – tissue-phantom ratio
<b>QA</b> –Quality Assurance	<b>TPS</b> – treatment planning system
<b>Q</b> or <b>QF</b> – quality factor	<b>TR</b> – repetition time
<b>QUANTEC</b> – Quantitative Analysis of Normal Tissue Effects in the Clinic	<b>TSEI</b> – total skin electron radiation
<b>RBE</b> – relative biological effectiveness	<b>TSI</b> – total skin irradiation
	<b>TURP</b> – transrectal resection of the prostate
	<b>UV</b> – ultraviolet
	<b>VSD</b> –Virtual source distance
	<b>WAN</b> – wide area network
	<b>X ray</b> [n]
	<b>X-ray</b> [adj]
	<b>x-ray</b> [v]
	<b>Z</b> – atomic number

## EXAMINATION RESULTS

Approximately 6 weeks after the examination, scores are provided to candidates at <https://mdcb.learningbuilder.com>. The MDCB exam is a pass/fail exam. Scores are **not** based on a curve as is typical for non-certification testing and represent only individual overall performance. Each candidate's ability is measured against a determined cut score identified by the cut score study, a recognized industry practice. Thus, each

candidate is measured against the same standard. Candidates are **not** required to have a passing score in each of the seven domains of the exam in order to achieve a passing score. Passing scores are based on the total number of exam questions correct.

The exams are graded electronically and the collective data reviewed and analyzed by a PhD psychometrician/statistician. Several quantitative indicators are used by the psychometrician to help determine the reliability and validity of the collective examination scores. Examples of these parameters include the r-biserial, p-values, and equater values. The r-biserial statistic compares the statistical relationship on each question for examinees based on their performance on the question and the test as a whole; the p-value statistic analyzes the percentage of examinees who have gotten a question correct; and the equater values analyze statistical relationships between previous and current questions. These are only a small component of the overall values collectively psychometrically analyzed.

Actual scores are not provided. Fail reports with detail will be provided, in order that candidates may assess their performance in each of the content areas. The results of the exam will remain confidential and are provided only to the exam candidate and the MDCB. An aggregate score for all Route 1 candidates for a particular program will be made available to program directors of the JRCERT program. Successful candidates will receive a wall certificate and earn the right to use the title "Certified Medical Dosimetrist".

CMD candidates can be assured of the reliability of the score reporting. Every examination is initially scored in the test center, then scored a second time in the operational scoring system at Prometric's data center, and scored a third time by an independent Prometric statistical system, and the scores from these three systems are compared to be certain that the correct results are reported.

## Score Confirmation

Candidates, who wish to have results confirmed by the MDCB testing company, may request a "confirmation of score." Please note that the confirmation process is solely meant to verify the accuracy of your exam result. Raw or scaled scores will not be provided. You must submit your request in writing by mail.

The deadline for requesting a score confirmation is 30 days after the date your results were posted for your review.

The fee for an exam score confirmation is \$250.

## CERTIFICATION AND ACCEPTANCE - GENERAL GUIDELINES

This section applies to, but is not limited to test conditions, test security and test validity.

The Medical Dosimetrist Certification Board shall either retain or reserve the sole right to determine whether or not scores on the examination are valid or invalid. The acceptance of a candidate's application to take the examination or the scoring thereof or the release of said test results to any party shall not act in any way to amend the right of the Medical Dosimetrist Certification Board to determine whether such scores achieved thereon are valid or invalid in whole or in part. A determination that an examination and the scores achieved thereon are invalid may be made at any time by the Board. The Board also reserves the right to cancel any scores that may already have been reported when subsequent information raises doubt of reported score validity.

Unlike cases of individual candidate misconduct, occasionally testing irregularities occur that affect a group of test takers. Such problems include, without limitation, administrative errors, defective equipment or materials, improper access to test content and/or the unauthorized general availability of test content, as well as other disruptions of test administrations (e.g., natural disasters and other emergencies). When group testing irregularities occur, Prometric will conduct an investigation to provide information to the Board. Based on this information, the Board may direct Prometric either not to score the test or to cancel the test score. When it is appropriate to do so, the Board will arrange with Prometric to give affected test takers the opportunity to take the test again as soon as possible, without charge. Affected test takers will be notified of the reasons for the cancellation and their options for retaking the test. The appeal process does not apply to group testing irregularities.

### **Confidentiality and Conduct Agreement**

When a candidate applies to take the examination, he or she is demonstrating his/her understanding of, and agreement to conform to the level of professionalism and ethics expected by the Medical Dosimetrist Certification Board in relation to test taking and must comply with the MDCB Ethical Standards. The MDCB Ethical Standards are available at [www.mdcb.org](http://www.mdcb.org). By making application to sit for the examination, candidates are acknowledging their understanding that the examination and its contents are proprietary and confidential. Candidates are prohibited from disclosing or reproducing any portion of the examination in any fashion or from recreating or attempting to recreate any portion of the examination or any test item for any reason. Candidates are prohibited from dissemination of any information concerning test content to any individual or any entity for any purpose whatsoever. Any conduct that the Medical Dosimetrist Certification Board reasonably believes to be designed or intended to breach test security or to disseminate examination content may result in the invalidation of test scores and may result in civil and/or criminal prosecution. The Ethical Standards apply to persons holding certification credentials from the MDCB and to persons applying for examination and certification by the MDCB in order to become Certified Medical Dosimetrists.

Any candidate's conduct during or following the examination which the Medical Dosimetrist Certification Board reasonably believes to be in violation of the foregoing conditions may result in score cancellation. Candidates agree and understand that test scores may be cancelled if there is reason to believe through test administrator observations, statistical analysis and/or other evidence that any test score or scores may not be valid or that any candidate was engaged in collaborative, disruptive, or other unacceptable behavior during or after the administration of the examination.

### **Candidate Misconduct**

The Medical Dosimetrist Certification Board administers an examination that serves an important public function, and no misconduct will be tolerated.

In an instance where the Medical Dosimetrist Certification Board believes individual candidate misconduct may have occurred, the candidate is notified and may be given an opportunity to provide additional information.

If, during the administration of an examination, a test administrator believes misconduct is taking place, certain options shall be available to the test administrator.

1. A test administrator may dismiss a candidate from the test and report that to the Medical Dosimetrist Certification Board, stating the reason that the action was taken.

2. A test administrator may choose not to dismiss a candidate from the test; however, under such circumstances, the test administrator will file an irregularity report with the Medical Dosimetrist Certification Board, describing his or her observations.

In either event, when a test administrator reports that a candidate may have committed an act of misconduct during an examination, the candidate's test record is reviewed and the Medical Dosimetrist Certification Board reserves the right thereafter to take appropriate action, including the cancellation and/or invalidation of the relevant test score.

The Medical Dosimetrist Certification Board has the unqualified right to question any test score the validity of which is in doubt because a score may have been obtained unfairly or because the Medical Dosimetrist Certification Board has reason to believe there has been a breach in test security. In the event that the Medical Dosimetrist Certification Board determines that a candidate's individual test results be withheld, or that a group of results will be withheld, the Board will notify the candidate or the group.

Upon written request or application in accordance with the appeal procedure, a candidate may request a hearing. The determination as to whether an appeal shall be granted is made by the Medical Dosimetrist Certification Board taking into consideration the circumstances of the invalidation decision.

### **Ethical Standards Procedure for Individual Candidate Misconduct**

In the event a candidate's scores are withheld or canceled due to specific individual misconduct as deemed by the MDCB, the Ethics Complaint Procedures for ethical violations will be followed. Candidates should review the Standards at <http://www.mdcb.org/about-mdcb/ethical-standards>. The Ethical Standards outline the procedures for Summary Suspension, Hearing and Appeals processes. Adverse decisions of the Board/Ethics Committee may result in revocation or suspension of the CMD designation, as well as, publication to appropriate authorities.

## **MAINTENANCE OF CERTIFICATION**

### **Registry of Certified Medical Dosimetrists**

Medical Dosimetrist become certified by the MDCB upon passing the examination and are eligible to use the credential of Certified Medical Dosimetrist, CMD. All Certified Medical Dosimetrists, who meet maintenance of certification requirements, will appear in the MDCB's public Certificant Directory.

### **Annual Fees and the Five-Year Continuing Education Cycle**

As a recognized member of the health-care field providing critical care to individuals facing life-threatening illnesses, once an individual becomes a CMD, it is his/her sole responsibility to confirm renewal of his/her credential, including annual payment, maintenance of the appropriate number of continuing education credits each cycle, making necessary updates to contact information and adhering to the Ethical Standards set forth.

Certification is valid for one (1) year. **Each CMD must pay an annual registration fee to have their credential registered beginning with the first year following successful exam results.** This registration process permits use of the CMD credential. A wall certificate with



seal will be issued for each five-year period upon receipt of the annual registration fee and completion of 50 MDCB approved continuing education credits. The CMD credential is to be renewed by December 31st of each calendar year. A 30-day grace period, with monetary penalty, will be allowed until January 31st. Failure to submit this renewal fee may result in loss of the CMD credential. Dosimetrists who have not paid the registration fee will not be allowed to use the credential "CMD" and will not be listed in the registry of Certified Medical Dosimetrists. Reinstatement of the credential can be achieved only via the terms of the Lapsed Credential Policy or by again passing the MDCB certification exam.

Along with being registered each year, the MDCB's Maintenance of Certification Documentation Program also requires 50 hours of participation in MDCB approved educational activities in each individual's five-year renewal cycle and must be recorded by each individual in their personal learning plan. The MDCB is responsible for establishing and managing credentialing and renewal processes for CMDs. Credential renewal is granted to those CMDs who have demonstrated current cognitive capability in the field of Medical Dosimetry by appropriately documenting participation in continuing education activities. The MDCB defines continuing Medical Dosimetry education as activities that are planned, structured and related to the practice of Medical Dosimetry. The Standards of Practice are AVAILABLE ON THE AAMD WEBSITE and define relevance to the practice of Medical Dosimetry for the Medical Dosimetrist.

Please note: Credits accumulation for those who are successful in the 2019 exam does not commence before January of 2020.

The MDCB will also conduct regular audits of all continuing education documentation. CMDs who are nearing the expiration of a current CMD five-year cycle, will be advised of non-compliance and potential for the CMD credential to lapse at the end of the year if no documentation for the 5 year/50 credit qualification is provided.

## **Maintenance of Certification Policies**

Please refer to the MDCB website to find policies relevant to Maintenance of Certification, for example:

- Temporarily Disabled CMD Policy
- Lapsed Credential for CE Non-compliance Policy
- Lapsed Credential for Non-payment of Fee Policy.

## **REVOCAION OF CERTIFICATION AND APPEALS**

The MDCB has the right to revoke any certificate that it has administered in the event that the recipient engages in conduct which is a violation of the Ethical Standards of the MDCB. Additionally, fraud on the part of any candidate in the application process is grounds for denial or revocation of certificate. A review process is provided for any candidate whose certificate has been revoked. Candidates who desire to appeal must do so in writing within 45 days of receiving notification of revocation of certificate. All appeals requests must be made to the President of the MDCB in writing via the address below.

Medical Dosimetrist Certification Board  
1120 Route 73, Suite 200  
Mount Laurel, NJ 08054

Toll-free (866) 813-MDCB or (866) 813-6322  
info@mdcb.org

**Certification Making a Difference**