CONTINUING EDUCATION CREDIT APPROVAL PROGRAM

PROGRAM HANDBOOK FOR THE
SPONSORS OF CPD ACTIVITIES

Last updated: 2023, March

CAMRT ACTRM

TABLE OF CONTENTS

INTRODUCTION

The Canadian Association of Medical Radiation Technologists (CAMRT) is a national, not for profit professional association that provides member services and advocates for the profession. It is also the certifying body for medical radiation technologists in Canada.

The CAMRT's Continuing Education Credit Approval Program (CECAP) provides a process which ensures the provision of high-quality educational activities that contribute to the ongoing competence and personal or professional development of medical radiation technologists (MRTs) in Canada. Through CECAP, professional development activities are assessed as per established criteria and assigned credit hours. These approved credits hours are recognized by organizations with continuing education requirements.

CAMRT has been given the status of a "Recognized Continuing Education Evaluation Mechanism" (RCEEM) by the American Registry of Registered Technologists (ARRT). This status allows CAMRT, through CECAP, to evaluate and approve continuing education activities for "Category A credit" for use by technologists. CAMRT is the only RCEEM in Canada. CAMRT is a national bilingual association that accepts and evaluates continuing education activities offered in French, but notes that the ARRT does not provide French-language guidelines or materials. For Category A credit to be assigned to an activity, the ARRT-published standards must be followed by each RCEEM - which include specific standards for reporting, renewals, and updates throughout the year – to ensure consistent quality throughout the program.

Developers and sponsors of continuing education activities are encouraged to submit their programs to CECAP for credit approval and assignment of Category A credit. Such credits can be used for Canadian and American credit claims and afford the candidate the most educational flexibility. Assignment of credit hours and Category A credit indicates the activity has been reviewed and is reflective of educational best practices.

<p align="center">Continuing Education Credit Approval Program
The Canadian Association of Medical Radiation Technologists
Ottawa ON, CANADA</p>

<p align="center">cecap@camrt.ca</p>

OBJECTIVES OF THE CREDIT APPROVAL PROGRAM

The purpose of Continuing Education Credit Approval Program is to
- ensure the provision of high-quality educational activities through a standardized review and audit process
- assess and approve continuing education activities related to medical radiation technology (radiological technology, radiation therapy, magnetic resonance imaging, and nuclear medicine)
- assign credit hours and Category A credit with a RCEEM accreditation reference code and expiry date.

GUIDELINES FOR CREDIT APPROVAL

Content
For an educational activity to be approved, it must be a planned continuing professional development activity related to medical radiation technology. It must enhance the professional knowledge, skill, and judgment of the MRT in providing services to patients, peers, the public, and other healthcare professionals. The subject matter must be comprehensively covered and be related to current or future practice.

Review Process
An application comes from a sponsor (organizer) by email to CAMRT, and it is reviewed against ARRT requirements. The ARRT has mandatory policies, processes, and standards that CAMRT must maintain during the credit approval process. While this is completed in the CAMRT office, a subject matter expert(s) reviews the content of the event. After any questions are answered, an approval letter including a credit reference code is issued, which includes mandatory requirements for the sponsor (you) surrounding attendance tracking, letters of completion, and accreditation code expiration date.

Application
Notwithstanding specific criteria for certain types of CPD, an application must
- be submitted by the sponsor of a CPD activity
- be a minimum of 20 minutes in length (ask if you are unsure about how to time the activity), with the length of each planned element of the activity provided*
- be submitted a minimum of 15 business days prior to the date of a live activity**
- include credit application fee
- provide clearly stated learning objectives related to subject matter
- include speaker credentials
- include a process to ensure and validate participation/attendance.

*Additional documentation is required for hands-on, application training, on-demand and other CPD types. Please ask for more details.
** To allow for sufficient review time, **on-demand modules and home study courses** must be submitted a minimum of **45 business days** prior to the release date. Only courses **from Canadian sponsors** will be accepted for review. Applications for Category A credit approval cannot be accepted after an educational activity has taken place.

GUIDELINES FOR CREDIT ASSIGNMENT/DETERMINATION

Where required, CAMRT assigns MRTs with appropriate subject matter expertise to conduct credit approval reviews. Credit assignment is dependent on the type of activity.

Synchronous Activity
Credit for synchronous (live) activities is assigned based on the accumulated time of the activity. A simple formula is applied to find the Category A credit value that is equivalent to a credit hour.

Asynchronous Activity
Credit approval for asynchronous (on-demand/distance) learning activities is determined based on the average length of its components, a specialized formula determined by the ARRT-RCEEM policies, and the length of the post-test that is used. Utilization of the formulas should be paired with effective learning objectives that communicate what participants should be able to do upon completion of the activity and assessment questions based on the learning objectives. The length of a user review might also be leveraged in this calculation.

Credit Type
The term "Category A" is used to indicate credit review compliance with the ARRT's RCEEM guidelines for continuing education.

An approved activity can be used by ARRT members to satisfy the ARRT continuing education requirements **and** can also be used for annual CPD requirements in **any** Canadian province and/or territory.

Activities less than 15 minutes are not eligible for credit. Activities that are too short to meet learning objectives may be rejected.

An average credit count for synchronous educational activities is provided here for reference:

- 15 minutes are eligible for 0.25 cr hr/ 0.25 Category A credit
- 30 are eligible for 0.5 cr hr / 0.5 Category A credit.
- 60 minutes are eligible for 1.0 cr hr / 1.00 Category A credit.

On rare occasions, non-Category A credit that is unrecognized by the ARRT, can be provided by the CAMRT through CECAP. Please contact us for more details.

APPLICATION PROCESS

For credit approval, completed application forms must be submitted to the CECAP for approval of continuing education activities **prior to the date of each activity**. Each submission must include the:

- name of the sponsoring organization
- name and contact information of the sponsoring organization's contact person
- defined learning objectives for individual sessions within an educational activity*

- date, location, and start/ end times for each educational activity (including scheduled refreshment / lunch breaks); an outline or schedule may be submitted
- name, credentials and/or qualifications and employer of the course instructor/speaker/presenter
- chosen tracking mechanism to validate participation
- payment**.

Review of CAMRT-affiliated events, i.e. provincial organization & CAMRT co-hosted events, will not be reviewed by the primary author alone, another MRT within CAMRT, a working group or other appropriate review mechanism will review the content for appropriateness.

For guidelines on how to write learning objectives, see **Appendix A**.

***Incomplete submissions may be processed however credit will only be assigned to the sessions where information has been provided in full (see above). Further sessions would be subject to a new application fee. We can take payment over the phone or via cheque or a bank transfer, contact us for details.*

Download the application form at www.camrt.ca/professional-development/cecap

TIMELINES FOR CREDIT APPROVAL

Synchronous (live) Program Applications

To ensure sufficient review time, it is strongly recommended that applications be submitted to CECAP **30 days** prior to the date of the continuing education activity. The deadline for submission of all documentation for live programs (including forms and fees) is no later than 15 working days prior to the scheduled educational activity.

Written approval from CECAP of live programs is endeavored to be provided to the sponsor within 10 business days of receipt of application and payment. This will include the credit hour/Category A credit assignment, a unique reference code, expiry date and details outlining the sponsors' responsibilities.

Asynchronous (self) Learning Applications

Self-learning activities (i.e. online courses, home-study programs etc.) require a minimum of 30 business days for review. All course materials must be submitted at the time of application and will not be returned to the sponsor. If the activity is delivered online, user access must be provided at the time of application.
Activity assessments must also be submitted at the time of application, this includes post-test questions or interactivities embedded within the CPD activity.

To assist with creating an appropriate assessment tool, guidelines on how to write proper multiple-choice questions are listed in **Appendix C**

Note: As of Spring 2019 CAMRT announced that it no longer accepts asynchronous learning activities from CPD sponsors outside of Canada.

GUIDELINES FOR VERIFICATION OF ATTENDANCE

Attendance verification is a critical and mandatory component of CE activity approval. It is the sponsor's responsibility to ensure attendance and accurate reporting of time spent participating in a CE activity.

Sponsors must retain these records of attendance for a period of 5 years in the event of an audit. At the time of application, sponsors of CPD events must confirm their chosen tracking mechanism with CAMRT.

The CAMRT is audited by the ARRT annually and a percentage of approved events will be audited each year by CAMRT.

The following examples could be used by CPD sponsors to monitor attendance:

- Sign-in and sign-out sheets
- Electronic scanner verification
- ARS (respondent identified) that are used throughout a session(s)
- Course evaluations (respondent identified)
- Stamped attendance verification sheet
- CPD activity post-test
  - This is the method used to verify attendance at most asynchronous learning activities
  - Specific post-test guidelines must be met, including those identified below in the Post Test section of this document.

POST TEST

There are specific requirements for an activity where a post-test is used to verify attendance (details current as of Jan 1 2023, and may be subject to change):

- For each <u>0.25</u> credits awarded to an activity there must be a <u>minimum of 2 questions</u>.
  - For example: if the CE value calculation indicates the activity's CE value will be 1.5 CE credits, then post-test must have a minimum of 12 questions.
  - A video that's 30 minutes and accredited for 0.5 credits would require 4 questions minimum.
  - Please inquire if you have questions.
- There is a minimum passing score of **75%** (minimum) for the post-test with a maximum of three attempts.
- **No** answers are revealed to the participant until after the final attempt is scored.
- A maximum of **three** attempts to pass the post-test is allowed. No CE credit will be awarded if there are three failed attempts. If a participant fails to score 75% on the post-test, the number of incorrect answers or the percent correct may be provided to the individual, but the specific questions answered incorrectly must not be identified.
- Correct answers to the post-test must not be provided until after the post-test has been passed or after three unsuccessful attempts.

The activity should include post-test instructions (or equivalent):

- "In order to receive CE credit, you must first complete the CE activity content. When completed, go to the [XXX] page of the activity to access the post-test."
- "Submit the completed answers to determine if you have passed the post-test. You must obtain a score of 75% to receive the CE credit. You will have no more than 3 attempts to successfully complete the post-test."
- Mention the number of CE credits awarded for successful completion of the CE activity & name the approver: "Approved by [CAMRT] for [# of credits] ARRT Category A credit."
- **The approval reference number should not be printed anywhere other than on the certificate of participation.**

ACTIVITY COMPLETION

As a sponsor of an approved CE activity, you must provide documentation of participation of those who complete your activity which includes the following typed details (details current as of Jan 1 2023, and may be subject to change):

- Sponsor's name
- Participant's name (should match attendance tracking information)
- Title of the educational activity (please ensure it matches the approved title)
- The date(s) of the activity (MM/DD/YYYY or complete date preferred)
- The number of Category A credits awarded (pre-printed, not handwritten)
- The unique RCEEM reference number and expiry date as assigned by CECAP (this allows the candidate to claim credit for this activity until the expiration date)
- Include any special statements that are outlined in your approval letter by CECAP
- Date document is issued (i.e. the date on which the requirements for the activity have been met)
- Signature of an authorized representative of the sponsor (does not need to be typed).

It is the responsibility of the sponsor to retain attendance/validation records for 5 years.

These requirements are outlined in the approval letter from CECAP to you.

A sample certificate is available for sponsors in an electronic format, also see **Appendix B**.

ACTIVITY RENEWAL

Activities may be renewed if the previously submitted learning objectives and outline have not changed and remain relevant. However, please note that renewals are subject to review against policies in effect during the year of renewal, and might require adjustment in order to meet up-to-date ARRT-RCEEM policies.

Sponsors must submit a renewal request including the original reference code and expiry date.

Requests for renewal must be submitted by the sponsor a minimum of 15 business days prior to the existing expiry date.

A maximum of three (3) renewals per activity is allowed, subject to CAMRT CECAP approval.

 A renewal fee applies.

Download the application form at www.camrt.ca/professional-development/cecap

PROGRAM AUDIT(S)

CAMRT reserves the right to conduct an audit of any approved CE activity approved by CECAP to verify the adequacy of content and delivery. We are required to audit a percentage of approved events annually.

 The sponsor may be asked to provide a form, a copy of the sign-in sheets and/or evaluations for any approved activity. Failure to provide the requested information may result in cancellation of the approved activity credit as well as non-evaluation of future CE activities. Failed audit results are transmitted to the ARRT through our annual audit and annual report program.

The following documentation might be requested to validate compliance:

- Sign-in and sign-out sheets
- Electronic scanner verification
- Course evaluations
- Stamped attendance verification sheet
- CPD activity post test (minimum pass mark of 75% required).

Sponsors are required to retain records of participation for a period of five (5) years after the activity date.

CAMRT will not retain approval documentation indefinitely, but commits to retain all approval documentation through the end date of the expiration. As of July 2022, records are kept electronically within a corporate infrastructure and will be purged on a rolling basis.

DENIED CREDIT

An activity may be denied approval. A denial can be issued when:
- content is outdated or shallow
- material is inaccurate
- CECAP / RCEEM guidelines are not met
- content misleads participants or make false representations
- the system to track and validate attendance is not deemed acceptable
- format of the activity does not meet CECAP standards.

The CAMRT reserves the right to deny or withdraw the approval of any educational activity that:

- does not meet the quality standards represented by the material submitted or advertised
- misleads participants or makes false representations
- changes substantively from the approved format
- does not meet the deadline required to review the application
- lacks an acceptable system to track and validate attendance.

APPEAL PROCESS

Every effort is made by CECAP to be equitable and fair when approving educational activities for credit hours and Category A credit. In the case where a sponsor of CE may wish to appeal the decision of CECAP, the following procedure must be followed:

1. The sponsor must submit a written request for re-evaluation of the educational activity.
2. CECAP will notify the sponsor, in writing, that the appeal has been received.
3. An Appeal Panel consisting of three alternate reviewers will complete a new review according to the established guidelines.
4. The decision of the appeal panel will be final.

ELIGIBLE ACTIVITIES FOR CREDIT APPROVAL

CAMRT will review activities for Category A credit in the following categories as of 2023:

- Live Lectures
- Multi-day conferences
- Panel discussions
- Applications training
- Hybrid of online and onsite training
- Self-learning materials (that require a post-test)
- Tumour Boards, chart rounds, cancer conferences.

CAMRT is recognized by the ARRT to approve activities in the following content subject areas:
- Magnetic Resonance Imaging
- Nuclear Medicine Technology
- Radiation Therapy
- Radiography
- Bone Densitometry
- Cardiac Interventional Radiography
- Vascular Interventional Radiography
- Computed Tomography
- Mammography

Live Lectures

These are synchronous events, where attendance is live-tracked. For synchronous events, 50 minutes is equal to one (1.0) CE credit as defined by ARRT.

Examples of activities under this category include webinars, lectures, seminars, structured case reviews etc. which may be presented independently or as part of a professional conference, symposium, or meeting. The live program must be presented within a contained time frame on a specified date(s). Live Programs are approved for a one-time presentation only.

Conferences, rounds and panel discussions, if they meet all other criteria, fall under the same review structure as live lectures.

Workshops/"Hands-on" Learning

These are synchronous events.

How-to sessions allow for exchange of knowledge through panel discussions and interactive presentations with the attendees. These are referred to by the ARRT as Activities with a Psychomotor Component. "Hands-on" interaction is defined as active personal physical involvement by the CE activity participant. The activity must include actionable learning objectives that are measurable and linked to the job tasks typically performed by an MRT, with capped attendance and ample time allowed for each activity participant to demonstrate skill development for each actionable learning objective submitted by the CE Sponsor. These must be linked with a "didactic" element, for example, a lecture with a hands-on element following it.

Applications Training or User Group Meetings

These are synchronous events.

There are further requirements that must be met for training sessions, please contact us for details. These include measurable learning objectives, vendor- and location -restrictions, and capped attendance.

On-demand, self-learning Programs

These are asynchronous events.

These programs are learning activities that are packaged and completed by participants on an individual basis, in a distant location from the program sponsor, that do not have live attendance tracking. This category includes online courses, study modules, and on-demand postings of audio-visual programs such as recorded live events / webinars.

ACTIVITIES NOT ELIGIBLE FOR CREDIT APPROVAL

The activities below will not be considered for Category A credit approval.

The CAMRT does **not** accredit sonography-specific days/sessions, simulations or authorship credits.

Administrative meetings, sponsored meals, awards, and social events will not be reviewed for credit.

This list is not inclusive and subject to revision by the CAMRT.

- Activities received after the presentation date or with insufficient review time
- CPR training
- Poster Presentation (viewing)
- Annual General Meetings and other business meetings
- Topics specific to policies and procedures of a specific employer or institution
- Routine staff, department, committee, or association business meetings
- Development of manuals related to work or professional responsibilities
- Sales presentation by industry vendors
- Rounds cannot be approved if the activity includes discussion of *Patient A, Patient B, and Patient C* who will be treated/examined this week. If the discussion covers *Disease 1, Disease 2, and Disease 3*, the topics are general in nature and can be awarded CE credit.

CREDIT APPROVAL FEES

The fees differ depending on the type of educational activity. Fees may be adjusted by the CAMRT with written confirmation from the sponsor, as required. You will be invoiced by CECAP.

Live Lecture (presentation up to 3 hours in length)	$125
Live Lecture renewal*	$75
Conference/seminar/education day (multiple sessions, one-time presentation)	$150 for Day 1 + $25/ subsequent day
Self-Learning Activity (0.25-3 hours, asynchronous, renewable)	$150
Self-Learning Activity (3.25-9.5 hours, asynchronous, renewable)	$300
Self-Learning Activity (10 + hours, asynchronous)	$400
Annual Self-Learning Renewal* (*maximum 3 per activity*)	$100

*Renewals must be requested before expiration of the activity and must be *unchanged* from previous approval to qualify. Edits to required documentation or other elements may be required to ensure activities align with the current accreditation standards.

The period of accreditation is defaulted to a year to allow participants time to claim their CPD credits.

Please contact CAMRT with any item not listed here, or for a customized quote based on your request.

Corporate Membership

Corporate sponsorship is available to institutions / organizations sponsoring multiple **live** MRT-related activities in one year. These sponsors pay one fee in advance to submit educational activities (under 3.0 credits each) per year for approval. Activities may be submitted for approval at any time during the 12-month corporate provider agreement year. Corporate sponsors must renew the agreement each year.

Number of activities	Total Prepaid Amount
1 to 10	$400
10 +	Contact CAMRT

Fees remaining in the account after the end of the agreement year are forfeited.

CECAP fees may be paid by VISA, MasterCard, cheque, or Money Order (payable to the CAMRT).

All fees are in Canadian funds and must be paid prior to credit approval.

REFUNDS

Refunds are not given for applications that have been reviewed in part or in whole.

ADVERTISING AND PROMOTIONAL GUIDELINES

A sponsor may **not** claim an activity is approved for Category A credit until the activity has been approved by CECAP.

Reference numbers must appear on the personalized certificates of attendance only.

If a promotion for an approved activity is posted on the sponsor's website, the following statement **and** CAMRT logo should be included: *"This activity has been approved for Category A credit by the CAMRT".*

Please contact cecap@camrt.ca for a copy of the logo.

CONTINUING EDUCATION SPONSOR RESPONSIBLITIES

Sponsors of educational activities are responsible for:

- planning and designing an educational program that fulfills CECAP's definition of a continuing education activity
- the completion and submission of all CECAP forms, supporting documentation and applicable fee required for approval within the requested timeframe
- monitoring and tracking participants' attendance of participants at live presentation
- providing participants with a certificate of attendance reflecting the hours of education attended, the assigned RCEEM reference code and the CAMRT Logo
- retaining records of participation for a period of five (5) years after the educational activity in the event of an audit
- responding to audit requests from ARRT or CAMRT
- renewing the activity credit (if applicable) before it expires
- The sponsor is also responsible for notifying the CAMRT when a live activity **runs shorter than the time** it was approved for. If a session goes over the approved credit amount, the credit assigned may not be increased.

CAMRT RESPONSIBILITIES as CECAP / RCEEM

The CAMRT is responsible for:

- receiving and processing credit approval requests in a timely and equitable manner
- returning incomplete applications to the sponsor with specific instructions for revision
- assigning a subject matter expert in the radiological sciences to review applications and supporting documents in a timely and equitable manner
- assigning a unique reference number and expiry date to activities meeting established criteria
- notifying sponsors of the outcome of the credit approval process and provide guidelines for tracking participants' attendance
- ensuring educational activities meet quality standards by conducting random audits of approved programs to verify compliance with CECAP guidelines
- retaining records of approval after the educational activity in the event of an audit
- posting the approved activity on the CAMRT CPD Repository (if in use)
- notifying the ARRT of any non-compliant sponsor.

CPD PARTICIPANTS/REGISTRANTS RESPONSIBILITIES

Participants of any CPD activity are responsible for:

- attending the <u>entire</u> activity to receive the assigned credit
- ensuring they receive, at the end of the educational program, documentation from the sponsor that substantiates participation or successful completion of the activity.
- Reporting CPD hours to any respective agency(ies), oneself.

GUIDELINES ON HOW TO WRITE LEARNING OBJECTIVES

Purpose of Learning Objectives: To communicate to the learner the goals of the course and how they will be expected to demonstrate their understanding. Learning objectives communicate what the learner will be able to do at the end of the course/presentation/webinar.

Learning objectives complete the statement: *At the end of this course the learner will be able to. . .*

To construct learning objectives, use the following steps:

Step 1: Connect the lead in sentence above with an action verb that describes how the learner will demonstrate their understanding. (Ex: Explain, Identify, Compare, Discuss etc.).
   a. Select a verb that describes the action as well as the level of comprehension expected
   b. Avoid using vague/broad verbs that are hard to measure (ex: understand, appreciate, learn)
   c. A list of action verbs is provided at the end of the document.

Step 2: Finish the action statement describing the knowledge or skill you wish the learner to gain from the course/presentation/webinar.
   a. Make sure the statement is measurable, specific and clearly written
   b. Example:

Course Topic: Current and Emerging Issues in Healthcare

VERB	KNOWLEDGE/CONCEPT
DESCRIBE	how an aging population affects workload
IDENTIFY	trends in government funding for healthcare
DISCUSS	new diagnostic and therapeutic technologies

Step 3: Review your objective
   a. Is the objective measurable?
   b. Does the verb accurately describe how the learner will demonstrate their learning?
   c. Is your objective specific (only addresses one concept/skill)?

Other tips:
   • It may be helpful to work backwards to build your objectives. Start with the knowledge/topics you wish to cover (step 2) then decide how the learner will demonstrate understanding (step 1).
   • When writing a Quick Self-Study Course aim for 5-10 objectives
   • When writing a full-length course aim for 10-20 objectives

Learning Objectives Sample

Course: Nutrition & Cancer
On completion of this quick self-study course, the learner will be able to:

- Discuss the role of nutrition in the development and prevention of cancer
- Identify the components of a healthy diet as per Canada's Food Guide
- Summarize the impact of cancer progression on nutritional status
- Discuss the impact of radiation therapy and other treatments on nutritional status
- Suggest interventions and strategies to support nutrition during cancer treatments
- Critically review published literature on nutritional complementary-alternative treatments

Examples of Action Words: Revised Bloom's Taxonomy

Remember	Understand	Apply	Analyze	Evaluate	Create
Define	Compare	Apply	Analyze	Appraise	Adapt
Identify	Describe	Calculate	Compare	Assess	Create
List	Discuss	Illustrate	Correlate	Critique	Design
Describe	Differentiate	Modify	Differentiate	Defend	Construct
Label	Explain	Produce	Determine	Evaluate	Develop
Outline	Illustrate	Present	Estimate	Justify	Modify
Select	Select	Solve	Examine	Measure	Organize
State	Summarize	Use	Prioritize	Recommend	Produce

Lower Order Thinking ⟶ Higher Order Thinking

A more comprehensive list can be found here: http://uwf.edu/media/university-of-west-florida/offices/cutla/documents/Blooms-Taxonomy-Table-of-176-verbs-Stanny-2016.pdf

CERTIFICATE OF ATTENDANCE

Certificate of Attendance

confirms that

has attended the

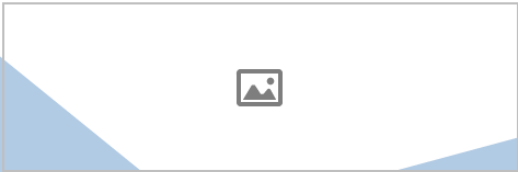And has earned _____ Category "A" credit(s)/CE hours

_____
RCEEM Reference Code

_____
Expiry Date

_____
Signature of Sponsor/Authorized Representative

_____
Date Issued

This CE activity has been approved for Category "A" credit by the CAMRT and is recognized by the provincial organizations and the American Registry of Radiologic Technologists (ARRT).

This CE activity may be available in multiple formats or from different CE Sponsors. ARRT does not allow self-learning CE activities (e.g., Internet courses, home study programs, directed readings) to be repeated for CE credits in the same CE biennium.

CAMRT ⚛ ACTRM

DEVELOPMENT OF MULTIPLE-CHOICE QUESTIONS GUIDELINES DOCUMENT

To ensure CAMRT learning activity post quizzes reflect current best practice in assessments, the following criteria has been established to guide content developers and peer reviewers throughout the process.

<u>Anatomy of a Multiple-Choice Question</u>

What color is the sky on a sunny day?	Stem

a. Red
  b. Green
  c. Purple
	Distractors

d. Blue	Correct Answer

<u>Guidelines for development of stems of questions</u>

Stem = The question being asked.

The stem should be straight forward with enough information to choose a reasonable response. The examinee should be able to cover up the options and determine the correct answer from just reading the stem.

- The stem should provide a complete concept. Stems for **true/false** questions should ideally be worded as **statements**. For **multiple-choice** answers, where possible, the stem should be worded as a **question** (rather than an incomplete sentence). Ex: The color of the sky is: (okay); What color is the sky? (better).
- Use understandable language and be concise – only include relevant information
- Avoid use of absolutes (always, never, only).
- Avoid use of acronyms or abbreviations if they have not been introduced in study material.
- The **stem** should be a **positive statement**. Avoid use of a negative statement if at all possible. However, if the question must be phrased in a negative manner capitalize the words NOT, NEVER etc.
- Avoid the use of blanks in the stem.

Guidelines for development of responses

Reponses to a multiple-choice question include the correct answer and 3 distractors. Writing good responses can be challenging.
- Be sure that only **one** option is correct (avoid some/all of the above/none of the above options)
- Vary position of the correct answer
- Distractors must be plausible - related to topic
- Responses should be brief as possible and **consistent in length**. If correct answer is longer it may provide an unintentional clue
- Avoid use of "always" or "never" in the response
- If options are numbers list them in ascending order, ranges should not overlap
- Use parallel construction in the options. For example, begin all responses with a verb or a noun
- Avoid use of responses such as
    - Some of the above (ex: a + b + c)
    - none of the above
    - all of the above
- Each response should be grammatically consistent with the stem
- Topics/concepts used for questions need to be clearly covered in the presentation. The participants should be able to answer all questions by watching the presentation.

Sample Questions

The stem of a question should be able to stand alone and distractors must be related
(note: in the better question all responses are bones of the wrist):

POOR   The navicular is:
      A. another name for scaphoid
      B. located in the skull
      C. bone in the knee
      D. a blood vessel

BETTER   What is another name for the navicular?
      A. triquetrum
      B. semilunar
      C. scaphoid
      D. cuneiform

The stem should contain as much of the item content as possible- also note in the better question the responses are arranged in increasing numerical order (logical sequence):

POOR   The use of rare earth screens in place of calcium tungstate screens results:
            A. in a reduction of up to 20% in patient exposure
            B. in a reduction of up to 30% in patient exposure
            C. in a reduction of up to 50% in patient exposure
            D. in a reduction of up to 70% in patient exposure

BETTER   What percent reduction of patient exposure occurs when rare earth screens are used in place of
            calcium tungstate screens?
            A. 20%
            B. 30%
            C. 50%
            D. 70%

Avoid responses which overlap or include each other:

POOR   What percentage of the dose to the bone marrow is contributed by a chest x-ray?

            A. 20 – 25
            B. 25 - 30
            C. 30 - 50
            D. 15 - 20

BETTER   A. 5 - 15
            B. 20 - 25
            C. 30 - 50
            D. 55 – 60