



Motion Management Questionnaire

Quality Assurance Review Center
640 George Washington Highway, Building A, Suite 201, Lincoln,
RI 02865

This questionnaire addresses your institution's ability to participate in clinical trials that require accounting for intra-fraction lesion motion. Please complete the following questionnaire in sufficient detail so that the methodology you are using for managing respiratory motion is clear. The questionnaire is not protocol specific; it will suffice for all protocols requiring management of lesion motion due to respiration.

Institution: _____

Address: _____

City: _____

State: _____ Zip Code: _____ Country: _____

Person completing this questionnaire: _____

____Physicist ____Radiation Oncologist ____Dosimetrist

Telephone: _____ Fax: _____

E-mail: _____

I. Experience:

What is the general category of technique that you use to manage the effects of respiratory motion? (e.g., gated to spirometer readings)

How many patients have you treated using techniques for managing respiratory motion?

For which target volume sites have you employed respiratory motion management?

____Lung ____Liver ____Pancreas Other: Please list: _____

What criteria do you use to select patients for respiratory motion management?

What immobilization do you use?

How do you verify accurate setup positioning of the patient?

What accelerator do you use for these treatments?

What is the beam energy _____MeV?

If using a MLC, what is the leaf width? _____

What treatment planning system is used for planning these treatments? _____

II. Overall Technique

A. What is your method of assessing motion of the lesion with respiration?

- _____ Fluoroscopy
 - For 2D motion (one fluoro angle) _____
 - Or 3D motion (two or more fluoro angles) _____
- _____ 4D CT
- _____ Inspiration/expiration fast-CT scan
- _____ Other: Please describe:

B. What type of CT scan is used for treatment planning?

- _____ Standard CT scan
- _____ 4D CT
- _____ Inspiration/expiration fast-CT scan
- _____ Slow-CT scan (multiple respiration cycles per slice)
- _____ Other: Please describe:

C. What is your method of managing motion of the lesion with respiration?

- Nothing other than increased margins for PTV definition
 - Forced shallow breathing using abdominal compression
 - Gating of treatment with breathing cycle
 - Active breathing control (ABC)
 - Self-held breath-hold with respiratory monitoring (e.g., RPM)
 - Gating during free breathing using external monitors or implanted fiducials
 - Other: Please describe:
-

- Tracking motion by:
 - Moving the beam (e.g. Cyberknife)
 - Moving the MLC's
 - Moving the patient to follow the target

III. Specifics of the Assessment of Motion due to Respiratory Motion

Is assessment performed for every patient? Yes No

How frequently is assessment performed?

- Only prior to treatment planning
- Other: Please specify: _____

What is used to assess the motion?

- Lesion itself
- Anatomic correlates
 - Diaphragm
 - Chest wall
 - Other please specify: _____

- Implanted fiducial markers
 - How many? _____ What size _____ mm
 - What material? _____
 - Other. Please specify: _____

Who analyzes and assesses the amount of motion?

- Radiation Therapist (or simulator technologist)
- Radiation Oncologist
- Radiation Oncology nurse
- Physicist/dosimetrist
- Other: Please specify: _____

What, if any, patient training is provided before the assessment?

Who provides the training?

- Radiation Therapist (or simulator technologist)
- Radiation Oncologist
- Radiation Oncology nurse
- Physicist/dosimetrist
- Other: Please specify: _____

IV. Specifics of the Management of Motion due to Respiratory Motion

Please answer the section(s) below that are applicable to your institution

- A. If after measuring the motion you do nothing other than increase margins for PTV definition

Who determines the margin to be added to account for the motion? _____

Are these margins assessed in 3 dimensions?

Yes Usually No

Are the margins the same in all directions?

Yes Usually No

- B. If you use forced shallow breathing using abdominal compression

Describe the system you use for abdominal compression:

What pressure do you usually apply? _____ lbs/sq inch

What is the sensor used to monitor the pressure? _____

Please attach your written procedures for the use and quality assurance of this device.

C. If you use active breathing control (ABC):

Do you use a commercially available system? _____ Yes _____ No

If yes, which one? _____

For your device, how is a breathing trace acquired?

_____ Mechanical spirometer

_____ Temperature sensor

_____ Other. Please specify: _____

How frequently is the calibration of airflow performed?

How frequently is the calibration of volume performed?

How frequently are emergency procedures reviewed?

Please attach your written procedures for the use and quality assurance of this device.

D. If you use self-held breath-hold with respiratory monitoring:

(e.g., Varian RPM system)

Prior to simulation, how are patients evaluated for their ability to comply?

What aids do you use to help compliance?

(e.g. audio commands (from tapes), visual guides)

Are the thresholds used for beam off the same for all patients?

_____ Yes

_____ No

Please attach your written procedures for the use and quality assurance of this device.

E. If you use gating during free breathing with external monitors or implanted fiducials

If you use a commercial system, which one is it?

Do you use

_____ External monitors (eg, Varian RPM system)?

_____ Implanted fiducials?

How is the planning CT acquired?

_____ Gated CT scan

_____ 4D CT scan

Is the gating

_____ Amplitude based?

_____ Phase based?

Please attach your written procedures for the use and quality assurance of this device.

F. If you track the motion of the target during treatment

What commercial system do you use?

What do you track?

_____ Fiducial markers?

_____ Anatomic correlates (e.g. diaphragm, chest wall)

_____ Other. Please describe: _____

Please attach your written procedures for the use and quality assurance of this device.

V: Data to be submitted with completed questionnaire:

- A. Copy of your written procedures for assessing the target motion due to respiratory motion for individual patients, including quality assurance procedures for all equipment.
- B. Copy of your written procedures for each motion management technique used for treating patients, including quality assurance procedures for all equipment.

Please save and submit with supporting documents to QARC via sFTP.

Or