



## Lung IGRT Results Summary

Updated June 7th, 2017

- One response per centre. Three centres did not respond, and not all respondents answered all questions.
- Disclaimer: While reviewing the results of the survey, there was indication that some respondents may have answered some questions as they related to SBRT lung, rather than radical lung.

### Immobilization

- All respondents were using some form of immobilization. There was roughly an equal distribution of Vaclok, Wing board and breast boards. Vac lock users reported issues with vac locks deflating.
- All patients are scanned with arms up.

### Simulation

- All centres are using tattoos (minimum 3 + a straightening landmark/tattoo)
- Most centres reported using contrast. However, there was large variability in the frequency of contrast usage.
- 64% of respondents reported using PET for at least 50% of patients for planning purposes. 27% reported no capability for PET usage in planning. This is the focus of another Lung CoP project.
- About half of the centres reported having used abdominal compression, although information on the frequency of usage was not collected.
- 90% of respondents are using 4DCT for planning (one respondent did not indicate what type of scan). The vast majority use the 4D average as the primary dataset for dose calculation.
- Although there are typically concerns surrounding tumour changes in lung patients, no respondents indicated they had a policy surrounding expiration of CT simulation data (i.e. how long a scan is valid relative to Day 1 treatment). Based on discussions within the lung CoP, it is assumed that evaluations take place on a case by case basis.

### Planning

- PTV expansions ranged from 0.5 to 1cm, with 0.5cm being the most common margin (66% of respondents).
- The majority of cases are planned with IMRT or VMAT. Rarely is 3D conformal still being used. At the time of the survey, there was an equal proportion of IMRT and VMAT.

### IGRT

- All centres use structure overlays (PTVs, OARs) during IGRT. In addition, 80% of respondents export isodose lines for overlay on CBCT images. The use of isodose lines is primarily for the evaluation of dose near the cord (e.g. 45-48Gy).
- All respondents, except for one, perform daily CBCT imaging (one centre performs 2 CBCT and 3 kV/kV per week).



## Cancer Care Ontario

- The majority of images are approved (formally or implied) by therapists. Approximately half of the respondents indicated that physicians are still involved in the routine lung IGRT image approval process (online or offline). This could point to a trend towards less physician approval process. Physicists are not involved in routine image approval.
- All respondents indicated they have standardized guidelines for volumetric (CBCT) IGRT. Action levels for translational shifts and re-positioning are specified in all guidelines. 57% of respondents indicated they also specify guidelines for rotations (pitch, roll, yaw). The majority of respondents also contain guidelines for when to contact others for set-up challenges and anatomical changes.
- All respondents use a combination of automatic and manual matching. However, there was wide variation in the clip box setting for the automatching portion.
- All respondents evaluate bone, 86% evaluate soft tissue (tumour within PTV), 71% also evaluate the carina. 57% also review isodose lines and OARs.