Preparation of a Breast Sentinel Lymph Node Specimen

Purpose: This document provides a provincial standardized process on how to prepare breast sentinel nodes.

Sample: Breast, sentinel lymph node**.** A sentinel lymph node is the first lymph node in a chain or group of lymph nodes where the cancer has most likely spread. There is often more than one sentinel lymph node collected and submitted for pathology examination.

Procedure:

Fixation:

- Fix all breast tissue samples in 10% neutral buffered formalin for a minimum of 6 hours. This includes lymph nodes.
- Fixation time includes all formalin fixative time. Collection and transport time, time during and after gross dissection, time slices are in cassettes waiting to be processed, and time cassettes are in formalin on tissue processor during processor-timed delay.

Gross Examination:

- Dissect the lymph node into thin (2.0 mm) slices.
- Submit the lymph node(s) in toto.
- Dependant on size of the lymph node, one cassette can hold multiple slices. Do not over crowd cassette; allow sufficient space for fluids to circulate during processing.

Embedding:

- Select base mould to allow sufficient paraffin the surround all tissue pieces.
- Press gently on all tissue pieces to ensure pieces are flat and embedded at the same level to allow full cross section of the tissue pieces in one section.

Microtomy:

- Position block in microtome block holder following default position i.e. label to the right.
- Trim gently into the block surface until a full cross section of all the tissue pieces is visible. If required before cutting a ribbon of sections, cool the block surface by removing the block from the microtome and placing on ice or a cold plate. Limit exposure time on the wet ice surface or place uncut block surface on the ice to avoid absorbing water into the cut surface of the tissue pieces. Absorption of water may cause the tissue to swell and create an uneven cutting surface resulting in incomplete sections (holes) when ribbon created.

- Cut a single (3 micron) section, place on one slide and stain with H&E.
- Discontinue default preparation of multiple slides and a cytokeratin IHC slide. This includes cutting and holding slides for IHC just in case ancillary testing is required.

Procedure Notes and Limitations:

- Additional levels, slides and stains (histochemical or immunohistochemical) can be requested as part of the initial examination, based on clinical need and pathologist discretion. However, multiple levels, additional H&Es and stains should not be the default process.

Statement of Use: Best Practice Recommendation; approved by the Provincial Anatomical Pathology Advisory Group. This may be included in Health Authority / facility specific procedures.

References:

1. Krag DN, et al. *Sentinel Lymph node resection compared with conventional axillary lymph node dissection in clinically node-negative patients with breast cancer; overall survival findings from the NSABP B-32 randomized phase 3 trial.* The Lancet Oncology. 2011; 11:927-933.
2. Weaver DL, et al. Effect of Occult Metastases on Survival in Node-Negative Breast Cancer. The New England Journal of Medicine. 2011;364:412-421.
3. *ASCO Guideline Recommendations for Sentinel Lymph Node Biopsy in Early-Stage Breast Cancer: Guideline Summary.* Journal of Oncology Practice. 2005;1:134-136.