



## DEPARTMENT OF ONCOLOGY ELECTIVE 2017 -2018

[www.uwo.ca/oncology](http://www.uwo.ca/oncology)

### **Oncology Elective Program Administrator:**

Ms. Kimberly Trudgeon  
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### **General Description**

The London Regional Cancer Program (LRCP) offers clinical electives to undergraduates in fourth year providing a more focused outpatient and inpatient ward experience in Medical or Radiation Oncology with clinical assignments.

Additionally, there are some opportunities to do a number of diagnostic/therapeutic procedures under the supervision of the consultant, i.e. paracentesis, thoracocentesis.

***Please Note:  
Radiation Oncology and Medical Oncology have different objectives.***

By the end of this rotation, students will:

- Have an understanding of an approach to the management of common malignancies
- Be comfortable with oncology as expected of an undifferentiated physician
- Have an understanding of how cancer care is delivered in Ontario/Canada
- Be aware of oncology as a career choice.

## MEDICAL ONCOLOGY

### **Medical Oncology Undergraduate Education Director:**

Dr. Michael Sanatani

Room A3-915

LHSC – London Regional Cancer Program (Victoria Campus)

Phone: 519-685-8600 x 58640

Email: [Michael.Sanatani@lhsc.on.ca](mailto:Michael.Sanatani@lhsc.on.ca)

We offer 4 different disease site tracks for elective students to choose from. Elective students can choose to do a combination of 2 of these 4 disease sites tracks while doing a two week elective in Medical Oncology.

### **The four disease sites in Medical Oncology:**

1. Breast Cancer track
2. Thoracic track
3. GI/H&N track
4. GU track

## **MEDICAL ONCOLOGY TRACK OBJECTIVES**

### **1. Breast Cancer Track:**

Demonstrate knowledge of the pathogenesis of breast cancer including the influence of risk factors: dietary, genetic, environmental, lifestyle, prior malignancy and prior therapy.

Describe, in general terms the sub-classification of breast cancer into subtypes based on genetic profiling and histologic characteristics (ER/PR status, Her2NEU status, etc.) and the clinical significance of this.

Describe the indications for mastectomy vs. breast conserving surgery, sentinel node biopsy vs. axillary node dissection.

Presented with a patient with early stage breast cancer, describe in general terms the roles of surgery, radiation, and adjuvant chemotherapy or hormonal therapy.

Compare adjuvant systemic therapies (chemotherapy, trastuzumab, hormonal) and contrast the indications for their use. Presented with a



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patient with resected breast cancer, list factors used in deciding which adjuvant therapy to offer.

When presented with a patient with metastatic breast cancer, compare hormonal vs. chemotherapeutic treatment options and list factors used to guide choice of agents.

## 2. Thoracic track:

Demonstrate knowledge of the data and controversies regarding different screening methods for lung cancer

- i) Sputum cytology
- ii) Chest x-ray
- iii) CAT scan

Demonstrate knowledge of the pathogenesis of Lung Cancer including the risk factors

- i) Smoking
- ii) Impact of smoking cessation
- iii) Asbestos exposure: occupational, non-occupational
- iv) Environmental exposures
- v) Underlying lung diseases

Demonstrate knowledge of the general classification of lung cancers: Non-Small Cell Lung Cancer

- i) Adenocarcinoma and subtypes
- ii) Squamous Cell Carcinoma
- iii) Large Cell Carcinoma
- iv) Neuroendocrine Tumors (Well-differentiated bronchial neuroendocrine tumors, Atypical bronchial neuroendocrine tumors, Large Cell Neuroendocrine Carcinoma, Small Cell Carcinoma)

When presented with a patient with early stage lung cancer, describe in general terms the roles of surgery, radiation, and adjuvant chemotherapy.

When presented with a patient with locally advanced non small cell lung cancer, compare and contrast palliative versus curative treatment strategies. Presented with a patient with a patient with stage IV non-small cell lung cancer, outline in general terms which systemic treatment modalities are employed, and the rationale for using chemotherapy.



Describe the significance of EGFR mutations for the management of lung cancer.

Describe the role of chemotherapy in managing small cell lung cancer, and compare to the management of non-small cell lung cancer.

### 3. GI/H&N Track:

Demonstrate knowledge of the pathogenesis of Head and Neck (H&N) cancers, recognizing the influence of tobacco and alcohol in pathogenesis and multiplicative risk relationship between certain viruses and H&N cancers.

Demonstrate knowledge of the typical histologies of common GI cancers, including gastroesophageal cancer, pancreatic cancer, and colorectal cancer as well as one risk factor for each of these primary sites.

Presented with a patient with resectable GI or head and neck cancer, indicate whether neoadjuvant (or adjuvant) systemic therapy is *usually* recommended, and which patient and tumour features are taken into consideration in arriving at a treatment decision.

Presented with a patient with advanced gastro-esophageal cancer, outline first line systemic treatment options.

Presented with a patient with advanced pancreatic cancer, outline first line systemic treatment options.

Presented with a patient with advanced colorectal cancer, outline first line systemic treatment options.

### 4. GU Track:

Demonstrate knowledge of risk factors for and typical presentation of urothelial, renal, prostate, and germ cell cancers.

Presented with a patient with localized bladder cancer, outline the necessary staging investigations to determine whether neoadjuvant therapy is needed. Presented with a patient with testicular germ cell cancer, describe the treatment options for stage I disease. Outline the use of the International Prognostic System as a guide for treatment and prognostication of advanced disease.



Discuss the pros and cons of prostate cancer screening by PSA.  
Presented with a patient with advanced renal cell carcinoma, indicate two systemic agents that could be used to offer palliation.

Compare and contrast the management priorities and likely disease trajectories for a patient with metastatic muscle-invasive bladder cancer versus a patient with previously untreated prostate cancer.  
Outline the role of bisphosphonates in the management of prostate cancer.

## RADIATION ONCOLOGY

### **Radiation Oncology Undergraduate Medical Education Director:**

Dr. Belal Ahmad  
Room A3-907

LHSC – London Regional Cancer Centre (Victoria Campus)

Phone: 519-685-8500 ext 53301

Email: belal.ahmad@lhsc.on.ca

We offer a two week elective with two assigned preceptors in Radiation Oncology. During the elective, you will attend all new patient, follow up and patient review clinics, CT simulation sessions, OR activities and inpatient activities. Applicants may request their ordered preference of the five **MAJOR** disease sites, and we will try our best to accommodate the request with appropriate clinicians. Your preceptors will treat at least **ONE MAJOR** site.

We offer 5 different disease site tracks to choose from. Elective students can choose to do a combination of 2 of these 5 disease sites tracks while doing a two week elective in Radiation Oncology.

### **The five disease sites in Radiation Oncology:**

- 1) Breast (Breast Cancer, DCIS)
- 2) Genitourinary (Prostate, Bladder, Testicle, Kidney)
- 3) Gastrointestinal (Colorectum, Stomach, Pancreas, Anus)
- 4) Thoracic (Lung, Esophagus)
- 5) Gynecology (Cervix, Uterus, Vulva)



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Students interested in a brachytherapy experience should make the request in their application. Other disease sites that a student may experience include:

- 1) Head and Neck
- 2) Sarcoma
- 3) Pediatrics
- 4) Skin
- 5) Palliative

### **ELECTIVE OBJECTIVE:**

1. For the most common diseases within each **MAJOR** Disease Site that the student is exposed to, we expect the clerk to learn: risk factors, epidemiology, histologies, staging investigations, TNM staging, radical, adjuvant and palliative treatment options, outcomes of treatments, and general side effects of treatments

### **RADIATION ONCOLOGY OBJECTIVES:**

- a) Understand the basic principles of radiation physics (radioactive isotopes vs linear accelerators, photons vs electrons, measurements of radiation energy and dose)
- b) Understand the basic principles of radiobiology (Cell Cycle, 4 R's of Radiotherapy, radiosensitivity vs radioresistance)
- c) Understand the basic principles of radiation safety
- d) The role of radiotherapy in the management of patients with cancer, and the complications and side effects that can result from radiotherapy
- e) The importance of a multidisciplinary approach to cancer management through MDT clinics and DST rounds
- f) The process by which treatment plans are generated from an understanding of tumor volume, normal tissue considerations and natural history of the disease by visiting the CT simulation room and reviewing approved plans
- g) The implementation of radiotherapy treatment plans by visiting a treatment unit and observing immobilization device use, treatment verification, and use of radiotherapy equipment.

**RADIATION TRACK OBJECTIVES:**

**1) Breast (Breast Cancer, DCIS)**

- a. Demonstrate knowledge of the pathogenesis of breast cancer including the influence of risk factors: dietary, genetic, environmental, lifestyle, prior malignancy and prior therapy.
- b. Describe, in general terms the sub-classification of breast cancer into subtypes based on genetic profiling and histologic characteristics (ER/PR status, Her2NEU status, etc.) and the clinical significance of this.
- c. Describe the indications for mastectomy vs. breast conserving surgery, sentinel node biopsy vs. axillary node dissection.
- d. Compare and contrast the roles of surgery, radiation, and adjuvant chemotherapy/hormonal therapy in patients with early stage breast cancer vs locally advanced breast cancer.
- e. Describe the situations where radiotherapy is used neoadjuvantly, adjuvantly and palliatively in patients with breast cancer.
- f. Describe indications for loco-regional adjuvant radiotherapy vs local radiation in resected breast cancer.
- g. Describe the use of parallel opposed tangent fields and 4 field treatment in the context of breast radiation planning.

**2) Genitourinary (Prostate, Bladder, Testicle, Kidney)**

- a. Demonstrate knowledge of risk factors for bladder cancer, prostate cancer, and seminoma.
- b. Discuss the pros and cons of prostate cancer screening by PSA.
- c. Be able to classify Prostate cancer into HIGH, INTERMEDIATE and LOW risk categories
- d. For localized Prostate cancer, be able to compare and contrast external beam radiotherapy, brachytherapy, surgery, and surveillance as treatment options.



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- e. Know the indications for adjuvant or salvage radiotherapy post-prostatectomy.
- f. Discuss the use of hormonal treatment in prostate cancer.
- g. Compare and contrast radical cystectomy versus bladder preservation for patients with localized bladder cancer.
- h. Presented with a patient with seminoma, describe the treatment options for stage I and stage II disease.

### **3) Gastrointestinal (Colorectum, Stomach, Pancreas, Anus)**

- a. Demonstrate knowledge of the typical histologies of common GI cancers, including gastric cancer, pancreatic cancer, colorectal cancer and anal cancer, as well as one risk factor for each of these primary sites.
- b. Presented with a patient with resectable rectal, gastric or pancreatic cancer, indicate when neoadjuvant, adjuvant or radical chemoradiotherapy is recommended, and which patient and tumour features are taken into consideration in arriving at a treatment decision.
- c. Describe the treatment algorithm used in treating the majority of anal cancers.
- d. Compare and contrast neoadjuvant radiotherapy vs adjuvant radiotherapy for locally advanced rectal cancer.
- e. Compare and contrast short course neoadjuvant radiotherapy vs long course neoadjuvant radiotherapy in rectal cancer.
- f. Discuss the role of radiotherapy in the treatment of unresectable or metastatic GI malignancies.

### **4) Thoracic (Lung, Esophagus)**

- a) Demonstrate knowledge of the data and controversies regarding different screening methods for lung cancer
  - b) Sputum cytology
    - a. ii) Chest x-ray
    - b. iii) CAT scan



- c) Demonstrate knowledge of the pathogenesis of Lung Cancer including the risk factors
  - d) Smoking
    - a. ii) Impact of smoking cessation
    - b. iii) Asbestos exposure: occupational, non-occupational
    - c. iv) Environmental exposures
    - d. v) Underlying lung diseases
- e) Demonstrate knowledge of the general classification of lung cancers: Non-Small Cell Lung Cancer
  - f) Adenocarcinoma and subtypes
    - a. ii) Squamous Cell Carcinoma
    - b. iii) Large Cell Carcinoma
    - c. iv) Neuroendocrine Tumors (Well-differentiated bronchial neuroendocrine tumors, Atypical bronchial neuroendocrine tumors, Large Cell Neuroendocrine Carcinoma, Small Cell Carcinoma)
- g) Presented with a patient with early stage lung cancer, describe in general terms the roles of surgery, radiation, and adjuvant chemotherapy.
- h) Know the indications for adjuvant radiotherapy after surgical resection of lung cancer.
  - i) Describe the use of stereotactic body radiotherapy in treat Stage I lung cancers, as well as pulmonary oligometastases. Compare and contrast such treatment with surgery.
  - j) Describe the role of chemoradiotherapy in the radical treatment of Stage III non small cell lung cancer (NSCLC). Understand anticipated side effects of such treatment, and long term outcomes.
  - k) Describe the role of radiotherapy in managing small cell lung cancer, including concurrent chemoradiotherapy for limited stage disease and prophylactic cranial irradiation.

## **5) Gynecology (Cervix, Uterus, Vulva)**

- a) Demonstrate knowledge of risk factors in the development of cervical cancer and endometrial cancer.



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- b) Discuss effect screening for cervical cancer, as well as HPV vaccination.
- c) Compare and contrast surgery vs radiation in the treatment of early stage cervical cancer.
- d) Describe radical chemoradiotherapy for all stages of non metastatic cervical cancer.
- e) Know indications for adjuvant radiotherapy for patients with resected cervical cancer.
- f) Know indications for adjuvant radiotherapy for patients with resected endometrial cancer.
- g) Describe how and when brachytherapy is employed for patients being treated for cervical or endometrial cancer. Describe the use of a cylinder and a tandem/ring in the context of brachytherapy.

### **ELECTIVES DESCRIPTION SUMMARY**

#### *Radiation Oncology (2 week rotation)*

- 1 student assigned to a pair of radiation oncologists for duration of elective
  - attends O.P. clinics and MDT rounds
  - to cover main tumour sites & performs in-hospital consultations
  - attend simulations & attend all rounds
  - inpatient care as per attending & attend O.R. as per attending
- Night and Weekend Call - No  
Evaluation Procedure - Pass/Fail  
Number of Students Accepted - Each Block: Only 1 student each Block.

#### **Orientation:**

Contact: Kimberly Trudgeon kimberly.trudgeon@lhsc.on.ca

#### **4<sup>th</sup> Year Elective:**

9:00 am Day one of Elective

#### **Visiting Student Electives**

It is MANDATORY TO SIGN UP FOR: HUGO/CERNER TRAINING  
[https://www.londonhospitals.ca/departments/medical\\_affairs/courses/epr.php](https://www.londonhospitals.ca/departments/medical_affairs/courses/epr.php)  
8:00 a.m. – 12:00 p.m. on the first day of the elective  
-orientation will follow at 1:00 p.m.