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Radiation Medicine Program, Princess Margaret Cancer Centre, University Health Network

# connexions

## **OLIGOMETASTASES: A NEW TAKE ON METASTATIC DISEASE**

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METASTASIS HAS HISTORICALLY BEEN PERCEIVED AS A SYSTEMIC AND INCURABLE PROCESS FOR MOST ADULT SOLID TUMOURS; this view has shaped our understanding of why cancer is difficult to beat. The concept of oligometastases challenges this paradigm and may provide the key to conquering cancer in our lifetime.

Oligometastasis — a term coined by Hellman and Weichselbaum in 1995 — describes a state in which distant relapse is observed in only a limited number of locations. This intermediate state between localized and systemic disease may present an opportunity to cure. While the underlying mechanism remains uncertain, the “seed and soil” phenomenon and the interaction between cancer cells and our immune response, likely play critical roles in maintaining this state. For a subgroup of patients who present with a few metastatic lesions, local ablative therapies may provide prolonged disease-free and overall survival. The abscopal effect (shrinkage of tumours remote from the site of radiotherapy) provides further evidence that local ablative therapies, such as stereotactic body radiation therapy (SBRT), can modulate the immune system and influence the metastatic disease process. *CONTINUED ON PAGE 2.*

## **RECOGNITION OF DISTINGUISHED SERVICE**

DR. MARY GOSPODAROWICZ was awarded the American Society for Radiation Oncology (ASTRO) Gold Medal, the Society’s highest honour in September 2014. The Gold Medal recognizes individuals who have made exceptional contributions and impact within the field of Radiation Oncology through their research, clinical care, teaching and service. Dr. Gospodarowicz is only the 5th Canadian to receive the ASTRO Gold Medal. The previous recipients include Drs. Bernard Cummings (2011), Walter Rider (1986), Harold Johns (1980) and Vera Peters (1979), all from the Princess Margaret Cancer Centre.

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**MARY GOSPODAROWICZ** MD, FRCPC, FRCR(Hon)  
RADIATION ONCOLOGIST, PROFESSOR, UTDRO



DORIS SONNENBERG

“From the first consultation with Dr. Wong to the completion of radiation treatment, less than a month had elapsed. I find that incredibly reassuring — that all that can be done is being done!”

—DORIS SONNENBERG

**OLIGOMETASTASES** CONTINUED

DORIS SONNENBERG had been feeling well since her initial diagnosis and treatment of breast cancer over 17 years ago. However, lower back pain led to repeated diagnostic imaging, revealing two bone metastases in her pelvis. A course of ablative stereotactic radiotherapy to her pelvis was recommended, and six years later, Doris remains disease-free. She continues to be on hormone therapy. “The cancer is stable, I feel great and I’m able to look after three grandchildren on a regular basis. My husband and I celebrated our 50th wedding anniversary in Hawaii this year with all the children and grandchildren.”

Doris’ case illustrates the effectiveness of SBRT — the precise delivery of a few very high doses of radiation to the tumour — in managing oligometastatic disease. The Princess Margaret Cancer Centre is a world leader in SBRT. It is one of the few centres worldwide offering SBRT to lung, liver and paraspinal cancer patients since 2005. Last year, the Radiation Medicine Program (RMP) opened its first Phase II clinical trial for multisite oligometastases (see *Clinical Trial Highlight*), examining the efficacy and safety of treating up to five metastatic lesions with SBRT. The effects of hypoxia on clinical outcome, the immune response of SBRT, as well as molecular biomarkers of the oligometastatic state are also being investigated. The findings from this study will be critical to unraveling the mysteries of the oligometastatic state. Answers to key questions, such as “How do we identify patients who are truly in the oligometastatic state?”, “What is the most effective way of achieving ablation of all metastases and maintenance of a disease-free state?” and “How do we convert patients with diffuse metastases to the potentially curable oligometastatic state?” will provide important clues that may make it possible to conquer cancer in our lifetime.

“I was immediately struck by Dr. Wong’s compassionate and caring nature. I thought this is someone I can trust to see me through this crisis.”

—DORIS SONNENBERG

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HARDY SONNENBERG, JEFFREY LINK, DORIS SONNENBERG, REBECCA WONG





WILFRED LEVIN MBChB, FRCPC

# DID YOU KNOW?

## ADULT RADIATION LATE EFFECTS CLINIC (ARLEC): IMPROVING CARE BEYOND CURE

WILFRED LEVIN MBChB, FRCPC  
RADIATION ONCOLOGIST  
ASSISTANT PROFESSOR, UTDRO

FOR OVER A DECADE, ARLEC at the Princess Margaret Cancer Centre — the only one of its kind in Canada — has helped approximately 800 patients nationwide with radiation late effects.

Radiation late effects are due to normal tissue injuries that manifest months to years after completion of radiotherapy and occur in the irradiated volume. The pathogenesis involves a metabolically active and ongoing inflammatory response, which results in the excessive production of fibrous tissue (scarring) and microvascular damage (endarteritis). By impeding the progression of these damaging effects, particularly when caught early, tissue toxicity can be limited and treated.

Patients can present with late effects affecting all body systems and with varying grades of severity. Symptoms may include hemorrhagic proctitis, cystitis, enteritis, vaginitis, osteoradionecrosis, non-healing ulcers, breast swelling and fibrosis, muscle fibrosis, neuropathies and soft tissue necrosis. Anti-inflammatory, anti-fibrosis and anti-oxidant agents, as well as vasoactive drugs, physiotherapy and hyperbaric oxygen therapy have been shown to be effective in the management of late effects.

ARLEC is currently open to patients one afternoon per week. Patients will have their specific symptoms assessed and treated by radiation oncologists with specialized expertise in late radiation toxicities, who are committed to advancing research in late effects. ARLEC is currently leading studies addressing the reversal of tissue fibrosis and radiation repair, and anticipates examining the role of stem cells in tissue regeneration.

To refer your patients to ARLEC, please fax:  
416-946-4442 to the attention of Drs. Wilfred Levin and Robert Dinniwell.

## CLINICAL TRIAL HIGHLIGHT

REBECCA WONG MBChB, MSc, FRCPC  
RADIATION ONCOLOGIST  
PROFESSOR, UTDRO

The Radiation Medicine Program is committed to improving therapies and outcomes for cancer patients through innovative clinical studies. A prospective Phase II oligometastases SBRT trial is currently being conducted at the Princess Margaret Cancer Centre and is actively accruing patients.

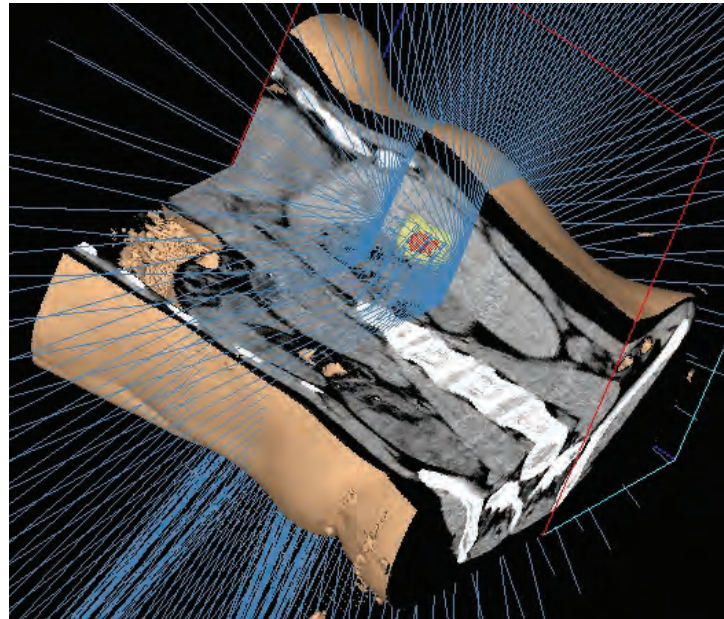
### Phase II Study on the Toxicity and Efficacy of a Normal Tissue Tolerance Adapted, 5-Fraction Stereotactic Body Radiation Therapy (SBRT) Regimen for Extra-Cranial Oligometastases

PI – Rebecca Wong

This ongoing clinical trial evaluates the efficacy and toxicity of treating patients with oligometastatic spread (up to five metastatic lesions) with an aggressive SBRT regimen (25-50 Gy/5 fractions) adapted to normal tissue tolerances.

**Eligible Patients:** Patients with any controlled solid primary tumour type with a maximum of five metastatic lesions, including at least one lesion that is suitable for SBRT. Patients should not have had prior radiotherapy to any of the sites of metastatic disease and no chemotherapy planned within two weeks of intended radiotherapy.

For more information, see [ClinicalTrials.gov](https://ClinicalTrials.gov)  
Identifier: NCT01761929



Rotational delivery techniques (blue lines) produce a highly conformal dose distribution (yellow) around the oligometastasis (red), sparing adjacent normal tissue.

# HOW TO FIND US

## FOR YOUR REFERRALS

We offer three ways to facilitate your requests for consultation:

### 1. Site Group Coordinators

Site group coordinators serve as a liaison for referring physicians, radiation oncologists and the Princess Margaret Patient Referral Centre.

### 2. Princess Margaret New Patient Referral Centre

Tel: 416.946.4575  
Fax: 416.946.2900

### 3. Direct to Specific Radiation Oncologists

Referrals to specific radiation oncologists should be directed to site group coordinators.

### Palliative Radiation Oncology Program (PROP)

Direct palliative referral patients to our PROP coordinator. Within 24 hours, she will contact you with an appointment. Patients will be seen within a few days. PROPReferrals@rmp.uhn.ca

Coordinator **Novlette Douglas**  
Tel: 416.946.2902  
Fax: 416.946.4657  
novlette.douglas@rmp.uhn.ca

Leader **Dr. Jolie Ringash**  
Tel: 416.946.2919  
jolie.ringash@rmp.uhn.ca

**Emergencies** For patients requiring same day consultations (e.g. spinal cord compression), please contact our Palliative Radiation Oncology referral coordinator (416.946.2902) who will identify the radiation oncologist that is best able to respond to your requests.

### For After-Hour Requests

Please page the radiation oncologist on call through the switchboard at 416.946.2000.

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