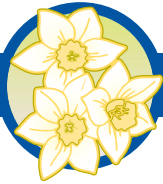


# HOT SPOT

The Newsletter of the Rapid Response Radiotherapy Program  
of the Odette Cancer Centre



Volume 12, Issue 2, May 2010

## Editorial

By Lori Holden, BSc, MRTT, Vice Chair of Rapid Response Radiotherapy Program and Bone Metastases Site Group, Assistant Professor, Department of Radiation Oncology, University of Toronto

Welcome to the Spring 2010 edition of **Hot Spot**. As we welcome the spring weather, we reflect on what an exciting time it has been for us. We are very pleased to announce that Dr. Sunil Verma (Medical Oncologist here at Odette Cancer Centre) has been awarded the 2010 Association of Faculties of Medicine of Canada (AFMC) Young Educators Award. This is a national teaching award given to a faculty of medicine member who has produced change in his/her university or within the medical community through their vision and work. Our University of Waterloo co-op research student Roseanna Presutti has won not only the UW 2009 Applied Health Sciences Co-op Student of the Year award, the Marion Todd Award, but also the Honourable Mention for the Canadian Association for Co-operative Education (CAFCE) Student of the Year Award. Congratulations to both for such outstanding accomplishments! We thank Ms. Gunita Mitra for her services in the RRRP/BMC as her term comes to an end and welcome Ms. Florencia Jon to the group!

This edition's article by Mr. Blair Henry talks about family meetings and the impor-

tance to include "the family" in "the team". He describes the stages and components of family meetings, and also provides us with a very useful template for Family Meeting documentation. Dr. Margaret Fitch speaks on a similar theme, looking at providing person-centred cancer care. In her article, she describes two approaches to help health care providers identify individuals requiring additional help, and identifies some best-practice ideas to meet this challenge.

In our effort to continually improve care for our patients, Drs. Denise Guerriere, Peter Coyte, Amna Husain and Denise Marshall announce the launch of a new study, examining both the health system costs and personal costs associated with home death, and the factors that predict place of death and caregiver burden. They will be interviewing family caregivers of a population of palliative patients and the findings from the study may give rise to the development of more effective interventions that support home deaths for those families who have a preference for this setting. Dr. Mary Vachon presents research related to normal and prolonged grief and examines their relationship to psychiatric disorders.

Dr. Ewa Szumacher continues to inform us of some fabulous opportunities and conferences occurring in the coming months.

Our insert features the treatment of liver metastases. Dr. Calvin Law describes how patients who present with colorectal liver metastases now have a wider gamut of options available than ever before. He states the key to treatment is to be considered by a multidisciplinary team for combination therapy and he describes the various options available. While surgical resection remains the standard of care for liver metastases, Dr. Hans Chung describes an attractive non-invasive alternative—Stereotactic Body Radiotherapy (SBRT). The objectives of SBRT are to escalate the dose to the target lesion, and thus improve local control and this portion of the insert outlines the protocol for the treatment of these patients.

We hope you enjoy the information contained in this edition of **Hot Spot**!

## Running care team meetings: A primer!

By Blair Henry, Ethicist, Sunnybrook Health Sciences Centre

Last year I attended the One Vision/One Voice Joint OHPCA and HAO palliative care conference, and had the wonderful opportunity to sit in on Dr. David Weissman's talk on "Leading a Family Conference". David is Professor of Internal Medicine and Director of Palliative Care at the Medical College of Wisconsin, with considerable expertise in

conducting family meetings in the context of palliative and end-of-life care.

In his conference session, David outlined from his own experience some of the key issues related to running effective family meetings. The session enabled many of the participants to share their own best practices for this important component of

*continued on page 2...*

### In this issue of HOT SPOT:

Running care team meetings: A primer!

Providing person-centred cancer care

Predictors of place of death and family caregiver burden across the home-based palliative care trajectory

Current research on normal and complicated/prolonged grief

Continuing Medical Education 2010

#### Insert:

Stereotactic body radiotherapy for liver metastases

Surgical resection of colorectal liver metastases: An update

## Running care team meetings: A primer!

...continued from page 1

health care delivery. It became clear, from the discussions that ensued, how pivotal a well-run family meeting can be in establishing a positive therapeutic relationship between the clinical team, the patient and family, but also how poorly clinical staff are trained in the “art and science” of running a well-thought-out care team meeting. Care team meetings are a powerful tool for communicating with patients and family members.

Since attending David’s session, I had vowed to try and distill my own thoughts on this subject and to share some of the ideas I’ve gleaned from the school of hard knocks: running and attending great and “not-so-great” team conferences, as well as from the various educational sessions I’ve attended and some of the research I’ve read on this topic.

First, I believe it’s important to think about the language we use. Oftentimes we will use the term *family meeting* to talk about these meetings and also talk of, or refer to the medical group as the “*team*”. I believe it’s important to refocus our point of reference such that we begin to understand the term *team* as including the clinical staff, the patient, and their family. This simple yet purposeful linguistic shift may help to move us away from the “we-they” dichotomy that often gets set up in the context of health care, to an “us/thou” or more unified perspective—which may, ultimately, enhance working relationship by all team members duly involved.

To discuss the theory and key points involved in the running of family meetings, it’s best to start by looking at its structural components (See Figure 1).

### Pre-meeting

From Figure 1 it becomes clear that most of the work of running a good meeting needs to happen well before a clinical team sits down with the family and patient to deliberate on a variety of important issues: namely, who needs to be in attendance at a meeting, that the clinical team has consensus and speaks from the same medical/clinical understanding, that the proposed goals and objectives are understood by everyone involved, and the myriad of details, such as location and timing of the proposed meeting are considered. Many of these issues can be reviewed during a clinical team huddle just prior to the actual care team meeting.

Frequently, care team meetings are not well planned ahead of time and members of the clinical team have not had an opportunity to check with colleagues about their understanding of the larger clinical picture. This revelation in front of a patient and family can have deleterious effects on the confidence and trust a team needs to effectively do its work. More attention to the pre-team meeting will improve inter-professional socialization that can prepare a team for collaborative work (versus the historical emphasis on individual encounters in the past).

It is also important to “name” the type of meeting being planned: is it a follow-up meeting with few contentious issues, or is it a meeting to talk about a medical error or disclosure entailing a more emotionally sensitive consideration by the team. In situations where medical chaos/uncertainty exists it’s important to remember the informational needs that most families will have: facts about what happened, and the functional impact on the patient’s medical condition, the quality of life expected, and the time components. Nothing else will be heard or understood until these basic needs are addressed as openly and honestly as possible.

Fortunately, not all family meetings centre around this type of sentinel event. However, it is important to consider what the purpose of the meeting will be such that the appropriate leadership style is provided. In most medical settings, the Most Responsible Physician (MRP) or senior medical staff person expects to run a care team meeting. This may be important in meetings where medical leadership is a key goal. However, not all meetings are

predominantly or exclusively medical in focus. Some family meetings may require leadership with strong facilitation skills, conflict negotiation skills, or counselling-based skill that may more appropriately belong to another member of the inter-professional team. Acknowledging the type of meeting and the required strengths needed is important prior to the family meeting.

Understanding the patient from and within the family setting is an important perspective to bring into and out of a family meeting. Some of the clinical staff (nurses and social workers) has spent a great deal of time with the patient and family and they can provide good insight into family dynamics. Knowing what the clinical team is walking into may be helpful to strategize how to address these concerns. Families may need additional resources to help in coping with the stressors inherent in dealing with serious illness and these resources should be offered early in the care process. Ultimately, the family can be viewed as the social context within which illness and care occur and, therefore, insight into the family system is important.

Informing the family and patient of the purpose, soliciting their concerns for what they would like to have discussed and letting them know who from the hospital will be in attendance at a care team meeting is important pre-work. Patients and family members can be overwhelmed by large group meetings unless they have been informed beforehand and given some explanation as to why the various clinical team members are present. In a large teaching hospital clinical staff can far outnumber family. It’s important to keep care team meetings functional and safe for all those attending.

Timing of a care team meeting is important. Trying to accommodate family members who work, patient schedule (i.e., not just after dialysis), and busy staff schedules require much coordination and compromise. Similarly, the length of a care team meeting should be set ahead of time, and restated at the beginning of the meeting. It’s important to respect everyone’s schedule.

### Meetings

Starting a care team meeting on time and doing introductions at the start of the care team meeting are important formalities. Names and roles are good information to share at the beginning of the meeting. Whoever is chairing the meeting should take the lead at the onset, and allow family members to introduce themselves as well. If appropriate, offer to shake hands at the start and end of a meeting.

**Figure 1: Stages & Structural Components of a Family Meeting**

Stages	Components
<b>Pre-meeting</b>	Type of meeting Meeting leadership Agenda Attendance Location/Timing Goals by clinical team Knowing the family dynamics Pre-meeting huddle
<b>Meeting</b>	Introduction Consensus on agenda Chairing Communication strategy Strategize and summarize
<b>Post-meeting</b>	Documentation Follow-up Follow through

The person leading the care team meeting should review the goals/purpose of the meeting and ensure consensus before moving through the items. Care team meetings need structure and process. However, it can be important to allow time for family/patients to reminisce during some meetings. Similarly, making space for emotions to be expressed and enabling the clinical team to respond to these emotions is also a consideration. Skills and facility to explore and understand the causes of conflict that can arise during a care team meeting can enable constructive opportunities for its resolution or, at the very least, its management. Open communication in a safe environment with capable facilitation can unearth and address issues such as: misinformation, loss and grief, unrealistic patient/family wishes, guilt and anger, cultural and religious values, lack of trust, poor coping styles, and general dysfunction in a way that may lead to some resolution. Knowledge that a meeting can be heated should be preceded with the establishment of “ground rules” that everyone can agree to and that need to be enforced.

Trying to keep people on track is a crucial role of the person leading the meet-

ing—enabling allowances for diversions from the agenda for important issues, but deferring an issue to another meeting or later time is also important. Similarly, the ability to summarize and strategize on key points is an important component of meeting facilitation. Acknowledging when common goals grounded in patient- and family-focused care have been achieved is important. Similarly, identifying unresolved concerns and having a plan to revisit these issues should also be noted.

### Post meeting

Post-meeting work is critically important in a large hospital centre where multiple family meetings may need to occur, where a patient may travel to various services/units in the hospital or, more commonly, when hospital staff changes service. Documenting the minutes of a family meeting can provide other staff with important information and serve as a checkpoint for developing a broader plan of care. Some services have instigated a stamp template to direct documentation for special events. Figure 2 serves as an example of a possible template to use for family meeting documentation. The tem-

plate helps ensure consistent documentation practices are maintained.

Critical in building on the trust relationship will be to ensure that follow-up and follow-through happens with decisions and plans discussed during a family meeting. Revisiting action taken and progress made, as part of the next family meeting, can serve as a tangible proof of the team’s commitment to working on the goals of care.

### Conclusion

Care team meetings are an important instrument to strengthen communications between the various members of the team (remembering that by our new definition the word team includes the patient and family). Focusing of these meetings to “team build” at the earliest stages of a patient’s entry into the health care system can encourage patients and family to actively participate in care. We know that improved interactions between health care providers and families will decrease anxiety, improve cooperation and rapport and, ultimately, improve patient care. To this end, further skill and training needs to be provided to all clinical staff in the art and science of running a care team meeting.

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Weissman, D., Quill, T.E., & Arnold, R.M. (2010). The family meeting: Causes of conflict #225. *Journal of Palliative Medicine*, 13(3), 327–328.

**Figure 2: Care Team Meeting Documentation Record (Potential Stamp Design for use in the patient’s chart)**

Care Team Meeting					
Date ___/___/___ (yr/mo/day)		Time ___ : ___ am/pm			
Translation Required	Y/N	Patient at Meeting	Y/N	SDM at meeting	Y/N
<b>Inter-professional</b>	Y/N RN Y/N Resident Y/N Spiritual Care Y/N PT Y/N SW Y/N Dietician Y/N SLP Y/N Ethics Others:	Y/N	Family Members: _____ _____ _____ _____ _____		
<b>Meeting</b>	Meeting Type Y/N Introductory Y/N Follow up Y/N Direction of Care Y/N EOL Y/N Discharge Y/N Other:	Specific Agenda items: _____ _____ _____ _____			
<b>Key Issues Discussed</b>					
<b>Action Items</b> Direction of care: Consensus? Y/N	Advanced Directives: Conflict? Y/N		Comment: _____		
<b>Next Meeting</b>	(___/___/___) (yr/mo/day)		Sign-off on minutes:		

# Providing person-centred cancer care

By Margaret Fitch, RN, PhD, Co-Program Head, Patient and Family Support Program

Cancer and its treatment have more than a physical impact. There are social, emotional, psychological, spiritual and practical consequences for the individual who is diagnosed with the disease, as well as for family members. Each will have his or her own unique reaction to the situation. While some will mobilize their own resources and support networks, others will benefit from additional intervention and supports. The depth and duration of those interventions ought to be crafted following careful assessment of the individual's situation and perceived challenges. However, one of the difficulties health care professionals face is how to easily identify those who need additional help and engage in the relevant conversations in a busy clinic setting.

Two approaches have been identified as best practices in meeting this challenge. One is the provision of standard patient information and the other is screening for distress.

Repeatedly, individuals living through the cancer experience have identified the value of relevant information, emotional support, and sensitive communication. Appropriate early intervention in these domains can prevent the building of distress and offset the intensity of the emotional response. Patients and families have indicated a major challenge is living with the uncertainty that seems to accom-

pany the cancer experience. Having some idea about the pathway or events that are apt to occur, what might be involved in the events surrounding diagnostic testing and treatment is of considerable help in reducing anxiety. Clearly mapping out the processes that are expected to occur and sharing this information with patients and family members is an important step early in the cancer experience. Information about cancer and treatment is also seen as important by patients and family, but needs to be provided in understandable language with commentary about what is relevant to the particular individual.

Over the past decade, the evidence concerning distress during the cancer experience has been growing rapidly. There is an emerging recognition that distress is part of dealing with an event such as a cancer diagnosis. It needs to be acknowledged and validated with patients together with information about where appropriate and available resources can be found.

However, some individuals will experience more intense levels of distress and would benefit from more focused and tailored intervention. Distress often emerges in response to unmet needs. Unmanaged symptoms, unresolved family or work-related issues, or a decreasing capacity to engage in activities of daily living can result in distress. As a clinician, the source of any distress needs to be explored to

determine the most appropriate intervention. Using a standardized distress identification approach can provide a helpful starting point for any conversation.

Proactive screening for distress (sixth vital sign) is emerging as a best practice in cancer care. The idea of using a standardized instrument to routinely screen for distress has been implemented in jurisdictions across Canada. The proactive rapid triage offers the opportunity for a patient to identify issues or concerns at the onset of a clinical exchange. The subsequent conversation can then be focused on the issues that are of particular relevance to the patient on that day, in addition to the issues the clinician wants to explore. The resulting conversations can be very person-centred and lead to patients receiving help for symptom-related and psychosocial issues, or may indicate a referral to another health care profession such as: social work, psychology, psychiatry, nutrition, physiotherapy, etc.

In Canada, there is a growing consensus that use of a common set of items for the screening tool would be beneficial. The current recommendation is to utilize physical, psychosocial and practical items. The combination of the Edmonton Symptom Assessment Scale (ESAS) and the Canadian Problem Checklist would provide an appropriate combination ([www.cpac.ca](http://www.cpac.ca)).

## Predictors of place of death and family caregiver burden across the home-based palliative care trajectory

By Denise Guerriere, PhD, Peter Coyte, PhD, Amna Husain, MD, and Denise Marshall, MD

We are pleased to announce the launch of a new study entitled, *“Predictors of Place of Death and Family Caregiver Burden across the Home-Based Palliative Care Trajectory”* designed to provide a comprehensive assessment of both health system costs and personal costs associated with home death, and an examination of the factors that predict place of death and caregiver burden.

Current research demonstrates that many terminally ill patients and their families prefer home-based palliative care, as it improves their quality of life and allows for private time with family and friends. Despite this preference for home-based care, individuals with cancer continue to die in institutional settings. In

this study, we will conduct interviews with family caregivers of patients enrolled at Temmy Latner Centre for Palliative Care in Toronto and the Hamilton Niagara Haldimand Brant LHIN Community Palliative Care Teams. Family caregivers will be asked to provide information on resource utilization, patient functional status, and perceived burden from study admission until time of death.

Ultimately, this information will be used to identify the economic, demographic, clinical, and psychosocial factors that predict whether cancer patients in home-based palliative care programs die at home or in an institution. In addition, how these factors can be used to predict

caregivers' burden will be addressed. We will estimate the societal costs associated with the entire episode of palliative care. This will include public costs and resource costs incurred by patients/family/friends during hospitalizations and in all health care settings. Finally, we intend to identify differences between patients who die at home and those who die in hospitals and other settings.

The findings from this study will support informed decision-making by practitioners, health managers, and policy decision-makers, and may give rise to the development of more effective interventions that support home deaths for those families who have a preference for this setting.

# Current research on normal and complicated/prolonged grief

By Mary L.S. Vachon, PhD, RN

Eighty to ninety per cent of bereaved people experience normal or uncomplicated grief. While their grief is painful and disruptive and may involve feelings of sadness, anger, guilt, anxiety and despair, they eventually overcome their initial sense of disbelief, come to accept the reality of their loss and move on with their lives.

Six months post-death, the majority are able to: accept the reality that the person has died; see the future as holding some potential for satisfying relationships; engage in productive work; experience enjoyment; find some meaning and purpose in their lives; maintain emotional connections to others and develop new relationships and friendships (Zhang, El-Jawahri, & Prigerson, 2006).

The personality characteristic of resilience is associated with a more “normal” course of bereavement (Bonanno, Wortman, Lehman, et al., 2002; Bonanno, 2009). Prospective data on 205 individuals whose husbands were 65 or older several years prior to their spouses’ death and at six to 18 months after the death found that resilience was associated with pre-loss acceptance of death and belief in a just world. Almost half (45.9%) of this group of previously non-depressed widows exhibited a “resilient” trajectory in which minimal grief and depressive symptoms were observed six and 18 months after a loss. They were significantly more accepting of death than other grievers and have world views that help buffer the death of a spouse (Bonanno et al., 2002).

The publication of the *Diagnostic and Statistical Manual of Mental Disorders, fifth edition* is scheduled for 2013. There has been debate about whether the 10% to 20% of bereaved persons whose grief pattern falls outside the “normal” should be seen as suffering from a psychiatric illness. Currently, DSM-IV doesn’t offer a complicated grief diagnosis and allows for bereavement-related diagnosis only when existing diagnostic categories such as major depression (MDD) might be in order.

According to Prigerson, Horowitz, Jacobs, Parkes, Aslan, Goodkin, et al. (2009), prolonged grief disorder (PGD) symptomatology—variously referred to as “complicated grief” (CG) “traumatic grief” (TG) and complicated grief disorder (CGD)—has repeatedly been shown to be different from the symptoms of other *DSM-IV* and *ICD-10* disorders (e.g., MDD). There has been considerable research in the past few years trying to determine whether PGD constitutes a bona fide psychiatric disorder.

Prigerson et al. (2009) note that for a subset of bereaved persons, grief becomes a serious health concern. For such individuals, intense grief persists, is distressing and disabling, and may meet criteria as a distinct mental disorder. Because standard treatments for depression have not always proven effective for the reduction of PGD, and psychotherapies designed specifically to ameliorate symptoms of PGD have demonstrated efficacy, Prigerson et al. contend there exists a need for the accurate detection and specialized treatment of PGD.

In a study to determine the psychometric validity of criteria for prolonged grief disorder (PGD), 191 individuals were interviewed three times at zero to six, six to 12, and 12 to 24 months after bereavement.

The following criteria for prolonged grief disorder were found to identify bereaved persons at heightened risk for enduring distress and dysfunction:

Reactions to a significant loss that involve the experience of yearning (e.g., physical or emotional suffering as a result of the desired, but unfulfilled, reunion with the deceased).

And at least five of the following nine symptoms experienced at least daily or to a disabling degree:

- Confusion about one’s role in life, or diminished sense of self (feeling that part of oneself has died)
- Difficulty accepting the loss
- Avoidance of reminders of the reality of the loss
- Inability to trust others since the loss
- Bitterness or anger related to the loss

- Difficulty moving on with life
- Numbness (absence of emotions) since the loss
- Feeling that life is unfulfilling, empty, or meaningless since the loss
- Feeling stunned, dazed or shocked by the loss

Symptoms must be present at sufficiently high levels at least six months from the death and be associated with functional impairment.

## Relation to other mental disorders

The disturbance is not better accounted for by major depressive disorder, generalized anxiety disorder, or post-traumatic stress disorder.

The set of risk factors and clinical correlates of PGD includes a history of childhood separation anxiety, controlling parents, parental abuse or death, a close kinship relationship to the deceased (e.g., parents), insecure attachment styles, marital supportiveness and dependency and lack of preparation for the death—all suggesting that attachment issues are salient in creating a vulnerability to PGD.

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# Continuing Medical Education 2010

By Ewa Szumacher, MD, MEd, FRCP(C)

Continuing Medical Education (CME) can update health care professionals on the latest advances for modifications to their clinical practice. At the request of the CME organizers, Hot Spot will list the national and international CME activities in palliative medicine that are of interest to our readers. Please forward details of the CME activities to:

[Ewa.Szumacher@sunnybrook.ca](mailto:Ewa.Szumacher@sunnybrook.ca)

- **May 2, 2010**  
Hike for Hospice Palliative Care (Canada), various locations  
[www.chpca.net/events/hfhpc.html](http://www.chpca.net/events/hfhpc.html)
- **May 2–8, 2010**  
National Hospice Palliative Care Week (Canada) [www.chpca.net/events/nhpcw.html](http://www.chpca.net/events/nhpcw.html)
- **May 10–11, 2010**  
The 20th Annual Conference of the Réseau de soins palliatifs du Québec—La force de l'héritage: Source de dépassement, Quebec City, Quebec. [www.aqsp.org](http://www.aqsp.org)
- **May 31–June 1, 2010**  
2010 Provincial Palliative Care Conference, Regina, Saskatchewan  
[www.saskpalliativecare.org](http://www.saskpalliativecare.org)
- **June 2–3, 2010**  
9th Annual Kaleidoscope International Palliative Care Conference, Dublin, Ireland  
[www.stfrancishospice.ie/education/kaleidoscope.htm](http://www.stfrancishospice.ie/education/kaleidoscope.htm)
- **September 23–24, 2010**  
The Changing Landscape of Palliative Care—19th Annual Provincial Conference, Winnipeg, Manitoba  
[www.manitobahospice.ca/](http://www.manitobahospice.ca/)
- **September 22–25, 2010**  
CARO, 24th Annual Scientific Meeting, Vancouver, British Columbia  
[www.caro-acro.ca/Meetings\\_Education/Annual\\_Scientific\\_Meetings/24th\\_Annual\\_Scientific\\_Meeting\\_September\\_22\\_-\\_September\\_25\\_2010\\_Vancouver\\_BC.htm](http://www.caro-acro.ca/Meetings_Education/Annual_Scientific_Meetings/24th_Annual_Scientific_Meeting_September_22_-_September_25_2010_Vancouver_BC.htm)
- **October 3–5, 2010**  
Physician Health and Resiliency in the 21st Century, Chicago, Illinois, USA International. [www.ama-assn.org/ama/pub/physician-resources/physician-health.shtml](http://www.ama-assn.org/ama/pub/physician-resources/physician-health.shtml)
- **October 5–8, 2010**  
18th International Congress on Palliative Care, Montreal, Quebec  
[www.palliativecare.ca/en/index.html](http://www.palliativecare.ca/en/index.html)
- **October 27–30, 2010**  
2nd Conference on Positive Aging: An Interdisciplinary Team Approach for Health Professionals, Vancouver, British Columbia  
[www.interprofessional.ubc.ca/Positive\\_Aging\\_2010.html](http://www.interprofessional.ubc.ca/Positive_Aging_2010.html)
- **October 27–31, 2010**  
2010 Canadian Hospice Palliative Care Conference: Changing the National Perspective on Hospice Palliative Care, Ottawa, Ontario (Canada)  
<http://conference.chpca.net/chpca/reghome.nsf/pages/welcome>
- **October 28–31, 2010**  
World Society of Pain Clinicians Congress (WSPC 2010), Beijing, China  
[www2.kenes.com/wspc/Pages/Home.aspx](http://www2.kenes.com/wspc/Pages/Home.aspx)
- **October 31–November 4, 2010**  
ASTRO'S 52nd Annual Meeting, San Diego Convention Center, San Diego, CA. [www.astro.org/Meetings/AnnualMeetings/FutureMeetings/](http://www.astro.org/Meetings/AnnualMeetings/FutureMeetings/)
- **November 3–5, 2010**  
Passport to Palliative Care: Journeys and Destinations, CERHA, Lakehead University, Thunder Bay, Ontario  
[cerah.lakeheadu.ca/events/](http://cerah.lakeheadu.ca/events/)
- **November 9–15, 2010**  
The Program in Palliative Care Education and Practice, Harvard Medical School  
[www.hms.harvard.edu/pallcare](http://www.hms.harvard.edu/pallcare)
- **November 11–14, 2010**  
The First International Multidisciplinary Forum on Palliative Care, Budapest, Hungary. [www.IMFPC.org](http://www.IMFPC.org)
- **November 26–27, 2010**  
2nd Conference on Positive Aging: An Interdisciplinary Team Approach for Health Professionals, Vancouver, British Columbia  
[www.interprofessional.ubc.ca](http://www.interprofessional.ubc.ca)
- **May 11, 2011**  
Hike for Hospice Palliative Care (Canada). [www.chpca.net](http://www.chpca.net)
- **May 8–14, 2011**  
National Hospice Palliative Care Week (Canada). [www.chpca.net](http://www.chpca.net)

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# Stereotactic body radiotherapy for liver metastases

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HOT SPOT

Surgical resection remains the standard of care for liver metastases. For unresectable lesions, stereotactic body radiotherapy (SBRT) is rapidly emerging as an attractive option. As compared to radiofrequency ablation (RFA), another form of nonsurgical local treatment, SBRT is completely non-invasive. Unlike conventional radiotherapy, the objectives of SBRT are to escalate the dose to the target lesion and, thus, improve local control while limiting dose to nearby critical structures, reducing the risk of complications. The fundamental prerequisites for optimal delivery of SBRT are the ability to precisely localize the target lesion(s); accounting for tumour motion due to respiration; generating a treatment plan to deliver highly conformal radiation to the target volume with a sharp dose gradient to maximize liver sparing; and image guidance at the time of radiation delivery.

## Background

- Recently, two pivotal prospective studies reported the safety and efficacy of SBRT for liver metastases.
- In the Princess Margaret Hospital study, 70 patients were enrolled in a phase 1 study to evaluate the safety and efficacy of a six-fraction regimen. The radiation dose was individualized based on the volume of irradiated liver, and corresponding risk of radiation-induced liver disease (Lee et al., 2009).
  - Acute toxicities: Among grade 3 toxicities, two patients had elevation of liver enzymes, two had gastritis and two had nausea. Among grade 2 toxicities, 12 (18%) patients had elevation of liver enzymes, five (7%) had gastritis, 12 (18%) had lethargy, four (6%) had nausea, and three (4%) had liver pain.
  - No dose-limiting toxicities or radiation-induced liver disease was observed.

- Late toxicities: one grade 4 duodenal bleed; one grade 5 malignant small bowel obstruction due to tumour progression and invasion into duodenum; one grade 4 small bowel obstruction through an abdominal hernia; and two grade 2 non-traumatic rib fractures.
- Local control at one year was 71%.
- In a multi-institutional phase I/II study from the U.S., 47 patients from seven centres received 60 Gy in three fractions. Based on surgical literature, the protocol specified that at least 700 cc of normal liver should receive less than 15 Gy (Rusthoven et al., 2009).
  - No radiation-induced liver disease, grade 4–5 toxicities or bleeding/thrombotic complications observed with subsequent bevacizumab. One patient had grade 3 soft tissue toxicity with skin breakdown in the anterior abdomen. Grade  $\geq 3$  toxicity was 2%.
  - Local control was 95% and 92% at 1y and 2y, respectively. In subset analyses, lesions with maximum diameter of 3 cm or less had a 2y local control rate of 100%, compared to 77% for lesions greater than 3 cm.
- Acute side effects may include fatigue, nausea, vomiting, dysphagia, loss of appetite, fever and chills.
- Potential late complications include radiation-induced liver disease, ascites, stomach or duodenal ulcer, elevated liver function tests, bowel obstruction, gastrointestinal bleeds, rib fracture and biliary sclerosis. The risk of any of the above grade  $\geq 3$  late complications is less than 5%.

## Eligibility

- 1–3 liver metastases from any solid tumour except a germ cell tumour or lymphoma.
- Inoperable or medically unsuitable for resection.

- Maximum tumour diameter  $\leq 6$  cm
- $\geq 800$  mL liver uninvolved by tumour, Childs-Pugh A.
- KPS  $\geq 60\%$ , life expectancy  $\geq 3$  mths.
- No evidence of progressive or untreated gross extrahepatic disease.
- Hemoglobin  $\geq 90$ ; neutrophil  $\geq 1.5$ ; PLT  $\geq 80$ ; INR  $\leq 1.3$ ; AST/ALT  $\leq 6 \times$  ULN; bilirubin  $< 3 \times$  ULN; Cr  $\leq 200$ .
- No chemo 2 wks before to 4 wks after SBRT.

## Patient set-up

- Different techniques to address tumour motion have been described, but they can be broadly divided into *motion-restrictive* and *motion-compensating* approaches. The former includes techniques that limit respiratory motion, such as abdominal compression devices or breath holding, which is used at the Odette Cancer Centre. The latter includes techniques that account for respiratory motion, such as respiratory gating or real-time tumour tracking.
- Patients undergo planning CT scans with contrast, which are often fused with the diagnostic scans to facilitate tumour delineation. Many centres, including the Odette Cancer Centre, use 4D-CT scans, which can assess anatomy changes with respiration.

## Target definition and dosimetry

- Target volumes and organs at risks (i.e., kidneys, liver, spinal cord, chest wall, stomach, heart) are contoured by the radiation oncologists.
- A radiation plan is then generated using pre-established dose-constraints to organs at risk (see Figure 1). No consensus prescription dose has been made, but the majority of studies have

used 30–60 Gy in at least two fractions. At the Odette Cancer Centre, we prescribe 60 Gy in six fractions.

## Positional verification on treatment day

- For every treatment, the patient is immobilized in the same manner as the planning CT scan. An onboard x-ray volumetric imaging system (i.e., cone-beam CT scan) scans the patient. These scans are compared with the planning CT scan to check for positional differences. Any differences are corrected before starting treatment. This whole process is repeated for all six fractions.

## References

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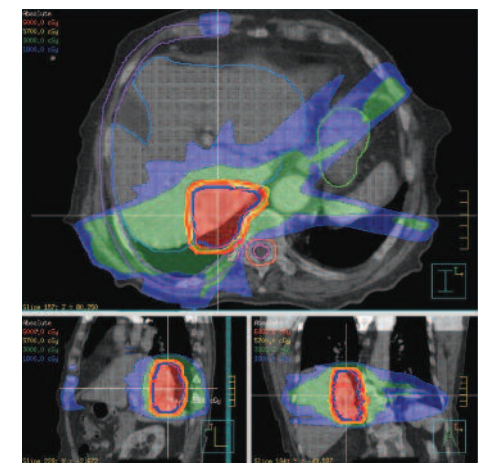


Figure 1.

# Surgical resection of colorectal liver metastases: An update

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- Surgical resection for colorectal liver metastases has evolved from a novel therapy for a minority of colorectal cancer patients to at least a therapeutic consideration in the multidisciplinary management in nearly all patients, as well as an emerging endpoint for evaluating the efficacy of many chemotherapeutic regimens against metastatic colorectal cancer.
- The main developments in advancing surgical treatment for liver metastases have been: (i) better and more detailed imaging; (ii) more effective chemotherapy; (iii) pre-operative methods to optimize liver capacity for surgery such as portal vein embolization; and (iv) newer surgical tools and techniques that allow for novel methods of liver sparing and minimally invasive surgery.
- All patients coming to the Odette Cancer Centre with liver metastases usually undergo the following approach: (i) a team-based evaluation (radiology, pathology, medical, radiation and surgical oncology) to determine the patient's cancer risk profile (i.e., likelihood of more cancer elsewhere); (ii) full image-based mapping of all liver metastases, as well as staging the chest, abdomen and pelvis; (iii) discussion regarding the role of peri-operative chemotherapy; (iv) balancing all other non-surgical treatment options; and (v) determining the time for surgical resection.
- A way to understand how surgery fits in the therapeutic plan for patients with colorectal liver metastases is to sort the patients as follows: (i) patients who present with small volume liver metastases

and are immediately surgically operable; (ii) patients who present with operable liver metastases, but have a higher risk for recurrence profile; (iii) patients who present with liver metastases that represent a challenge to surgical resection.

- For the patient with a **small volume liver metastases and immediately surgically operable**:
  - chemotherapy can be given either before (pre-op chemo) and after surgery, or else simply after surgery (pseudo adjuvant chemo)—this is determined by a team approach that incorporates the evaluation of multiple factors including overall disease risk of recurrence and patient considerations.
- For patients **who are operable, but have a higher risk for recurrence profile**:
  - chemotherapy is often given before surgery here—this allows for (i) determination of the biological efficacy of the chemotherapy; (ii) monitoring of other higher risk sites for cancer recurrence; and (iii) final determination for suitability for surgery.
  - ideally, a maximum of three months of chemotherapy is given preoperatively, with only stability of overall staging and/or any response in the liver metastases being the criteria for surgical resection.
  - 4 to 8 weeks between the last cycle of chemotherapy (eight weeks for those on bevacizumab) and surgery allows for enough time to clear most of the detrimental effects of chemotherapy that may affect surgical outcomes.
- For patients who present with **liver metastases that represent a challenge to surgical resection**:
  - the most effective chemotherapy is considered up-front in order to allow

for a decrease in the size of the liver metastases (conversion therapy)—this is continued until such time that a surgical resection can be considered. This is referred to as “downstaging” or “conversion”.

- If the liver is not of a sufficient size to allow for surgery, we can redirect blood flow using a portal vein embolization technique that will force the planned remaining side of the liver to grow before surgical resection.
- Patients with liver metastases along with other sites of disease such as the lung are not immediately ruled out for surgical resection—their cases are discussed in a team format and using surgery on multiple sites is a consideration.
- In summary, patients who present with colorectal liver metastases have a wider gamut of options available now than ever before. The key to treatment is to be considered by a multidisciplinary team for combination therapy and to be aware of the rich variety of options available.

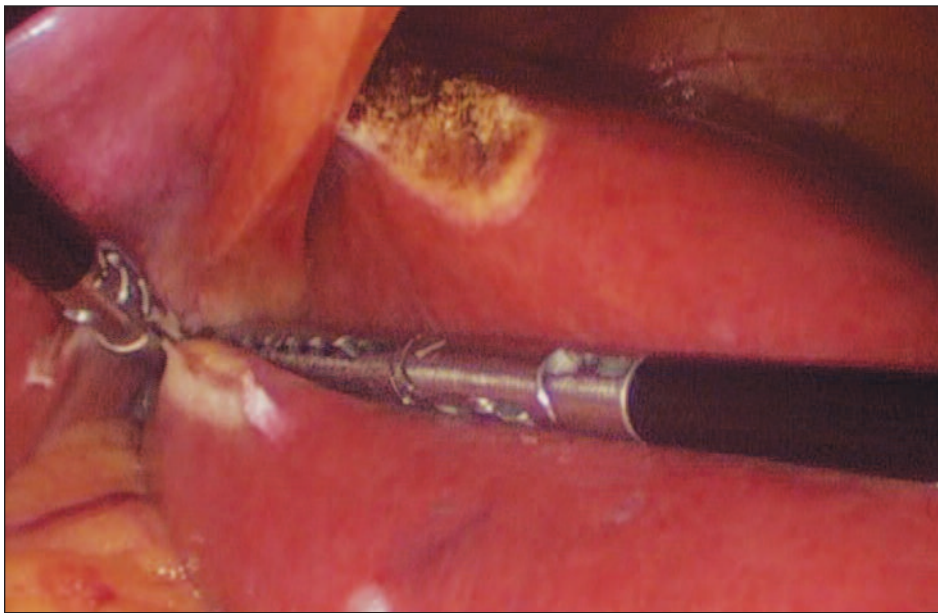


Figure 1: Laparoscopic resection of colorectal liver metastases using a novel collagen sealing technique developed at Sunnybrook.

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