DEPARTMENT OF ONCOLOGY STRATEGIC PLANNING SESSION

Cynthia Henderson
Rob McQuarrie
Salima Haji
David Eisenstat

September 29, 2017
Lister Conference Centre, University of Alberta
SUMMARY OF THE STRATEGIC PLANNING SURVEY, DEPARTMENT OF ONCOLOGY

Questions were asked about several important domains:

1. Governance
2. Education
3. Faculty and Department Evaluation
4. Funding and Infrastructure
5. Academic and Research Administration Support
GOVERNANCE
1. The current organizational structure of the Department of Oncology includes the Chair, Associate Chair Graduate Studies, Assistant Chair Administration, Division Directors and Program Directors. Do you feel this structure is effective? Please explain why or why not.

28 Responses

- Communicate roles and responsibility of DOO leadership and administrative staff
- DOO administration is over resourced
- Division Directors need more authority
- Divisions need tumor group models
- Define the DOO and AHS partnership
- Increase cross Divisional interactions and partnerships
- More attention to DEC members
- Create positions for the Associate Chair Education and Associate Chair Research
- Maintain and enhance the academic health centre model
- Increase focus on new therapies and research
2. Which areas do you feel contribute to the success of the Department of Oncology? (Please choose up to 5)

55 responses

<table>
<thead>
<tr>
<th>Area</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership</td>
<td>35</td>
<td>63.6%</td>
</tr>
<tr>
<td>Excellence in ed</td>
<td>41</td>
<td>74.5%</td>
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<tr>
<td>Recruitment and training</td>
<td>40</td>
<td>72.7%</td>
</tr>
<tr>
<td>Academic staff</td>
<td>-21</td>
<td>38.2%</td>
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<tr>
<td>Operating funds</td>
<td>-24</td>
<td>43.6%</td>
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<td>-16</td>
<td>29.1%</td>
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<td>27</td>
<td>49.1%</td>
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<td>Publications in journals</td>
<td>22</td>
<td>40%</td>
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<tr>
<td>Recognition awards</td>
<td>-11</td>
<td>20%</td>
</tr>
<tr>
<td>Individualism</td>
<td>-1</td>
<td>1.8%</td>
</tr>
</tbody>
</table>
3. What do you feel are potential concerns for the Department of Oncology? (Please choose up to 5)

56 responses

- Funding: 45 (80.4%)
- Leadership: 22 (39.3%)
- Protected time: 22 (39.3%)
- Administrative: 13 (23.2%)
- Space: 22 (39.3%)
- Communication: 23 (41.1%)
- Mentorship: 15 (26.8%)
- Recruitment: 23 (41.1%)
- Access to resources: 16 (28.6%)
- Academic profile: 11 (19.6%)
- Poor physician: 1 (1.8%)
- Morale, clinic: 1 (1.8%)
- Reported, yet: 1 (1.8%)
- Redefining role: 1 (1.8%)
4. As part of the strategic planning process, please rank in order of importance to you;
5. Please provide any additional comments about governance.

11 Responses

- Internal partnership should be a priority.
- Mentorship should be developed further for trainees and junior faculty
- Roles and responsibilities need to be communicated and transparent
- The Committee structure for DOO needs to be communicated
- Efficient governance is critical so that things get done
- Increasing the complexity of the DOO will create inefficiencies
EDUCATION
1A. In your opinion, what should the Department of Oncology’s priority be in terms of educating our trainees, faculty and staff?

31 Responses

Trainees

• Maintain world class research-based graduate programs
• Increase mentorship of students
• Provide support to students regarding launching a career and career advancement

Faculty and Staff

• Provide grant writing support
• Establish a staff engagement program
• Host conferences and seminars
1B. In your opinion, what do you feel the top 3 priorities should be?

56 responses

<table>
<thead>
<tr>
<th>Priority</th>
<th>Count</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Mentoring</td>
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<td>55.4%</td>
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<tr>
<td>Competency</td>
<td>19</td>
<td>33.9%</td>
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<tr>
<td>Partnering</td>
<td>18</td>
<td>32.1%</td>
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<tr>
<td>Protecting</td>
<td>24</td>
<td>42.9%</td>
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<tr>
<td>More opportunities</td>
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<td>33.9%</td>
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<td>Outcomes-driven</td>
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<td>1.8%</td>
</tr>
<tr>
<td>Seed funding</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Above are not o</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Opportunities for</td>
<td>1</td>
<td>1.8%</td>
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<tr>
<td>Provide a strong</td>
<td>1</td>
<td>1.8%</td>
</tr>
<tr>
<td>Investing in infrastructure</td>
<td>1</td>
<td>1.8%</td>
</tr>
</tbody>
</table>
2. Should the Department of Oncology develop new educational streams and programs? Please explain.

31 Responses

• Existing programs should be evaluated and strengthened to remain current
• Increase program development with other UofA departments
• Need to add a clinical axis to the doctoral and MSc program
• Develop a program for clinician scientists
• Programs need to be developed with different points of entry for adult students
• Develop online courses that could generate funding for the Department
3. Any additional comments about education?

11 Responses

• More of a focus on undergraduate programs
• Academic work related to education need to be valued equally with research
• Didactic faculty need opportunities to interact with the clinical environment
• Increase interaction between trainees from different programs
• Strategic planning should involve seeking trainees perspective
• Pursue accrediting sub-speciality fellowship programs
• Develop continuing medical education accredited seminars and lectures for faculty

11 Responses
FACULTY AND DEPARTMENT EVALUATION
1. Do you understand the faculty (FEC) and department (DEC) evaluation process and timelines? If not, please indicate what is unclear.

44 Responses

- The FEC and DEC process and timelines should be defined and communicated
- DEC members should meet with the Chair
- DEC members should be valued and acknowledged
- Clarify the FEC process for FSOs
- Define the categories of academic appointment for Special Continuing, Contingent tenure, clinical Faculty
2. Do you feel that the faculty and department evaluation process is fair and acknowledges all of your contributions to the Department of Oncology? If not, please provide your suggestions on how this can be improved.

43 Responses

- All contributions should be remunerated equitably whether you a UofA or AHS
- The process does not provide an accurate accounts of the individual’s performance
- Need direct input into the process by individuals that work closely of the faculty
- Lack of integration between the clinical and basic science groups
- There needs to be more infrastructure support for collaboration
- Patents need to receive greater credit
- Process is fair but not transparent
- Merit should be based on performance and not budgetary constraints
3. Any additional comments about faculty and department evaluation?

13 Responses

- Lack of recognition for clinical service
- Junior faculty are not aware of the requirements to be promoted
- Performance should be judged on funding but competitive awards should not be equal to non-competitive awards.
- FSO staff should eligible for promotion
- Existing metrics are not measuring anything meaningful therefore stifling new approaches or innovative ideas
FUNDING AND INFRASTRUCTURE
1. In your opinion what should the top priorities be in the Department of Oncology? (Please choose up to 5)

54 responses

- Increasing the o... -14 (25.9%)
- Increasing the o... -20 (37%)
- Increasing the a... -22 (40.7%)
- Increasing exter... -24 (44.4%)
- Increasing the f... -19 (35.2%)
- Developing a co... -36 (66.7%)
- To establish ne... -17 (31.5%)
- To identify fundi... -28 (51.9%)
- Recruitment sho... -1 (1.9%)
- Sustained studie... -1 (1.9%)
- Things are not c... -1 (1.9%)
- I receive no rel... -1 (1.9%)
2. Are you supportive of becoming a member of an Academic Alternative Relationship Plan (AARP)? Please explain your viewpoint.

42 Responses

- No – 9, Yes – 15, N/A and neutral – 18
- More information defining what an AARP is, who should belong and the process
- The pros and cons of an AARP need to be communicated
- This will allow for the recruitment of new colleagues to the group.
- This would be another “master” looking for additional work based on UofA priorities
- An AARP will ensure research time is protected
- Clinical care should always be the priority
- Physicians will be working more than less time
- The AARP will align the DOO to the rest of the medical community in UofA and AHS
- The AARP will emphasize academic excellence while providing cutting edge resources to patients
3. Do you understand the difference between a clinical and academic AARP? If not, please indicate what is unclear.

36 Responses

- Yes – 14, No – 6, Unclear - 11 N/A – 5
- Need more detail about what an AARP is and the benefits to joining
- Provide AARP guidelines
- Academic AARP is unclear for clinician scientists
4. Any additional comments about funding and infrastructure?

11 Responses

- Increased funding for academic staff salaries to hire more oncologists, not increase in compensation we are paid well
- Difficult to have a provincial program if the funding is primarily University based
- There is an extreme need for graduate student funding
- Recruitment should be based on excellence and need, not on opportunity
- Funding priority should be stable funding to the DOO to sustain current programs
- Revenue generating opportunities should be used to fund new growth areas
- Faculty members should be applying to all funding opportunities
- We need more space
ACADEMIC AND RESEARCH ADMINISTRATION SUPPORT
1. Do you feel there are areas that require attention in the support that the Department of Oncology administrative office provides? Please explain.

33 Responses

• No – 9, Yes -9, Neutral or more information – 15
• Roles and responsibilities of the leadership and staff need to be communicated
• The DOO has far to many administrative assistants and too many layers of administration
• The DOO is under-resourced
• There needs to be timely response to students
• DOO administrative staff need to communicate administrative processes and provide timely responses to questions
• Department administrative is great
• With DOO structure and leadership changing an operational review should be conducted
Additional Survey Comments

8 Responses

• The relationship between the Department and AHS requires clarification

• AHS support for salaries is critical to DOO programs it should be maintained

• Peer collaboration and communication within DOO is dismal

• Open communication, transparency, acknowledgement of contributions by individuals, secure infrastructure funding and staff salaries at all levels is critical to the success of the DOO.

• Numerous thank yous for providing this opportunity for input
## DEPARTMENT OF ONCOLOGY OPERATING BUDGET 2017/18

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<thead>
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<th>Employee</th>
<th>Total</th>
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<td><strong>ACADEMIC</strong></td>
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<td>Baracos, Vickie E - Endowed Chair</td>
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<td>De Zanche, Nicola</td>
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<td>Eisenstat, David - Chair</td>
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<td>Fallone, B. Gino</td>
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<tr>
<td>Henderson, Cynthia J - Assist Chair</td>
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<td>Hilt, Mary (1085402)</td>
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<td>Pasdar, Manijeh</td>
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<td>Postovit, Lynne - Endowed Chair</td>
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<td>Sawyer, Michael Bruce</td>
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<td>Wuest, Frank R. - Endowed Chair</td>
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<td><strong>SUPPORT</strong></td>
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<td>Haji, Salima Saleh Academic HR &amp; FEC</td>
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## RADTH Operating Budget

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<td>MP1 Dr. Boguslaw Tomanek-June 6, 2014</td>
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<td>MP2 Dr. Jonanthan Sharp-June 9, 2014</td>
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<td>RB1 Dr. Armin Gamper-October 1, 2014</td>
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<td>RB2 Kristi Baker- April 1, 2015</td>
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<tr>
<td>ANAT Jennifer Hocking</td>
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<tr>
<td>RO Brock Debenham-May 1, 2014</td>
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<td>ISS (Interim Staffing Solutions) Debra Joan Glennie</td>
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<td>Administrative Support 4 FTE</td>
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<td>T &amp; L Susan Cauti-July 2, 2014</td>
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<td>ATS Kerry Crawford October 11, 2013</td>
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<td>Kelli Beckreus-December 5, 2016</td>
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<td>Faculty Mentor John Mercer-January 1, 2014</td>
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<td>Curriculum Development David Jay-October 1, 2014</td>
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<td>McQuarrie, Rob-April 1, 2016</td>
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<td>MedIT support</td>
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### Total Staffing Budgetted

| Total Staffing Budgetted | 3,937,364 |

## Operating Costs

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<td>Program Materials/supplies</td>
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<td>Pacs service contract</td>
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<td>Library Services</td>
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<td>MEDSYS &amp; Moodle</td>
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<td>Radiology X Sectional StartUp</td>
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<tr>
<td>Program Promotion</td>
<td>7,200</td>
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### Total Operating Budgetted

| Total Operating Budgetted | 466,602 |

### Total Staffing & Operating Budgetted

| Total Staffing & Operating Budgetted | 4,403,966 |
Medical Isotope and Cyclotron Facility (MICF)
• UofA owned facility jointly developed with AHS radiopharmacy (ERC)
• AHS leases large portion of building for clinical radiopharmaceutical production (pending move from CCI)
• UofA owned cyclotron for clinical and research isotope production
• UofA has 2 GMP (good manufacturing practice) labs for production of radiopharmaceuticals
• 17 staff and students on UofA side
• Currently completing clinical trial comparing cyclotron Tc99m with reactor Tc99m as lead up to NDS
Challenges

• Funding for majority of staff ending Dec 2018

• High level direction from Steering Committee that includes AHS with no on site day to day leadership

• AHS and UofA leaders currently working on plan to jointly operate MICF and CCI cyclotrons. Future UofA operations at the facility somewhat unknown.
Strategic Retreat
Department of Oncology

Division of Radiation Oncology

Wilson Roa, et. al.

September 29th, 2017
Outline

• Current Highlights
• Strengths & Weaknesses
• Opportunities & Threats
• Future Endeavours & Needs
Best Clinical Practice in Radiation Medicine
(X. Kostaras, H. Lui, W. Roa, et. al.)

• Focus: Patient-reported outcomes
• Optimize the patient referral process
• Coordinate amongst tertiary and community oncology centers
• Enhance the roles of radiation oncologist for improved quality and standards
• Facilitate the translation of best precision radiation medicine practices for Albertans
New Dx of Brain Mets on CT (No MR Yet)

**Symptomatic lesions or concerning edema?**
- Referring MD to start Dexamethasone 8 – 20 mg IV for rapid palliation of neurologic symptoms or 4 mg po bid
- Referring MD to Consult Neurosurgery if ICP is concern

**What does CT report say?**
- ≤ 4 lesions and all ≤ 4 cm: Referring MD to order urgent MR brain* (‘fusion protocol’ for radiosurgery planning) AND refer to ARC / Brain Mets Rota RO
- ≥ 5 lesions or any > 4 cm: Refer to (in order):
  - Prior RO of record if seen by that RO within past 6 months
  - Tumour site covering RO
  - RO on Call as per ROCA (after hours and weekend coverage)

**Needed clinical information about patient for triage decisions?**
- ECOG status
- Response to dexamethasone if started
- Histology & primary tumor site if known
- Extracranial disease status (extent, stable/controllable?)
- CT brain report

To Find Today’s Brain Mets Rota RO or RO on Call: please see ROCA
Refer to Alberta Radiosurgery Centre (ARC) via fax # (403) 521-3245
To Find Tumour Site Covering RO: tel # 403-521-3077
Clinical trials demonstrated the ability of Space OAR® to reduce rectal dose (mean rectal V70 12.4% vs 3.3%, p<0.0002) and late rectal toxicity (7% vs 2%, p=0.04) by 75%
Precision Targeted Radiotherapy

Present

- Intensity modulated RT (Tomotherapy, Rapidarc)
- Stereotactic body radiotherapy (SBRT)
- Image guided brachytherapy: GU, Gyne
- Gamma knife
- Intracranial SRS
Precision Targeted Radiotherapy

Future

• MR-guided treatment planning
• Linac-MR
• New applications of targeted SBRT
  • Palliative
  • H&N
  • Others
Precision Targeted Radiotherapy

Present

- Intensity modulated RT (Tomotherapy, Rapidarc)
- Stereotactic body radiotherapy (SBRT)
- Image guided brachytherapy: GU, Gyne
  - Gamma knife
  - Intracranial SRS
NEW RADIOTHERAPY PRACTICES THAT MAKE A DIFFERENCE
LEADERSHIP DEVELOPMENT

Adapted from Canadian Business, March 2007
SWOT ANALYSIS (HIGHLIGHT): EXTERNAL OPPORTUNITIES & THREATS

Behind the top two, the remaining eight Canadian institutions in the top 200 all improve their performance, with University of British Columbia moving up five places to 44th, and University of Montreal (83rd) and University of Alberta (84th) also in the top 100.
Allow a leadership focus with “dynamic imbalance” in the organizational matrix of structure and function.

“Beyond Matrix Structure”
For translational and laboratory studies: Where do we focus by strengths/networks?
Adapted from Visual Meetings, David Sibbet, 2010
The Grove Consultants International
Precision Targeted Radiotherapy

Future

• MR-guided treatment planning
• Linac-MR
• New applications of targeted SBRT
  • Palliative
  • H&N
  • Others
Introduction to Epigenetics Therapy and Development of Inhibitors of the Bromodomain and Extra-Terminal Domain Proteins as Epigenetic Therapies Against Cancer

Presented by:

Michael J. Hendzel, Ph.D.
Professor of Oncology and Cell Biology
Lead, Alberta Epigenetics Network

Eric Campeau, Ph.D., PMP
Senior Director of Biology
Zenith Epigenetics
Fig. 2.2 Mechanisms of microRNA deregulation in human cancers
Impedance sensor

A sample is dropped into the sensor  

The impedance reading will be sent to Smart Phone via WiFi
Nanoparticles for Cancer Treatment & Drug Delivery

Applications considering NINT capabilities-
Figure 1. Radiation dosage can (200kV X-ray) control lyses of mPGA shell
Lyses of mPGA shell were proportional to radiation dosage when tested in the range from 5 to 30Gy. Ultraviolet (UV) Absorption at λ=285nm measures exposed phenacyl ester group (Phe) in the fragmented product.
Short-course vs. Standard-course radiotherapy in elderly and/or fragile patients with GBM

Eduardo Rosenblatt, MD
Section Head
Applied Radiation Biology and Radiotherapy Section
Division of Medical Oncology

Scott North
Overview

• Make up of the Division
• Strengths of our group
• Weaknesses/Threats
• Opportunities for Collaboration and growth
• Questions
Division of Medical Oncology

• 24.6 FTE

• 25 faculty (5 Clinical, 20 FEC); 1 vacant position; 2 LOA
  • 1 locum

• Most individuals are Medical Oncologists but there are Hematologists primarily appointed in MO to see malignant hematology patients

• MO also supports gyne-oncology by providing chemotherapy consultations and oversight as well as trials

• Collaboration with AYA program supports young patients with a variety of cancers
Medical Oncology Workload

• 4000 new patient consults completed in 2016; 2017 tracking about 1.5% higher YTD
  • Repeat consults often not tracked due to perceived lack of value in workforce planning

• Major limiting factor on consult work is physical space to see patients
  • Active triage process

• Currently the division is short of manpower
  • One medical leave
  • One vacant position with posting
  • One LOA to end January 1, 2018
  • GPO was recently lost who did 3 clinics/w supporting breast group
  • Short 2-3 individuals based on antiquated workload stats and actual workload formula needs urgent updating and recruitment to fill void
Strengths

• Clinical trials are part of the culture
  • 11-12% of patients using NP volume as denominator entered on interventional trials
  • High impact trials and publications

• Phase I unit has dramatically picked up activity in recent months

• Collaborations with other programs resulting in novel models of care delivery
  • EPICC, melanoma

• Collaborations with malignant hematology

• Educational programs at UME/PGME are well recognized for their excellence
Recent Positive Developments

• Recruitment of neuro-oncologist to complement MO in the CNS group

• Further discussions about integration of malignant hematology programs to create more seamless care

• EPICC program is novel nationally to provide care to prostate cancer patients with room to grow for bladder

• Further linkages with other divisions/department to build MDT and get a foothold a KEC
  • Heme, urology, melanoma, maybe CNS?
Weaknesses and Threats

• Inadequate space at CCI to see patients

• Cost containment strategies to hire “lower cost alternatives” to physicians results in inappropriate case mix for MD’s and burnout

• Time constraints for clinical care obligations mean research productivity drops – including possible clinical ARP discussions
  • All research can’t be done on off-clinic hours or faculty will burn out; we need a work/life balance
Weaknesses and Threats

• Antiquated workforce planning formula and glacial pace at reform has resulted in essentially a recruitment freeze

• Disconnect between AHS and U of A regarding academic job descriptions and recruitment strategies

• Lack of appropriate inpatient HR support will cripple MO
Future Opportunities

• Building on multi-D platforms to bridge clinical care and research
  • CNS, heme, GU, melanoma just to name a few

• Explore further opportunities for working with other disciplines to get a foothold in space apart from the CCI
  • We are unlikely getting an expansion anytime soon

• Improved academic contributions from CNS with new faculty engaged in research

• Continued clinical trial recruitment and hope to build IIT program and foster individual investigators
Notable Success Stories

- EPICC clinic and integration with NAUC
- Malignant hematology and plasma cell program expansion
- Global CRU success and trial recruitment/publications
- Teaching excellence recognized by teaching awards
Questions and Discussion
UNIVERSITY OF ALBERTA
FACULTY OF MEDICINE & DENTISTRY
Radiation Therapy Program
Objectives

- Background
- RADTH current state
- Strengths
- Opportunities
- Challenges
- Collaborations within Department of Oncology
Background

- 2010 - Work group initiated by Ministries of Alberta Health and Innovation & Advanced Education (membership included AH, I&AE, AHS-CCA, ACMDTT)

- 2011 – Recommendations sent to Ministers of Health and Innovation & Advanced Education

- 2011 – GoA sent letters of invitation for the development of an baccalaureate degree sent to U of A and U of C.

- 2012 - U of A invited to submit full proposal to offer a baccalaureate degree

- 2013 – Proposal for the delivery of a B.Sc. in Radiation Therapy approved by U of A GFC. Program development begins. Canadian Medical Association Conjoint Accreditation approves application for accreditation
Background

- 2014 – Recruitment of faculty and RAPID curriculum/program development
- September 2014 – RADTH Admissions Committee accepted first cohort consisting of 5 students.
Current State

Students

● First cohort graduated June 2017
  ○ All graduates were offered employment in Alberta

● 2018 cohort - 11 students who are in the final year in the clinical environment at the TBCC or CCI

● 2019 cohort – 9 students in their 3\textsuperscript{rd} year didactic courses

● 2020 cohort – 8 students started in September
Current State

**Curriculum**

- Classroom Based Courses
  - 5 – 3 credit service courses
  - 1 – 6 credit service course
  - 20 – 3 credit RADTH/ONCOL program specific courses

- Simulation Based Courses
  - 1 – full semester clinical simulation course (RADTH 360) in spring/summer of 3rd year (*full time for 13 weeks*)
Current State

Curriculum

- Clinical Courses
  - 1 – introductory clinical course (RADTH 260) in 2nd year *(full time for 6 weeks)*
  - 2 – full semester clinical courses (RADTH 460 & 461) in 4th year *(full time for 33 weeks)*
Current State

- Upcoming FoMD meetings regarding ‘Division’ status

- **Accreditation** – all requirements met except the two that require national examination results, employer feedback, graduate feedback.
  - work has begun on drafting a report to provide evidence of compliance with the two unmet requirements. Report due March 2018.
Strengths

Radiation Therapist Faculty

- Mr. Brian Chwyl
- Ms. Jennifer Dewhurst – on maternity leave
- Ms. Janelle Duquette
- Ms. Heather Gaunt
- Ms. Laura Grose
- Ms. Jackie Middleton
- Ms. Kari Osmar,
- Ms. Cynthia Palmaria
- Mr. Kim Rans
- Temporary contract – Mr. Matt Becker
Strengths

**Physicist Faculty**

Dr. Jonathan Sharp
Dr. Bogaslaw Tomanek

**Radiation Oncologist Faculty**

Dr. Brock Debenham

**Cancer Biology Faculty**

Dr. Kristi Baker

**Radiobiology Faculty**

Dr. Armin Gamper
Strengths

*Teaching & Learning Team*

Ms. Susan Cauti – Teaching & Learning Specialist

Ms. Kelli Buckerus – Academic Technology Specialist

*Administration Team*

Ms. Leslie Wutzke – Division Administrator

Ms. Brenda Ewing – Program Coordinator

Ms. Amanda Hansen – Finance & Human Resources Administrator (shared with Department of Oncology)

Ms. Amanda Pratt – Division Assistant
Strengths

RADTH Program Mentors

Dr. John Mercer
Dr. David Murray

Special thanks to a host of people who have supported and continue to support the planning, development and implementation of the RADTH Program!!
Simulation Education

Interprofessional and Intraprofessional Collaboration Scenarios

Teaching Suite/Light LINAC

Phantoms, Models and Patient Actors
Radiation Therapy Program

Vision:

Advance the profession of Radiation Therapy through internationally recognized patient-centered education, scholarship, and community engagement.

Program Outcomes:

<table>
<thead>
<tr>
<th>Clinical Expertise</th>
<th>Professionalism</th>
<th>Inter-professional and Collaborative Practice</th>
<th>Compassionate Clinical Care</th>
<th>Social Responsibility and Citizenship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Holistic practitioners who demonstrate clinical reasoning rooted in reflection and evidence based practice.</td>
<td>Highly-skilled professionals, who effectively communicate, and use ethical attitudes &amp; behaviours towards patients, peers, and other stakeholders.</td>
<td>Patient and family-centered practitioners who collaborate within an inter-professional environment to provide highest quality patient care.</td>
<td>Patient and family-centered practitioners who display compassion, and mindfully adapt to meet the unique needs of a diverse, cultural population.</td>
<td>Altruistic practitioners engaged in the community, as scholars, leaders, and healthcare advocates.</td>
</tr>
</tbody>
</table>
Opportunities

- Develop a MRI education offering for qualified Radiation Therapists
  - In initial stages

- Develop continuing professional development offering for the Radiation Therapy profession

- Foster an academic climate among practicing Radiation Therapists provincially
Challenges

- Student recruitment
- Clinical access for RADTH Radiation Therapist faculty
- Student supports/resources when on placement in Calgary
Collaborations

Collaborations within Department of Oncology

- Medical Physics graduate program – some introductory education activities have used the VERT linac simulation platform at University Terrace
- RADTH Program, RO Residency program and MP Residency program collaborated on an interprofessional learning activity in RT Training Suite at CCI
- Two RT Faculty have provided expertise in radiation treatment planning for research project using the SARRP (Small Animal Research Radiation Platform)
Collaborations within Faculty of Medicine & Dentistry

- Dental School – development of interprofessional education offerings
- Medical Laboratory Sciences – RADTH providing teaching and learning expertise with MLS curriculum revision work
- Radiology – Residency Program use of RADTH computer labs & Radiologists guest lecture in our ONCOL 306 course.
Collaborations

Opportunities for further Collaboration

- 50 seat computer lab with 25 computers and dual ‘smart’ podium
- VERT – 3D life size linear accelerator
- RT Training Suite - TrueBeam Linac with OSCE capabilities
Next Steps

- Two mini retreats booked this fall
  - To develop a research framework which supports and informs faculty, undergraduate and graduate research
  - To develop strategic plans for graduate studies offerings

- Work with new Vice-Dean of Education to seek approval for MRI for MRT(T)’s course offerings

- Customized project management initiative for the development and revision of curriculum starting in October
Radiation Therapy Program

STUDENT AREA

Moving practice forward.
Welcome to the website of the Department of Oncology at the University of Alberta.

The Department of Oncology is a unique department that integrates health care personnel and University researchers in an
Department of Oncology
Graduate program organization

• Cancer Sciences
  • Experimental Oncology
  • Palliative Care
  • Oncologic Imaging
  • Radiation Oncology
  • Medical Oncology
  • Surgical Oncology

• Medical Physics
  • Medical Physics

MSc 18; CIP 1
PhD 20; CIP 2

MSc 7
PhD 7
FGSR sets minimum standards for grad programs.

- FGSR
- FoMD
- Oncology

www.ualberta.ca/graduate-studies/
Sets additional standards for grad programs; responsibilities delegated by FGSR
Sets additional standards for grad programs; responsibilities delegated by FGSR and FoMD
Department of Oncology Graduate Program
Key Requirements

• Research

• Course work (differs for Cancer Sciences/Medical Physics)

• Ethics training (8 hours of structured academic activity)

• Professional development (IDP; minimum 8 hours of structured PD activity)

• PhD proposal; candidacy exam

• MSc/PhD thesis & defense
Associate Chair Graduate Studies
Key Roles & Responsibilities

• Liaise with FGSR and Faculty of Medicine & Dentistry
• Ensure FGSR, FoMD, and Oncology regulations are met
• Apply for program extensions
• Support/adjudicate scholarship applications & nominations (also serve on FGSR’s Graduate Scholarship Committee)
• Support Leave of Absence requests
• Conflict resolution
• Recommend termination of program/academic probation
• Conduct exit interviews upon completion of program
Graduate student funding

- Funding structures differ between Cancer Sciences and Medical Physics
- Supervisor’s operating funding
- Scholarships (departmental, faculty, FGSR, UofA, provincial and national level); some sponsored international funding (i.e., CSC)
- Quality assurance (Medical Physics; AHS)
- Clinical Investigator Program (Royal College of Physicians & Surgeons of Canada)
S.W.O.T. Analysis

• Strengths: >50 students, independent GCCs, strong training environment, diverse training opportunities, strong admin team, successful grads

• Weaknesses: undergraduate presence (ONCOL 320/425), core funding, website, lack of integration (‘Silos’), out of sight/out of mind, longitudinal data (tracking outcomes), recruitment (faculty & trainees)

• Opportunities: integration of diverse training ops (grad, CIP, residency, radiation therapy, clinical trials), Health Sciences degree, online courses, CRINA, marketing

• Threats: funding at all levels, faculty turnover/renewal, stability/space, grad degree ‘brand,’
Goals

• SHORT TERM
  • Website updates
  • Improve communication across training programs (Education committee); establish joint activities

• LONG TERM
  • Develop integrated training program(s)
  • Establish base funding (CRINA, other stakeholders)
  • New course offerings
Enhancing the Education Portfolio

In addition to the graduate training programs in Cancer Sciences and Medical Physics, the Department of Oncology also has responsibilities for undergraduate and postgraduate medical education (UME and PME), radiation therapy as well as postgraduate training in medical physics:

1. Medical Oncology – subspecialty residency training, fellowship training
2. Radiation Oncology – subspecialty residency training, fellowship training
3. Palliative Care – Family Medicine 3rd year; RCPSC new program
4. Medical Physics – accredited in four clinical residencies post-PhD
5. Radiation Therapy – undergraduate program
6. Undergraduate course in cancer sciences
CRINA-ONCOLOGY DEPARTMENT COLLABORATION

ONCOL 660/661

Weekly seminar series by graduate students in Cancer Sciences, postdoctoral fellows, faculty and visiting speakers.
QUESTIONS?
Medical Physics Division

B. Gino Fallone, PhD,
Medical Physics: Brachytherapy

I-125 Prostate Seed Implant Program 90 – 100 patients annually (late 98)
Varian Gammamed PDR remote afterloader commissioned. (2007)
BT from Plato system to Oncentra Brachy Planning System (2011)
Ocular BT (Eye Plaque) (2011) (only one in Western Canada)

60 patients per year. The 250th patient will be treated in August 2017.

HDR V3 afterloader commissioned (2011); Gynecological, Skin, Esophageal, Bronchus, H & N
Nucletron V3 PDR afterloader commissioned (2011)
Second Nucletron V3 PDR unit commissioned (2013)
MRI based treatment planning now the standard of care for cervix BT
HDR Skin surface treatments begin in 2016.
HDR Head and Neck treatments begin in 2016
Med Phys: General Clinical – CCI 1/3

• Daily, monthly, annual Equip QA for RO linacs/CTs (CNSC, ARPA) and RO & OI equipment (ARPA)
• Procurement, siting, radiation shielding, acceptance, applications training for all RO and OI major equipment
• Provincial certification of all CancerControl Alberta mammography screen systems by certified MPs
• Ensure qualified staff and resources for the ongoing QA of RO TPS (eg, Varian eclipse)
• Support the patient specific and equipment specific QA of all patient RT treatment plans
• Maintenance and improvement of imaging infrastructure for support clinical research
• Comprehensive software upgrade QA of RO TP: at least 5 major upgrades since 2000
• First in Canada: introduction of IMRT in the clinic
• First in Canada: introduction of MVCT based image guidance to radiation therapy

• Introduction & continual improvement of the new treatment techniques in IMRT, IGRT, SRS, FSRT, SBRT
  • SRS – originally designated for TBCC: (Could not continue SRS work from McGill)
  • SBRT (related to SRS): initially lung, then liver (markers), spine, etc.
  • GammaKnife: prg. development, vault design (CNSC) etc. significant MP development
• Assess need, acquisition, installation, acceptance and commissioning of new RO systems
  • Tomotherapy - develop dosimetry (kQ ?) , processes and MVCT guidance
  • TrueBeams (8)– image guidance with OBI/CBCT
  • RapidArc -commissioning QA, etc for improved efficiency
  • Orthovoltage Assess need, acquisition, installation, acceptance and commissioning
Med Phys: General Clinical – CCI 2/3

- Introduce motion management for RO
  - 4DCT lung treatments; Breath-hold (eg, breast); VisionRT (optical tracking)
- Clinical Varian EPID-based dosimetry IMRT QA
- In-house developed and clinically EPID-based dosimetry for pre-treatment IMRT per patient
- Radiation Corridor Support: eg, design, CNSC vaults (CACC), clinical readiness of CACC, etc.
- Evaluation & implementation of Varian’s Acuros dose calculations for improved accuracy
- In-house creation/improvement of MUcalc – independent 2nd TP check
- In-house creation/improvement of MODCALC – check of IMRT/RapidArcs to accommodate clinical changes
- Continual improvement of process QA, eg, web-based QA database (QATrack+)
- Participation in streamlining RT processes initiatives
  - Radiation safety in RT and OI: shielding design (CNSC), linac servicing, radiation surveying
  - Assignment qualified site-specific MP to provide the state-of-the-art clinical service and consultancy to RO staff
  - Continual upgrades of KV imaging systems of conventional and CT simulators (multi-slice big bore CT).
  - Support physics teaching and practicums in the RTT school
  - Support physics teaching and practicums for RO residents (i.e. clinical physics month)
  - Validation of dose calculation accuracy of RO systems and processes
- Lead RTPP process with RO/RT (Field): ARIA data extraction learning SQL (Burke)
Med Phys: General Clinical – CCI 3/3

• Assess need, **acquisition, installation, acceptance and commissioning on new OI systems**
  • SPECT/CT, PET/CT install, acceptance
  • Bioassay Probe, Auto PET injector acceptance

• With Diagnostic Imaging RSO
  • Annual thyroid phantom scanning for Bioassay Intercomparison Program, Health Canada.
  • CNSC audits/inspections, annual compliance submissions, radiation safety manual, CNSC general license compliance
  • Develop, implement, and improve staff radiation safety program
  • Assessment and reporting of radiation spills and/or accidents

• Dosimetry calculations for radionuclide therapies: thyroid (I-131), for NET cancers (Lu-177 Octreotate I-131 mIBG)
  • Optimize provider software solutions to work within CCI
  • Patient and fetal dose calculations, both individual and collective

• **Validation of RT radiation dosimetry calibration (i.e. IROC etc)**: support clinical trials
• **Validation of RT treatment planning (i.e. RTOG)**: accrue patients in multi-institutional collaborative clinical trials
• **Validation of OI equipment for imaging-related clinical trials**
22 Active Clinical Trials in Radiation Oncology Listed on Sharepoint

MPs as Co-PI, or Collaborators listed on majority

• (6 of 7 MRI-related clinical trials have an MP as investigator)
RADIATION-DELIVERY TRIALS

Annual dosimetry certification: IROC-Houston Quality Assurance Centre.
- record MPs & ROs & equipment for trial.
- irradiated dosimeters for all energies to IROC for annual validation.
- IROC site-visit for 2-3 days with Med Phys validating all measurements.

New technique certification for all new treatment/equipment.
- Completing documentation + irradiated specialized phantom to QA center
  eg, H&N RapidArc: CT-simulate, treatment plan, perform QA, and treat a large H&N anthropomorphic phantom
  Tomo: repeat process several (week long) several times/yr for each site/technique

Trial-specific credentialing: All reviewed by MP (Rad Med Utilization Cte)
  - In-house trials has a MP (Co-PI) or CO to develop trial
  - Collab. trials require a credentialing by MP.
  - Evidence of credentialization or provide sample TPs with irradiated phantoms.

MP ensures trial-specific data exists in TPS (unique unique structure sets and dosimetric goals for every trial)
MP technical support backup for data submission to trials (SFTP system for Ontario and TRIAD for COLL group trials.
Min MP good standing (Associate Plus) with NCI (National Cancer Institute) (H Warkentin)
  - Maintain Good Clinical Practice and Human Subject Protection Training (Initial & Annual)

MEDICAL IMAGING RELATED TRIALS

All QA related to trials
- Health Canada medical imaging and radionuclide therapy clinical trial audits/inspections
- Scanner certification tests for participation eligibility in clinical trials
## MSc Medical Physics Prog.

<table>
<thead>
<tr>
<th>Required Courses: First / Fall Term</th>
<th>Required Courses: Second / Winter Term</th>
<th>Required Courses: Spring Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONCOL 550 Medical Radiation Physics</td>
<td>BME 564 Fundamentals of Magnetic Resonance Imaging</td>
<td>ONCOL 554 Laboratory in Medical Radiation Physics</td>
</tr>
<tr>
<td>ONCOL 558 Health Physics</td>
<td>ONCOL 552 Fundamentals of Applied Dosimetry</td>
<td>ONCOL 556 Laboratory in Imaging</td>
</tr>
<tr>
<td>ONCOL 560 Technology in Radiation Oncology</td>
<td>ONCOL 564 Physics of Nuclear Medicine</td>
<td></td>
</tr>
<tr>
<td>ONCOL 562 Theory of Medical Imaging</td>
<td>ONCOL 566 Physics of Diagnostic Radiology</td>
<td></td>
</tr>
<tr>
<td>ONCOL 566 Radiation Biophysics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ONCOL 600 Graduate Medical Physics Seminar</td>
<td>ONCOL 600 Graduate Medical Physics Seminar</td>
<td></td>
</tr>
</tbody>
</table>

Required / Mandatory: To be completed by the finish of the program

At least 8 hours of structured academic ethics and academic integrity training

One (1) Anatomy and Physiology course*; MSc Thesis

*Anatomy and Physiology Course: First / Fall Term

| BME 320 Human Anatomy and Physiology: Cells and Tissue | or |

*Anatomy and Physiology Course: Second / Winter Term

| BME 321 Human Anatomy And Physiology: Systems |
PhD Medical Physics Prog.

<table>
<thead>
<tr>
<th>Required / Mandatory: To be completed by the finish of the program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All courses for the MSc Program or their equivalent</strong></td>
</tr>
<tr>
<td>One (1) Anatomy and Physiology* course if not taken previously</td>
</tr>
<tr>
<td>Advanced Specialization coursework (based on research interests and discussions with the candidate’s supervisor and the Director of the Medical Physics Program)</td>
</tr>
<tr>
<td>At least 8 hours of structured academic ethics and academic integrity training if not taken previously</td>
</tr>
<tr>
<td><strong>PhD Thesis</strong></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Advanced Specialization Courses: First / Fall Term</th>
<th>Advanced Specialization Courses: Second / Winter Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONCOL 690</td>
<td>Biomedical Magnetic Resonance Methods and Applications</td>
</tr>
<tr>
<td>Elective Course: First / Fall Term</td>
<td>ONCOL 691</td>
</tr>
<tr>
<td>PHYS 511</td>
<td>Advanced Quantum Mechanics I</td>
</tr>
<tr>
<td>ONCOL 692</td>
<td>Advanced Radiological and Nuclear Imaging Physics</td>
</tr>
<tr>
<td>ONCOL 693</td>
<td>Advanced Radiotherapeutic Physics</td>
</tr>
</tbody>
</table>
Image Guided Adaptive RT (IGAR)

“Radiation: Ideal for solid tumours”

First CT on linac: TomoTherapy

Gold-standard imaging device

3 T MRI

9.4 T Animal MRI
Objectives

Biological imaging
human and animal MR for designing and evaluating radiation treatments

4-D Image-guided adaptive radiotherapy

Biophysical modeling of dose response

Dose-response models into treatment design
Molecular Imaging: 3T MR, 9.4 T MR animal

Phenotypic characterization
Gene therapy: transfection, reporter genes
Angiogenesis: agonist stimulators & inhibitors
Apoptosis
Drug resistance
Growth factors and receptors
Metastatic potential
Proteomic characterization
3D $^1$H-MR Spectroscopy: metabolites

Prostate

choline/citrate ratio map shows PCa
Glio Blastoma Multiforme

T1 weighted image

Spectroscopy

N-acetylaspartate

Choline: membrane synthesis in tumor

Creatine: energetic status... constant

NAA:

Heikal, Wachowicz, Fallone
Typical Fusion
IGAR: Clinical Research

PET - CT

3T MR

TomoTherapy

Fusion-Planning

Modeling

ADJACENT SUITES
MR Simulation
instead of CT simulation PLUS CT-MR fusion

MR distortion correction
1.5 T reported as much as 9 mm over 256 mm volume due to non-gradient linearities only
Distortion due to patient susceptibility

Electron density assignment

Studies into Patient Motion: breast, lung
MVCT Detector Geometry

3-D Patient Positioning Verification

MOTTO

ACCURATE

“PRECISION ONCOLOGY”
World’s First 2008 (V 1)
MR-Imaging with “beam-on”

Perpendicular Configuration

Development History

2008 – Proof of concept (1st Prototype)
Functional head-sized Linac-MR built & tested.

2013/14 – (2nd Prototype)
Functional body-sized Linac-MR built & tested.

Linac-MR Development Team:
Over 50 peer-reviewed research articles since 2009
Problem in targeting - Prostate

-- Cannot clearly see what to treat --

**Current imaging**

- kV Cone Beam CT:
  - Only Before & After Tx
  - Requires 40 treatment visits

**MRI from prototype**

- Our 0.5 T MR:
  - Real-time: Before, during & After Tx
  - Estimate 1 to 5 treatment visits
Problem with tissue movement - Cervix

-- Organs can move during treatment (e.g., body processes, breathing)

Outline drawn around organ

Currently Treat the Outline

In minutes organ moves significantly

NEEDS IMAGING DURING TREATMENT
Current Linac-MR

www.LinacMR.ca
Academically

Increase ties with undergraduate programs (499 courses)
Physics, Engineering physics, Computer Science
Mathematics

Develop Collaborative Graduate projects (PhD)
Cancer Sciences & Medical Physics
1 PhD graduated (Anderson)
1 PhD in program (Hough)

Increase Graduate Trainee Support
TA’s at other U of A faculties of engineering and science
Scientist Entrepreneur Program Option sponsored by Industry
• entrepreneurial courses and complete an entrepreneurial report
Translational Training Commercialization

Scientists Entrepreneur (PhD)
Add Option to existing PhD programs
UofA: ENG M402, M665, M660
Patents, IP, business plan, marketing, financial, licensing, regulatory, strategies, commercialization
Entrepreneurial report by trainee
  • Technology assessment of PhD thesis topic
  • Market analysis, obtaining investments funding, ...

Industry: spin-off on trainee’s work
EXPERIMENTAL ONCOLOGY

• Staff
  • 5 Professors (AHS, U of A) (one endowed Chair)
  • 7 Associate Professors (U of A, AHS) (two endowed Chairs)
  • 3 Assistant Professors (U of A)
  • 1 Clinical Professor/Biosafety Officer (AHS)
  • 1 FSO Cell Imaging Facility (AHS)
  • 1 Experimental Oncology Facility Manager (AHS)
  • >100 staff (graduate students, technicians, post-doctoral fellows, research associates) (U of A, AHS)
EXPERIMENTAL ONCOLOGY

- AHS-funded
  - 4 Professors (5 total)
  - 2 Associate Professors (7 total)
  - 1 Assistant Professor (3 total)
  - 1 Biosafety Officer/Research Scientist (DEC)
  - 1 Cell Imaging Facility/Research Scientist
  - 1 EO Facility Manager
  - 1 Vivarium Manager
  - 10 AHS technicians (paid by sources other than AHS); 1 Cell Imaging Facility technician; 1.25 Vivarium technician; 1 IT technician; 5 lab assistants; 6 grant administrators
EXPERIMENTAL ONCOLOGY

• Facilities

CCI Cell Imaging/Flow Facility – managed by Sun with the help of Priscilla, Gerry, Christy and Anne (CIF committee – chaired by Michael Hendzel)

Vivarium/Animal Care Facility – managed by Dan with the help of Cheryl, Daming and Liping (Animal Care committee – chaired by YangXin Fu)

Tumour Bank – provincially managed by Kathryn Graham
EXPERIMENTAL ONCOLOGY

Precise Treatment Through Better Understanding of Cancer
EXPERIMENTAL ONCOLOGY

• Research Themes

DNA damage response and DNA repair in cancer cells
Molecular and cellular biology of cancer (breast cancer, lung cancer, glioblastoma, prostate cancer, ovarian cancer, melanoma, multiple myeloma, colon cancer, pediatric cancers)
Epigenetics (pediatric high-grade glioma, melanoma, mechanistic understanding)
Viral oncolytics and tumour-targeted gene therapy (glioblastoma, bladder)
In silico drug design for cancer chemotherapy
EXPERIMENTAL ONCOLOGY

• **Publications (2013 - 2015)**
  - 191 publications
  - 35 publications with an impact factor >5
  - 5 publications with an impact factor >20

• **Grants (2014 - 2017)**
  CIHR (10 or 11 PI or co-PI), NSERC (4), CBCF, CRS, CCSRI, Prostate Cancer Canada, ACF, CFI, WHCRI, AIHS - CRIO, Genome Alberta, DOD, NIH
EXPERIMENTAL ONCOLOGY

• SPECIAL ACCOMPLISHMENTS

• ACF funding for the new province-wide Alberta DNA Repair Consortium ($1M/yr) (Weinfeld, PI with many others in Edmonton, Calgary and Lethbridge)

• CFI ‘Multi-scalar nanoscopy for advanced cell biology’ ($7.7M): super-resolution microscopes, direct electron detection-ESI, block face SEM (Hendzel, PI with 9 others)

• CFI ‘SARRP’ (small animal radiation research platform) (Murray)

• Original research published in Nature Cell Biology (Ismail, Hendzel)

• International collaborative research published in Cell (Mirzayans)
EXPERIMENTAL ONCOLOGY

• Collaborative research projects (EO and clinician researchers in Radiation Oncology, Medical Oncology and Surgical Oncology)

  Glioblastoma (Al Murtha, Jay Easaw, Samir Patel, Wilson Roa)

  Breast cancer (John Mackey, Judith Hugh)

  Lung and colorectal cancer (Quincy Chu, Michael Sawyer)

  Multiple myeloma (Chris Venner, Michael Chu)

  Bladder cancer (Ron Moore)
Collaborative research projects (EO and Medical Physics)

Imaging glioblastoma tumours
Gino Fallone (9.4T MRI), Matthew Larocque (SARRP),
MR spectroscopy (Atiyah Yahya)

Gino and Michael Hendzel
Influence of a magnetic field on the DNA damage response

Medical Physics and David Murray
EXPERIMENTAL ONCOLOGY

• Collaborative research projects (EO - Oncologic Imaging)

Projects with Frank, Melinda, Piyush and Sandy (Mary Hitt, Michael Weinfeld, Michael Hendzel, John Lewis, David Murray)
EXPERIMENTAL ONCOLOGY

• CHALLENGES - Funding for research

  CIHR – one competition this year; 4000 grants registered
  CBCF merged with CCSRI; CCSRI cancelled the last two competitions
  CRS (3 of 5 grants awarded in the province in 2017 came to Oncology)
  Alberta Innovates: no ‘open’ competitions
  ACF: no ‘open’ competitions
EXPERIMENTAL ONCOLOGY

• CHALLENGES - Funding for students

AIHS – 17 students in last studentship competition; 4 to UofAlberta
AIHS (2015) - 85 students funded

ACF – 1 studentship awarded through CRINA in 2017
ACF (2015) – 8 studentship
ACF (pre-Myka) – 16 studentships
EXPERIMENTAL ONCOLOGY

• CHALLENGES – Hiring and retention of staff

Assistant Professors – 3 (2 Radiation Therapy Program; 1 AHS)
Professors – 5

New recruitment packages to hire new staff when professors retire
EXPERIMENTAL ONCOLOGY

• CHALLENGES – Infrastructure support

FoMD/Oncology – resources for high quality/high level infrastructure support (genomics, epigenomics, proteomics, lipidomics, transcriptomics, mass spectrometry, sequencing, pre-clinical models, PDX models)

CCI Cell Imaging Facility – cap structure designed to maximize usage and output
EXPERIMENTAL ONCOLOGY

• CHALLENGES – **Webpage and IT resources**

  Access to data sharing processing and storage resources

  Improvements to the webpage that would allow easy access to information about labs and researchers

  Increased visibility to the public via social media
Understanding cancer

Treating cancer
Division of Palliative Care Medicine

September 29, 2017
Diverse membership

Division of Palliative Care Medicine

Adjunct
2 MD
2 PhD (Nursing)

“Associate”
6 MD

FEC
2 MD
3 PhD (Basic Science, Psychology, Health Economics)

DEC
10 MD

Psychology
2 PhD (DEC)
Diverse clinical settings

Cross Cancer Institute
Hospices
Person and Family
Family Doctor and Home Care
Acute Care Hospitals
Grey Nuns Tertiary Unit
Expanding educational activities

- UGME
  - Family Medicine Enhanced Skills
    - 1 year

- PGME
  - Subspecialty
    - 2 years

- Interdisciplinary
  - Core and elective rotations

- Graduate

- CE
Internationally recognized research

Examples
- Symptom assessment
- Cancer cachexia
- Prognostication
Strategic plan

Vision Statement: Compassion, Innovation, Collaboration ...Making a Difference
Versions: 15; Jan 28, 2016

Division of Palliative Care - Strategy Map

Vision: Enhance education of care providers to deliver palliative care
Core: Collaborate with stakeholders to define the needs of our patients
Values: 1. Enhance patient’s experience while delivering "compassion" experiences
2. Focus on professional development/employment/communication
3. Create a pedagogical, evidence-based practice and culture

Client Relationship
- Ongoing interaction with clients through collaborative, personal, and meaningful relationships
- Ongoing research to promote knowledge and evidence-based practice and education
- Ongoing interaction with stakeholders through collaboration, partnerships, and relationships

Operational Excellence
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to promote knowledge and evidence-based practice and education
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships

Stakeholder Impact
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships
- Ongoing research to maintain relationships through collaboration, partnerships, and relationships

Values:
1. Human Dignity 2. Empathy
8. Accountability / Ethics

Human Dignity: Enhancing respect for the inherent worth of every human life, regardless of socioeconomic status, race, gender, or any other characteristic. Fostering a culture that values and respects the dignity of all individuals.
Empathy: Understanding and sharing the feelings of others, creating a sense of connectedness and mutual support.
Generosity / Compassion: Supporting those in need with selflessness and love, promoting a culture of giving and caring for others.
Collaboration: Working together as a team to achieve common goals, fostering a collaborative environment.
Support / Focus: Providing emotional and practical support, focusing on the needs of individuals.
Sharing / Listening / Trust: Encouraging open communication, active listening, and mutual trust, building strong relationships.
Rights / Respect: Upholding the rights of all individuals and treating them with respect, ensuring fairness and justice.
Accountability / Ethics: Being accountable for one's actions, adhering to ethical principles and standards of conduct.
Increasing clinical demand

<table>
<thead>
<tr>
<th>Year</th>
<th>RAH</th>
<th>UAH</th>
<th>PCCT</th>
<th>CCI</th>
<th>TPCU</th>
<th>Hospices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Home</td>
<td>Hospitals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013/2014</td>
<td>737</td>
<td>604</td>
<td>831</td>
<td>935</td>
<td>806</td>
<td>206</td>
</tr>
<tr>
<td>2014/2015</td>
<td>729</td>
<td>655</td>
<td>920</td>
<td>939</td>
<td>817</td>
<td>191</td>
</tr>
<tr>
<td>2015/2016</td>
<td>748</td>
<td>731</td>
<td>989</td>
<td>1072</td>
<td>828</td>
<td>221</td>
</tr>
<tr>
<td>2016/2017</td>
<td>657</td>
<td>712</td>
<td>1,115</td>
<td>1,342</td>
<td>853</td>
<td>210</td>
</tr>
</tbody>
</table>
Growth of non-cancer palliative care
Medical Assistance in Dying

- EZPCP does not directly provide MAID
- 42 discussions about MAID out of 4000+ EZPCP encounters in a one year period
Strengths

• Multidisciplinary
• Comprehensive integrated palliative care program
• Evolving education and research programs
• Strategic plan
Challenges

- Broadening scope of palliative care
- Increased clinical and teaching demands
- Complex research environment
- Insufficient and static number of funded positions
Goals

• Establish an AARP
• Complete implementation of strategic plan
  – Education/Collaboration
  – Research
  – Wellness
• Determine how Psychology members fit into the Division
Thank you!

“Enough with all the strategic planning. Get out there and kill something.”
Strategic Planning Session
- Department of Oncology -

Division of Oncologic Imaging

Dr. Frank Wuest

Department of Oncology
29. September 2017
Division of Oncologic Imaging: Overview

- Integrated basic discovery and translational research unit
- Unique research capacity and expertise
  - Radionuclide production, radiochemistry, radiopharmacy, regulatory affairs, radiopharmacology, molecular imaging and radiotherapy

Medical Isotope Cyclotron Facility (MICF)

Cross Cancer Institute (CCI)

Dr. A. (Sandy) McEwan
Dr. R. Schirrmacher
Dr. P. Kumar
Dr. M. Wuest
Dr. E. Schirrmacher
Dr. J. Wilson
Dr. M. Wieler
Dr. S. Sharma
Dr. F. Wuest
Division of Oncologic Imaging: Mission

Translational cancer research with special focus on the design, synthesis and validation of innovative radiolabeled compounds to optimize diagnosis and treatment of cancer.
Division of Oncologic Imaging: Infrastructure

Radionuclide production

Radionuclide  Half-life

- $^{11}$C  20.4 min
- $^{13}$N  9.96 min
- $^{15}$O  2.03 min
- $^{18}$F  109.8 min
- $^{64}$Cu  12.8 h
- $^{68}$Ga  68.3 min
- $^{76}$Br  16.1 h
- $^{120}$I  88 min
- $^{124}$I  4.15 d

“Smart” radiotracers: Radiochemistry and radiopharmacy

Innovative radiotracer design
Radiosynthesis (automation)
Quality control

Nuclear medicine
Drug research

max. $3 \times t_{1/2}$
Radiotracer available at the EPC/MICF for clinical research (status 2017)

<table>
<thead>
<tr>
<th>Radiotracer</th>
<th>Target/ Molecular process</th>
<th>Disease</th>
<th>Regulatory status</th>
</tr>
</thead>
<tbody>
<tr>
<td>$[^{18}F]$FDG</td>
<td>GLUT-1, hexokinase</td>
<td>Cancer Neurodegenerative diseases Cardiovascular diseases</td>
<td>NOC</td>
</tr>
<tr>
<td>$[^{18}F]$FAZA</td>
<td>Hypoxia</td>
<td>Cancer Diabetes Rheumatoid arthritis</td>
<td>CTA</td>
</tr>
<tr>
<td>$[^{18}F]$FLT</td>
<td>hENTs, proliferation</td>
<td>Cancer</td>
<td>CTA</td>
</tr>
<tr>
<td>$[^{18}F]$FES</td>
<td>Estrogen receptor</td>
<td>Breast cancer</td>
<td>CTA</td>
</tr>
<tr>
<td>$[^{18}F]$FDopa</td>
<td>Dopaminergic system</td>
<td>Parkinson disease Neuroendocrine tumours Congenital hyperinsulinism</td>
<td>CTA</td>
</tr>
<tr>
<td>$[^{18}F]$NaF</td>
<td>Bone matrix</td>
<td>Bone metastases</td>
<td>CTA</td>
</tr>
<tr>
<td>$[^{11}C]$Choline</td>
<td>Choline transporter, membrane metabolism</td>
<td>Prostate cancer</td>
<td>CTA</td>
</tr>
<tr>
<td>$[^{11}C]$DTBZ</td>
<td>Dopaminergic system</td>
<td>Parkinson disease</td>
<td>Health Canada exemption</td>
</tr>
<tr>
<td>$[^{68}Ga]$HA-DOTATATE</td>
<td>Somatostatin receptors</td>
<td>Neuroendocrine tumours</td>
<td>CTA in progress</td>
</tr>
<tr>
<td>$[^{131}I]$IAZA</td>
<td>Hypoxia, Theranostics</td>
<td>Cancer</td>
<td>CTA in progress</td>
</tr>
</tbody>
</table>
First-in-human candidates:

- $^{18}$FDF for studying GLUT5 in breast and lung cancer
- $^{18}$FPyricoxib for molecular imaging of COX-2 in cancer and inflammation
- $^{18}$FBBN2 and $^{68}$GaBBN2 for PET imaging of GRPR in breast and prostate cancer
- $^{18}$FPSMA inhibitors for PET imaging of prostate cancer
- $^{18}$FSiFA-TATE for PET imaging of neuroendocrine tumors
- $^{18}$FIPMICF-16 and $^{18}$FIPMICF-17 for Trk imaging (first human scan in 2016)
Division of Oncologic Imaging: Teaching Activities

ONCOL475/575
(Radiochemistry, Course coordinator Dr. R. Schirrmacher)

ONCOL520
(Cancer biology, Lecturer Dr. F. Wuest)

ONCOL425
(Advances in cancer research, Lecturer module 4: Drs. F. & M. Wuest)

ONCOL580
(MI: Tracers, Targets, Techniques; Course coordinator Dr. F. Wuest)

ONCOL320
(Cancer biology, Lecturer Dr. M. Wuest)

PHARM311 ➔ Re-activation of a full radiopharmacy course
(Radiopharmacy, Guest lecturer: R. Schirrmacher)

PHARM467, PHARM 499, PHARM457
(Med. Chem., Guest lecturer: Dr. F. Wuest)

CARS Training Course
(Radiopharmacy, UoA, UBC, TRIUMF……)
Cyclotron-production and application of non-standard isotopes for PET imaging (\(^{89}\)Zr, \(^{64}\)Cu, \(^{43/44}\)Sc) and radiotherapy (\(^{47}\)Sc). This includes both cyclotrons at the CCI and the MICF

Development of novel radiochemistry tools to further advance PET and SPECT molecular imaging of cancer

Molecular imaging of cancer with innovative radiotracers and other imaging probes in various cancer models using PET/CT (Inveon scanner) and optical imaging (cell imaging facility)

Development and translation of novel PET and SPECT radiotracers into clinical testing to enhance cancer patient care

Development of theranostic platforms for combined imaging and therapy of cancer according to the precision oncology concept
Division of Oncologic Imaging: Opportunities/Risks

- Unique platform for truly multidisciplinary translational cancer research
- Installation of hybrid PET/MRI scanner at the CCI !!!

*Time for a fundamental change…*

- Cancer control withdrawing support from the Department of Oncology
- University – AHS affiliation agreement (pending?)
- Future relationship of EPC/MICF with Edmonton Radiopharmaceutical Centre (ERC)