

Medical School Curriculum Committee

Michael T. Lotze, Frank Torti, Brian Keith, James Manfredi, **Douglas R. Spitz**, Ben Tycko, Frederick Domann, **Tiffany Chen**, **Brittany Gary**, **Kristen Livesey**, Andrew Lavik, Meghana Rao, Jesse Veenstra, Ivory Dean, Miki Hayano, Mitch Coleman, Karl Staser, and Cigall Kadoch

1. Survey of medical and osteopathy schools curricula – integrated, partially integrated, fully integrated – Identify the right person from CABTRAC Schools; Currmit
2. Create Article for Academic Medicine, JCO, Medical School Objectives Project [AAMC] based on PhD Training in Cancer Biology; 1st draft in am at breakfast
3. Get inside the Tests; National Board of Medical Examiners; Testing of oncology knowledge
4. Tracking students – **backtracking proposal** comparing oncology fellows with cardiology fellows
5. Engage high school, college students taught by our medical and graduate students [summer program]



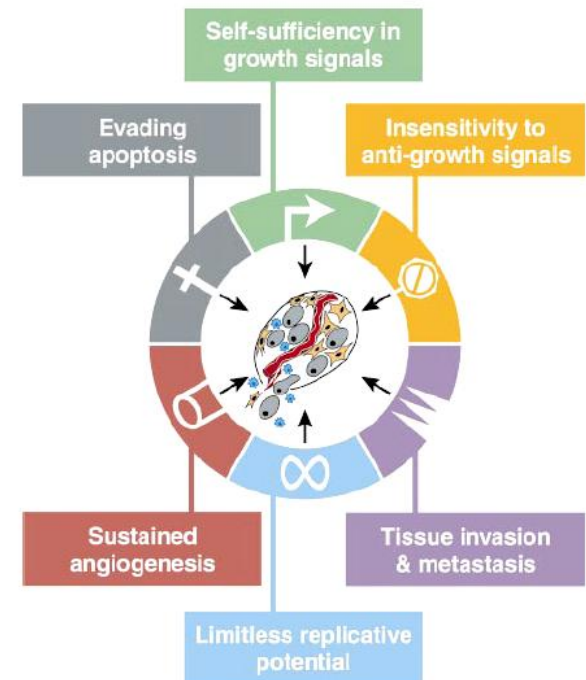
2010 Report



- CABTRAC commits to the top four missions
- Promote a ‘fully integrated’ cancer curriculum within our schools of Medicine and Osteopathy to complement the organ-based teaching
- Consider how to promote ‘scholarly concentrations’ in Oncology for those interested- Oncology Interest Groups, High School Programs
- Define a ‘no medical student left behind’ basis for fundamental knowledge in cancer biology, diagnosis, and treatment

Fundamental Knowledge In Cancer Biology, Diagnosis, And Treatment

- Hallmarks of cancer, tumor microenvironment
- Cell growth [cell cycle] and cell death [apoptosis/autophagy, necrosis]
- Screening tests for cancer
- Cancer incidence and types [carcinoma, sarcoma, hematologic]
- Cancer emergencies
- Basis for targeted therapeutics and immunotherapy



Oncology Interest Groups at Top Research Schools: 15/23 Total

U.S. News Rank	Institution	Do They Have an ONCIG?
1	Harvard	X
2	University of Pennsylvania	✓
3	Johns Hopkins	✓
4	University of California - San Francisco	X
4	Washington University in St. Louis	✓
6	Duke University	X
6	University of Michigan - Ann Arbor	X
6	University of Washington	✓
6	Yale	✓
10	Columbia	✓
11	Stanford	✓
11	UCLA	✓
13	University of Chicago	✓
14	University of Pittsburgh	✓
15	Vanderbilt University	X
16	Cornell	✓
16	University of California - San Diego	X
18	Mount Sinai	✓
18	Northwestern	✓
20	Case Western	✓
20	Emory	X
20	UNC Chapel Hill	✓
20	UT Southwestern - Dallas	X
	TOTAL	15/23



Rank/Institution

ONCIG

Website

1Harvard	No	http://hms.harvard.edu/admissions/default.asp?page=activities
2University of Pennsylvania	Yes	http://www.med.upenn.edu/apps/my/index.php?_
3Johns Hopkins	Yes	http://www.hopkinsmedicine.org/som/students/life/groups.html#item3
4University of California - San Francisco	No	https://saa.ucsf.edu/rco/rcolist.jsp
4Washington University in St. Louis	Yes	http://medschool.wustl.edu/students/activities.html
6Duke University	No	http://dukemed.weebly.com/student-groups---medical-interest.html
6University of Michigan - Ann Arbor	No	http://www.med.umich.edu/medschool/osp/organizations/index.htm http://uwmedicine.washington.edu/Education/MD-Program/Current-Students/Community/Interest-Groups/Pages/List-and-Links-for-Student-Organizations.aspx
6University of Washington	Yes	
6Yale	Yes	http://medstation.yale.edu/groups/
10Columbia	Yes	http://psclub.columbia.edu/clubs-organizations#specialty
11Stanford	Yes	http://smsa.stanford.edu/student_groups/
11UCLA	Yes	http://www.medstudent.ucla.edu/offices/sao/act-org/career_specialty.cfm http://pritzker.uchicago.edu/current/students/organizations/orgs_index.shtml
13University of Chicago	Yes	
14University of Pittsburgh	Sort of	http://zone.medschool.pitt.edu/StudentGroups/Lists/Sites/AllItems.aspx
15Vanderbilt University	No	http://www.mc.vanderbilt.edu/medschool/organizations/
16Cornell	Yes	http://www.med.cornell.edu/education/student/pdf/studenthandbook.pdf
16University of California - San Diego	No	https://meded-portal.ucsd.edu/ http://www.mssm.edu/education/student-resources/student-government/student-organizations
18Mount Sinai	Yes	
18Northwestern	Yes	http://www.infoplex.northwestern.edu/studentorgsdirectory
20Case Western	Yes	http://casemed.case.edu/csr/studentorgs.html http://www.med.emory.edu/education/omesa/bulletin/Activities/MedicalOrganizations.html
20Emory	No	
20UNC Chapel Hill	Yes	http://www.med.unc.edu/md/student-life/student-organizations
20UT Southwestern - Dallas	No	http://www.utsouthwestern.edu/utsw/cda/dept277449/files/294494.html

Tiffany Chen University of Pittsburgh School of Medicine

The University of Pittsburgh

Oncology Interest Group

Quarterly Lunches with Faculty Presentation

Summer Research Fair; Shadowing Experiences

October 18, 2010 Speed Dating Goals

- Provide faculty and students with quickly evaluate if there are opportunities to collaborate on a summer project
- A process designed to efficiently manage introductions:
 - Limited meeting time (i.e. 10-15 mins)
 - Swap contact information
 - Introduce themselves and discuss their goals and interests
 - Decide whether there is enough interest for follow up
 - Phone call, e-mail
- A large number of meetings can be arranged in a short amount of time
 - Increases chance of stimulating faculty/student relationships

Tiffany Chen, Brittany Gary

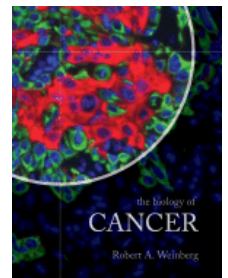
UPCI Summer Academy – 2010; P30 Cure Supplement NCI



Megan Seippel
William Buchser
Jack Kent Cooke Foundation



**Medical Student
Weinberg – Cancer
Laboratory Project
Presentation**



UPSOM Cancer Curriculum



Kristen Livesey

Second Year:

Pathobiology (8/18 – 8/22)

Neoplasia 1 Workshop

Neoplasia 1 Lecture – Definitions

Neoplasia 2 Workshop

Neoplasia 2 Lecture – invasion by cancer, mediators of metastatic disease, gatekeeper genes and caretaker genes, initiator and promoters, chemical carcinogens, grading and staging

Cardiology (8/25 – 9/29)

Miscellaneous Myocardial Disease (Cardiac Myxomas)

Pulmonary Section (10/20 – 11/7)

Introduction to Chest Radiology 2

Lung Cancer

Pathology: Bronchogenic Carcinoma and Mesothelioma

Digestion and Nutrition (11/10 – 12/19)

Esophageal Diseases: Evaluation of Dysphagia, Heartburn and Non-Cardiac Chest Pain

Introduction of GI Pathology

Pathology of the Esophagus

Physiology and Diseases of the Stomach I and II (Zollinger Ellison Syndrome and carcinoma)

Pathology of the Stomach (Benign tumors, gastric carcinoma, gastric lymphoma, Gastrointestinal Stromal Tumors, Neuroendocrine tumors, metastatic tumors)

Case Workshop #1 – Esophageal Case Studies

Pathology of the Small Bowel (adenoma, carcinoma, carcinoid, lymphoma)

Colon Cancer Genetics and Screening

Pathology of the Colon

Treatment and Prevention of G.I. Malignancies

Overview of Liver Pathology

Pathology – Liver, Part II: Tumors and Tumor-Like Lesions of the Liver, Gallbladder, & Biliary Tree

Chronic Pancreatitis & Pancreatic Cancer

Pathology of the Pancreas

First Year:

Introduction to Being a Physician (8/20 – 8/24)

Introductory overview of Breast Cancer
as a Public Health Problem

Breast Cancer Patient Interview

Small group Breast Cancer Patient Interview

Small group Breast Cancer debriefing

Human Genetics (11/17 - 12/15)

Introduction to Cancer Genetics

Cancer Genetics 1

Cancer Genetics 2

Inherited, Familial and Sporadic Cancers

Chemical Genetics

Gene Therapy

Patient Conference: Cancer

Cancer Genetics and Counseling

Pharmacogenetics

Immunology in Health and Disease (1/15 – 2/8)

Immune Response against Tumors

Immunological Approaches for Cancer Therapy

Medical Microbiology (2/11 – 3/6)

Introduction to Viruses: Viral Growth and
Replication

(Table with cancers caused by some viruses)

Neuroscience (3/17 – 5/9)

Nervous System Tumors

74 Hours+16 [0] Cancer Curriculum

Hematology (1/5 – 1/ 20)

Overview and genetics of Hematologic Malignancies
 Pathologic evaluation of Hematologic Malignancies
 Chemotherapy – Part 1
 Chemotherapy – Part 2
 Plasma Cell Disorders
 Chronic Leukemias
 Acute Leukemias
 Myeloproliferative disorders/neoplasms & Myelodysplastic syndromes
 Pathology of Lymphoproliferative Disorders
 Hematopathology Workshop –Leukemias
 Pediatric Hematologic Malignancies Part 1
 Pediatric Hematologic Malignancies Part 2
 Hematopathology Workshop III – lymphoma
 Case conference III – Hematologic Malignancies

Endocrinology (1/ 21 – 2/6)

Physiology of the Posterior Lobe of the Pituitary Gland and Diabetes Insipidus
 Pituitary Hypersecretion and Pituitary Tumors
 Cushing’s Syndrome – Overproduction of Cortisol
 Adrenal Medulla/ Pheochromocytoma
 Endocrine Regulation of Calcium
 Homeostasis Hyper and Hypocalcemia
 Metabolic Bone Disease
 Hypothyroidism
 Thyrotoxicosis
 Thyroid Pathology
 Thyroid Nodules and Thyroid Neoplasia

Reproductive and Developmental Biology (2/9 – 2/27)

Pathology Lecture – Prostate and Testes
 Clinical Pathologic Correlation – Diseases of the Prostate and Testes
 Clinical Pathologic Correlation – Diseases of the Cervix and Uterus
 Pathology of the Cervix
 Pathology of the Uterine Corpus
 Pathology of the Breast
 Pathology of the Ovary
 Clinical Pathologic Correlation – Diseases of the Breast

Michael T. Lotze and Lorissa Geskin

Monday, October 26, 2009 – Day 1
Tuesday, October 27, 2009 - Day 2.
Friday, October 30, 2008 - Day 5

3rd Year

8:00	08:30	Interim Quiz – Screening for Cancer	Michael T. Lotze, MD	Cooper
8:30	9:00	Lecture: Palliative Care	Robert Arnold, MD?	Cooper
9:00	9:30	Lecture: Translational Research	Jennifer Grandis, MD	Cooper
9:30	10:00	Lecture: How Geriatric Issues Influence Cancer Screening and Treatment Decisions	Josie van Londen, MD	Cooper
10:00	12:00	Practice of Oncology II	Various sites	Various
12:00	1:00	UPCI Seminar Series-extra credit	“You Eat What You Are: Autophagy, HMGB1, and Cancer” – Michael Lotze, MD	Cooper
1:00	1:30	Lecture: Lumps and Bumps in the Skin; Sun and Cancer	Larisa Geskin, MD	Cooper
1:30	2:00	Lecture: Cancer Myths Pathophysiology	Richard Steinman, MD, PhD	Cooper
2:00	5:30	Ward and Clinic Patient Interviews	Ward or Clinic	Various
1:00	3:00	Final Exam and Review		Scaife

9/10 Emails to Deans 200 US/Canadian

Dear Dr. xxxxxe

Schools of Medicine and Osteopathy

The Cancer Biology Training Consortium (CABTRAC) was established in 2005 to facilitate the exchange of ideas between individuals and institutions dedicated to the mission of training the next generation of cancer researchers and clinicians. The consortium works closely with over 50 institutions within the US as well as the National Cancer Institute's Cancer Training Branch. The Cancer Biology Chair & Program Directors Retreat and CABTRAC Annual Meeting will be held in Tucson, Arizona November 5-7. Thus we are on a short deadline to report a rather simple list of questions. You may choose to answer these yourselves or refer on to the Curriculum Dean, the Dean for Medical Education, or a suitable individual at your institution.

1] Do you have a dedicated cancer curriculum course in any year? Y N Details:

2] Do you have a means to assess current cancer knowledge other than through the USMLE's Y N Details: _____

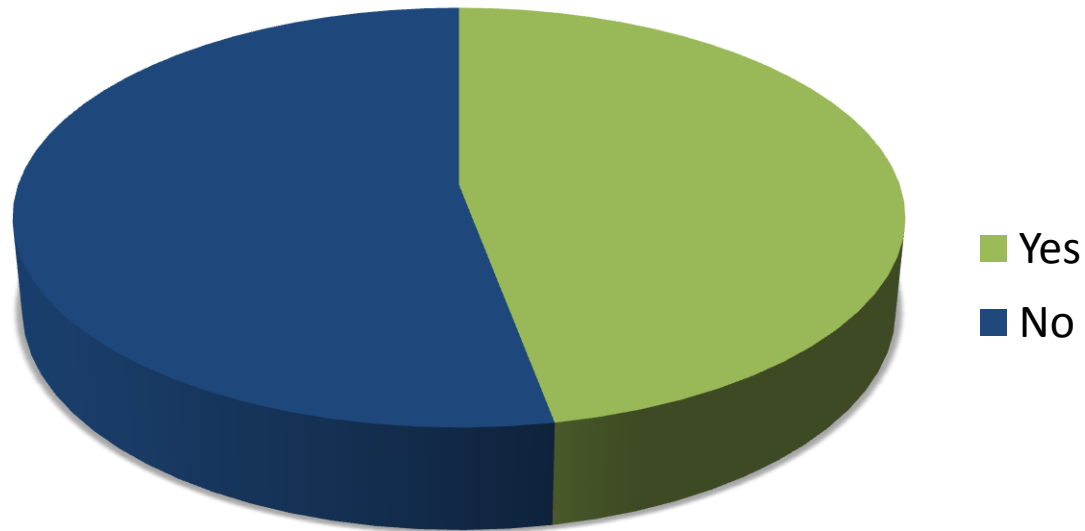
3] Do you have records of your students' ultimate career paths and in particular if they went into Oncology subspecialties? Y N Details: _____

4] Would you be willing to be contacted for a more detailed set of questions? Y N Who would be the person, email, and phone number to contact? _____

Thank you very much for considering this request.

Megan Seippel

Do you have a dedicated cancer curriculum course in any year?



Samples of Detailed Responses

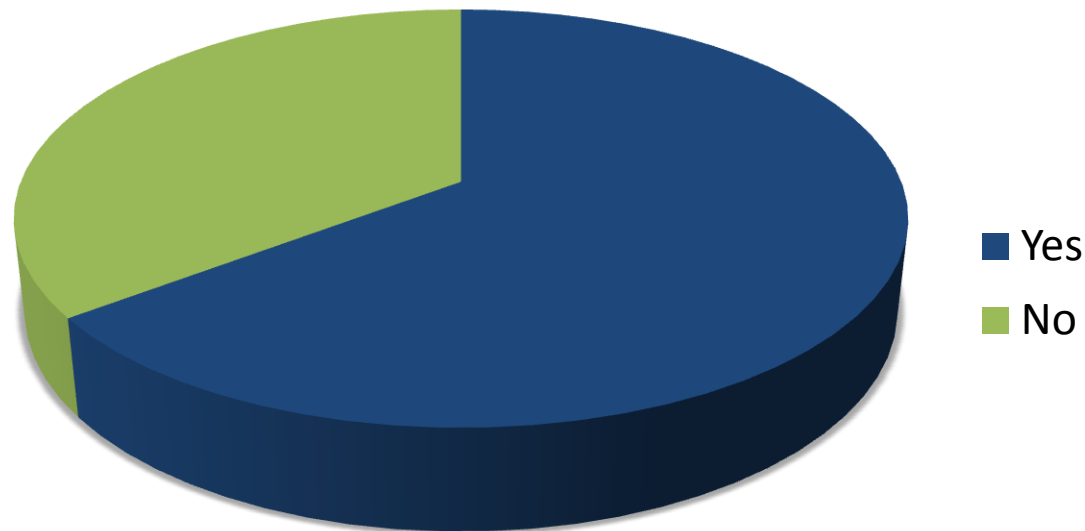
“Cancer is not covered in one particular course but spread longitudinally over most courses.”

“No, students receive education in cancer as part of pathology and other courses.”

“Genetics and Neoplasia is a first year module/course. It is 4 weeks in length.”

Brittany Gary, University of Pittsburgh Cancer Institute

Do you have a means to assess current cancer knowledge other than through the USMLE's



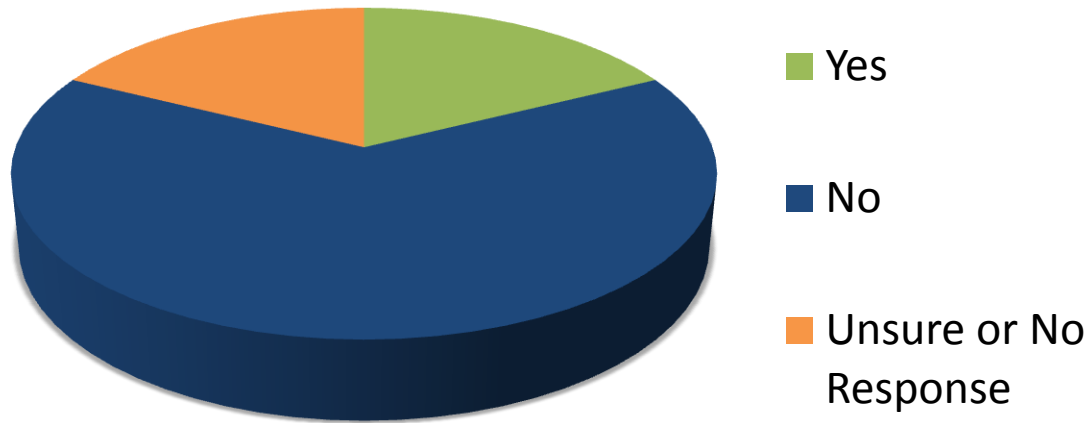
Samples of Detailed Responses

“Assessment of knowledge, other than block exam questions, would be mostly via USMLE.”

“Comprehensive final exams in each block (customized NBME exams). I cannot say that this has been actively done but it could be.”

“We assess cancer knowledge through questions on our module examinations.”

Do you have records of your students' ultimate career paths and in particular if they went into Oncology subspecialties?



Samples of Detailed Responses

“Our detailed data are limited to the initial residency placement.”

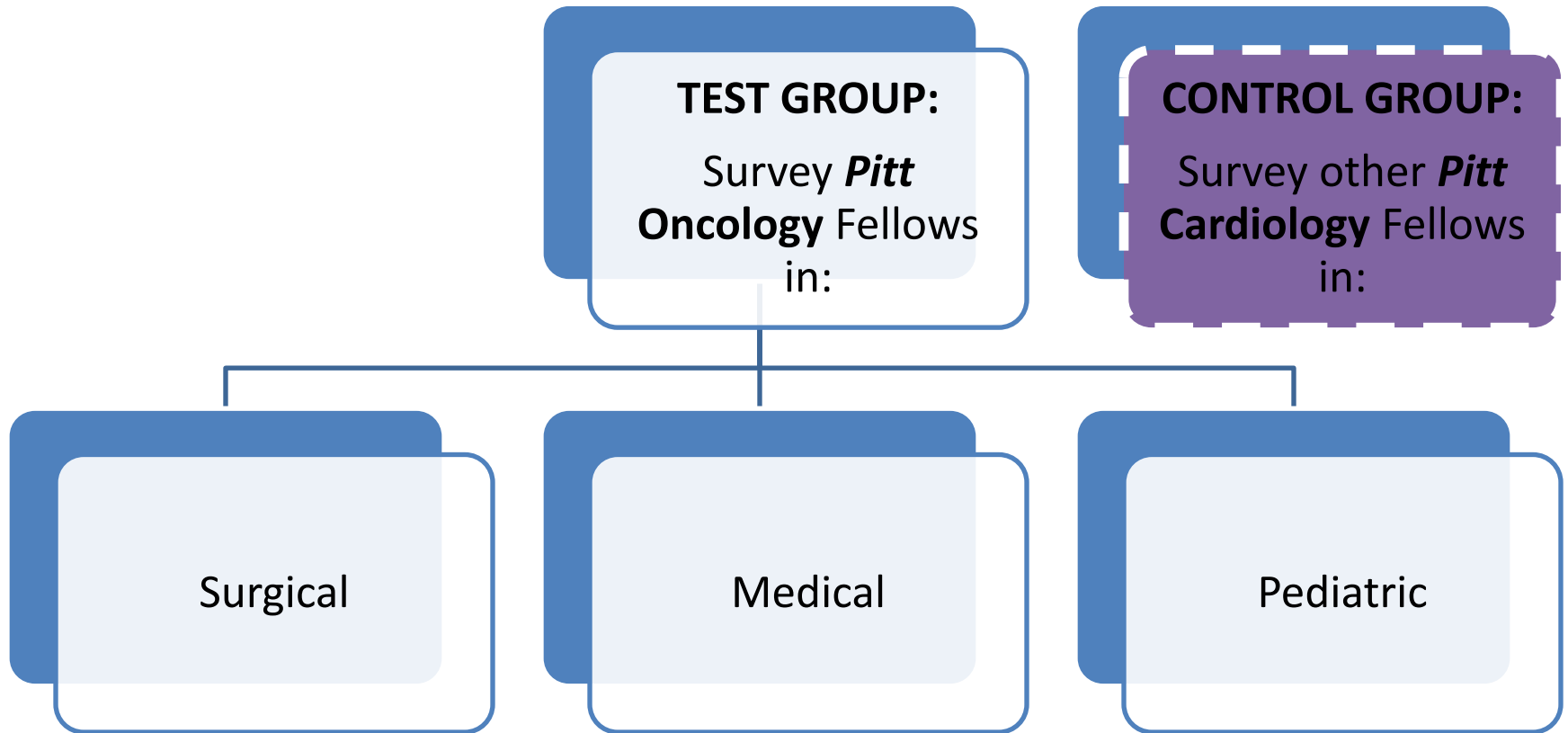
“As these specialty decisions are made after they graduate from medical school, we do not have such records.”

“We do not track our students long term. However, in reviewing the last three graduating classes, we did have four students who matched into PGY2 Radiation Oncology positions.”

Backtracking: Correlating Oncology Education with Entrance into the Field by Examination of Current Fellows

Tiffany Chen, University of Pittsburgh
School of Medicine

Initial Plan



Survey Questions

1. Fellow's Name:
2. Medical School:
3. Date of Med School Graduation:
4. Internship and Residency Program:
5. In regard to oncology education in your **PRE-CLINICAL** years, was your school's curriculum:
(FULLY integrated, SEMI integrated, or NON integrated)?
6. In regard to oncology education in your **CLINICAL** years, was your school's curriculum:
(FULLY integrated, SEMI integrated, or NON integrated)?
7. How well do you feel your **PRE-CLINICAL** years of medical school prepared you for a career in oncology?
(1 – not at all, 2 – a little, 3 – somewhat, 4 – well, 5 – very well)
8. How well do you feel your **CLINICAL** years of medical school prepared you for a career in oncology?
(1 – not at all, 2 – a little, 3 – somewhat, 4 – well, 5 – very well)
9. How did you decide on a career in oncology? (choose the best answer)
(medical school didactic experiences, medical school patient experiences, residency experiences, personal experiences)
Details: _____
10. May we inquire at your medical school about their oncology curriculum in the years you attended with your name?

INTEGRATION KEY

FULLY: Oncology had its own unit in all years of pre-clinical/clinical curriculum

SEMI: Oncology had its own unit in one year of the curriculum, and other educational units were interspersed throughout the other year

NON: Oncology had no unit of its own, and was only taught interspersed amid other units

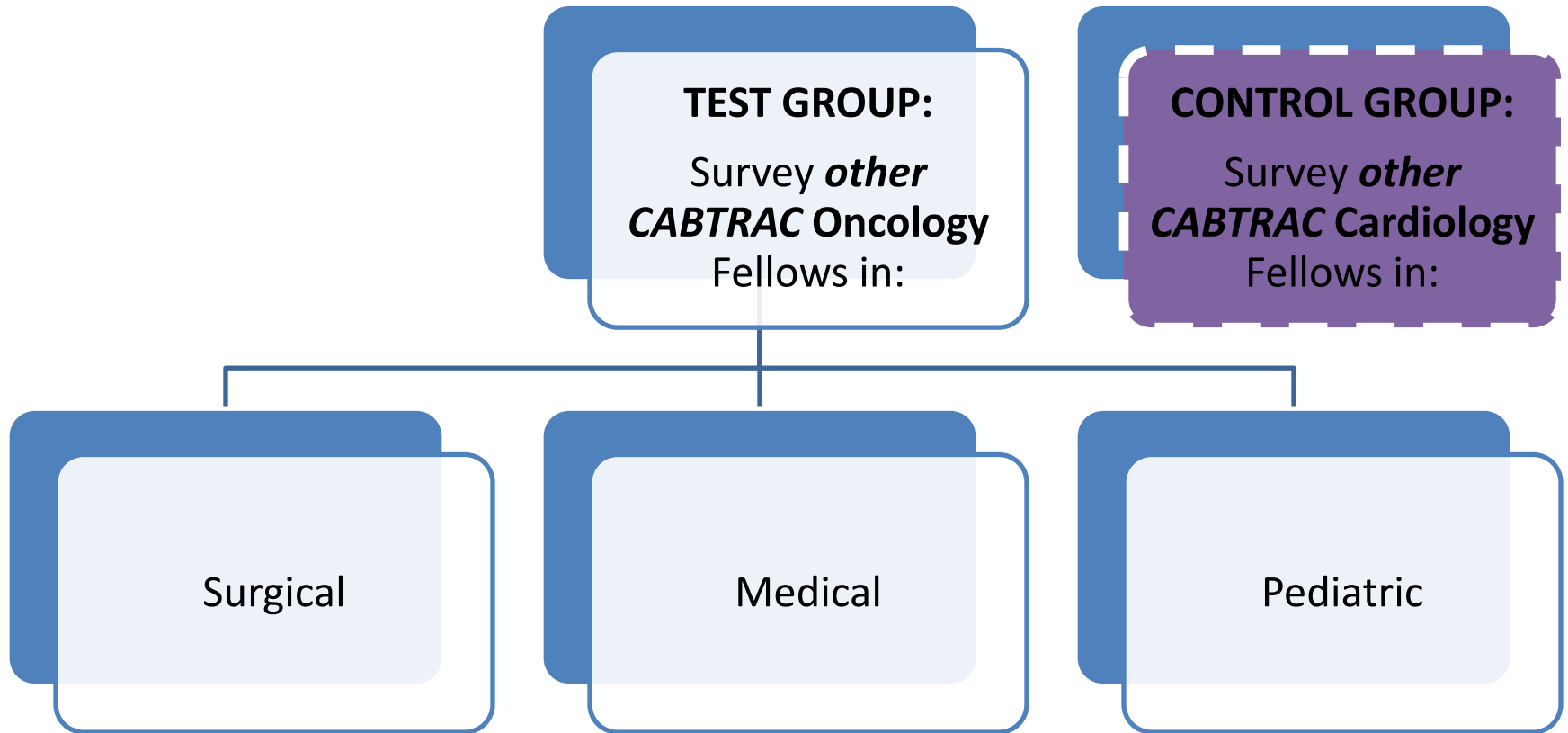
Survey Questions for Control Group (Cardiology)

(Cardiology chosen because fellows also go through a general residency in IM/General Surgery/Pediatrics, before choosing a Cardio fellowship.)

Previous survey questions with the following alterations:

7. How well do you feel your PRE-CLINICAL years of medical school **would have** prepared you for a career in oncology?
(1 – not at all, 2 – a little, 3 – somewhat, 4 – well, 5 – very well)
8. How well do you feel your CLINICAL years of medical school **would have** prepared you for a career in oncology?
(1 – not at all, 2 – a little, 3 – somewhat, 4 – well, 5 – very well)
9. How did you decide on a career **in cardiology** (choose the best answer)?
(medical school didactic experiences, medical school patient experiences, residency experiences, personal experiences)

Expanded Plan



Secondary Plan: Search-based

Choose N **fellowship programs** from list of total in country
(ASCO list and analogous groups)

Search online for **list of current fellows** in a program

Search online for **medical schools and graduation dates of fellows**
(if available, on the list webpage; if not, name + hospital name)

Search **CURRMIT** for oncology curricula of those medical schools at the time of fellows' attendance

Primary issue discussed:

- As cancer is the second most frequent illness diagnosed in the US, and remains a leading cause of death, it is likely that essentially all of today's medical students will treat cancer patients during their careers.
- To do this effectively, MDs need to have some working knowledge of the cellular basis of cancer, and how the ever-increasing panoply of standard and targeted cancer therapies can be used effectively.
- Unfortunately, the cancer curriculum at many medical schools has been taught primarily as part of Pathology or on an organ-by-organ basis, without the benefit of a more conceptual and theoretical framework.
- Cancer education is often fragmented and outmoded in its delivery and integration.

Goals:

- (1) Identify mechanisms whereby cancer biology faculty can provide guidance and expertise in teaching basic cancer biology concepts to MD students at multiple stages in their training;
- (2) Develop new programs to increase MD students' interest in cancer biology and oncology; and
- (3) Develop a working relationship between CABTRAC and LCME, GME and RRC committees to coordinate curriculum and relevant examination topics.

Recommendations:

1. As suggested in the 2008 CABTRAC report, we recommend developing a survey to determine the range of pedagogical approaches used to teach cancer biology at representative medical schools. It is probably most feasible to start with medical schools already involved in CABTRAC, and expand to include other CCCs and medical schools as needed. As noted previously, the development of such a survey will require input from many CABTRAC members to make it inclusive and effective. The data from this survey will be useful for working with educational administrators, the National Board of Medical Examiners, GME, committees, etc. to ensure a “consistent outcome product as evidenced by knowledge and testing” (CABTRAC report 2008).
2. Consider and make recommendations concerning the proper role(s) for Departments of Cancer Biology and existing Cancer Biology Graduate and Postdoctoral Training programs in teaching medical students.
3. Faculty in Cancer Biology departments, or those involved in cancer-related training programs, are encouraged to work with course directors of existing medical school curricula to determine the best formula for integrating formal cancer biology training. It was suggested that these efforts will be most successful if presented as “value added” to the existing curriculum, and could include opportunities in each year of medical training. Although the utility of specific programs will depend on the medical school in question, suggestions include the following:

First year: Periodic, informal case-based discussions of the basic science underlying a particular cancer diagnosis and treatment, and how this understanding has led to the development of novel therapies. These sessions could be incorporated into existing basic science curricula to provide a disease context for genetics, cell biology, metabolism, etc. and would be run by teams of basic and clinical faculty working together.

Second year: A block of lectures, or formal course focused on basic concepts in cancer biology and physiology, with a view toward understanding how translational research and emerging targeted therapies are being used to augment traditional surgical, chemo- and radiation therapies.

Third year: An intensive 2-3 day course on clinical aspects of cancer including cancer screening, treating cancer emergencies, pain management, hospice, etc.

Fourth year: More in-depth elective courses on the basic and clinical biology of specific cancers, and the use of novel therapies.

4. Explore the possibility of sharing videotaped medical school cancer biology classes and other teaching materials through the CABTRAC website. It was agreed that several issues regarding copyright laws and oversight would need to be carefully examined before this idea could be implemented.

5. Encourage interested medical students to form “Cancer Interest Groups”, which could include regular, formal and informal discussions with faculty, fellows, and trainees including use of journal clubs and other didactic/Socratic interactions regarding topics in cancer biology and treatment. Faculty could be from home institutions or seminar speakers visiting from outside (as always, providing food to attendees is a key to success...).

6. Develop means to identify outcome measures from more effective application of these principles noted above including choice of careers in oncology, performance on standardized exams, etc.