BMTRY 781
Methods in Clinical Cancer Research
Spring 2015

Description: Didactic lectures will cover the following areas: (1) clinical and statistical design of phase I, II and III trials; (2) incorporation of correlative and biomarkers in clinical trials, (3) considerations in chemotherapy, surgery, radiation and multimodality trials, (4) quality of life and other patient reported outcomes in cancer research, (5) the protocol review and IRB process, (6) informed consent, (7) data collection, trial monitoring and investigator responsibilities, (8) the grants process and mentoring. Other topics are incorporated as well, (e.g., disparities research). In addition to the didactic portions of the training, each trainee will have a clinical research proposal which will be developed into a "letter of intent" (LOI) for a clinical trial. In addition to the didactic sessions , contact hours will take the form of a journal club where clinical research papers from journals such as Clinical Cancer Research or Journal of Clinical Oncology are discussed, and protocols that are being undertaken at HCC are reviewed and discussed. Lastly, trainees will also be required to attend and take part in the HCC Protocol Review Committee's monthly meetings (meetings occur every 3 weeks). This will allow the trainees to be exposed to a variety of studies ranging from Phase I to III cancer trials, in addition to observational, translational and qualitative research studies. Trainees will also be encouraged to attend one or more of the HCC Data Safety and Monitoring Board meetings to gain exposure to issues of trial review and monitoring.

Course Organization: This course is organized by Dr. Elizabeth Garrett-Mayer who is also the primary instructor. Some lectures are given by other faculty members and senior students or fellows as appropriate.

Textbooks: No textbook. Reading material (primarily found on the web) will be provided as necessary. This will include journal articles in clinical trial and cancer research journals. Suggested textbooks for reference include:

- Clinical Trials: A Methodologic Perspective (Piantadosi)
- Oncology Clinical Trials (Kelly & Halabi)
- Principles of Anti-Cancer Drug Development (Hidalgo, Eckhardt, Garrett-Mayer, Clendennin)

Prerequisites: eligible students must satisfy at least one of the following criteria:

(1) The student is enrolled in the MSCR program,
(2) The student is a Paul Calabresi K-12 training grant scholar.

(3) The student is enrolled in a masters or PhD program in the Dept. of Public Health Sciences
(4) The student has received consent of the instructor.

Assessment of Students: Students will be graded based on the following components where each assignment is given numeric score, according to the Merit Grades for the MUSC grading system.

1) Written reviews of protocols, given as assignments. There will be 3-4 protocols assigned and the review will be structured with particular questions about appropriateness of study design, clarity of the study aims, incorporation of early stopping rules in the trial design, etc. (45% of grade)
2) Oral presentation of journal article presenting results of a cancer clinical trial. The article will be selected by the student and Dr. Garrett-Mayer. The student will present to the class an overall summary of the trial and provide a critique of the methods employed. (25% of grade)
3) Submitted LOI: The LOI will be submitted twice. First, a draft will be submitted about two-thirds through the course. Dr. Garrett-Mayer will provide feedback. This first draft will constitute 15% of the total grade. The final LOI will be submitted as the 'final' and will also count for 15% of the course grade. Total: 30% of grade

Homeworks Policy: Homeworks are due by 5pm on the due date. All homeworks should be emailed to the primary instructor (garrettm@musc.edu) or turned in at lecture time. Asking for extensions on homeworks is strongly discouraged. However, it is expected that, on occasion, extenuating circumstances may arise. Therefore, the policy is that **each student may request an extension on homework twice and the extension is to be no more than 2 days**. You must notify the primary instructor that you are requesting an extension before the time the assignment is due. After using two extensions, no more extensions will be granted except with a medical note.

Office Hours: The primary instructor will have office hours by appointment.

Course Objectives: At the end of the course, students should be able to:

1) Understand the key components required for designing, activating and implementing a cancer clinical trial.
2) Write a proposal for a cancer clinical trial, including objectives, endpoints, trial design, patient population selection, and have some understanding of the required sample size and analytic techniques used to analyze the data at the end of the trial.

3) Effectively review and critique clinical trial protocols and published cancer clinical trials research.

Primary Instructor: Elizabeth Garrett-Mayer
Website: http://people.musc.edu/~elg26/teaching/statcomputing.2014/ statcomputingI.2014.h tm
Contact Info: Hollings Cancer Center, Rm 118G
garrettm@musc.edu (preferred mode of contact is email)

Time: Tuesdays and Thursdays, 1:30-3:0 0pm
Location: BSB 302
Office Hours: By appointment. Contact via email.

Tentative Lecture Schedule:

Lecture number	Date	**Topic**	Instructor	**Notes and links**
1	Tu Jan 6	Introduction	EGM	Lecture1_Intro.pptx LoRusso, et al. Seymour, et al Sullivan
2	Th Jan 8	Intro (continued)	EGM	PhaseIPart1.pptx Weberetal.pdf
3	Tu Jan 13	Phase I trials: practical considerations	EGM	Ivyetal.pdf
4	Th Jan 15	*No class*		
5	Tu Jan 20	Phase I trial designs	EGM	Phase1trials_part2.pptx
6			EGM	Phase1trials_part3.pptx

	Th Jan 22	Phase I in practice: current topics/controversies		Dahlberg.pdf IasonosOQuigley.pdf Nivolumumab.Design.pdf Nivolumumab.PhaseII.pdf Nivolumumab.protocol.pdf Pembrolizumab_keytruda.pdf PressAnouncement.keytruda.pdf PressAnnouncement.nivolumumb.pdf Ratain.pdf Weberetal.pdf
7	Tu Jan 27	Phase II trials: practical considerations	EGM	StdPhaseIIDesignIssues.ppt Rubinsteinetal.pdf Ratainsargent.pdf
8	Th Jan 29	*No class*	EGM	
9	Tu Feb 3	Phase II trial designs	EGM	phaseII_part2.ppt Bayesmovie.wmv
10	Th Feb 5	Phase II trials: challenges for the future (and present)	EGM	Improving Phase II Designs.pptx Adjei, Christian, Ivy Dhani et al. Note: Phase I trial review due
11	Tu Feb 10	Quality of Life and patient reported outcomes	Katie Sterba	Sterba PROMS for Methods Class021015.pptx
12	Th Feb 12	Biomarker clinical trial designs	EGM	Biomarkers in Phase II designs in cancer clinical.pptx

				McShane et al. Freidlin et al. Lopez-Chaves et al. Redig & Janne
13	Tu Feb 17	Phase III trial designs	EGM	Phase III trials in oncology.pptx Ellis et al
14	Th Feb 19	Other designs: phase 0, window of opportunity, Bayesian adaptive.	EGM	OtherDesigns.pptx BattleDesign1.pdf BattleResults1.pdf Battle_sorafenib.pdf Battle_vandetanib.pdf Phase0.pdf Ispy.pdf Yoga.pdf Cranialirrad.pdf Ellis.pdf (Matthew Ellis' slides) L-3.02-J.Jack-Lee.pdf (jack lee's slides)
15	Tu Feb 24		EGM	
16	Th Feb 26	Data safety and monitoring	EGM	SAE Reporting and Data Safety Monitoring Boards.ppt Corkery.pdf Whitehead.pdf
17	Tu Mar 3	Endpoint selection issues /Power calculations	EGM	Power_endpoints.pptx
18	Th Mar 5	The IRB process: part 1	Susan Sonne	HCC Presentation Slides.pptx Note: phase II trial assignment due
19		***Spring break (no class)***		Obsnlstudies.pptx

	Tu Mar 10			Jansenetal.pdf Pundole.pdf Rebbeck.pdf Fitzgerald.pdf
	Th Mar 12	***Spring break (no class)***		
	Tu Mar 17	Observational studies	EGM	Obsnlstudies.pptx Rebbeck et al. Jansen et al. Pundole et al. Fitzgerald et al.
20	Th Mar 19	The IRB process: part 2	Susan Sonne	(see slides from 3/5/15)
21	Tu Mar 24	Local protocol process and the CTO	Terri Matson	Methods in Clinical Cancer Research Class_CTO issues March 2015.pptx
22	Th Mar 26	Grants and grant writing	Anita Harrison	Grants101.ppt
23	Tu Mar 31	Disparities research	Ford	Ford lecture.pdf
24	Th Apr 2	Prevention and Control studies	Kristin Wallace	METHODS_4.2.2015.pdf
25	Tu Apr 7	Correlative studies	EGM	Regan_correlatives.pptx JCO1.pdf JCO_letter.pdf
26	Th Apr 9	Tobacco Cessation in Clinical Cancer Trials	Graham Warren	
27				

	Tu Apr 14	Radiation and Multimodality Trials	Graham Warren	
28	Th Apr 16	Imaging Endpoints	James Ravenel	
29	Tu Apr 21	Informed Consent Process	EGM	InformedConsent(StacyBerg).pdf NCItemplate.doc SimplificationofIC.doc Tips.doc SimpleWords&Phrases.doc StanfordGlosary.pdf StateLaws.doc
30	Th Apr 23	Tissue testing methods	Laura Spruill	
31	Tu Apr 28	Work-Life Balance	EGM	WLB.pptx Work-Life_Balance_R-Harrison.pdf • Kuerer etal. Career Satisfaction, Practice Patterns and Burnout among Surgical Oncologists. • Shanafelt etal. Satisfaction with work-life balance and the career and retirement plans of US oncologists. • Balancing your life at work and home. Journal of Oncology Practice. • Shanafelt et al. Shaping your career to maximize personal satisfaction in the practice of oncology.

				• Shanafelt. A career in surgical oncology: finding meaning, balance, and personal satisfaction. • Shanafelt. Finding meaning, balance and personal satisfaction in the practice of oncology.

Homework Assignments:

1) Phase I trial review: Select one of the following protocols (RTOG0017, RTOG0241, Nivolumumab (either final or initial). Fill out review template: PhaseIReview.docx.
Please submit by Thursday, Feb 5 @ 5pm to garrettm@musc.edu.

2) Phase II trial designs:

For Biostatistics grad students: TrialCharacteristics.PhaseII.docx
For K-12 scholars/MDs: PhaseIIReview.docx
Please submit by Thursday, Mar 5 @ 5pm to garrettm@musc.edu

3) Phase III trial designs:

For Biostatistics grad students: HomeworkIII.docx

Tumor Boards Schedule
PRC and DSMB Schedule, Spring 2015