

# Cancer Research

Career Carousel Day at Wando HS  
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MUSC

# Questions

- Who thinks that, maybe, s/he wants to be a cancer researcher?
- Or, a medical researcher?
- What is medical research?

Q: what is the highest degree you must have to work at a medical research institution?

A: a PhD

B: a MD

C: a masters in science

D: a college degree

E: a high school degree

F: A or B or C

# What is medical research?

- There are so many parts to it!
- You do not need to be a biologist or medical doctor to make medical research your life's work.
- Are you good at
  - math?
  - organizing?
  - writing?
  - communication?
  - talking?

# Hollings Cancer Center

- Mission:  
To reduce the cancer burden in South Carolina through the
  - highest quality **patient care**,
  - innovative **research**,
  - outstanding **professional education**
  - statewide **cancer prevention programs** with a focus on reaching **underserved populations**

# Hollings Cancer Center: how is it organized?

- **Through research programs:**
  - **cancer genetics:** which genes are involved in development of cancer?
  - **cancer immunology:** how can we stimulate the body's own immune system to fight cancer?
  - **drug development:** can we develop new drugs to cure cancer?
  - **lipid signaling in cancer:** what lipids pathways are involved in the development of cancer?
  - **cancer prevention and control:** how can we prevent cancer, and how can we help patients (and their families) living with and who have survived cancer?

# Hollings Cancer Center: how is it organized?

- Through shared resources, of which there are many
- Two today:
  - Clinical Trials
  - Biostatistics

# Clinical Trials in Cancer

- Clinical Trials Office has LOTS of people!
- Imagine what it takes to “run” a clinical trial:
  - study coordinator
  - medical doctors (oncologists)
  - research nurses
  - data collectors
  - data analysts
  - “regulatory” specialists
  - administrative support to make it all go smoothly!



# Biostatistics in Cancer Research

- Biostatistics is....?
- Lots of data is collected in these trials on, perhaps, thousands of patients.
- How do you determine if the new drug worked better than the old drug?
- How do you determine how many people would need to be included in the trial in the first place?
- The biostatisticians help with those types of questions:
  - we help “design” the trial
  - we analyze the data
  - we help interpret the results

# Lots of different types of researchers

- Molecular and cell biologists, immunologists, geneticists, chemists, pharmacologists.
- Medical doctors:
  - surgical oncologists
  - medical oncologists
  - radiation oncologists
- Epidemiologists
- Behavioral scientists
- Psychologists, psychiatrists
- Together, we work in research teams



# The spectrum

Basic Science

Clinical Trials

Prevention

Translational Science

Survivorship



# But HCC would not function without

- Administrative support
  - Keeps us organized
  - helps us submit grants
  - helps us get paid!
  - does a lot of “behind the scenes” to keep things humming along
- Development
  - we need to raise money!
  - these people are “people people”
  - organize charity events
- Marketing and public relations
  - advertising
  - contacting the news paper with ‘press releases’



# What do I love about my job?

- I love math: I get to use quantitative thinking to answer real problems to help cure cancer and help the lives of people with cancer
- I go to work everyday making a positive difference in other people's lives
- I work with wonderful and interesting people
- I have a flexible job: great for having a family (and a life outside of work!)
- I educate:
  - graduate students
  - cancer researchers
  - high school students!

# How do you sign up?

- Biostatistics: college + advanced degree
- Clinical Trials support: at least high
- Basic science researcher: college + advanced degree
- Nursing: nursing degree
- Medical doctor: college + MD + residency +/- fellowship
- Behavioral scientists: at least college
- Administrative, development, public relations: at least high school



# Ouch! That is expensive

- Maybe not....
- Guess how much I paid for my PhD?
- Clues:
  - 5.5 years at Johns Hopkins University
  - Current annual tuition for 2010-2011 is \$41,376
- Answer: -\$71,500.
- That's right: I got PAID to get my PhD!



# Graduate School

- For science PhDs: It can not only be FREE, but many schools will give you a STIPEND
- There are many programs that have work/study programs even for masters degrees.
- Professional degrees? JD, MD, etc. ...No luck.





# More info?

- Contact me:  
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- Check out HCC:  
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- Check out MUSC jobs page:  
<http://www.muschealth.com/careers/index.htm>
- Check out MUSC admissions page for ideas of graduate school options:  
<http://academicdepartments.musc.edu/em/admissions/careeroptions.htm>