What can the ICTR Quantitative Methods Core and the Department of Biostatistics do for you?

Karen Bandeen-Roche

Hurley-Dorrier Chair of Biostatistics

ICTR Quantitative Core Director

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Session goals

o Quantitative Methods Landscape at JHU / ICTR

    o Biostatistics emphasis

o Biostatistics and Quantitative Assistance through the ICTR

    o Gayane Yenokyan, Ph.D.

o Quantitative Methods Expertise examples

    o Imaging, Real-time Monitoring: Vadim Zipunnikov, Ph.D.

    o Study design and analysis: Constantine Frangakis, Ph.D.

o Your questions

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Quantitative Sciences Landscape at JHU
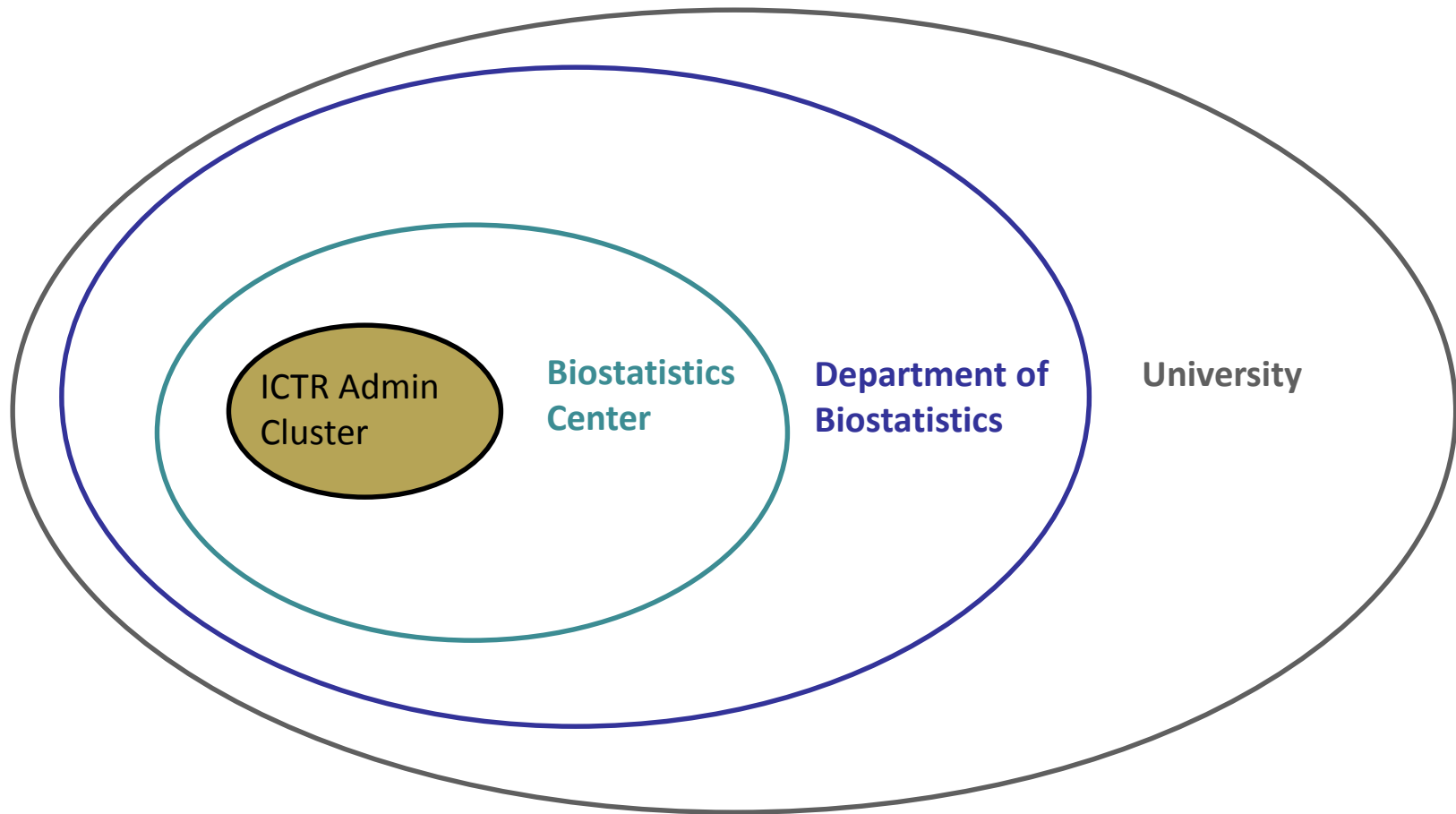
Quantitative Sciences Landscape: ICTR

o **Biostatistics, Epidemiology and Research Design (BERD)**

  o Biostat CenTeR (Biostatistics / PH)

  o Clinical Trials Consulting Service (Epidemiology / PH)

o **Computational Biology**

  o Sequencing, next generation technologies (BME/Medicine)

  o Traditional genomics, education (Oncology/Medicine)

o **Computational Medicine (BME/Engineering)**

  o Systems science

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What can Biostatistics do for you?

Biostatistics Center-related collaboration

➢ICTR services

   ➢Fee for service

      ➢% effort

         ➢"Cores" (e.g. Ophthalmology)

            ➢Personnel sharing (e.g. Medicine)

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What can Biostatistics do for you?

Department of Biostatistics-related collaboration

➢ Working groups (Neurology)

➢ Direct collaboration

➢ Student internships (Psychiatry)

➢ Faculty liaison (Geriatrics) / % effort resource (HPM)

➢ Joint hires (Oncology)

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What can Biostatistics do for you?

Departmental Working groups

o   Methods... improve science... training / mentoring

o   Six primary groups

    o   Imaging / wearable computing

    o   Causal inference / study design

    o   Biomarker / epidemiological methods

    o   Genomics

    o   Environmental health

    o   Aging

Biostatistical and Data Consulting

Quantitative Methodologies Core

o **Specialty expertise / methodology**

   o Traditional biostatistics: LDA, survival, multivariate

   o Prediction

   o Biomarker analysis

   o Clinical trials / causal inference

   o Systems science

   o Chronic disease, cancer, aging; behavioral health

   o Molecular biology

   o Imaging / neuroscience

   o Wearable computing in health

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Data intensive education
Traditional modalities

- **Onsite coursework, degrees**
    - Public Health – MPH, other masters, PhD
    - Engineering – bachelor, master, PhD
    - Graduate Training Program in Clinical Investigation

- **Short formats**
    - Summer Institute in Epidemiology and Biostatistics
    - Institutes of Public Health
    - Introduction to Clinical and Translational Research
    - Workshops

- **Mentorship**

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Data intensive education

Next-generation modalities

- **Micro-courses in Genomic Analysis**
  - ICTR-supported (Wheelan)

- **Massive Open Online Courses (MOOCs)**
  - Brian Caffo, Ph.D.