

# Clinical and Translational Research Education University of Pittsburgh



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# Overview

- Over the past 8 years, educational programs in clinical and translational research have been developed
  - To expand the spectrum opportunities: from exposure (courses) to certificate, MS, PhD
  - To extend the pipeline of training : for all levels of graduate education from medical students to faculty
  - To enhance mentoring, use of technology in education and provide design and biostatistics resources



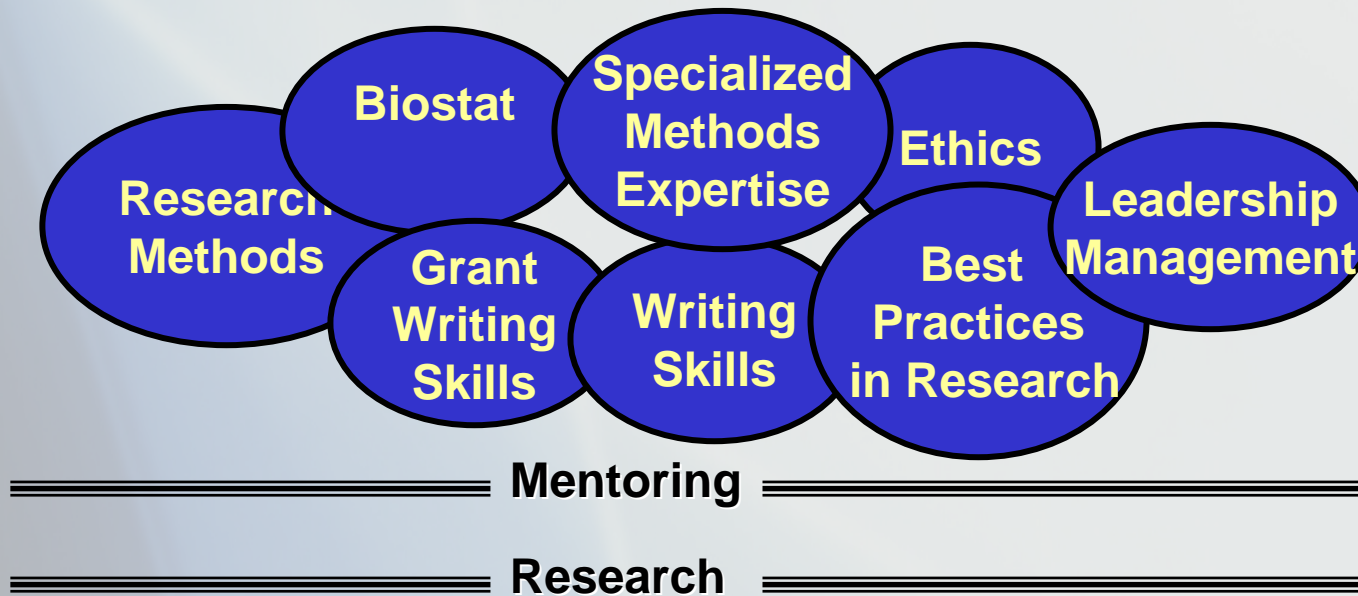
# Degree Granting Programs

- Certificates in Clinical Research
  - Independent certificate
  - With existing PhD programs
- MS in Clinical Research
- PhD in Clinical and Translational Science
- More than 50 courses have been developed, now under the Institute for Clinical Research Education

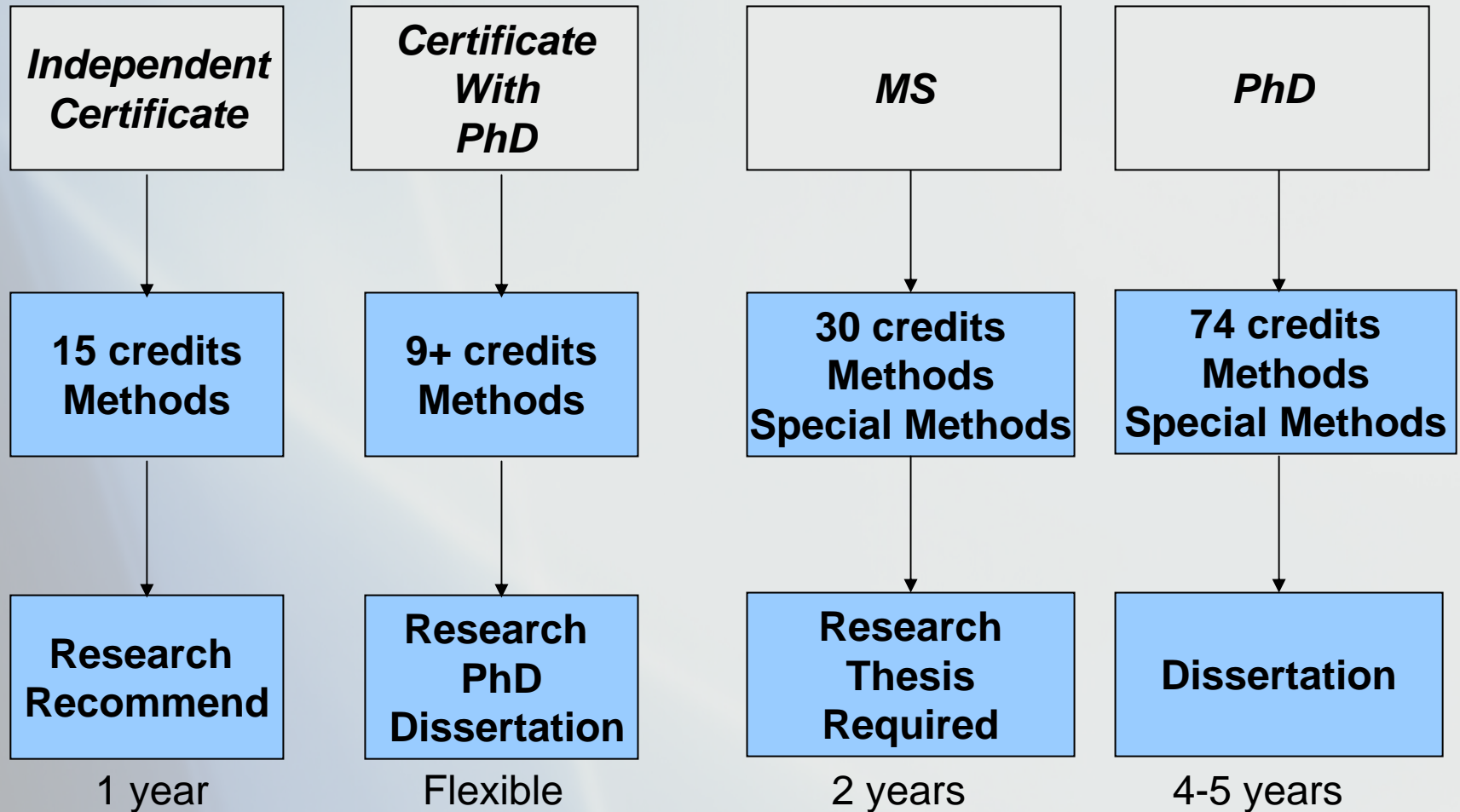


# Conceptual framework

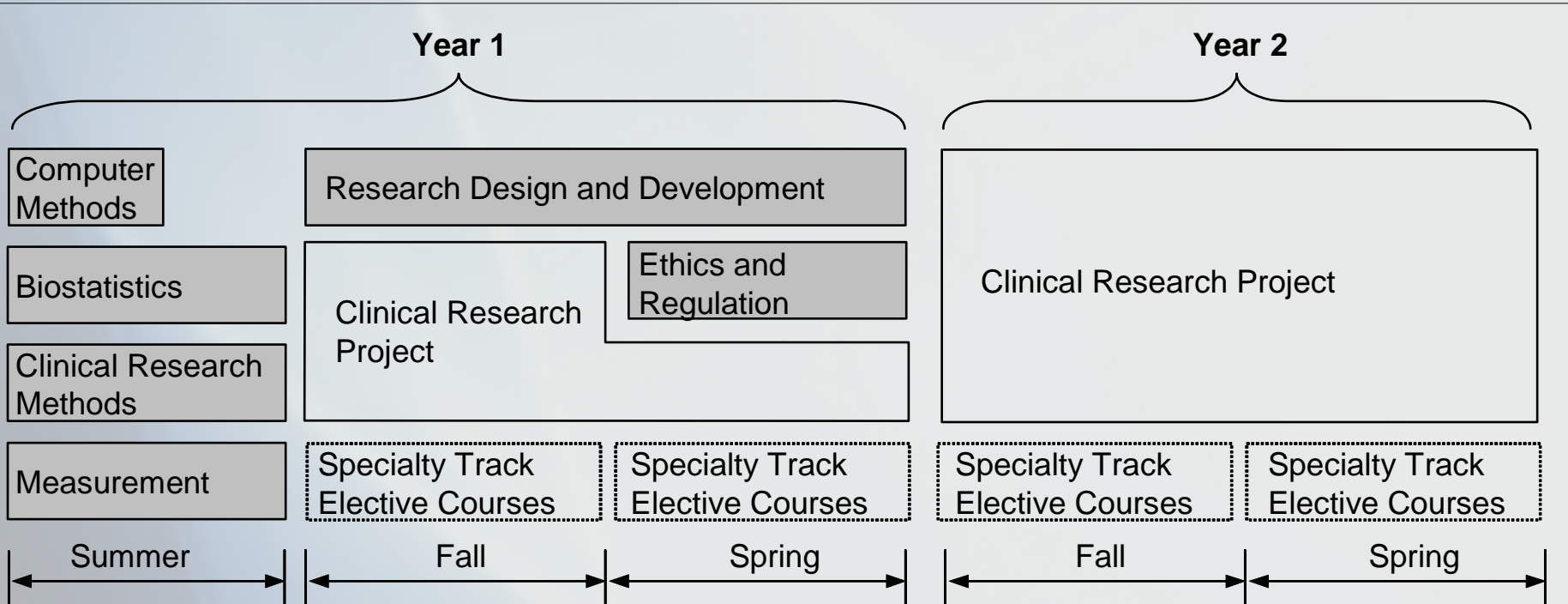
- Providing training and skills needed to successfully start a clinical and translational research career



# Degree Programs



# MS and Certificate



Typical 2 year program. Shaded areas represent the core curriculum.

Specialty Tracks: Clinical Trials; Health Services Research; Health and Behavior; Translational Research



# PhD in Clinical and Translational Science

- Train leaders in clinical and translational research
- Students: clinically trained individuals (largely physicians; clinical fellows or junior faculty)
- Didactic:
  - Strong research methods
  - Individualized curriculum tailored to the student's area of research
  - Academic career development skills (grant writing, publications)
- Research: clinical/translational research focused on diseases and patients



# PhD Program

The program has several unique features:

- The training program is highly multidisciplinary
  - faculty and students span not only disciplines, departments, but multiple schools of the health sciences
- The curriculum is diverse and draws upon biostatistics, clinical research methods, and laboratory- and population-based sciences
- Students are advanced—generally completed residency/fellowship or on the faculty



**Overview of PhD Curriculum and Milestones**

	Year 1	Year 2	Year 3	Subsequent Years
Summer	Measurement (1 Credit)	Laboratory Methods (2 Credits)	Prospectus Overview  (3 Credits Minimum)	**Dissertation Research (1-10 credits)
	Computer Methods (1 Credit)			
	Biostatistics (4 Credits)	Translational Research (2 Credits)	**Dissertation Research (1-10 credits)	
	Intro to Clinical Research Methods (3 Credits)	Research Specialization Combination of directed research or elective coursework (24 Credits)		
Fall	Research Design and Development (5 Credits)		Comprehensive Examination	Admission to Candidacy
	*Advanced "Selectives" (4 Credits)			
Spring	Research Ethics (1 Credits)	Dissertation Defense		
	*Advanced "Selectives" (6 Credits)			
	Preliminary Examination			

\*6 Advanced "Selectives" credits must be Analytic Methods, 4 credits must be Clinical Research Methods

\*\* Dissertation research must total 18 credits.

**Shading Key:**

Analytic Methods	Multidisciplinary Methods	Prospectus Overview	Dissertation Defense
Clinical Research Methods	Research Specialization Courses	Dissertation Research	

# Pipeline

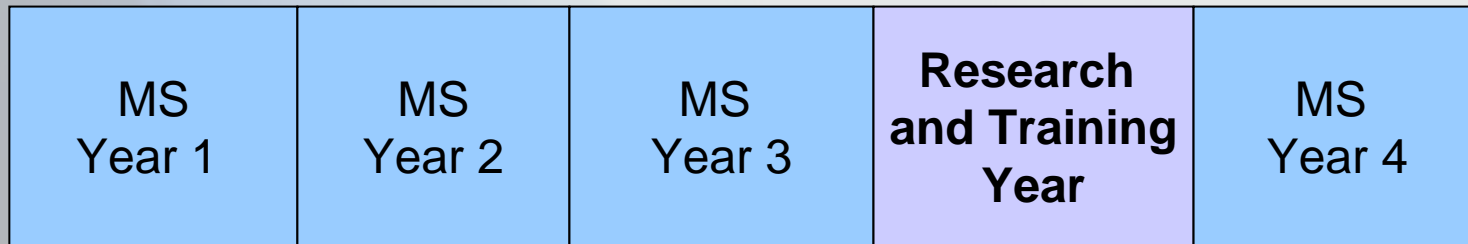
- Medical students
- PhD students
- Residents
- Fellows
- Junior faculty





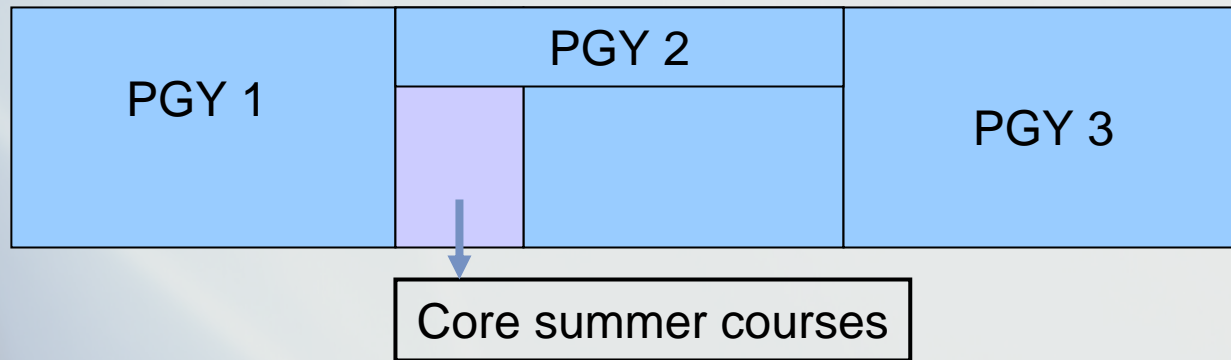
# Doris Duke Clinical Research Fellowship Medical Students

- **One of 12 Schools:** Pitt, Harvard, Columbia, Yale, Penn, Wash U, Hopkins, UCSF, UNC, Iowa, Mount Sinai, Texas Southwestern
- Selected during 3<sup>rd</sup> year for one year out
- 5 students per year: 3 from Pitt, 2 from outside
- Integrated with a lab or research program for 1 year; get a certificate coursework



# Clinical Scientist Training Program for Residents

- Certificate and MS available to residents in all specialties
- Medicine residents selected at the time of match



Longitudinal Seminar in Clinical and Translational Research

Integrated with a lab or research program and mentors



# PhD students in the Schools of the Health Sciences

- Certificate integrated with the PhD program
  - Methods courses in clinical and translational research, not set credit requirements
  - Encourage translational research projects and joint mentorship
  - Carnegie Mellon University PhD: concentration
- CTSI T32: support for short-term and one year for PhD students in the Schools of the Health Sciences
  - Seminars and course in clinical research methods
- Course for PhD students: Introduction to Translational Research in Health Sciences



# Clinical Fellows

- Certificate, MS, and PhD are designed for fellows
- Protected time: generally during research years
- Support: specialty T32s; divisional or departmental funds



# Junior faculty

- Can use the courses, certificate, MS, PhD program as part of their career development plan for K awards (K08, K23)
- Career Education and Enhancement for Health Care Research Diversity (CEED)
  - Minority faculty
  - Support grant writing, scientific writing, presentation, and mentoring
- K12 Multidisciplinary Clinical Research Scholars Program

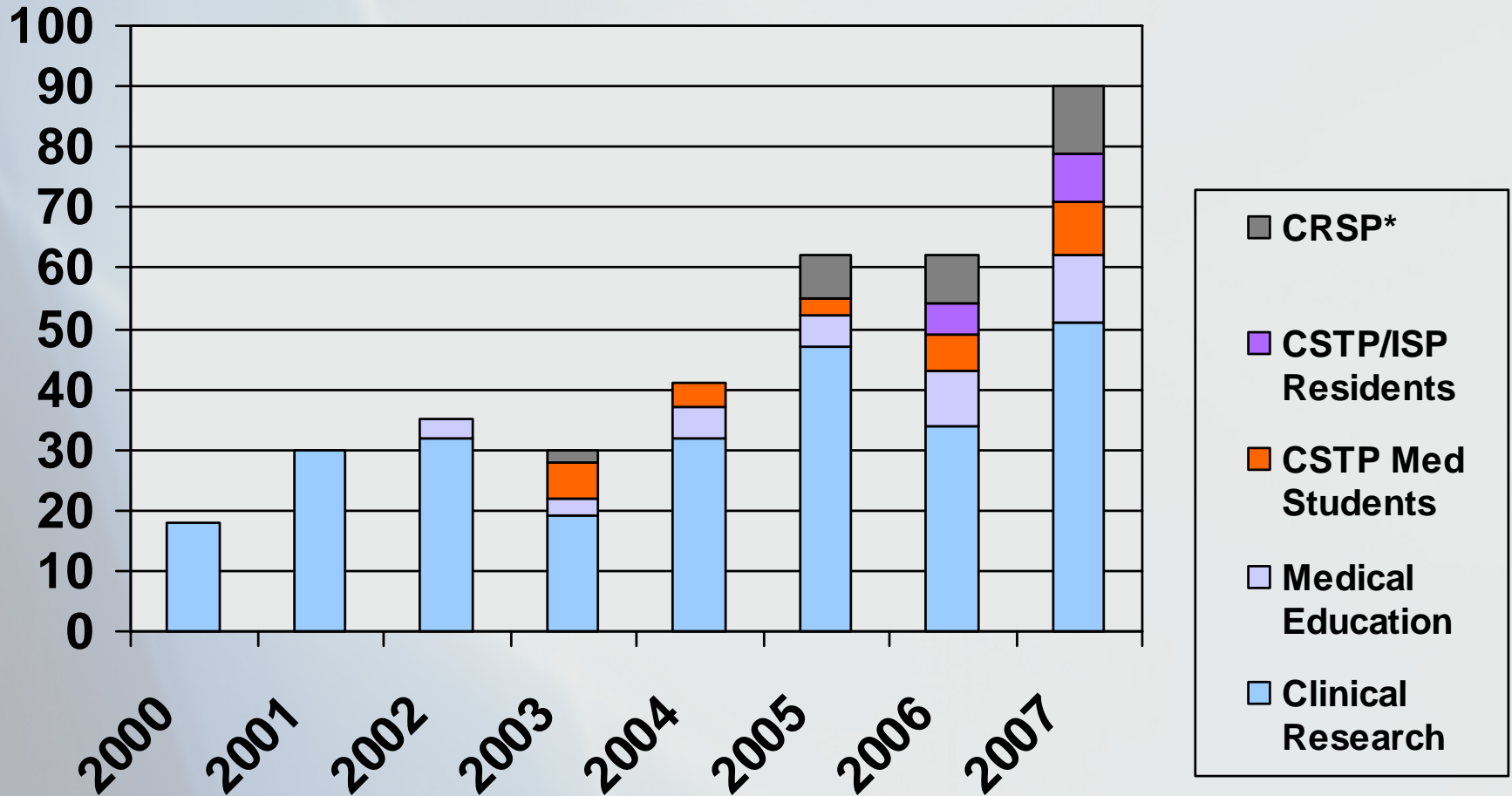


# Multidisciplinary K12 Clinical Research Scholars Program

- Support for up to 5 years for 30 junior faculty from the Schools of the Health Sciences
  - Training component: courses, certificate, MS, PhD
  - Team mentoring from multiple disciplines
  - Support
    - Salary: 75-100% support for 2-5 years
    - Research Project: up to \$25,000 per year
    - Shared Clinical Research Support Facility (methods, biostat, data staff, coordinators)
    - Travel, tuition, fees and books
- Website: <http://www.icre.pitt.edu/crsp/>



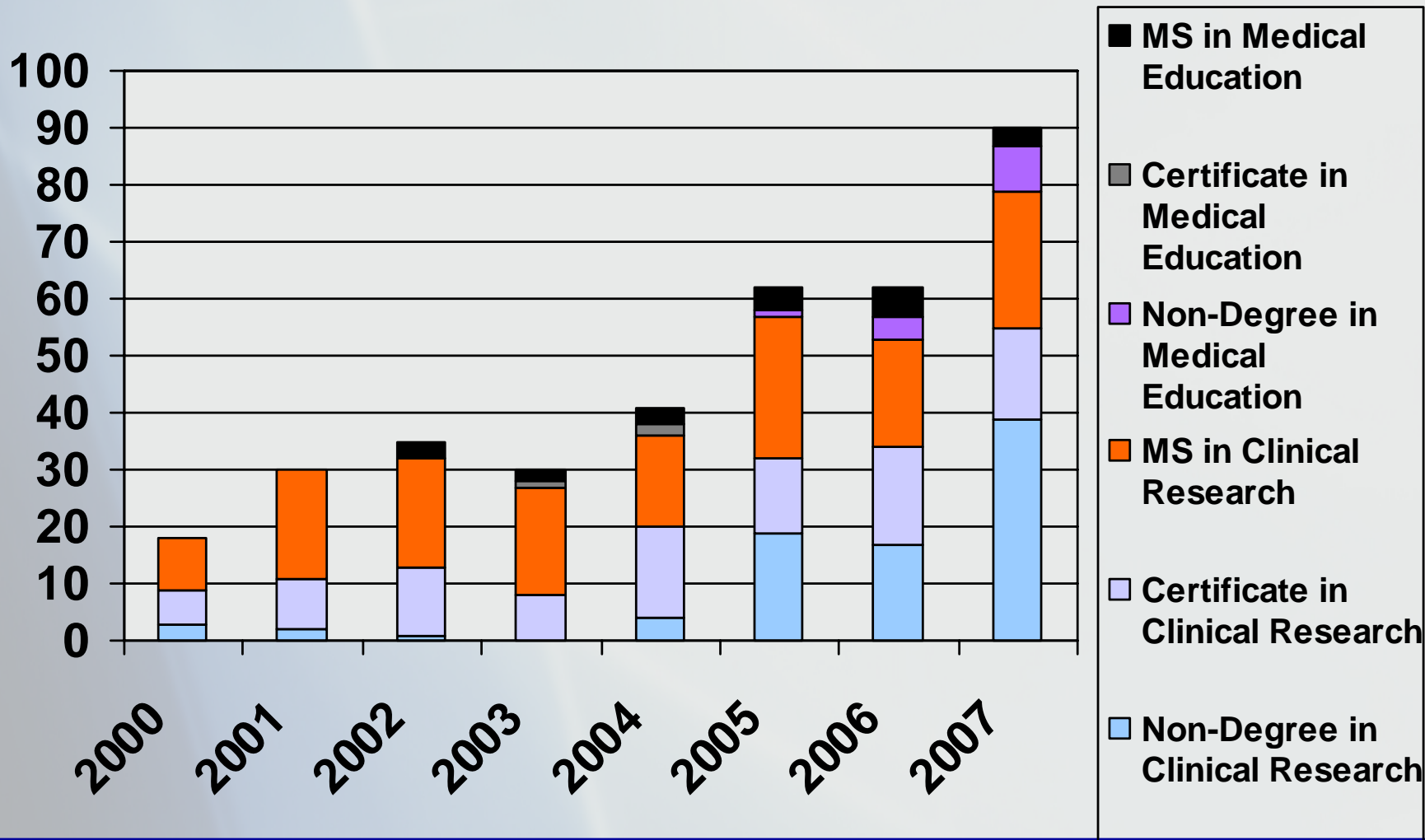
# New Student Enrollment by Training Program



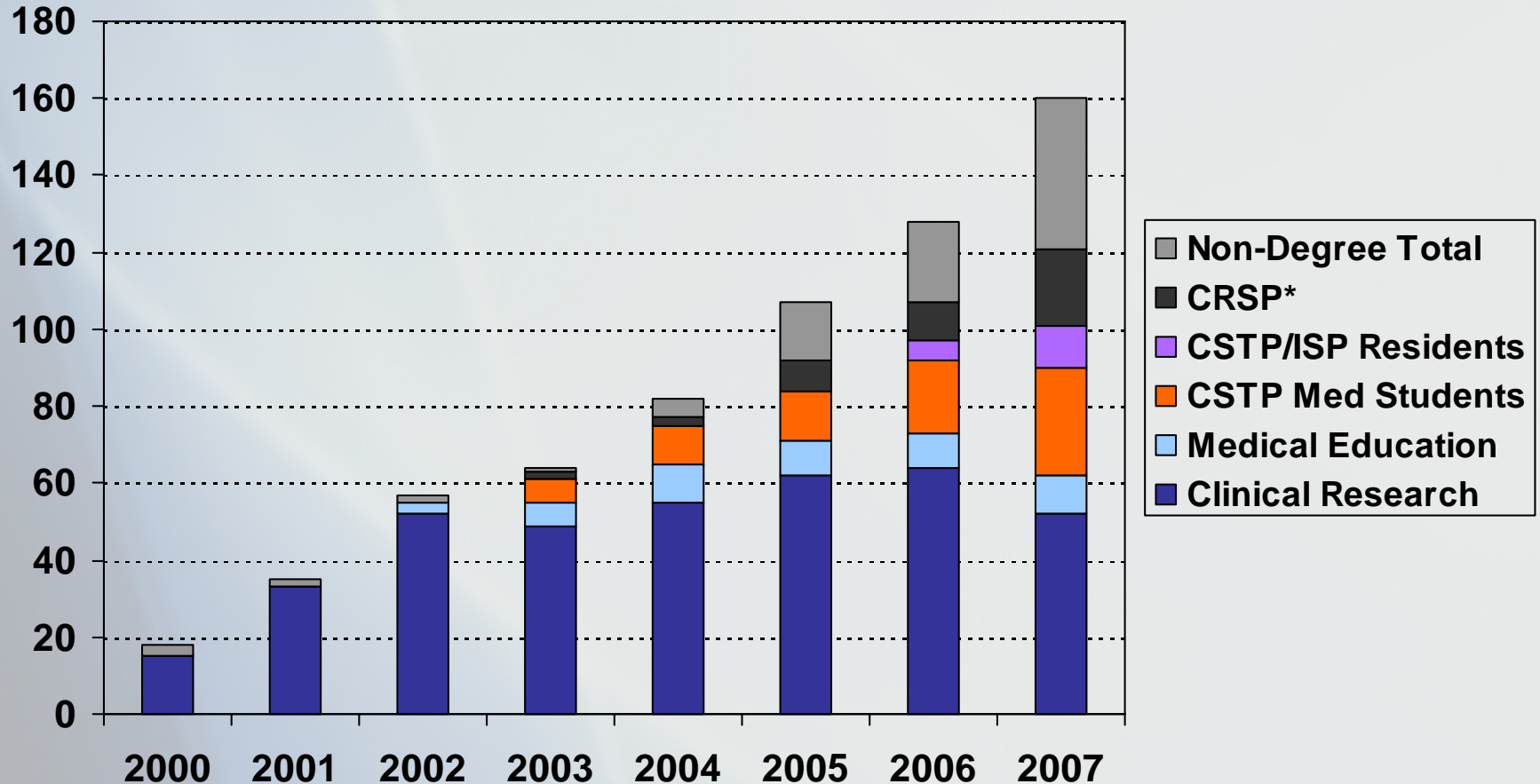
\*Scholars may have started in a Clinical Research degree or non-degree program prior to gaining acceptance as a CRSP scholar.



# New Student Enrollment by Degree Program



# Total number of active trainees (per year)



\*Scholars may have started in a Clinical Research degree or non-degree program prior to gaining acceptance as a CRSP scholar.



# Mentoring Program

- Purpose: provide the highest quality of multi- and inter-disciplinary mentoring to enhance the probability of success of junior investigators
  - Training mentors and mentees—through MS, PhD, K12
  - Team mentoring experiences—K12
  - Monitor mentoring and make changes when needed—all
  - Interest groups in mentoring minorities and women—CEED
  - Web-based resources:  
<http://www.icre.pitt.edu/mentoring/index.aspx>



# Mentor and Mentee Training

- Facilitated sessions: Maximizing Team Mentoring Relationships
  - Opportunities, strategies and responsibilities
  - Developing expectations
  - Achieving outstanding mentor-mentee relationship—participants work in small groups and then share their experiences and ideas
  - Literature on mentoring is shared



# Team Mentoring

## Mentor selection

- 2 or more mentors from different disciplines
  - A major criteria in selection of Scholars
  - Senior faculty, NIH funded
  - Each must have a specific role as conceived in the research plan
  - Primary mentors meet weekly, team meets monthly or more often
  - Sign a contract with mentee



# Mentor-mentee contract

- Formal contract is signed between the mentee and all of the mentors:
  - Goals of team mentoring
  - Expectations of mentors and mentees
    - Regular frequent meetings, mentor/mentee training, learning skills development, milestones and timetable, mentor's attendance at research presentations, annual evaluation and confidentiality
  - Signed by all mentors and mentee on the same page
  - Contract is reviewed at initial funding and agreed upon in a meeting with the directors of the K12



# Evaluation of Mentoring

- Mentoring Effectiveness Measure
  - Completed yearly by each mentor/advisor
  - Completed yearly by each Scholar
- Monthly meeting with advisors (from K12)
  - Assess mentoring issues
- Director of mentoring attends team mentoring meetings—provides feedback and recommendations
- Program assists in changing mentors if needed



# Education and Technology

- Purpose: how to implement technological innovations in teaching
  - Joint activities with CIDDE, CMU, other interested in the Schools of the Health Sciences
  - Web based courses using cutting edge technology
  - Study the impact of technology on delivery of education



# CTSI Design, Biostatistics and Ethics Core

- Support all of our clinical research training programs
- A resource through CTSI to support unfunded investigators without charge throughout the schools of the health sciences
- Also supports funded investigators for their statistics and data management needs



# Summary

- University of Pittsburgh has a large spectrum of opportunities in clinical and translational research: from exposure (courses) to certificate, MS, PhD
- Special programs for the entire pipeline medical or PhD students to faculty
- Additional resources are accessible in mentoring, design, biostatistics and ethics

