



Portugal Clinical Scholars Research Training Program

Develop patient-oriented research skills. Improve your understanding and interpretation of medical literature.



HARVARD
MEDICAL SCHOOL

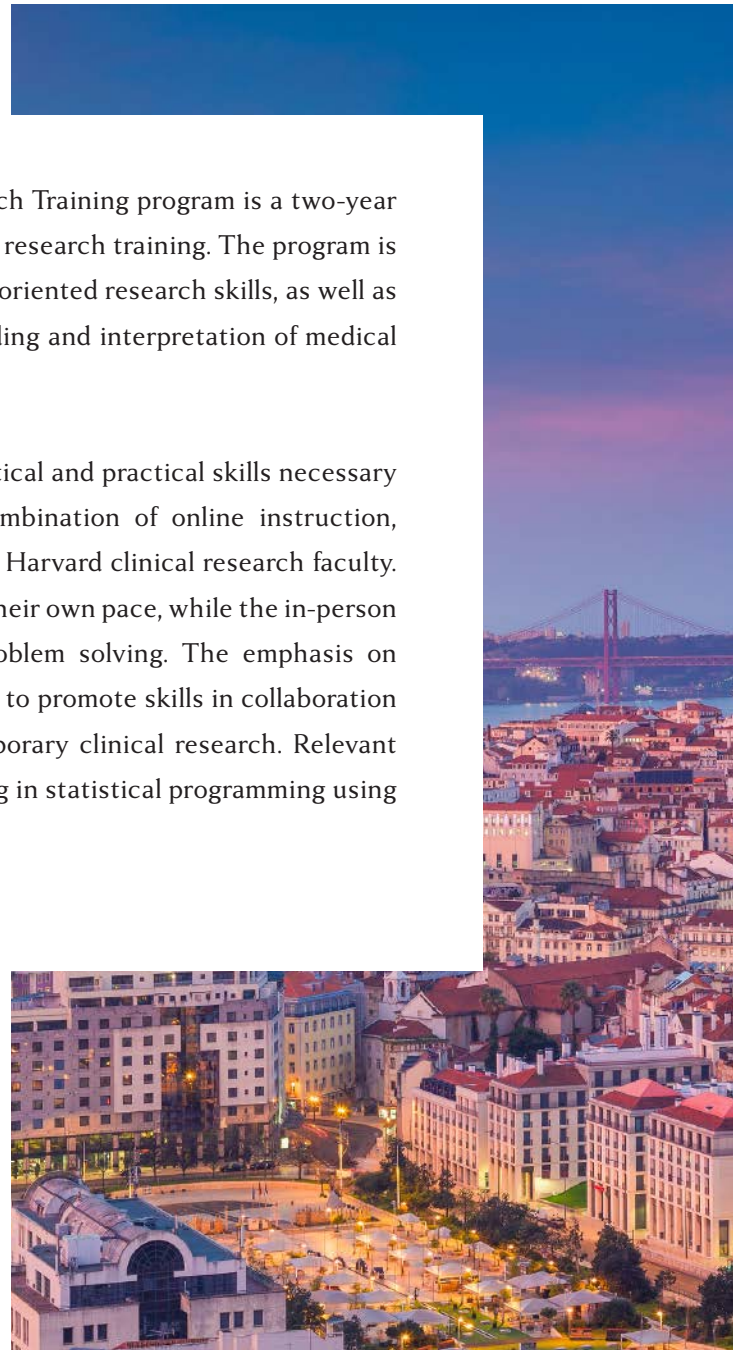
Postgraduate
Medical Education

APPLY AT [HMS.HARVARD.EDU/PTCSRT](https://hms.harvard.edu/ptcsrt)

Program Overview

Harvard Medical School's Portugal Clinical Scholars Research Training program is a two-year learning experience focused on clinical and epidemiological research training. The program is designed for scholars seeking to develop and refine patient-oriented research skills, as well as practicing clinicians who wish to improve their understanding and interpretation of medical literature.

Delivering a comprehensive curriculum on the core theoretical and practical skills necessary to perform clinical research, this program features a combination of online instruction, interactive webinars and short, intensive workshops led by Harvard clinical research faculty. This blended learning approach allows students to learn at their own pace, while the in-person modules promote team-based learning and facilitated problem solving. The emphasis on teamwork persists throughout the program and is designed to promote skills in collaboration and networking, which are critical for success in contemporary clinical research. Relevant modules are supported with examples and hands-on training in statistical programming using Stata software.



Program Objectives

AFTER COMPLETING THIS PROGRAM, SCHOLARS WILL BE ABLE TO:

1. Develop detailed and feasible research questions
2. Design appropriate studies and testable hypotheses for clinical questions
3. Analyze, interpret and present clinical research data
4. Develop skills in networking and collaboration



“During the program, I learned how to build a good project, ask a good research question and employ the methods to answer it. I was also able to gain critical skills in writing a competitive grant application and perform my own statistical analysis. This was an amazing experience, which enabled me to grow and establish a strong network with other young doctors.”

INÊS LAÍNS

Research Fellow at Massachusetts Eye and Ear, Boston
Faculty of Medicine, University of Coimbra, Portugal
Coimbra University Hospital, Coimbra, Portugal

Curriculum

+ KEY FEATURES

- The blended-curriculum will be delivered via a combination of recorded online lectures (ROLs), interactive webinars and seven intensive, 2-day, residential workshops over the two years of the program.
- Leading clinical research faculty from Harvard Medical School and T.H. Chan School of Public Health.
- Recorded online lectures (ROLs), available 24/7 throughout the program, are used to deliver the educational material for each module.
- Contemporary pedagogical approaches include 'flipped classroom' methods, team-based learning and development of critical thinking skills.

+ PROGRAM ELEMENTS

- **WORKSHOPS:** Each workshop will be focused on the development of practical skills in clinical research. Particular emphasis will be placed on manuscript writing, research proposal preparation, biostatistical programming and critical thinking skills.
- **RECORDED ONLINE LECTURES:** Recorded online lectures (ROLs), available 24/7 throughout the program, are used to deliver the educational material for each module. In the first year, a foundation course will introduce medical statistics and epidemiology, covering basic concepts in descriptive statistics, inferential statistics and study design. In the second year, the curriculum will focus on advanced epidemiology, including causal inference and advanced study design, as well as developing advanced concepts in biostatistics.

- **WEBINARS:** The live webinars are designed to complement the learning objectives of the ROLs, providing students with the opportunity to interact directly with Harvard faculty.
- **MENTORED SCIENTIFIC WRITING:** During the two-year program, students will develop skills in the art of scientific communication. Each student will benefit from the input of a dedicated mentoring committee consisting of a primary Portuguese mentor and a Harvard advisor.
- **TEAMWORK:** Enrolled students will be randomly allocated to teams of approximately five students. Each team will work together on two assignments in year one and an additional two assignments in year two.

ELECTIVES

There will be a choice of electives for students during the summer months (July and August) of each year. For first year students, the choice will be between clinical trials or advanced quantitative methods; for second year students, the choice will be between drug development and safety, or genetic epidemiology.

MENTORED SCIENTIFIC WRITING

During the two-year program, students will develop skills in the art of scientific communication under the supervision of a dedicated mentoring committee. The task for year one students is to prepare an individual research proposal; the task for year two is to prepare an original manuscript. It is expected that this manuscript would be submitted for publication in a peer-reviewed medical journal.

Curriculum

FOUNDATION COURSES

Biostatistics - This course addresses how to organize, summarize and display quantitative data; the applied use of statistical software (Stata).

Epidemiology - This course covers the basic principles and methods of epidemiology, including disease (outcome) measures, measures of association, study design options, bias, confounding and effect modification.

Biostatistical Computing - This course focuses on the basics of Stata, including learning key commands, creating do-files, organizing data for analysis and checking for errors. More advanced lectures will focus on using Stata for regression, survival analysis and generating publication quality figures and tables.

Research Ethics - This course reviews some common challenges in the conduct and review of biomedical human subjects research, including the evolution of ethical codes and regulations, the responsibility of physicians as investigators, the preparation of research protocol applications and informed consent documents and the challenges of conducting research involving children and adolescents.

Leadership in Medicine - This course examines different aspects of working and leading a team. Lectures discuss the need to manage a group of people effectively, pilot successful collaborations within and outside a group, navigate the complexities of the institution and manage the inevitable conflicts that arise in a clinical research environment.

Applied Regression - This course provides an understanding of the basic principles and uses of linear and logistic regression models for clinical research.

Survival Analysis - This course provides instruction to describe time-to-event data and compare groups with a time-to-event outcome, interpret the coefficients and control for confounding using a Cox proportional hazards model, interpret interaction terms and incorporate time varying covariates in a Cox model, as well as assess the proportional hazards assumption.

Correlated Outcomes - This course covers methods to analyze longitudinal data, including the use of linear regression models. Topics will include polynomial trends for time (e.g., linear or quadratic) and linear mixed-effects models. Students will be able to understand the types of missing data that occur in longitudinal and cross-sectional analyses, as well as understand the assumptions associated with each analytic approach.

Causal Design - Causal inference is an overarching objective of most forms of medical and epidemiological investigation. Students will develop a deeper understanding of observational approaches, especially from the perspective of overcoming the problem of confounding. Students will develop approaches toward identifying confounders, especially via the use of directed acyclic graphs.

Faculty

PROGRAM DIRECTORS



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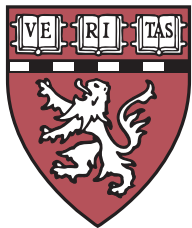
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PORTUGAL CLINICAL SCHOLARS RESEARCH TRAINING PROGRAM

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