The George Institute for Global Health

FLAGSHIP TRAINING PROGRAMS

The George Institute
for Global Health

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Introduction

This document provides an overview of the flagship courses developed and implemented by The George Institute for Global Health. Each training program has been carefully designed by experts from The George Institute to advance knowledge and skills in critical areas of health research and evidence-based practice. These courses and training programs embody our commitment to fostering excellence in research, innovation, and healthcare practices.

Each program has been curated to ensure a balance of theoretical knowledge and practical application, equipping participants to excel in their respective fields. Courses are tailored to our target audience which includes early career clinical and public health researchers, healthcare professionals, public health researchers and practitioners, clinical trial staff, research support staff and policymakers. While each course is designed with a global perspective, we ensure during course delivery that these are further contextualized with regional examples to ensure practical applicability and deeper understanding. These courses provide a pathway to enhancing expertise and achieving impactful outcomes. They are aimed towards research capacity strengthening. Furthermore, these courses enable The George Institute to forge new collaborations and bolster existing ones. Courses can be taken individually or in a combination that suits the needs of the target audience.

Quantitative health research training

The ***Quantitative health research training*** combines The George Institute's flagship courses: Fundamentals of Research Methods and Study Design and Randomised Clinical trials. Additionally, this training covers Mendelian Randomization, Pragmatic Trials, Nested case-control cohorts, Specialised Disease Cohorts, and Protocol Development. The training will be delivered face-to-face by experienced health researchers. The training will comprise a mix of didactic lectures using PowerPoint presentations, discussions based on case-studies, practical exercises and group activities. The participants will have time to work in groups. Participants have the opportunity to present their research protocol synopsis and receive critical feedback from senior researchers.

Mode: In-person only **Duration:** 4 weeks

LEARNING OBJECTIVES

By the end of this training, participants will be able to:

- Describe, compare and contrast the common epidemiological study designs.
- Describe key statistical concepts in health research.
- Describe the key ethical principles in human research.
- Formulate a research question with a scientific rationale.
- Select an appropriate study design and justify the choice of study design.
- Identify the key requirements for sample size and power calculations.
- Recognise the key biases in research and identify ways to minimise them in research design and conduct.
- Describe the key aspects of data collection and data management and recognise the importance of data quality.
- Describe key aspects of research management.
- Critically appraise and interpret results of published quantitative research studies.
- Describe the main types of evidence synthesis studies and outline the steps in conducting systematic reviews.
- Draft a study protocol incorporating the key elements of research design, conduct, analysis, and ethical considerations.

"I highly recommend others to join this training program... The instructors are friendly, and their teaching is both thorough and engaging. They focus not only on delivering the knowledge but also on applying it, so that they provide numerous practice opportunities, ensuring that almost everyone benefits from the program. "

Randomised clinical trials course

The ***Randomised Clinical Trials*** course is a 6-day in-person training for those seeking to gain an introduction to the fundamentals of RCTs, including effective trial management. The training will be delivered face-to-face by experienced health researchers. The training will comprise a mix of didactic lectures using PowerPoint presentations, discussions based on case-studies, practical exercises and group activities. By the end of this training, participants will have gained an integrated understanding of the principles and practices underpinning high-quality clinical research. They will have enhanced their capacity to design robust studies, ensure rigorous data management, and mitigate potential biases. Additionally, participants will deepen their ability to appraise and interpret research findings, positioning them to contribute effectively to the advancement of clinical and public health knowledge.

Optional module - Protocol development workshop: Those who choose to engage in the optional two-day protocol development component will further refine these skills by creating a comprehensive study protocol that encompasses all key elements of ethical and methodologically sound research design, conduct, and analysis. Participants will have the opportunity to engage in hands-on workshop to develop their own protocol synopsis based on their research question. In the workshop, participants will have time to work in groups.

Optional module - Protocol development workshop + Presentation: In the four-day workshop, in addition to protocol development, participants have the opportunity to present their research protocol synopsis and receive critical feedback from senior researchers.

Mode: In-person only

Duration: 6 days. Optional modules are an additional 2 to 4 days.

LEARNING OBJECTIVES

By the end of this training, participants will be able to:

- Describe key statistical concepts in health research.
- Describe the key ethical principles in human research.
- Formulate a research question with a scientific rationale.
- Select an appropriate study design and justify the choice of study design.
- Identify the key requirements for sample size and power calculations.
- Recognise the key biases in research and identify ways to minimise them in research design and conduct.
- Describe the key aspects of data collection and data management and recognise the importance of data quality.
- Describe key aspects of clinical research management.
- Draft a study protocol incorporating the key elements of research design, conduct, analysis, and ethical considerations. (OPTIONAL MODULE)

Fundamentals of observational study designs

The ***Fundamentals of observational study designs*** course provides a comprehensive introduction to observational study designs, biases, statistical approaches, and critical appraisal techniques. Participants will gain practical skills in descriptive and inferential statistics, understand the role of observational studies in clinical research. This six-day in-person course is aimed at early career clinical and public health researchers, public health managers, clinicians, and research support staff. The training will be delivered face-to-face by experienced health researchers. The training will comprise a mix of didactic lectures using PowerPoint presentations, discussions based on case-studies, practical exercises and group activities.

Mode: In-person only **Duration:** 6 days

LEARNING OBJECTIVES

By the end of this training, participants will be able to:

- Describe, compare, and contrast the common epidemiological study designs.
- Describe key statistical concepts in observational studies.
- Formulate a research question with a scientific rationale.
- Select an appropriate study design and justify the choice of study design.
- Identify the key requirements for sample size and power calculations.
- Recognise the key biases in research and identify ways to minimise them in research design and conduct.
- Critically appraise and interpret results of published observational research studies.

"I would highly recommend The George Institute's research training program to others. The George Institute is a leading global medical research institute, where participants have opportunities to learn from experienced researchers and professionals."

Systematic review of randomised controlled trials – masterclass

Systematic Reviews are the cornerstone of modern medicine. A systematic review, unlike a traditional narrative review answers a defined research question by collecting and summarising all empirical evidence that fits pre-specified eligibility criteria and methodology. Methodological rigour is key to conduct of quality systematic reviews to be able to impact healthcare decision making. It is also critical to learn application of tools and skills for this purpose.

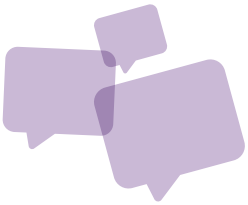
Mode: In-person only **Duration:** 2-day masterclass

LEARNING OBJECTIVES

By the end of this training, participants will be able to further understand systematic reviews of randomised controlled trials.

After completing the course, participants will be able to:

- Understand basics of evidence informed medicine.
- Understand and explain steps in conducting a systematic review of randomised controlled trials.
- Develop a focused systematic review question.
- Conduct searches in PubMed for identifying evidence to answer a specific question.
- Understand basic features for using Covidence for screening and data extraction.
- Conduct risk of bias assessment of randomised controlled trials.
- Understand basic concepts of meta-analysis, heterogeneity and sub-group analysis.



"I thought the workshop was great in giving a level of understanding that I feel confident to approach conducting an SR. I think true confidence and competency will come from further practice, though the class provided a fantastic foundation to start."

Fundamentals of research methods and study design

The *Fundamentals of Research Methods and Study Design* course provides a comprehensive introduction to study designs, biases, and critical appraisal techniques. Participants will gain practical skills in descriptive and inferential statistics, understand the role of systematic reviews in evidence-based practice, and explore ethical considerations in human research. This course is aimed at early career clinical and public health researchers, public health managers, clinicians, and research support staff. The course comprises of seven online self-paced modules supplemented with seven interactive sessions per module.

Mode: Online **Duration:** 7 weeks

Expected time commitment: 21 hours (up to 1 hour of online self-paced module + 2 hours interactive session, per module; 3 hours per week).

LEARNING OBJECTIVES

After completing the course, participants will be able to:

- Recognise the application of different epidemiological study designs
- Explain the various biases that might affect the validity of a study
- Define the key characteristics of different observational study designs
- Differentiate between observational and experimental studies
- Select the appropriate critical appraisal checklist and standard reporting guidelines for most common study designs
- Prepare and interpret descriptive statistics for a given study
- Describe key principles of inferential statistics
- Describe role of systematic reviews in evidence-based decision making and practice
- Identify key ethical requirements in research involving humans

"I liked the way it moved, the flow was perfect and the examples in the online modules were very useful. It was a great refresher and I learnt new things that I did not know earlier, especially module 8 (critical appraisal of a paper) was very relevant."

Implementation science

Implementation research is the scientific study of methods to promote the systematic uptake of research findings and other evidence into policy and practice in order to improve the quality and effectiveness of health services and policy. The George Institute's ***Implementation Science*** course aims to develop skills, knowledge and understanding in applying critical evidence and research in program and change practices for implementing informed change within health. The course comprises of 4 online self-paced modules and three online interactive sessions. Additionally, participants have the opportunity to participated in discussion forums.

Mode: Online **Duration:** 4 weeks

Expected time commitment: 12 hours (up to 1.5 hours of online self-paced modules, 6 hours of interactive sessions)

LEARNING OBJECTIVES

After completing the course, participants will be able to:

- Define key terms and concepts in implementation science, including common "buzz words."
- Recognise and differentiate between the main theories, models, and frameworks in implementation science.
- Identify how complex environments impact the effectiveness of implementation strategies.
- Describe the stages of a project life cycle and the role of stakeholder engagement.
- Understand the importance of problem analysis as a critical first step in addressing implementation challenges.
- Apply a variety of tools to systematically define problems in implementation science.
- Develop logic models linking problems, interventions, and desired outcomes.
- Understand the value of holistic design and end-user involvement in implementation projects.
- Understand the importance of evaluation and different types of evaluation approaches
- Explore specific strategies used in implementation.
- Identify key evaluation approaches, including impact, process, and economic evaluations.
- Use logic models to develop and monitor outcome measures.

"I would highly recommend the implementation science course to anyone who is interested in learning more about how to promote the adoption and integration of evidence-based practices, interventions, and policies into routine healthcare and public health settings to improve the impact on population health."

Randomised clinical trials

The Randomised Clinical Trials course an introductory course for those seeking to gain a comprehensive introduction to the fundamentals of RCTs, including effective trial management. The Course consists of twelve modules comprising reading materials, recorded lectures, interactive webinars, and weekly assignments. This Course will be delivered by experienced researchers and trial managers at The George Institute.

Mode: Online **Duration:** 12 weeks

Time commitment: 3 hours per week

LEARNING OBJECTIVES

After completing this course, participants will be able to:

- Compare clinical trials with other epidemiological study designs.
- Describe the different types of Randomised clinical trial designs and their strengths and limitations.
- Describe the phases in Randomised clinical trials.
- Understand the importance of randomization and blinding.
- Understand the role of ethics, Good clinical practice, and informed consent in Randomised clinical trials.
- Describe the key elements of a study protocol and standards of reporting Randomised clinical trials.
- Identify the key requirements for sample size and power calculations.
- Understand the role of stakeholders involved in participant recruitment and retention
- Describe the key aspects of data collection and data management and recognise the importance of data quality.
- Understand the importance of a statistical plan for Randomised clinical trials
- Recognise the key biases in research and identify ways to minimise them in research design and conduct.
- Appreciate how Randomised clinical trials can impact decision making in clinical practice and policy.

"The course has given me a deeper and more precise understanding of the differences between various types of clinical research, the implementation of randomization and blinding, sample size calculation, etc., which has increased my confidence in designing and conducting clinical research...."

Health technology assessment

New health care interventions and technologies are constantly emerging but their effects on population health and health systems are not always clear. Described by the World Health Organization as a bridge that connects the world of research to that of policy making, ***Health technology assessment (HTA)*** is the multidisciplinary and evidence-based evaluation of health technologies and interventions to determine their benefits and comparative advantages. HTA is critical for supporting policy decision making to improve the allocation of limited health care resources, mainly through the use of economic evaluation methodologies. In this course, experts from The George Institute ***will explain the basic concepts and international experiences of HTA, covering the following areas:***

1. Principles of health economics, economic evaluation and HTA
2. Examples of HTA experiences globally and locally
3. Data sources for HTA, including advantages and disadvantages of each source
4. HTA cost and outcome assessments
5. HTA cost-effectiveness thresholds
6. Decision analytical models for interpreting HTA metrics and findings
7. Challenges, limitations and future directions for HTA

Mode: **Online** **Duration:** **4 weeks**

LEARNING OBJECTIVES

After completing this course, participants will be able to:

- Understand the principles, methodologies, applications and challenges of carrying out HTA.
- Understand the role of HTA in policy making and health care funding with key examples.
- Understand the key concepts and guidelines associated with undertaking a HTA study.
- Understand how HTA findings are presented, communicated and interpreted.
- Describe the existing international experience of HTA on health care decision making including developments globally and locally.
- Identify the multiple data sources needed to support the framing of a HTA question
- Apply principles of economic evaluation, cost and outcome assessments, cost-effectiveness thresholds in the conduct of HTA.
- Understand the role of decision analytical modelling, including understanding limitations and identifying other factors or criteria needed for HTA decision making.
- Identify the main challenges in HTA, and exploring innovative future directions for HTA globally as well as locally.

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