STREAM
Studies of Translation, Ethics and Medicine

Testing interventions to improve the skill of clinical oncologists and researchers to predict clinical trial outcomes

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Introduction

Expert judgment is essential for efficient science. Inability to assess the promise of a drug candidate - or to prioritize those most promising - can squander scarce resources and result in greater burdens for human research subjects. By studying the ability of experts to predict primary outcomes in major trials, we are indirectly observing the skill in assessing promise and setting priorities. Our early work suggests that medical experts' judgments often fall short of certain desirable benchmarks. This is not surprising since most medical researchers are not accustomed to quantifying their beliefs; nor are they really trained to making accurate predictions. This study aims at exploring whether medical experts' judgments about primary outcomes in ongoing clinical trials can be improved with training, and if we can identify which types of experts show the greatest improvement with training.

Objective

To determine whether medical experts can predict whether large trials in their area will be possible, and whether brief training can improve their forecast skill.

Methods

We will collect subjective probability forecasts from 3 samples of cancer specialists with expertise in the disease areas (leukemia, lymphoma, and breast cancer), cancer specialists with general oncologic expertise (i.e. physicians who are not specialists in breast cancer), statisticians/methodologists, and oncology trainees. We will randomize participants into 3 groups to test the impact of two training interventions compared to a control group and will assess the impact of these interventions on their forecasting skill. Participants will be blinded to the interventions.

Outcomes

Primary: measure of forecast accuracy (Brier score).

Secondary: discrimination and calibration of predictions.

Intervention(s)

This study has 3 arms: 2 interventions and a control group. The interventions are not detailed in this document to preserve blinding of participants.

Participants

We will invite worldwide experts to participate.

- Experts will be identified by conducting a search of recent publications and by identifying specialized care centers, professional societies, or review lists issued by specialized conferences.
- Medical trainees will be contacted through oncology training programs.
- Statisticians will be contacted in major clinical trial units or conferences.

Funding

CIHR (Canada's main federal biomedical research funder), NSERC, and SSHRC through the BioCanRx Network (Project: Improving the quality of judgement in cancer therapeutic development.)

Burdens

Our survey will take about 25 minutes to complete, based on piloting. Though feel free to take as much time as you want- the more care you take in making forecasts, the more likely you will get a good forecast skill score!

Why participate?

There are 3 benefits for participation:

1- Learning: Once trials have closed, participants will have the opportunity to receive feedback about your forecast skill.
2- Altruism: We will make a small donation to Doctors Without Borders or Komen Foundation for each participant. Participants will be advancing our understanding of expert decision-making in cancer research
3- Bragging rights: Top forecasters for each survey will have the opportunity to be named on STREAM's publicly accessible leaderboard (here is our leaderboard for another project). Consent would be obtained before individuals are named.

Ethical review/Registration record

The identity and responses of all participants is maintained in strict confidence. This study has been approved by McGill IRB and is registered on aspredicted.org.

Who we are

The STREAM research group is a group of bioethicists and meta-researchers studying the efficiency the biomedical research. STREAM is led by Jonathan Kimmelman, Associate Professor in the Biomedical Ethics Unit / Social Studies of Medicine department at McGill University.

Questions

Should you have questions or concerns about our study, please contact adelaide.doussau@mail.mcgill.ca or jonathan.kimmelman@mcgill.ca