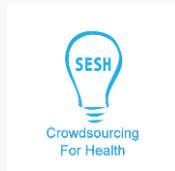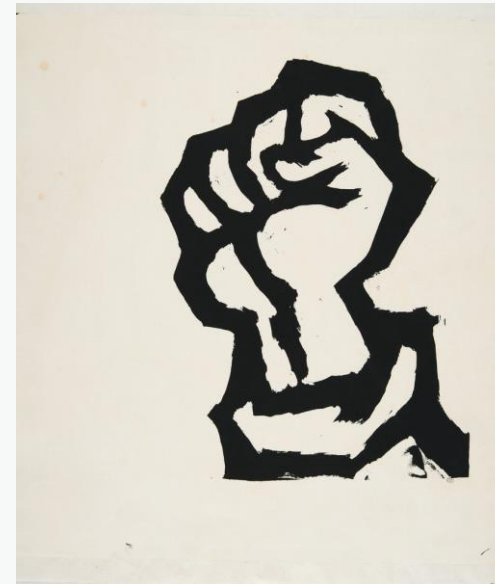# Social Entrepreneurship to Spur Health (SESH)

Joe Tucker, MD, PhD, AM
Associate Professor
UNC and LSHTM

Outline

- Crowdsourcing **background** – definition, types, context, settings

- **Steps** in a crowdsourcing challenge contest – organize, engage, evaluate, recognize, share

- **Evidence** to support crowdsourcing – RCTs, quasi-experimental studies, observational studies

- Crowdsourcing in the **Global South**

Outline

- Crowdsourcing **background** – definition, types, context, settings

- **Steps** in a crowdsourcing challenge contest – organize, engage, evaluate, recognize, share

- **Evidence** to support crowdsourcing – RCTs, quasi-experimental studies, observational studies

- Crowdsourcing in the **Global South**

Crowdsourcing

Crowdsourcing has a group attempt to solve a problem, then shares solutions widely with the public[1]

Examples:
Wikipedia
Oxford English Dictionary
Prostate Challenge DREAM Community[2]

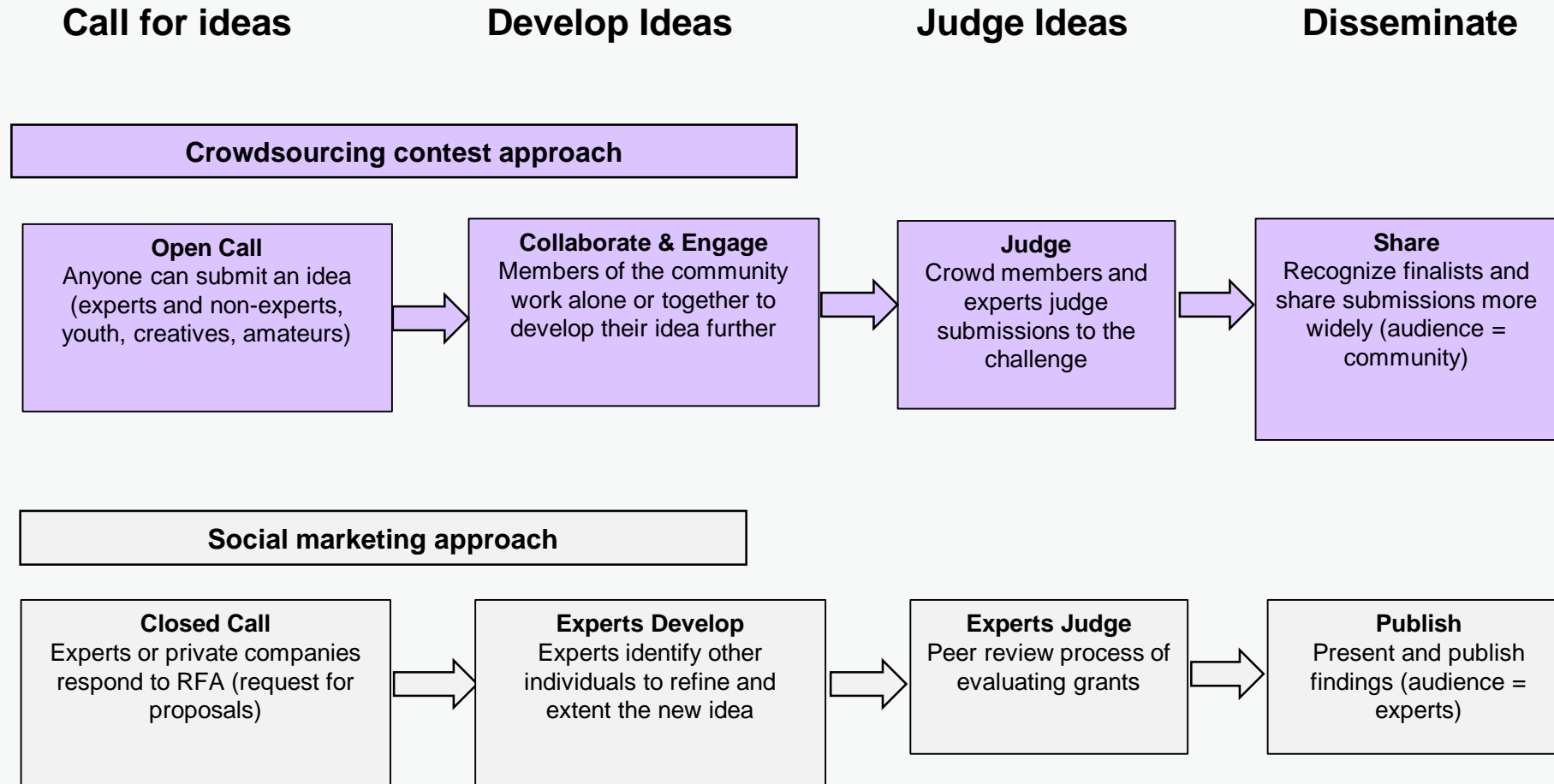[1]Tucker et al., *PeerJ*, 2019
[2]Guinney et al., *Lancet Oncology*, 2017

Why crowdsourcing to improve health?

1) Existing online networks

2) Insights from many fields about group genius

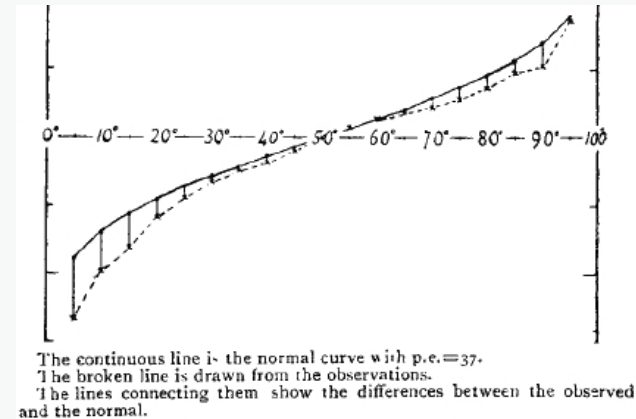3) Big data, small analysis power

Crowdsourcing activities for medicine

Crowdsourcing activity	Structure	Function
Innovation challenges (contests, competitions, challenges)	Open solicitation and promotion to the public for challenge submissions; evaluation, celebration, and sharing of challenge submissions	Generate innovative ideas, logos, images, or videos (e.g., images to increase HIV testing, strategies to promote hepatitis testing); accelerate pharmaceutical drug development
Hackathons (challenges, sprints, hackfests)	Short (often 3 days) event that brings together individuals around a common cause	Design a clinical algorithm, prevention service (e.g., design an HIV testing service), or new technology
Online collaboration systems	Websites or portals that allow individuals to solve a problem	Solve micro-tasks for a small amount of money (e.g., evaluation of surgical skills)

Tucker et al., *PeerJ*, 2019

Crowdsourcing contests versus social marketing approaches to creating an HIV test promotion video

Call for ideas　　**Develop Ideas**　　**Judge Ideas**　　**Disseminate**

Crowdsourcing contest approach

| **Open Call** Anyone can submit an idea (experts and non-experts, youth, creatives, amateurs) | → | **Collaborate & Engage** Members of the community work alone or together to develop their idea further | → | **Judge** Crowd members and experts judge submissions to the challenge | → | **Share** Recognize finalists and share submissions more widely (audience = community) |

Social marketing approach

| **Closed Call** Experts or private companies respond to RFA (request for proposals) | → | **Experts Develop** Experts identify other individuals to refine and extent the new idea | → | **Experts Judge** Peer review process of evaluating grants | → | **Publish** Present and publish findings (audience = experts) |

Tucker & Fenton, Lancet HIV, 2018

Power of crowd wisdom

- At a 1906 county fair in England, a group of individuals was asked to guess the weight of an ox

- The median estimate of the crowd (1207 pounds) was accurate to within one percent of the actual weight (1198 pounds) and better than any estimate from agricultural experts
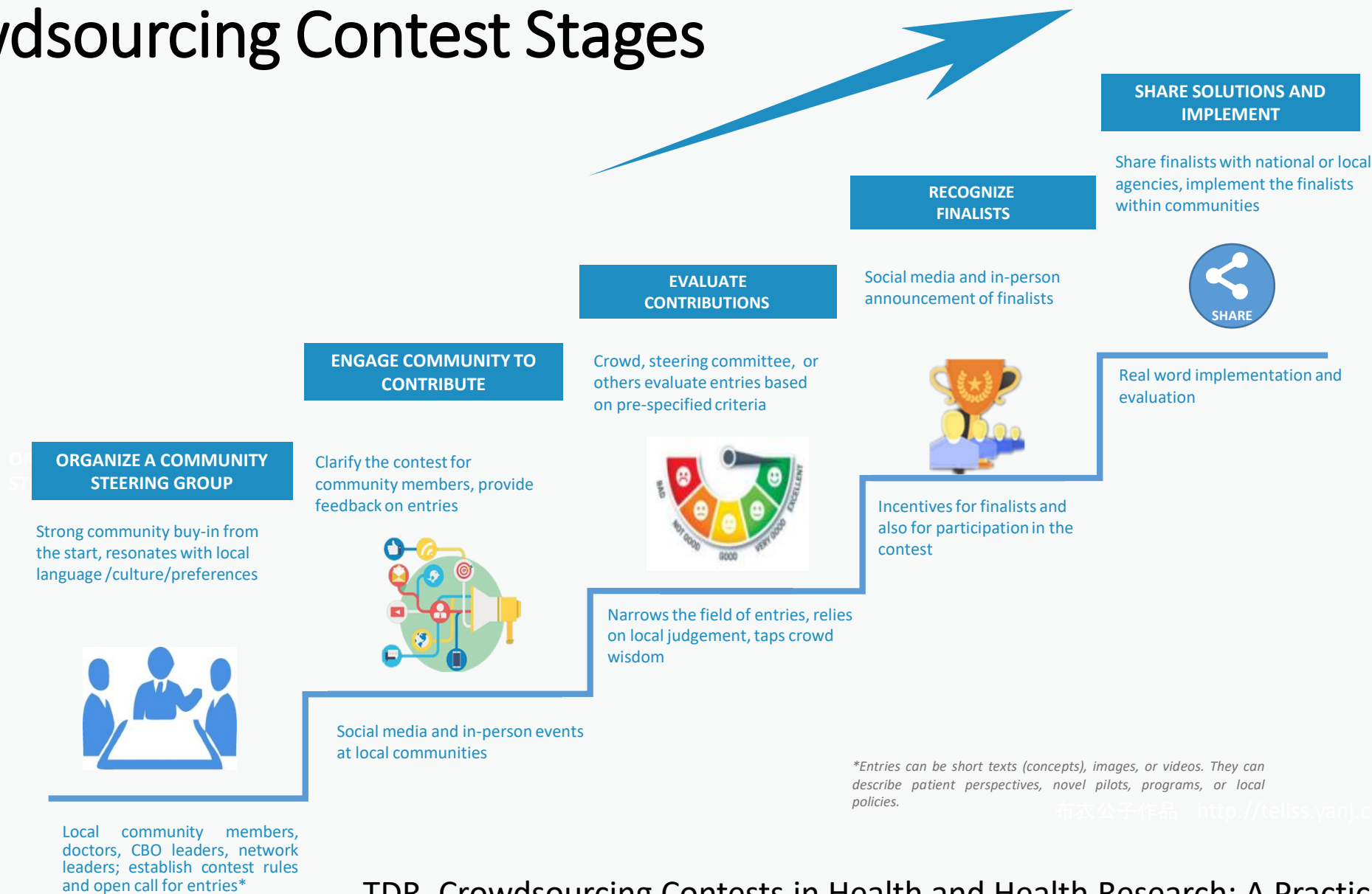

The continuous line is the normal curve with p.e.=37.
The broken line is drawn from the observations.
The lines connecting them show the differences between the observed and the normal.

Galton, Nature, 1907

Outline

- Crowdsourcing **background** – definition, types, context, settings
- **Steps** in a crowdsourcing challenge contest – organize, engage, evaluate, recognize, share
- **Evidence** to support crowdsourcing – RCTs, quasi-experimental studies, observational studies
- Crowdsourcing in the **Global South**

Crowdsourcing Contest Stages

SHARE SOLUTIONS AND IMPLEMENT

Share finalists with national or local agencies, implement the finalists within communities

RECOGNIZE FINALISTS

Social media and in-person announcement of finalists

SHARE

EVALUATE CONTRIBUTIONS

Crowd, steering committee, or others evaluate entries based on pre-specified criteria

Real word implementation and evaluation

ENGAGE COMMUNITY TO CONTRIBUTE

Clarify the contest for community members, provide feedback on entries

Incentives for finalists and also for participation in the contest

ORGANIZE A COMMUNITY STEERING GROUP

Strong community buy-in from the start, resonates with local language /culture/preferences

Narrows the field of entries, relies on local judgement, taps crowd wisdom

Social media and in-person events at local communities

Entries can be short texts (concepts), images, or videos. They can describe patient perspectives, novel pilots, programs, or local policies.

Local community members, doctors, CBO leaders, network leaders; establish contest rules and open call for entries*

TDR. Crowdsourcing Contests in Health and Health Research: A Practical Guide. 2018

1. Organize a Steering Committee

- Diverse group of individuals who represent different networks
- Finalize the rules and "call for entries"
- Avoid giving examples in order to promote creativity

TDR. Crowdsourcing Contests in Health and Health Research: A Practical Guide. 2018

2. Engage the Community to Contribute

Social media

- Live stream events hosted by champions

- Banner announcements

- Incorporate call into other online announcements, newsletters, etc.

In-person events

- Didactic sessions at schools/universities

- Feedback sessions for those with half-formed ideas

- Community-driven events (organized by CBOs, partners)

TDR. Crowdsourcing Contests in Health and Health Research: A Practical Guide

3. Evaluate Entries
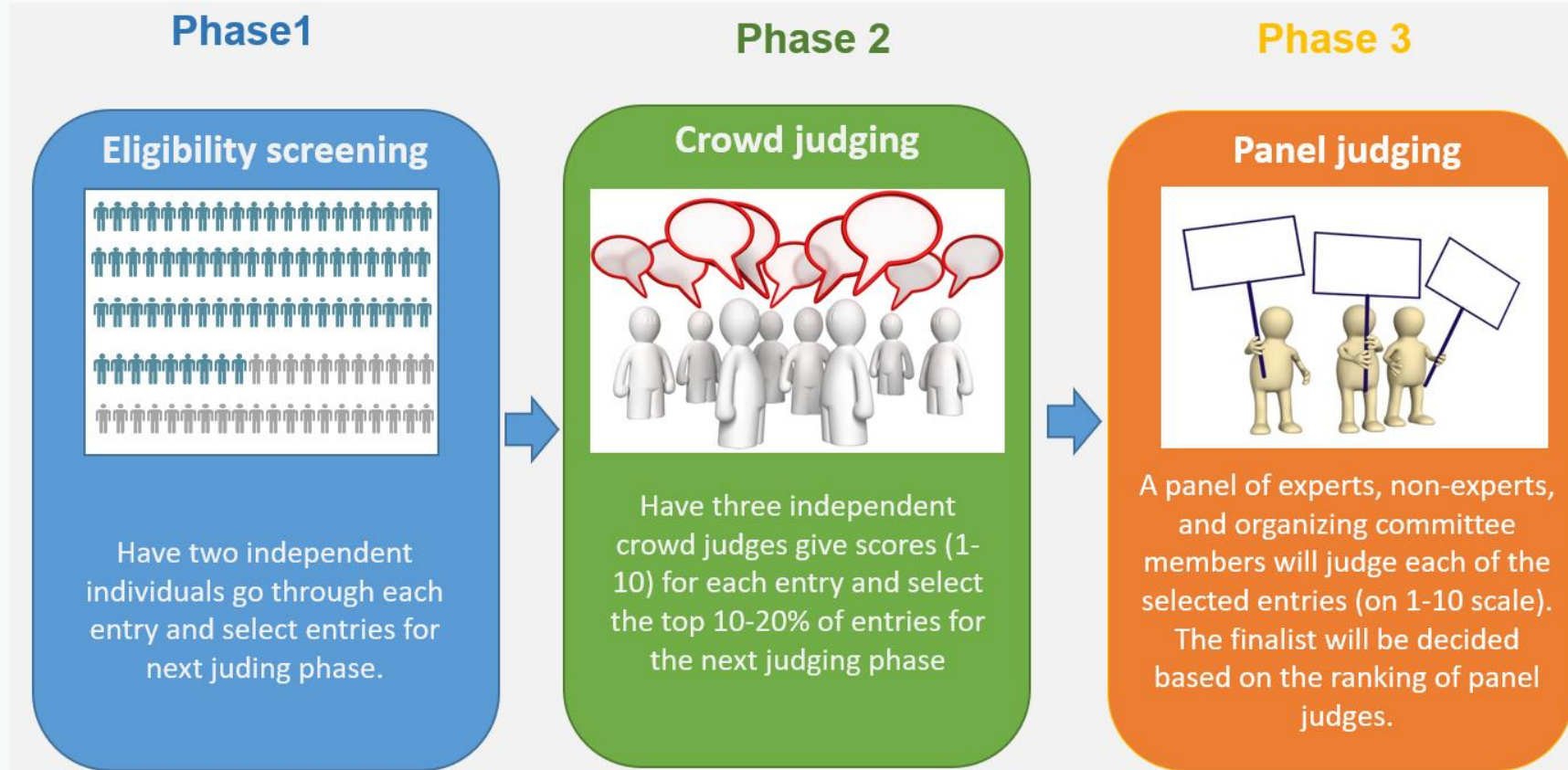
TDR. Crowdsourcing Contests in Health and Health Research: A Practical Guide

4. Recognize Finalists

TDR. Crowdsourcing Contests in Health and Health Research: A Practical Guide

5. Share and Implement

- Use exceptional entries to promote HIV testing (or PrEP initiation, or another outcome)

- Share widely online and archive

- Use data from the contest to inform programs and policies

TDR. Crowdsourcing Contests in Health and Health Research: A Practical Guide

Outline

- Crowdsourcing **background** – definition, types, context, settings
- **Steps** in a crowdsourcing challenge contest – organize, engage, evaluate, recognize, share
- **Evidence** to support crowdsourcing – RCTs, quasi-experimental studies, observational studies
- Crowdsourcing in the **Global South**

Data Supporting Contests for Sexual Health

Year	Scope	Crowd Contribution	Purpose	Evaluation
2013	China	Videos from CBOs	↑HIV testing	RCT in MSM[1]
2014	China	Images from youth	Promote sexual health	Qualitative research[2]
2015	China	Videos from public	↑condom use	RCT in MSM[3]
2016	NC Triangle (US region)	Images/videos from public	Meaning of HIV cure	Social media analysis[4]
2016	Global	Description of MSM-friendly doctor	Enhance MSM disclosure	Formative
2016-2017	10 contests in 8 cities	Concepts, slogans, strategies	↑HIV testing	Stepped wedge RCT[6]
2018-2019	China	Images, concepts	↑linkage to health services	Qualitative

[1]Tang et al., *Clin Infect. Dis.,* 2016; Zhang et al., *Sex Trans Dis,* 2015; [2]Zhang et al., *Sex Trans Dis,* 2015; Zhang et al., *BMC Public Health 2017;* [3]Tang et al., *STD,* 2018; [4]Mathews et al., *Journal of Virus Eradication,* 2017 [5]Zhang et al., *AIDS Research and Human Retroviruses,* 2017 [6]SESH Study Group, *Trials,* 2017; Tang et al, *Plos Medicine,* 2018

Crowdsourcing example: CrowdOutAIDS

- Open contest to solicit youth input on UNAIDS strategy

- Wiki-like platform allowed online and in-person submissions

- 5000 youth from 79 countries participated

- Final recommendations informed UNAIDS Youth Programme

Upper right: Map of online and in-person forums

Lower right: Crowdsourced strategy presented to UNAIDS leadership

**Pay-it-forward has one person receive a gift (an STD test), then asks the same person if they would like to give a gift (STD test) to another person, generating a forward cascade of kindness.**
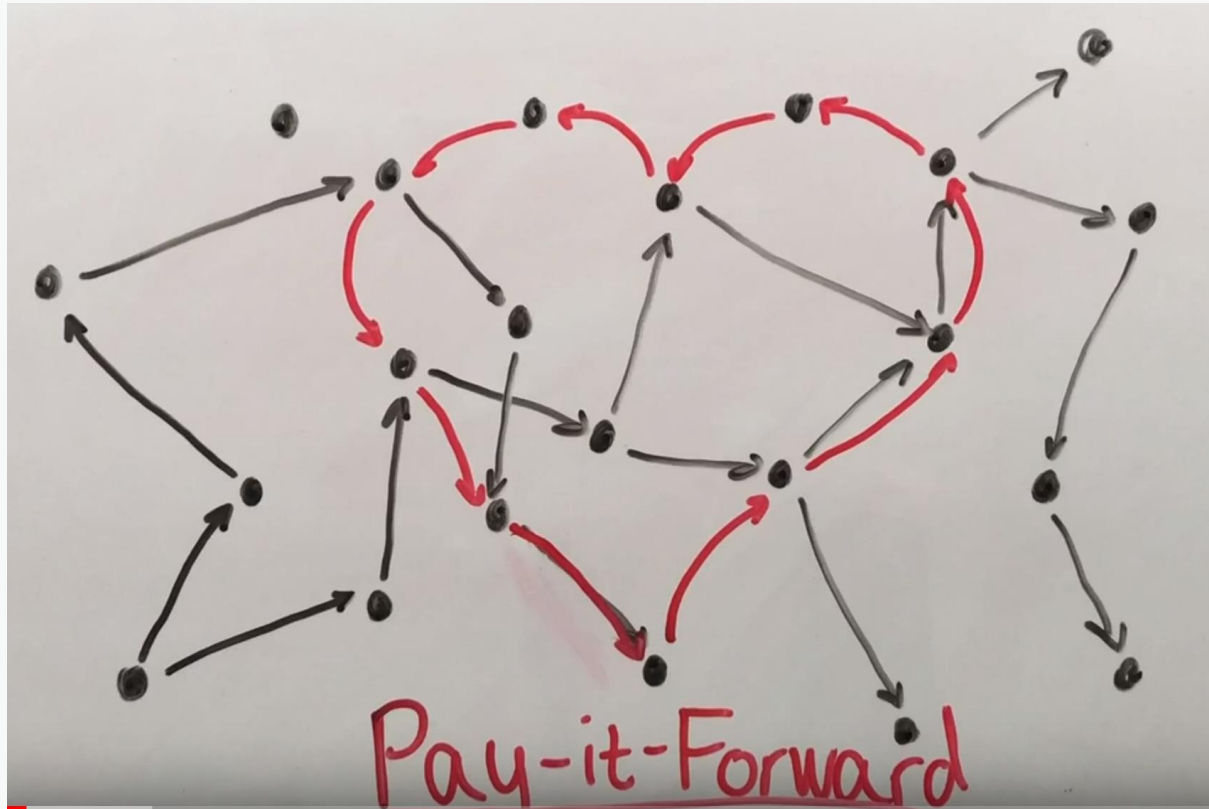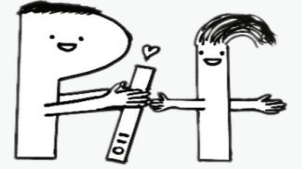
Pay-it-forward increases gonorrhea/chlamydia testing uptake compared to the standard of care (n=408)

Li et al., TLID, 2019
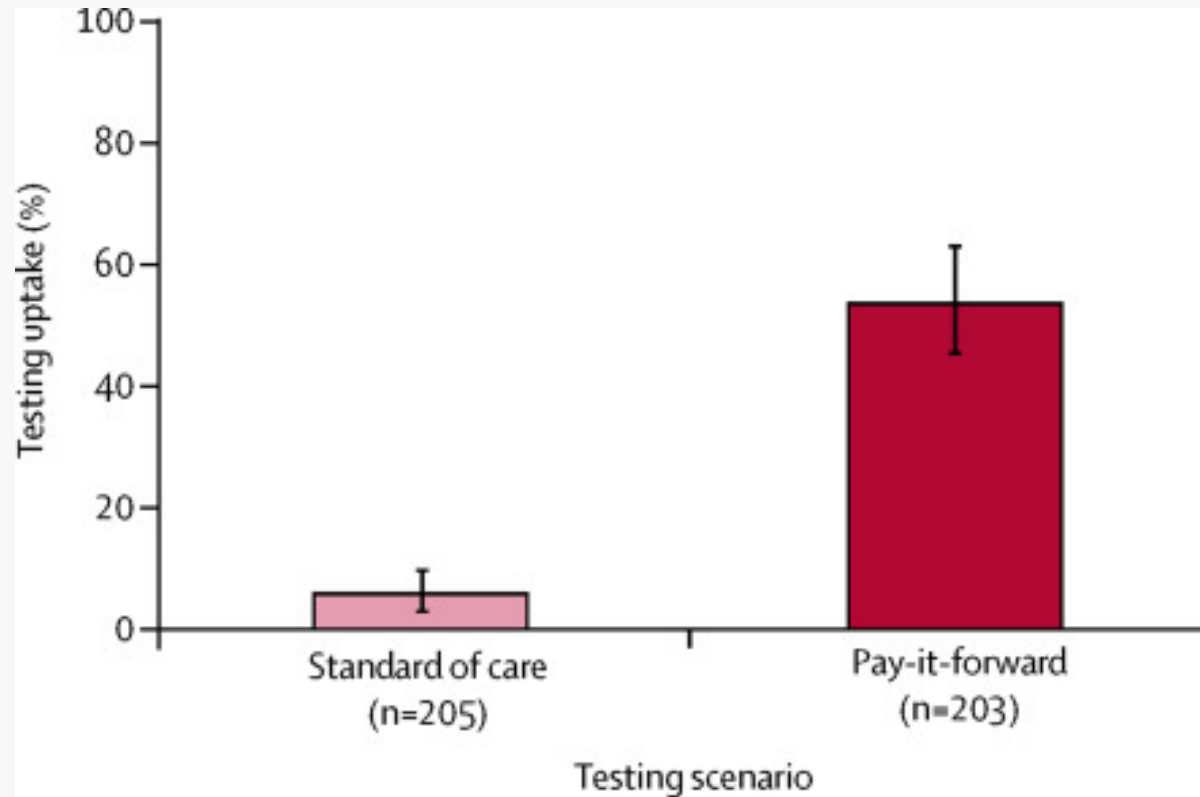
Contagious generosity: 89% (97/109) of tested men chose to donate to future participants.
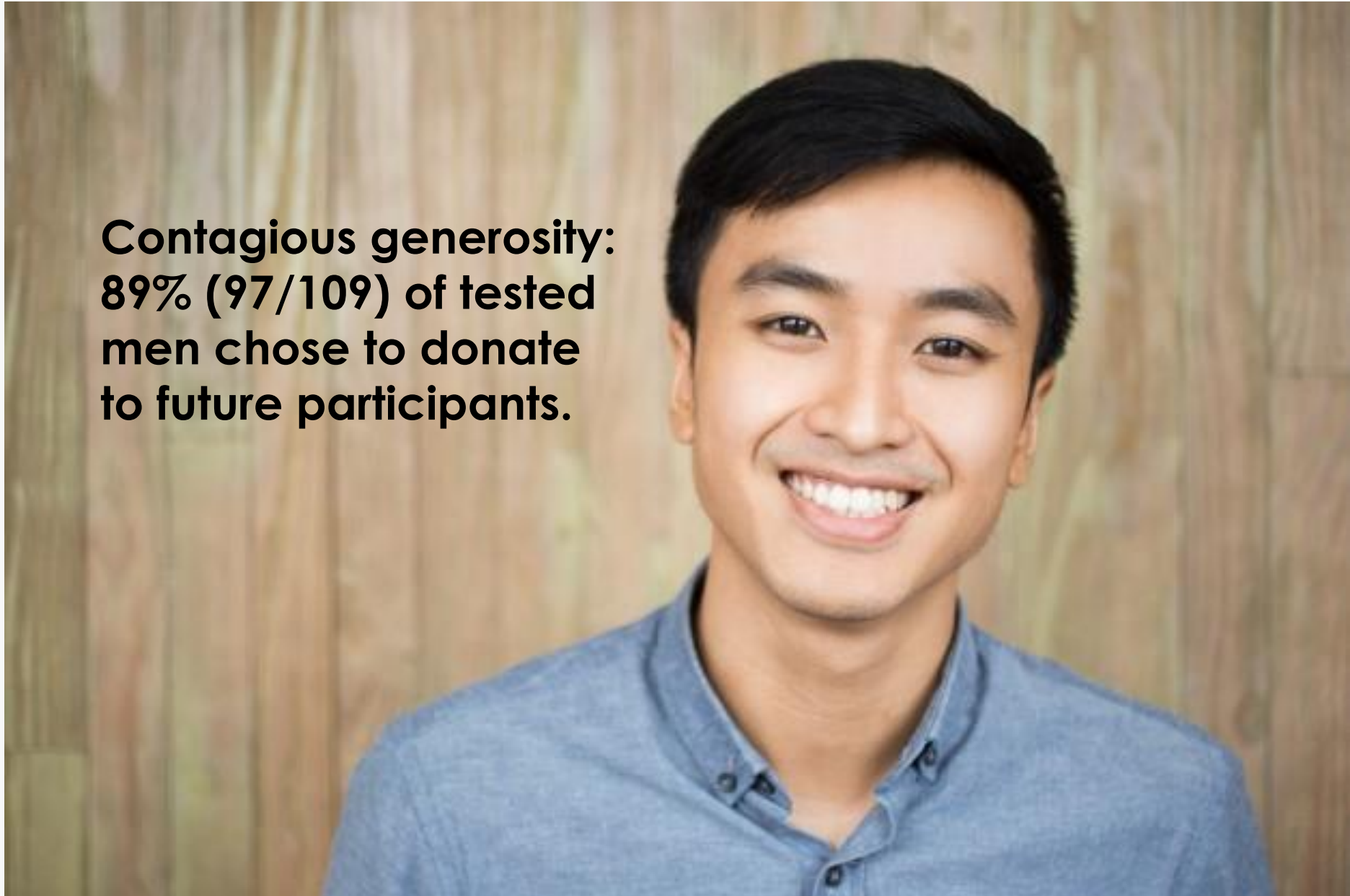
11

Li et al., TLID, 2019

Outline

- Crowdsourcing **background** – definition, types, context, settings

- **Steps** in a crowdsourcing challenge contest – organize, engage, evaluate, recognize, share

- **Evidence** to support crowdsourcing – RCTs, quasi-experimental studies, observational studies

- Crowdsourcing in the **Global South**
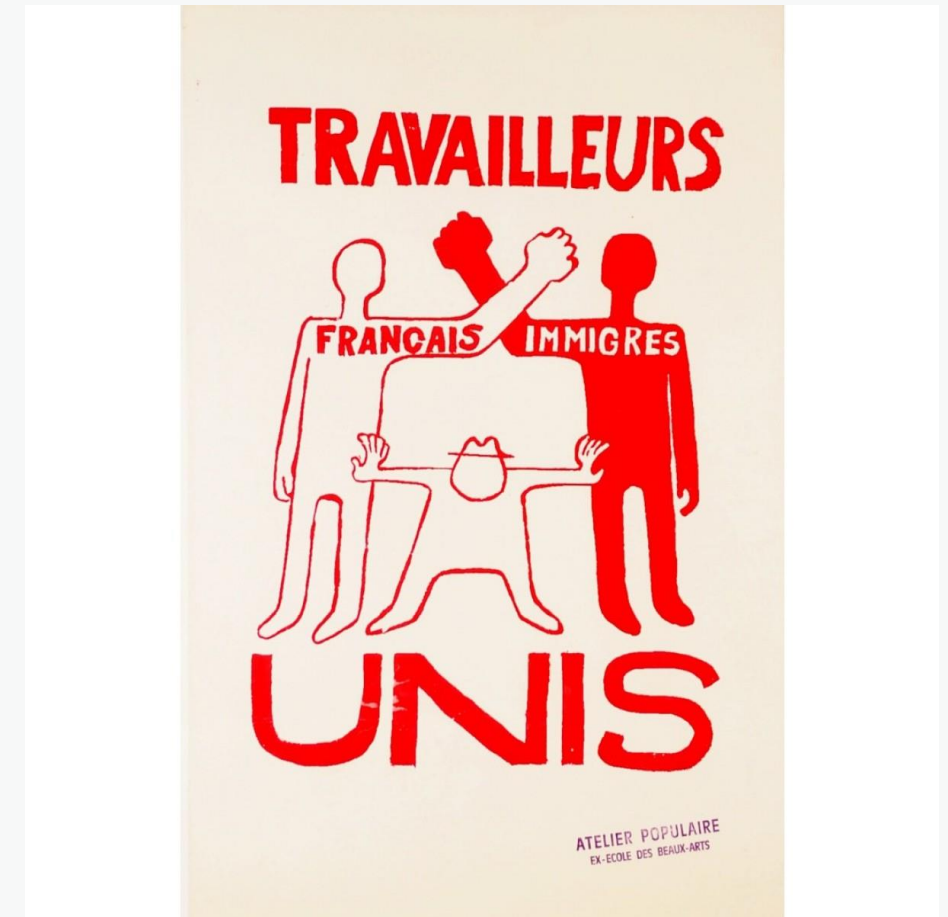
Crowdsourcing Clinic (www.crowdsourcingclinic.org)

- The main purpose of the crowdsourcing clinic is to build capacity for crowdsourcing in health and health research in low- and middle-income countries

- We also hope to provide a place to share templates, tools, and open access resources; build a community of users
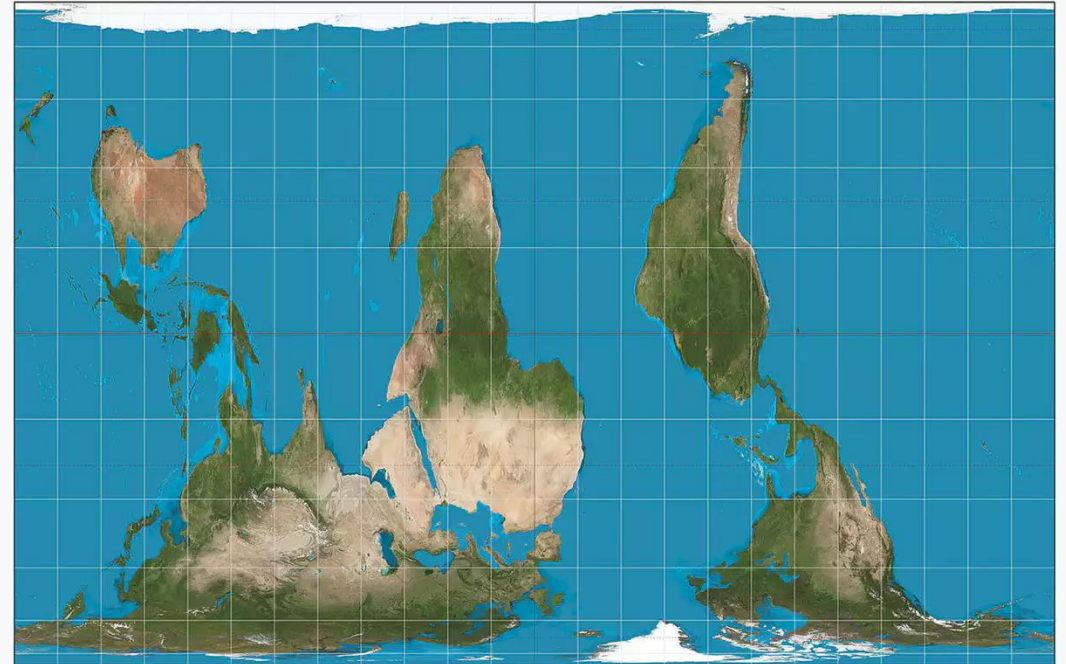
SESH: SOCIAL ENTREPRENEURSHIP TO SPUR HEALTH
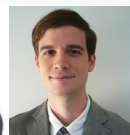

Healthy Cities Contest (China)

Clinical Case Challenge on Diagnostics and AMR (Global)

2BeatHIV HIV cure engagement contests (Research Triangle)

Women Leaders in Global Health Challenge Contest (Global)


Crowdsourcing HIV Testing and Linkage (China)
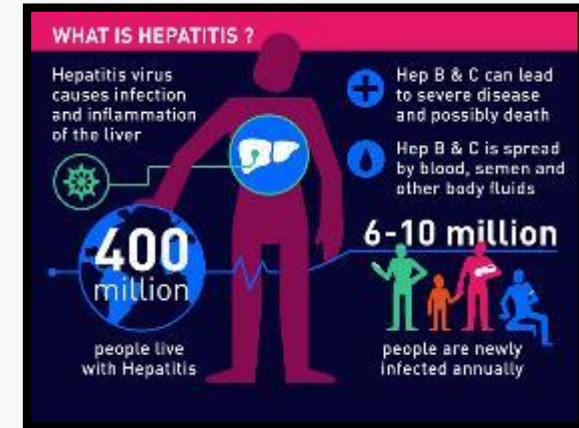
"HepTestContest" Hepatitis Testing Innovation Contest (Global)
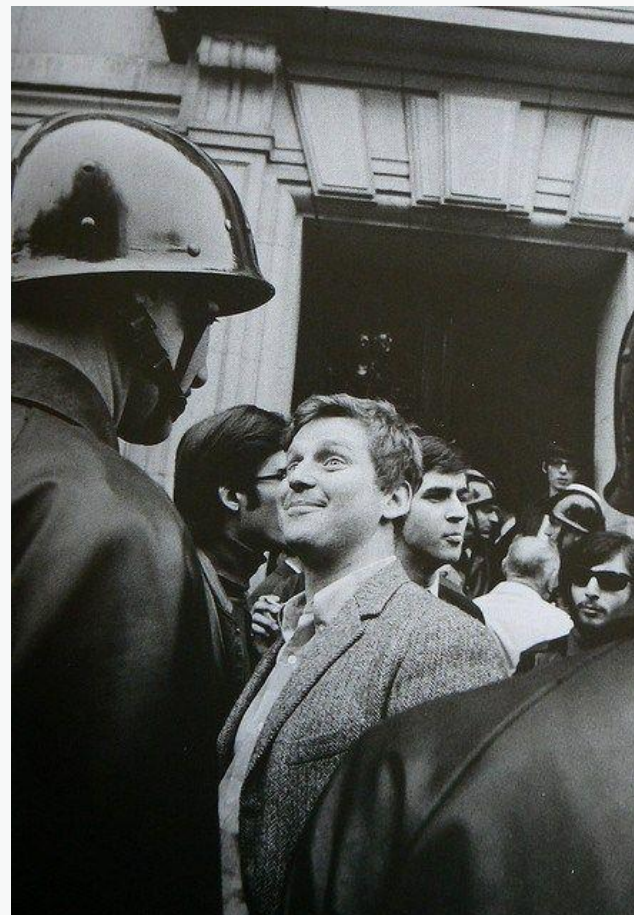
TDR Practical Guide to Crowdsourcing

- Step-by-step guide – soups to nuts of organizing crowdsourcing contests
- Risks and mitigation
- Open access online (Google WHO and crowdsourcing)
- Case studies, FAQs

CROWDSOURCING IN HEALTH AND HEALTH RESEARCH:

A PRACTICAL GUIDE
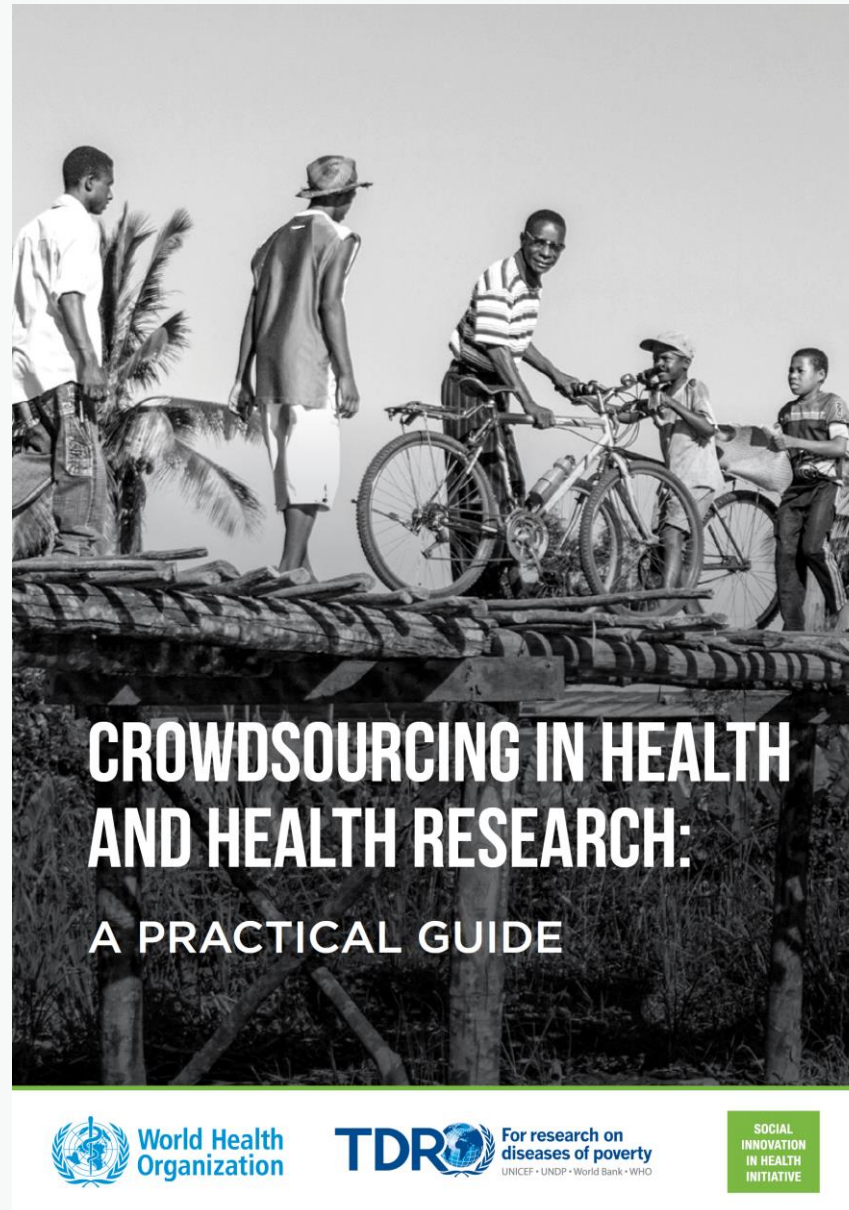
Crowdsourcing Projects

- Nigerian contest and designathon on HIV self-testing among youth (NICHD U-grant)

- Chinese hackathon to design a gay-friendly physician finder mini-app (NIAID R01)

- Mentoring for global HIV research (NIAID K24)

- Crowdfunding infectious diseases of poverty in LMIC (TDR)

- Crowdsourcing clinic for LMICs (TDR)

Thank you