

Participatory health research and action

A practical guide on designathons



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Foreword

Welcome to “Participatory health research and action: A practical guide on designathons” a guide for those planning or organizing designathons. Designathons are a three-stage participatory process that includes preparation, intensive collaboration, and follow-up. This guide is more than just a collection of methods and strategies; it is a testament to the power of collective creativity when confronting some of the most vexing health problems of our time.

In many parts of the world, healthcare is not just a service, but a lifeline that is often stretched thin. The disparities in health outcomes are not just statistics; they represent real people with hopes, dreams, and the right to a healthy life. This is where designathons can play a role to bridge the gap between need and access, between traditional methods and innovations, between global and local. The guide focuses on low and middle-income countries (LMICs) because of the unique challenges and opportunities in these regions for using designathons. Limited resources, infrastructure constraints, and diverse cultural contexts demand solutions that are not only effective, but also adaptable and sustainable.

As you use this guide, remember the considerable assets, wisdom, and strengths of local communities. Appreciating these assets can be a powerful force to reimagine health services and design new solutions. This guide will help you to design, implement,

and evaluate designathons for health, with case studies, frequently asked questions, and examples. The practical guide was developed by Special Programme for Research and Training in Tropical Diseases (TDR), the UNICEF/UNDP/World Bank/WHO Special Programme for Research and Training in Tropical Diseases, in partnership with SESH (Social Entrepreneurship to Spur Health) and SIHI (Social Innovation in Health Initiative).

This practical guide will be useful for researchers, innovators, and community members as they organize designathons. The practical guide complements a [systematic review of the evidence](#) from the same team, the TDR/SESH/SIHI [Crowdsourcing for Health and Health Research Practical Guide](#), and the TDR/SESH [Public Engagement and Crowdfunding in Health Research Practical Guide](#).

I would like to express my gratitude to all those who contributed to this guide – the contributors, peer reviewers, end user groups, and innovators. Thank you for being part of this transformative initiative. Now is the time to realize the goals outlined in the Alma Ata Declaration to achieve community participation in planning health services.

Professor John Reeder
Director, Special Programme for Research and Training in Tropical Diseases (TDR)

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Glossary of key terms and abbreviations

Key terms and abbreviations

Asset: A useful or valuable thing, person, characteristic, or quality for a given context

Community: Individuals interested in a specific health topic

Community engagement: The process of working collaboratively with communities of interest

Crowdsourcing: A group of people attempt to solve all or part of a problem, then share solutions with the public

Design thinking: An iterative process often used in the creation of products, services, and solutions. It is used to understand end-users, to challenge assumptions of a given process, redefine problems, and create innovative solutions to prototype and test

Designathon: A three-stage participatory activity informed by design thinking that includes preparation with end-users, an intensive period of collaboration, and follow-up activities for implementation and research

End-user: The person who will be using the health service

HOPE: Ending HIV Transmission by Optimizing PrEP in East Asia

Participatory science: Research that engages end-users and other people from the local community in the scientific process

SESH: Social Entrepreneurship to Spur Health

SIHI: Social Innovation in Health Initiative

TDR: Special Programme for Research and Training in Tropical Diseases

UNICEF: United Nations Children's Fund

WHO: World Health Organization

Executive summary

A designathon is a three-stage participatory activity informed by design thinking that includes preparation with end-users, an intensive period of collaboration, and follow-up activities for implementation and research.



This guide provides practical strategies for people interested in organizing a designathon to enhance health and well-being. In partnership with the Special Programme for Research and Training in Tropical Diseases (TDR), a systematic review of the literature on designathons for health and a global crowdsourcing open call were organized. Designathons have been used to develop health interventions and social innovations, inform consensus processes, and spur community engagement.



Designathon to improve HIV self-testing in Nigeria.
Source: ©4 Youth By Youth (4YBY) / David Dosunmu (CC-BY)

1. Introduction

A designathon is a three-stage participatory activity informed by design thinking that includes preparation with end-users, an intensive period of collaboration, and follow-up activities for implementation and research.



Designathons fall within the broader areas of crowdsourcing and participatory research. They are often also known as hackathons, hackfests, sprint challenges, and other competitions. Designathons have been increasingly used to develop programmes, engage communities, promote cross-sectoral collaboration, and inform consensus processes. In partnership with the Special Programme for Research and Training in Tropical Diseases (TDR), a systematic review of the literature on designathons for health and a global crowdsourcing open call were organized. The purpose of this practical guide is to provide advice for people organizing designathons to improve health and enhance

equity. The main audiences are academics, social innovators, government officials, students, private sector leaders, health programme developers, and others interested in using designathons. This guide is organized into the following sections:

- ✓ rationale for designathons
- ✓ structure of a designathon
- ✓ risks and risk mitigation
- ✓ monitoring and evaluation
- ✓ things needed for a designathon
- ✓ open access resources
- ✓ frequently asked questions
- ✓ checklist
- ✓ case studies

2. Practical guide methodology

We conducted a systematic review and an open call for submissions on best practices and strategies for organizing designathons in health.¹ An open call is a structured activity to solicit ideas from individuals. For the systematic review, we searched Cochrane Library, Embase, PubMed, Scopus, and the ClinicalTrials.gov registry for peer-reviewed articles until November 29, 2022. The systemic review was registered in PROSPERO (CRD42023389685). We focused data collection on how designathons are implemented, their effectiveness (i.e., engagement, outputs and implementation), resources, benefits, drawbacks, facilitators and barriers. In total, 4,947 citations were identified, with 42 studies included in the review.¹ The open call was organized according to a standardized, six-stage process for crowdsourcing in health from

the World Health Organization (WHO), TDR, the Social Innovation in Health Initiative (SIHI), and the Social Entrepreneurship to Spur Health (SESH).² This involved convening a steering committee of designathon organizers and communities, and launching an open call for submissions on best practices and strategies for organizing health designathons. The open call ran from January 16th, 2023, to March 7th, 2023. We received a total of 43 submissions, of which 26 were eligible for judging. Four finalists were identified and invited to join an in-person meeting in Chicago on July 24th, 2023. The in-person meeting included a two-hour session with designathon organizers, end-users, funders, public sector leaders, physicians, public health researchers, and others focused on revising the components of the practical guide.

3. Rationale for health designathons

Curbing persistent inequities in health will require tools that engage people not as passive recipients of interventions, but as leaders capable of developing new ideas. Existing approaches are often top-down, relying on experts who also use disease-based approaches to achieve change. One way to overcome these challenges to advance health equity is to use bottom-up strategies such as health designathons. A designathon is a three-stage participatory activity informed by design thinking³ that includes the following stages (Figure 1):

- ✓ engagement of end-users to prepare
- ✓ an intensive period of collaborative teamwork
- ✓ follow-up activities on implementation and research

Designathons provide opportunities for end-users to be more actively involved across the entire process of health programmes and research. Health designathons allow end-users and other communities of interest to work as partners and leaders to address health issues that matter to them, increasing accountability in health services. End-users often identify solutions, collect data, interpret the data, and drive health policy change. The lived experiences of end-users provide a unique opportunity to better understand community assets as well as enduring disparities. Health designathons can generate insights that are more acceptable, relevant, tailored, and trustworthy to the local public.



Designathon team work in Melbourne, Australia
Source: ©HOPE Project / Warittha Tieosapjaroen (CC-BY)

4. Structure of a health designathon



After defining the purpose and scope, health designathons have the following three main steps:

- ✓ Prepare with end-users
- ✓ Collaborate
- ✓ And follow-up, implementation and research

A checklist for designathons is found on page 14.

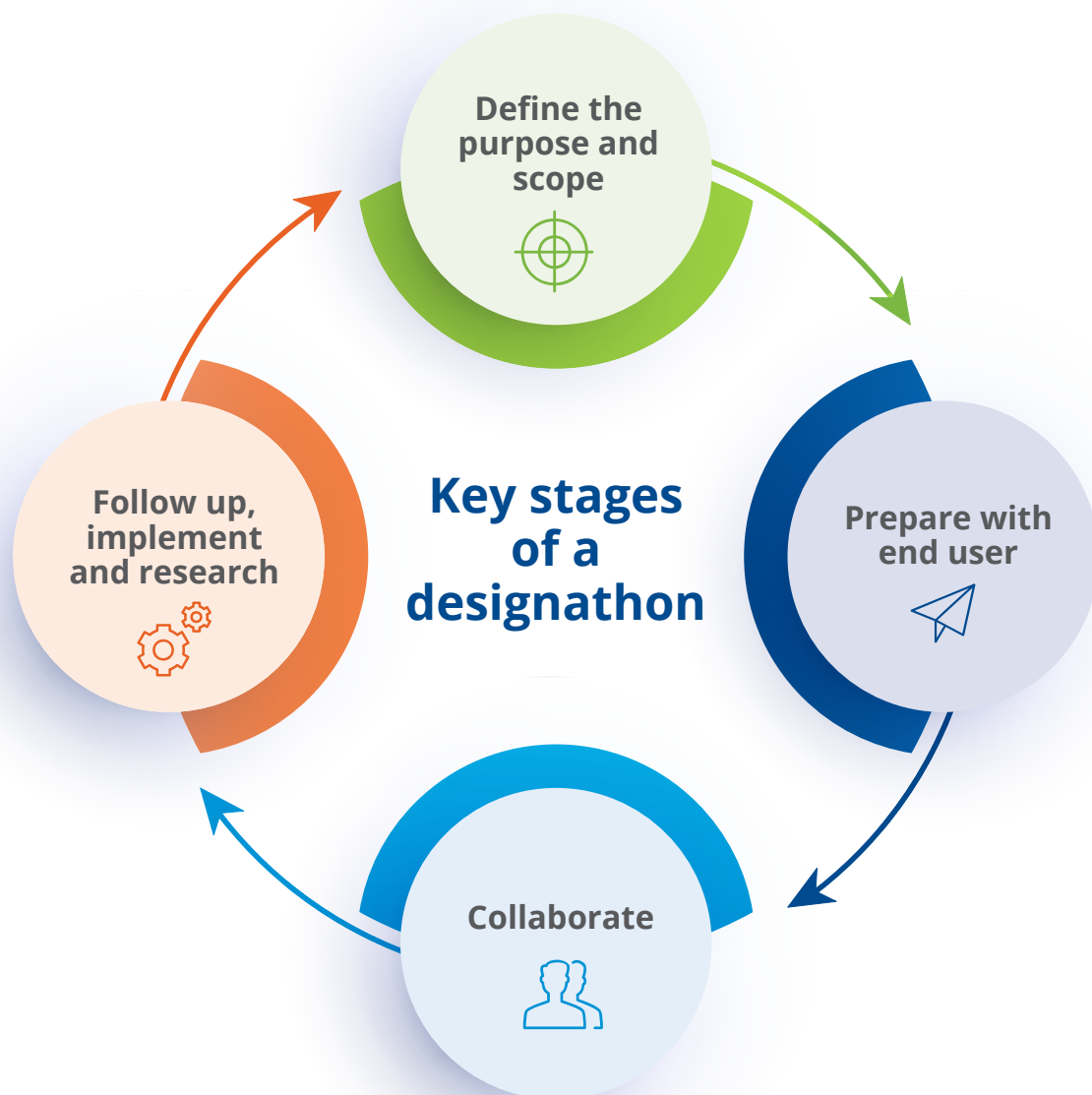


Figure 1: Key stages of a designathon. This cycle typically takes approximately four to eight months. The collaborate stage is described in more detail in Figure 2.



Define the purpose and scope

It is imperative to determine the goals of the designathon. For example, are you developing interventions to pilot, identifying startup companies, building consensus statements, or nurturing interdisciplinary collaboration? At this stage, the scope of the event, including the duration, participant demographics (for example, age, gender, and social backgrounds), and any prerequisites or specific requirements for participation should be outlined. You will need to identify an achievable goal that is defined by your end-users.

After initial goals and scope are developed, a steering committee will be convened to oversee designathon activities. The steering committee develops rules, judging criteria, and deliverables. You need to ensure that the steering committee includes end-users. For example, a designathon focused on youth should consider how youth can be members or co-leaders of the steering committee. Including government or other key communities of interest within the steering committee may increase the likelihood of sustainability. In addition, an organizing committee

provides logistical support, implementation, and communications help. Mentors (people who give feedback to teams), facilitators (organizers who spark discussions), and judges (individuals to assess ideas) will be identified and invited based on interest and expertise in the topic of the designathon. Honoraria should be considered to acknowledge the time contributed; the amount and nature of the honoraria depends on what is asked of people.

Researchers organizing designathons can use various approaches, including participatory action research,⁴ community-based participatory research,⁵ and human-centered design.⁶ Several open access resources on human-centered design are available online.^{7, 8} Health designathons have been used to improve patient experiences, optimize healthcare processes, and address specific health issues.¹ For example, a designathon developed HIV self-testing services for youth (Example 1, page 16).⁹ Other designathons have generated partner services for sexual minorities (Example 2, page 18) and nurtured youth-led innovations (Example 3, page 19).



Prepare with end-users and others

The designathon often begins with an open call for ideas to engage end-users and other key individuals. This process can identify exceptional people and ideas to prepare for intensive collaboration. Open calls are a structured way for individuals to provide feedback.¹⁰ However, because most people are not familiar with open calls, it is important to explain the aims, expectations, and rules of the open call. Promoting the open call is essential for describing these points, engaging the community to contribute, and setting expectations. You can promote the open call through various channels, including social media platforms, professional networks, local community-based organisations and healthcare organizations. Local community groups and advocacy organizations

may also be willing to promote the open call. The promotion should highlight the importance of addressing the health problem to encourage broad participation, inclusive of different ages, sexes, and social backgrounds.²

For example, a designathon organized in Nigeria aimed at generating ideas to develop youth-friendly services that promote HIV self-testing among young people started with an open call for teams to submit a proposed solution.⁹ A judging panel shortlisted the submitted ideas to identify the top ideas. The team with the best mean scores moved on to the team-based event to further improve on their proposed solutions (Example 1, page 16).



Collaborate

Some designathons identify pre-formed teams and others will form teams as part of the intensive collaborative period. It is important to ensure that no one gets left out of the chance to collaborate and share their ideas in a free and safe way. Ideas and teams from the open call advance to an in-person or online brief (ranging from two hours to 72 hours) period of team-based collaboration. Establishing clear instructions for the participants, mentors, and judges is important. Specifically, it is important to ensure that the participants know the rules, in-person collaboration format, mentor and judge roles, and participant roles. For an in-person event, you should also determine an accessible time and place (when/where), and how the outputs will be used. This explanation can take the form of a handbook.^{11, 12, 13, 14} Ethical considerations related to privacy and confidentiality should be considered.¹⁵ Encourage teams to think creatively, apply human-centered design principles, and prototype their solutions. It is important to provide opportunities for interactions in both formal (structured ice-breakers) and informal settings (breaks, tea time) to build collaborative relationships.

The intensive collaborative period should be structured as team-based events to encourage collaboration and cross-disciplinary problem-solving. Facilitate access to relevant data, technology resources, and mentors who can provide guidance throughout the process. Expert mentors provide support and guidance to teams, spurring iterative improvements. Encourage discussions among participants, judges, and others to foster learning and the cross-pollination of ideas.

During the event, each team will further improve their proposed idea. Some in-person collaborative periods do not start with a solution, but rather focus on getting to know the problem better, then transition to developing a solution. Each team should have an opportunity to showcase their work, explain their approach, and highlight the value of their solution. The outputs to present may include a research study protocol, social innovation prototype, pitch deck, user journey map or team description. Teams pitch their design idea on the last day to the judges who award prizes. Find below a typical structure for a 72-hour intense collaboration (Figure 2).

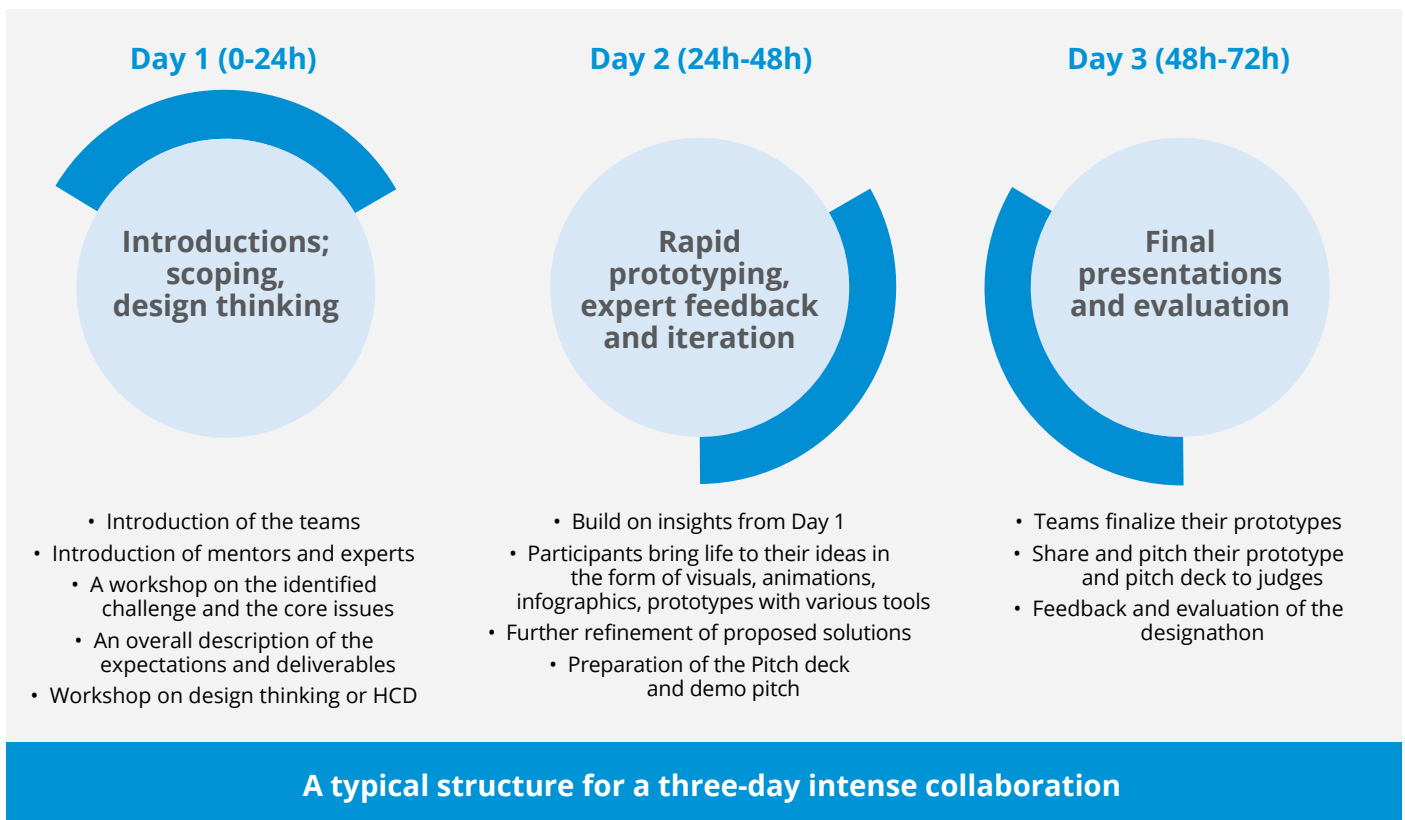


Figure 2



Follow-up, implement and research

An important and often neglected part of crowdsourcing activities is sharing back ideas and solutions with the public. Opportunities should be provided to share the generated solutions beyond the designathon and engage the people who submitted ideas. This can be organized in-person (community events, policy discussions, university activities) or online (publications, newsletters, webinars, radio, television). Prizes that spur teams to build low-fidelity prototypes and test them can be useful. Note that prizes need not be physical or tangible things, but can also be recognition

or mentorship opportunities. In addition, the teams can be connected with relevant communities, healthcare organizations, or investors who may be interested in implementing or further developing their ideas. You can consider hosting a post-designathon event to facilitate networking and collaboration. Subsequent training for finalists can help to build capacity and implement solutions. Finally, assisting finalists in organizing formal research studies or monitoring and evaluation¹⁶ can be helpful.



Team plans follow-up research as part of a youth-focused designathon.
Source: ©4 Youth By Youth (4YBY) / David Dosunmu (CC-BY)

5. Risk and risk mitigation

There are several risks associated with organizing designathons. However, there are several ways that risks can be mitigated.¹⁵ A more detailed understanding of risks and risk mitigation can enhance designathons. See below table for details.

Risk	Risk mitigation
Participants may not be familiar with designathons	Prepare participants and mentors with a handbook and potentially online meetings; have dedicated staff for coordination.
Lack of funding to run the designathon	Ensure that pilot funding has been obtained to allow for a lead-in period (e.g., community engagement activities and qualitative research). Designathons can also be written into research grants as part of a co-creation or crowdsourcing process to develop, adapt, and refine health interventions.
Disagreements between participants	Having ground rules prior to the designathon will help mitigate this risk, supporting the organizing committee to mitigate this risk.
Inappropriate numbers of participants (too many or too few participants)	Few participants: Build connections with community-based organizations, public health officials; plan ahead and support travel/accommodation; establish a compelling prize structure; relax eligibility criteria. Many participants: Identify additional mentors; consider expanding the scope of the activity if resources permit.
Too few end-users with lived experiences	Inclusion of end-users throughout all phases of the designathon, special prizes for end-users, promotion within networks of end-users, adding equity as a judging criteria.
Distractions during the intensive period of collaboration	During the designathon: Strict rules about competing priorities during the event (e.g., use of laptops and phones). Preparing for the designathon: Identify a conducive in-person location; make time for social interactions; ensure that the designathon schedule is appropriate for the participants whom you are trying to engage.
Biased judging, lack of fairness and transparency	Pre-specified judging rubric, three or more independent judges (separate from mentors), recuse judges from outputs subject to potential conflicts.
Inequities in recognizing participants	Recognition of efforts from all participants and not only finalists; engagement incentives; the steering committee needs to assess whether the prize structure is fair and appropriate.
Limited follow-up activities or ultimate impact following the designathon	Invite key community members as mentors or judges; make an explicit follow-up plan; build research into the next phase.
People may be inadvertently outed or identified as a member of a group	Ensure that there are appropriate rules about privacy, photography, and rights related to the designathon.

6. Monitoring and evaluation

Monitoring and evaluation are essential for demonstrating that designathons are useful and making the case for further research and programmes.¹⁰ Monitoring and evaluation can be organized by an independent research team or by the implementing team.

A systematic review of designathons in health identified a total of 42 studies.

Designathons can be evaluated using case studies, qualitative methods, or clinical trials.¹

More details are included about each of these approaches below:







- ✓ **Case studies.** Descriptions of designathon methods can be helpful to better understand the approach, clarify the conceptual framework, and share with others. Either qualitative or quantitative or both analysis of designathon outputs (e.g., intervention packages, programme prototypes, service development) is a useful means of documenting deliverables and monitoring progress. This format may be particularly useful if the designathon has introduced a substantive or technical innovation.
- ✓ **Qualitative methods.** Semi-structured interviews, focus group discussions, co-creation groups, mixed methods research and related qualitative methods can be useful to understand designathon participant experiences. It may be particularly useful to understand how designathons impact equity, spur community engagement and nurture multisectoral collaboration.
- ✓ **Clinical Trials.** The interventions, products, or outputs developed as part of a designathon process can be evaluated in randomized controlled trials (RCTs), quasi-experimental trials, or other trials. Rigorous data from trial settings can help to demonstrate the effectiveness and cost of the intervention. Trials are particularly important for informing guidelines.

Disseminating and implementing designathon outputs are also important. We recommend working together with end users and communities to develop a dissemination plan. Methods and tools to evaluate implementation outcomes are often helpful. Including an equity lens in regular evaluation of implementation can help identify disparities and responses. Ultimately, did the community benefit from the designathon?

7. Health designathon essentials

Organizing a health designathon requires relatively more resources compared to other forms of crowdsourcing. These include resources from the community, human personnel, venues, and essential funding support. This report summarizes the need for organizing health designathons from the following components:

			
<h3>Community support</h3> <p>Support from people with lived experience in order to inform design, governance, and implementation. This could be a formal partnership with a community organization. The needs of diverse individuals should be considered when asking for community support.</p> <hr/> <p>Ensuring that the designathon creates sustainable impact for communities and is not a form of research tourism (taking ideas and then leaving), is important.</p>	<h3>Personnel</h3> <p>Administrative staff to assist with communications and coordination are critical.</p> <hr/> <p>Steering committee members, mentors, judges and facilitators each play an important role in a designathon.</p>	<h3>Venues/network</h3> <p>Ensure that venues are easily accessible and comfortable, yet affordable for organizers.</p> <hr/> <p>Having open space or multiple separated rooms for in-person designathons.</p> <hr/> <p>A strong internet connection is required for virtual or hybrid designathons.</p>	<h3>Funding support</h3> <p>Funds for accommodation, travel, and supplies (e.g., poster paper, markers, sticky notes, whiteboards, flipcharts, gift cards).</p> <hr/> <p>Funds for promotional material and strategies (e.g., advertisements to recruit participants, developing infographics, putting together the final dissemination package, translation if necessary).</p> <hr/> <p>Funds for prizes (seed funding for research, implementation).</p>

Organizing a designathon needs coordination (logistics, team forming, advising); a dedicated staff may be required to help organize the event. A group of advisors (five to seven) with different backgrounds is needed to provide suggestions and guidance to the designathon teams, and diverse participants are important for creating strong teams that will contribute to the designathon. In-person or hybrid designathons need the participating teams to work together in separate rooms, while hybrid or virtual designathons need a good internet connection to ensure a smooth multiday event. Funding should be budgeted for the accommodation, travel, supplies, prizes, and the implementation of the final ideas.

End users should be centered throughout the process of planning. This is also an important aspect that will determine the success of a designathon. End-users and judges in the steering committee can contribute fairness and consistency across parts of the designathon experience.

Increasingly designathons are organized as virtual or hybrid events and are models of collaboration that may be less expensive. Even so, a dynamically run and successful designathons demands a great deal of coordination between study teams, mentors, and organizers.

8. Advantages and disadvantages of using virtual, in-person, and hybrid designathons

Modality	Virtual	In-person	Hybrid
Advantages	<p>Low-cost option for locations with a good digital infrastructure.</p> <p>Convenient for individuals and mentors to participate regardless of where they may be located (either locally or internationally). Allows for multi-national or regional designathons.</p> <p>Apps and virtual tools may increase participation.</p> <p>Provides an opportunity for partial anonymity.</p>	<p>In-person events may enhance the collaborative environment, build camaraderie, and promote cross-pollination of ideas.</p> <p>Opportunities for side events and other team-building activities during breaks or at the end of the day to strengthen engagement.</p> <p>In-person events provide deeper opportunities to create psychological safety and vivid experiences (e.g., using escape rooms, role-playing activities) among participants.</p> <p>Fewer distractions that participants cannot control.</p>	<p>Hybrid designathons have unique advantages that leverage the benefits of both virtual and in-person designathons.</p> <p>Hybrid designathons allow in-person participants to learn from online mentors who could not attend in-person.</p> <p>Hybrid designathons allow the inclusion of participants who could not attend in-person.</p>
Disadvantages	<p>Poor bandwidth, unfamiliarity with digital platforms, and related digital divide issues can exacerbate inequalities.</p> <p>Sustained engagement of participants for long periods may be challenging due to teleconference fatigue. Participants may be less engaged compared to in-person events.</p>	<p>High costs associated with in-person logistics, including accommodation for participants/organizers, venues, and catering.</p> <p>In-person events may limit free expression among individuals who are less extroverted.</p> <p>Some participants may not be keen on participating in in-person events.</p>	<p>Higher costs associated with both in-person and virtual arrangements.</p> <p>Greater attention to the logistics of hybrid events is necessary. Ensure appropriate bandwidth for virtual participants, with suitable timing across time zones, and audio/visual needs for seamless interaction.</p>

9. Designathons to incubate social innovation

Designathons may be particularly useful for iteratively developing social innovations. Social innovation is a community-engaged process that impacts health and social outcomes.¹⁷ Designathons provide a structured process for community engagement which is critical for social innovation. Designathons have been used to develop social innovations in a wide range of settings.

10. Open access resources

Systematic review on designathons for health

- [A systematic review of designathons for health](#): Examines the evidence supporting designathons for health.

Tips on organizing designathons and hackathons

- [The complete guide to organizing a successful hackathon](#): A guide by Hackerearth on organizing hackathons.
- [Hackathon tips](#): A series of blog posts on tips and best practices to hackathon organizers and participants.
- [How to host an engaging virtual event](#): An article by MIT Solve on deepening engagement for virtual events.

Crowdsourcing for health

- [World Health Organization / TDR / SIHI / SESH practical guide on crowdsourcing](#): A practical guide to help readers organize crowdsourcing (including open calls and designathons).
- [Joint consensus statement on crowdsourcing challenge contests](#): Joint international consensus statement developed by a multidisciplinary expert panel to provide advice on designing, implementing, and evaluating challenge contests in health and medicine.
- [HOPE crowdsourcing workshop series](#): Series of archived video workshops on crowdsourcing and designathons.

Multimedia design tools

- [Gimp](#): Open-source design tool that is free to use and supports all file formats.

Other resources

- [Upcoming designathons and hackathons](#): Devpost consolidates an updated list of upcoming designathons and hackathons for prospective participants.
- [WHO and TDR Global guide on public engagement and crowdfunding in health research](#): A practical guide on how to better engage the public on social media and to crowdfund for health.
- [IDEO's Design Kit](#): An overview of methods and cases studies focused on design thinking.

11. Frequently asked questions

Why use designathons for health?

Designathons draw on the collective wisdom of the public and communities, and designathons can leverage this to promote innovative solutions that address health issues and improve health. Designathons offer time-limited, intensive solutions to generate a wide range of high-quality ideas.

How are designathons different from hackathons?

Designathons are typically focused on designing a health intervention, while hackathons are typically focused on designing a technology.

What are the expected outcomes of designathons?

Designathons have been used to develop a wide range of public health interventions, consensus statements, and engagement strategies. Applying a three-stage approach, the outcome of the **preparation** stage could be a list of ideas from teams. The outcome of the **collaboration** stage could be a set of more detailed ideas. The outcome of the **follow-up** stage could be data from pilot implementation among selected teams.

How do I measure the outcomes of designathons?

Outcomes from designathons can be assessed using implementation science and other approaches. See the section on monitoring and evaluation for more details.

What are the necessary elements to organize a designathon in health?

Past designathons have shown that you would need two key components: First, a designathon coordinator who can help coordinate and manage the designathon with respect to liaising with participants and ensuring that logistics and administrative aspects are all well-managed. Engaging a professional event organizer is an alternative. Second, a community of diverse and highly engaged individuals and community partners who can contribute to the steering committee and mobilize participation for the designathon.

How have designathons been effectively leveraged to improve public health?

We provide five case studies in this practical guide to show how designathons have been useful in promoting public health. These show how designathons can be leveraged at a highly public level to inform national policies, address stigmatized health issues such as HIV and other sexually transmitted infections, and promote youth engagement in public health.

Do I need to limit participation in designathons to end-user communities?

Including people from diverse backgrounds (health professionals, communications and design experts, local leaders, and others) can help end-users translate their needs into feasible and actionable solutions. For example, an open call intended to generate solutions to improve HIV pre-exposure prophylaxis (PrEP) uptake among gay men can also include diverse participants who do not identify as being part of the community. To ensure that solutions focus on end-user needs and preferences, you can also ensure that designathon teams each have a community representative, as well as others with diverse skillsets that include marketing, and design.

What is the purpose of a steering committee when organizing designathons?

A steering committee provides leadership and guidance for designathons. This committee decides the purpose of the designathon, outlines the rules and requirements for entries, develops a call for entries and selects a prize structure. In some cases, this would suffice as the key group that is helping to organize the designathon, but you may consider having a smaller group (sometimes termed as an “organizing committee”) that would focus on more detailed aspects or implementation of the designathon.

How do I engage participants for vulnerable, stigmatized populations?

Consider the socioeconomic and cultural settings to decide the recruitment strategy for a designathon. For example, if end-users include individuals or communities from vulnerable or stigmatized populations, it may be better for the team to rely on word of mouth (e.g., peer referral) to make contact with more underserved members of the community of end-users. Ensuring that privacy is emphasized, and that platforms can provide some level of anonymity (e.g., online or hybrid methods) is important.

What happens after the designathon concludes?

It is important for the team to disseminate the designathon outputs back to the communities of interest who contributed. Having a dissemination plan or strategy that has been co-created with community members is recommended. You can also ensure that process evaluation has been formally conducted for the designathon that has concluded (please see the monitoring and evaluation section). End products of the designathon can be further tested and piloted to evaluate the effectiveness of crowdsourced interventions against a standard of care (e.g., expert-driven intervention packages).



Designathons provide an opportunity for greater youth involvement in public health intervention development.
Source: ©4 Girls & Women (4GW) / David Dosunmu (CC-BY)

12. Checklist when organizing a designathon

The questions below can help organizers planning their first designathon.

Define purpose and set parameters



- ✓ What is the designathon purpose?
- ✓ Who are the end-users and other related key individuals?
- ✓ Were end-users involved in generating the purpose of the designathon?
- ✓ Has feedback been received from end-users and incorporated into the plan?
- ✓ To what extent is the problem being addressed seen as a priority?

Organization and logistics



- ✓ Has the necessary in-person, digital or hybrid environment been identified to facilitate intensive collaboration?
- ✓ Have end-users been consulted about the designathon plan and included in the steering committee, organizing committee, and judging team?
- ✓ Has a governance structure been identified, including a steering committee, organizing committee, and judging team?
- ✓ How will the designathon be funded? For example, grants, crowdfunding, internal funding, community support, and local government could all be used to support a designathon.
- ✓ How will designathon plans and expectations be communicated to participants and mentors? For example, creating a handbook, a video, or having informational meetings can be useful for communicating expectations.



Collaborate

- ✓ Have an adequate number of mentors and facilitators been recruited to provide support during and after the intensive collaboration?

- ✓ Have rules and regulations of the designathon been finalized?

- ✓ How will teams be created to join the designathon?

- ✓ Have teams been encouraged to collaborate, build trust and work effectively as a team unit?

- ✓ Has an appropriate judging rubric and prize structure been chosen?

- ✓ Has the steering committee been given an opportunity to review the prize structure?



Follow-up

- ✓ What support will the designathon teams have to continue working on their ideas after the intensive collaboration?

- ✓ What are the metrics to determine success or failure? How many iterations are expected?

- ✓ How can the perspectives of designathon participants be shared more widely?

Example #1:

4 Youth By Youth (4YBY) designathon to develop HIV self-testing services for Nigerian youth

The 4 Youth By Youth (4YBY) designathon was organised as part of the I-TEST (Innovative Tools to Expand HIV Self-Testing) study from March 29 - 31, 2019 at Lagos, Nigeria by Saint Louis University and the Nigerian Institute of Medical Research in collaboration with the University of North Carolina at Chapel Hill and other institutions with funding from NIH-NICHD (Grant no.: UH3HD096929).



This designathon was aimed at generating ideas to create low-cost, accessible, confidential and youth-friendly services that promote HIV self-testing (HIVST) and prevent other sexually transmitted diseases among young people (aged 14 - 24 years) in Nigeria. HIVST is a process by which individuals collect their own oral fluid or blood specimen, conduct the HIV test, and interpret their results in private.

The designathon was part of a multi-phase crowdsourcing contest consisting of an initial open call contest (phase I) preceding the designathon and a training program (phase III) succeeding the designathon. An advisory panel was created to oversee the logistics and overall organization of all crowdsourcing activities. The panel consisted of a diverse set of 18 experts and professionals from the fields of design thinking, public health, communications, and non-profit organizations. Five exceptional ideas from phase I were selected to participate in the designathon.

Entries for the designathon were solicited from teams of youth aged 14-24 who resided in Nigeria. It was advertised through blogs, social media, print

communication, and visits to secondary schools, in both English and Nigerian pidgin and with online and offline submission pathways included. Of the 127 entries that were received, 75 met the eligibility criteria and upon further review by the advisory panel as well as 4YBY ambassadors, the top eight teams were invited to join the five teams from Phase I for the designathon (13 teams of 42 young people in total). Food, transportation and accommodation were provided for all participants. The expected deliverables included a prototype of the teams' HIVST kit service delivery solution and a pitch to an independent panel of 7 judges who assessed their ideas based on their desirability, feasibility, impact, and teamwork.

The solutions presented included novel HIVST delivery and distribution models such as bundling HIVST kits with other STI and self-care products (condoms, lubricants, pantyliners etc.) and selling them via online platforms or offline at unconventional areas like gyms and parties. They also included promotion via incentivised youth referral programs in addition to social media campaigns targeted at engaging young people.

The best three solutions received 250,000 naira (\$694 USD), 150,000 naira (\$416 USD) and 50,000 naira (\$138 USD) as prizes; and the top 7 teams were invited to further refine their ideas in Phase III: a 4 - week innovation boot camp where they would receive further training to hone their ideas into implementation-ready solutions. Five teams from the Bootcamp were selected to implement their solutions in a 6-month pilot study, the results of which were used to inform an ongoing, nationwide randomised controlled trial that is testing the efficacy of the proposed solutions.

This designathon successfully engaged end users to produce workable solutions to the proposed problem and also laid the foundation for the development, piloting and implementation of these solutions on an impactful scale.

Tahlil, K.M., Obiezu-Umeh, C., Gbajabiamila, T. et al. A designathon to co-create community-driven HIV self-testing services for Nigerian youth: findings from a participatory event. BMC Infect Dis 21, 505 (2021). <https://doi.org/10.1186/s12879-021-06212-6>



A multi-disciplinary team works together as part of the intensive collaboration stage of a designathon.
Source: ©Social Entrepreneurship to Spur Health (SESH) / Jiayi Kuang (CC-BY)

Example #2:

A designathon to develop innovative partner services tailored for men who have sex with men (MSM) living with HIV in China

The HIV partner services (PS) designathon was held in Guangzhou, China from December 18th to December 20th, 2020 (lasting 48 hours) by the Social Entrepreneurship to Spur Health (SESH) team. SESH is a partnership between the University of North Carolina–Project China and the Southern Medical University Dermatology Hospital in Guangzhou, China, and have multiple experience with organizing designathons to address health challenges.



The aim of the HIV PS designathon was to develop a tailored PS package for newly identified MSM living with HIV to improve the uptake of HIV PS and partner HIV testing.

In collaboration with local Centers for Disease Control and Prevention (CDCs) and MSM community-based organizations (CBOs), the designathon attracted 41 participants from eight teams. Each team consisted of 5-6 participants: one CDC staff, one MSM community member, one MSM living with HIV (MLWH), and at least two participants from a similar-themed open call previously with expertise in design or computational skills. Two weeks prior to the contest, inspirational materials and a handbook on the designathon were distributed to all participants, who then started to brainstorm ideas through separate WeChat groups. A webinar was held to clarify any questions from participants before the contest.

Over the designathon weekend, a brief opening session was held to introduce the requirements, procedures, evaluation standards, and awards. Each team was then assigned a room to work on intervention ideas. Mentors walked around and interacted with each team to give comments and

suggestions. At the end of the event, each team gave a 10~15 min presentation to introduce their intervention ideas and submitted a detailed intervention protocol including an infographic. Mentors then evaluated each team's projects based on five dimensions of standards: innovation, feasibility, empathy, acceptability, and impact. Seven of the eight teams have designed Internet-based interventions. Five teams designed HIV partner services for all types of sexual partners, while others targeted at specific types of partners. In terms of referral methods, the teams mentioned self-referral, dual-referral, provider- or third-party referral, among which five teams provided anonymous notification services. The winning team delivered a comprehensive intervention package and was awarded \$1,000. The intervention was finalized for detailed implementation after the contest and the preliminary impact of it was assessed in a pilot randomized controlled trial with the help from members of the winning team.

Overall, the contest improved equity by engaging MLWH to develop HIV PS tailored for their communities and demonstrated feasibility of producing high-quality content at a minimal cost within a short time. MLWH were able to draw inspiration from their own

lived experience to inform the intervention design and co-create with healthcare professionals and experts in UI (user interface) design. The back-and-forth interaction among end users, potential service providers, and UI designers could make sure that the interventions were acceptable for the users, practical for the service providers, and feasible for technical

implementation. This provides important lessons on how designathons as a form of crowdsourcing events can be helpful to address health challenges by mobilizing end users and facilitating cooperation between different stakeholders.

Example #3:

Engaging youth through designathons in Kenya

The designathon and health innovation contest gave over 100 youth an opportunity to address a pressing community health issue. The designathon was organized in partnership with WHO, public health authorities, communications experts, and implementers. Entries were accepted in all six languages of the WHO. The designathon encouraged people from low-income countries and followed a four-stage strategy: selection, initial pitching, final pitching, and incubation.



The designathon helped to identify participants with outstanding ideas and refine them further. It consisted of two phases. In the first phase, a call for ideas was released for two weeks, targeting at least 100 teams with 2-4 participants per team. The committee ensured accessibility and reach without language barriers. The second phase involved an independent panel of 10 judges with expertise, qualifications, and healthcare affiliations. They assessed ideas based on criteria such as community engagement, sustainability, scalability, impact, and innovation, shortlisting 50 teams.

The second stage was the initial pitching, where each team was allocated ten minutes (including

questions) to present their ideas. The pitching took place concurrently, in two rooms with 25 teams each. Five judges scored each submission. After the pitching, a total of ten teams were shortlisted. The third stage focused on the 10 teams where they pitched their ideas in front of all judges.

In the final stage, the viability of ideas presented by 5 teams was assessed. Two teams were selected for a six-month incubation period. They reported key indicators and measures of success determined by the incubators. The panel of judges evaluated the challenge based on criteria used throughout the competition and concluded with a final vote.

Example #4:

Nudgeathon event for the co-design of sexual health campaign images for overseas-born men who have sex with men in Australia

Researchers from Monash University and the University of Warwick, led by Associate Professor Jason Ong, organized a Nudgeathon. This unique designathon combined the principles of behavioural economics, also known as 'nudging,' with a hackathon setting. The goal of behavioural economics is to alter the choice context of individuals, nudging them towards adopting healthier behaviours.



In September 2020, an online one-day Nudgeathon took place. It involved four groups consisting of behavioural scientists, clinicians, graphic designers, and overseas-born gay and bisexual men (GBM). Their task was to co-design advertisements promoting pre-exposure prophylaxis (PrEP) use among overseas-born GBM in Australia. The Nudgeathon included participant recruitment, online training on 'nudging' using the MINDSPACE framework, team activities for generating solutions, and final solution presentations to a panel of judges.

The Nudgeathon was evaluated using qualitative interviews with participants to assess the feasibility and acceptability of online Nudgeathons. Additionally, a cross-sectional survey was conducted among end users to evaluate the final campaign images from the Nudgeathon. Furthermore, a national randomized controlled trial was launched in May 2023 in Australia to assess the effectiveness of the Nudges in enhancing PrEP access.

Our evaluation demonstrates that online co-design workshops are effective and efficient in addressing complex issues. By utilizing technology and promoting inclusive collaboration, we can accelerate the development of innovative solutions for our end

users. Involving overseas-born GBM throughout the process enhances the intervention's relevance and empowers them to contribute to solutions that directly impact their community. This inclusive approach recognizes the significance of cultural sensitivity and tailored interventions to address the unique challenges faced by this population.

- Tran J, Vlaev I, Read D, Schmidtke KA, Chow EPF, Lee D, Tapa J, Ong JJ. A qualitative evaluation of a Nudgeathon event for the co-design of sexual health campaign images targeting overseas-born men who have sex with men. *Sexual Health* 2023;20(2):158-163
- Fidler N, Vlaev I, Schmidtke K, Chow E, Lee D, Read D, Ong JJ. Efficacy and acceptability of nudges aimed at promoting PrEP use: a survey of overseas born men who have sex with men. *Sexual Health* 2023;20(2):173-176.

Example #5:

National Institute for Health and Care Research - Applied Research Collaboration (NIHR-ARC) West Midlands, United Kingdom of Great Britain and Northern Ireland



The National Institute for Health and Care Research - Applied Research Collaboration (NIHR-ARC) West Midlands is a five-year initiative to develop sustainable services that can improve people's well-being across the United Kingdom. Given the timing of the initiative, 2019-2024, it is not surprising the COVID-19 pandemic became a major focus.

While many people eagerly received an initial COVID-19 vaccine, some were initially reluctant, and reluctance grew with boosters. The NIHR-ARC conducted a nationally representative survey of 1,200 United Kingdom residents to understand the automatic motivations that influence people's intentions to receive COVID-19 vaccines. Informed by the survey results, a steering group including university researchers and end-users (i.e., lay people) co-produced a designathon to co-create public health messaging that could increase people's automatic motivations to receive COVID-19 vaccines.

The designathon took place as a two-hour online workshop. Based on the survey findings, the participants were split into four diverse teams, each composed of at least one end-user, researcher, nurse, and public health worker. Facilitators guided their teams through the Stanford design school's five-stage model, starting with Empathizing (with people who might refuse), Defining (a challenge to overcome), and then Ideating (producing potential solutions), through iterative Prototyping (revising potential solutions) according to Tests (outsider feedback). Four novel and empirically informed messages were co-created. The steering group evaluated each message according to Creative Product

Analysis Matrix. Where possible, the steering group enhanced each message's novelty, usefulness, and style. Then a graphic designer produced images (informed by images drawn by participants at the workshop) to complement those messages.

The final messages are publicly accessible on OSF (<https://osf.io/bxufp>) and were mailed to commissioning groups and politicians to support local campaigns. This designathon demonstrated that diverse perspectives can be efficiently heard and synthesized to design novel public health messages.

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