Improving the reporting of health research involving design: a proposed guideline

Alessandra N Bazzano [1,2] Shirley D Yan,[3] Jane Martin,[4] Emma Mulhern,[5] Eleanor Brown,[6] Anne LaFond,[7] Ledia Andrawes,[8,9] Tracy Pilar Johnson,[10] Shilpa Das[11]

For numbered affiliations see end of article.

Correspondence to
Dr Alessandra N Bazzano;
abazzano@tulane.edu

DESIGN AND GLOBAL HEALTH

The contribution of *design* to optimising global health interventions is increasingly recognised.[1] The field of applied design is diverse and encompasses technical, creative and social skills and mindsets[2]; design may be carried out by expert designers or by 'diffuse' designers.[3] Design for global health may involve design thinking,[4] human-centred design,[5] service design and codesign. And the use of design for global health has especially been promoted in relation to the concept of social innovation.[6 7]

There is already a tradition in global health of using approaches such as transdisciplinarity, perspective taking or empathy, working with participants from across the spectrum of needs, iterating and creating products or services that will improve the lives of those affected.[8] For example, some global health researchers actively seek to include the community of those who are experiencing health challenges into research in a participatory way.

Design seeks to accomplish a similar goal but with different perspectives, tools and strategies, and with a focus on innovation while recognising the potentially competing needs to reinvent versus innovate in the context of sustained existing knowledge and practice. There is a need to use design when and as appropriate to complement existing knowledge and practice, and to 'balance a concern for understanding current or past practices with a concern for envisioning alternative or future practices'.[5]

THE NEED FOR GUIDELINES FOR REPORTING RESEARCH INVOLVING DESIGN

In a previous scoping review of peer-reviewed journal articles on human-centred design and public health,[9] we found that few articles included detailed methods and results, information on design expertise within teams,

Summary box

► Design is being used more frequently in global health practice but is not reported on sufficiently for transparency, evaluability and wider dissemination.
► Reporting guidelines are useful in improving the quality and quantity of dissemination of work in peer-reviewed literature for global health.
► Building on available literature and current practice in design for global health, we present a reporting guideline that can be used by scholars and practitioners applying design in their work, and invite input on this work.
► We present draft guidance which we recommend for reporting on design for global health in order to improve the evidence base for design in global health.

reflexivity/positionality or socioinstitutional dynamics. Importantly, much of the literature neglected to describe stakeholder engagement processes related to the use of design, which is a key feature of both global health and person-centred methods.

Existing guidelines are available for related disciplines such as qualitative health research and public involvement in health research.[10] While these guidelines serve an important function, they are not sufficiently specific to the field of design for health, which is unique in several ways. Design for health necessitates including participants (and others who will use the design outcomes) explicitly in the research process, iterates on proposed solutions quickly and directly with participants, and makes the results more immediately actionable than is typical in theoretically driven social and behavioural, or qualitative, research.

Findings of research on health programming and implementation that involves design are beginning to appear in peer-reviewed health and medical journals, in addition to being found more typically in 'grey literature'

not indexed by a commercial publisher, including public or private reports, working papers, government documents, white papers and evaluations. Clearer guidance for authors, journal editors, community members and peer reviewers will influence publication and the potential for stakeholders from diverse communities and disciplines to locate design-based health research.[11] As the global health community increasingly seeks ways of scaling up beneficial interventions, clear and transparent reporting of approaches to achieve impact is warranted.[12]

Reporting guidelines add value and allow programme reports and research articles to be useful for a wider audience.[13 14] Incomplete reporting makes research inaccessible, introduces bias and does not provide full transparency.[15] Reporting guidelines for health research involving design may help investigation and programmatic activities to be shared and used more frequently and effectively.

Based on this analysis, and discussion among communities of practice in design for health,[16] we have identified a set of items that are important for reporting on research that uses design. Inclusion of these items will make research that has applied design more transparent, so that global health practitioners can more easily understand what has been done, by whom, with whom and to what effect. Providing better information on design-based projects will also support global health stakeholders to determine if design could be usefully applied to their own work.

PROPOSED GUIDELINES FOR REPORTING RESEARCH INVOLVING DESIGN

In tables 1 and 2, we present a proposed draft set of guidelines for reporting on research that has incorporated design. This work represents the collaborative effort of a group of global health researchers, designers, funders and evaluators. We developed the guidelines drawing from processes described to develop other reporting guidelines such as the Consolidated Criteria for Reporting Qualitative Research[17] and Standards for Quality Improvement Reporting Excellence[18] guidelines.

In developing the guidelines, we consulted existing literature on guideline development processes,[19] along with information drawn from the emerging field of design for health, to independently develop reporting checklists which we then collated and deduplicated, discussing any disagreement during group discussions. Finally, we jointly compiled the content presented in tables 1 and 2. The guideline development process was recorded using the Enhancing the Quality and Transparency of Health Research network guidance, where registration can be located.[20]

The first table provides an outline and high-level overview of reporting elements that would support readers to understand the basic elements of the research, including the background or why the research has been done, the approach or how the research was done (by whom, with whom and in what way), the results of the research (and what design decisions or decision points led to the results, as well as impacts, if any, were noted) and, finally, a discussion and conclusion of how design informed the study, along with the way forward.

Table 2 provides more detail on what elements should be reported for those sections to be fully transparent and comprehensive. For example, including unique and key elements such as how the design challenge was framed (in the Background section) and what specific strategies or tools were used in the different design research phases of, for example, discovery or insight gathering versus testing or prototyping (in the Approach section).

The guidelines are intended to support teams involved in codesign of health research to disseminate their work in a systematic and transparent way for improved understanding across disciplines, to support researchers and practitioners with planning and reporting design-based

Table 1	Recommended elements for reporting of global health research that has used design	
Item	Paper section	Topic/descriptor
1	Title and abstract	Title should indicate that the study included a design approach. Abstract summarises the salient components, including background, statement of problem, approach/methods, findings, results and conclusion.
2	Introduction/background	Overview of the background to the topic, what has been done in the area already and rationale for using design. Description of the initial research question or health problem that the design-based work aimed to address.
3	Methods/approach	Reporting of the approach, tools or processes that were used for the research; who was involved (both researchers and participants); when and where research was conducted; how data were reviewed, analysed and synthesised; and iteration.
4	Results/findings from design research and activities	Summary of findings from design activities. Explanation of what was finally designed and what the associated decision-making points were, and (if available) impact. Report on any secondary or ancillary results.
5	Discussion	Reflection on the incorporation of design to this research topic, including but not limited to strengths, limitations and contribution.
6	Conclusion	Implications of this work for the larger fields of health and design, and any next steps.
7	Other	Ethical considerations, relevant acknowledgements of conflict of interest, funding, and contributorship of authors, designers, stakeholders and participants.

Table 2 Detailed reporting elements for reporting of global health research that has used design

Item	Paper section	Succinct description	Detailed description
1.	Title	Title should indicate that the study included a design approach.	Explicit mention of design in the title, what was designed, what process was used, intended outcomes or potential contribution.
1.1	Abstract	Abstract summarises the salient components, including background, statement of the problem, approach/ methods, findings, results and conclusion.	Statement of the health problem/design brief applied, noting whether qualitative or mixed method research (or other) was included. Abstract should contain relevant information on the health issue, design practice, methods, results and conclusions.
2.	Introduction/background	Overview of the background to the topic, what has been done in the area already and rationale for using the design.	Providing relevant references to the scope of the health issue, any previous work in this area or other ways of addressing the health topic; introduction of the design rationale.
2.1	Available knowledge	Summary of what is known about the topic and any gaps	Literature review of past studies, knowledge and projects relevant to the problem. Statement of what is known about the problem and what has been done to address it in the past, state of the art.
2.2	Rationale for design approach	Explanation of design as appropriate to address the topic.	Rationale should be clearly articulated.
2.3	Description of design challenge for health	Description of the main research question or health problem that the design-based work aimed to address.	Description of design and health issue, scoping of the challenge and scale or timing at which the design was included (which may result in reframing of the initial research question).
2.4	Research aims	Overall aims and objectives of the project.	Explanation of the overall aims and the specific objectives of this work.
3.	Methods/approach	Description of approach used for the research.	Description of research, including design approach used and overall role of design in the work.
3.1	Theory	Underlying theories that informed this work (if any).	Description of any underlying, conceptual or motivating theories or frameworks used.
3.2	Process and timeline	Processes or steps and timeline for the research.	Detailed description of the process or processes for applying design and research, full timeline of activities from beginning to end.
3.3	Research team characteristics and reflexivity	Individuals involved in the research team and characteristics of these. Ways that reflexivity was addressed.	Description of research team and how the team addressed reflexivity. ▶ Geographical origin. ▶ Discipline expertise in health, design and/or complementary disciplines and training. ▶ Rationale for team composition. ▶ Level of proximity to or familiarity with community/ population of interest. ▶ Prior relationship with community, wider team and/or other researchers (eg, consultants and implementing staff). ▶ Assumptions/presuppositions regarding health topic and design. ▶ Team attributes that could impact power and participation with community (eg, race/ethnicity, socioeconomic status and gender).
3.4	Site selection	Description of study sites selected.	Study setting information, including health background, geographical location, rationale and method for choosing site, and previous use of design, if any, in the setting.
3.5	Participant selection and engagement	Process to select participants, description of the participants and explanation of how they were involved in design.	Detailed description of participants in the design process and how the research question or intent led to inclusion; explanation of who the participants were, how they were chosen and contacted, what role they had (eg, interviewees, testers), length of involvement, extent of involvement (ie, codesigned vs consulted only), representativeness or generalisability of the participants, any sampling techniques if used or assessment of completeness of the participant group for design.

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Table 2	Continued		
Item	**Paper section**	**Succinct description**	**Detailed description**
3.6	Ethical considerations	Ethical precautions taken to protect participants, communities, and personal information.	Ethics and information related to human subjects' protection for social–behavioural research; documentation of ethics approval (if any) by a review board and participant consent, or explanation for lack thereof; addressing privacy, confidentiality and data security and internationally recognised concepts and guidelines (eg, Declaration of Helsinki and Belmont Report).
3.7	Language	Description of any language considerations.	Language in which the project was conducted; if in translation, credentials of translators; checking for accuracy of materials or workshop translation; familiarity of designers and participants with language and cultural nuances.
3.8	Techniques to understand (data collection tools and instruments)	Techniques or tools used during the research process.	Description of the types of the techniques or tools employed, rationale for method, type of data collected and any changes to methods during data collection. Description of who used research tools and with whom; should be stated separately for phases of discovery or insight gathering and testing or prototyping; what was done with this information and for what purpose it was done; any references to precedents for use.
3.9	Documentation	Documentation of work undertaken in research.	Statement of how documentation was carried out (eg, notes, videos, and photos), by whom, what specifically was documented (eg, interviews, affinity exercises, and observations) and role of participants in documentation. Types of data collected (eg, potentially listing and numbering of interviews, photos, videos, notes, insight statements, prototypes and pile/card sorts).
3.10	Techniques to synthesise	Description of techniques used to synthesise insights, iterate, and analyse data.	Explanation of process for team synthesis, analysis of collected information from the design work (eg, brainstorming and journey maps); inclusion of any data analysis software or use of large data sets to validate insights; description of team members involved in this process.
3.11	Validation approaches	Process of checking that insights, prototypes or other products were validated.	Description of additional steps used to verify, validate, triangulate or test the themes emerging (eg, comparing to existing literature, expert review and feedback from participants); summary of process of reflection for researchers to understand their own role in the development of the final products and steps taken to enhance validity of the solution (other than direct testing with a small number of users).
4.	Results/findings from design research and activities	Summary of findings from design activities, resulting insights, what was designed, what resulted from the work and (if available) impact of activities; report on any secondary or ancillary results.	Description of what was created as a result of the work: intervention, solution, policy, technology, behaviour change, service or other result; inclusion of salient features of the solution; noting how these addressed underlying health topic and what happened after design (eg, intervention or product status); documentation of ownership of what was created in the process; description of research prototypes.
4.1	Design research phase	Summary of major insights or reflection from design activities.	Presentation of design research: ▶ Problem framing. ▶ Design insights. ▶ Development and refinement of insights (diverge/converge). ▶ Description of prototyping and use of measurement/assessment and iterative refinement. ▶ Deliverables (eg, service blueprints, maps, prototypes, storyboard).
4.2	Decision points	Description of decisions made during the design process.	Key decision-making points and any criteria used as the design process was under way for changes made and iterations.

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Table 2 Continued

Item	Paper section	Succinct description	Detailed description
4.3	Evidence of change or impact	Summary of any evidence of change or impact to health or other facets of the situation.	Description of change or impact if any was noted, including any negative or null results; if evaluation has been done, what, if any, direct health benefits or other benefits, including social transformation, were identified and description by whom these were identified.
5.	Discussion	Reflection on design as an approach to the health topic and the strengths and limitations of the work.	Brief reiteration of findings or results; description of any limitations, strengths or challenges faced during research; description of how the results fit with other solutions for this health topic and how conclusions were arrived at in similar or different ways.
5.1	Design	Reflection of the application of design to this research topic.	Discussion of the transferability and specific contribution of design; description of how the solution developed is different from previous ones and fills any gap in knowledge; possible interpretation or development of a new model or methodology.
6.	Conclusion	Implications of this work for the larger field and next steps.	Explanation of the next key research or action to address the health topic and broader fields, noting implications for other practitioners or relevance to other contexts, commenting on the future of design for this domain.
7.	Other	Acknowledgements of support, assistance, funding, statement on conflict of interest and authors' contributorship.	▶ Description of any material interest of those involved in the research, including paid consulting. ▶ Statement of funding (if provided and by whom). ▶ Description of the research team's ongoing commitment to addressing any issues raised by participants during the research. Contributorship ▶ Description statement regarding roles each author had in research and reporting.
7.1	Glossary	Definition of key terms	Any terminology, especially design terminology, which may not be understood in the lay, health, or biomedical context and vice versa.

research, and crucially, to improve the potential of the public to review and interpret it. With more frequent reporting and documenting of transparent, evaluable design-based practices, we can go farther to promote global health programme responsiveness, effectiveness and equity.

AN INVITATION FOR INPUT

The guidelines presented here serve as a prototype for the development of comprehensive reporting guidance on design for global health. We provide these guidelines for public comment in the hope that gathering input from the global health community will improve the reporting and evaluating of health research that has incorporated design. We invite input from all stakeholders who create and use health research involving design on the guidelines presented through an open survey mechanism (see REDR Survey).

The current guideline will be modified in response to feedback, and a final prototype will be tested through a two-round, electronic Delphi process. With this feedback in the guideline development process, stakeholders will be able to contribute to making research more accessible and more transparent. It is anticipated that the publication of this commentary will elicit momentum to build the evidence base for the use of design in global health.

Ultimately, stronger reporting guidelines for health research involving design will ensure that research and programmatic activities can be shared and used more. Interdisciplinarity drives innovation in global health research, necessitating that the products of novel research partnerships and processes are disseminated widely. In order to enable diffusion of potentially catalytic approaches such as design, reporting must appear more readily in literature reviewed by stakeholders in global health.

We hope that in providing guidance to increase and improve reporting on design for health, this may be accomplished while respecting varied disciplinary traditions and meeting the needs of a wider community of global health stakeholders.

Author affiliations
¹Department of Global Community Health and Behavioral Sciences, School of Public Health and Tropical Medicine, Tulane University, New Orleans, Louisiana, USA
²Taylor Center for Social Innovation and Design Thinking, Tulane University, New Orleans, LA, USA

³Johns Hopkins Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland, USA
⁴Creative Social Change, London, UK
⁵Sightsavers, Haywards Heath, UK
⁶Itad Ltd, Brighton, UK
⁷John Snow, Inc, Arlington, Virginia, USA
⁸University College London, London, UK
⁹Sonder Collective, London, UK
¹⁰Bill & Melinda Gates Foundation, Seattle, Washington, USA
¹¹National Institute of Design, Ahmedabad, Gujarat, India

ORCID iD
Alessandra N Bazzano http://orcid.org/0000-0002-8299-2626

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