

Revised Standards for Quality Improvement Reporting Excellence (SQUIRE 2.0) September 15, 2015

| Text Section and Item Name | Section or Item Description | | |
|--|--|-------------------------------------|-------------------------------|
| Notes to authors | <p>The SQUIRE guidelines provide a framework for reporting new knowledge about how to improve healthcare</p> <p>The SQUIRE guidelines are intended for reports that describe system level work to improve the quality, safety, and value of healthcare, and used methods to establish that observed outcomes were due to the intervention(s).</p> <p>A range of approaches exists for improving healthcare. SQUIRE may be adapted for reporting any of these.</p> <p>Authors should consider every SQUIRE item, but it may be inappropriate or unnecessary to include every SQUIRE element in a particular manuscript.</p> <p>The SQUIRE Glossary contains definitions of many of the key words in SQUIRE.</p> <p>The Explanation and Elaboration document provides specific examples of well-written SQUIRE items, and an in-depth explanation of each item.</p> <p>Please cite SQUIRE when it is used to write a manuscript.</p> | | |
| Title and Abstract | | Reported on Page Number/Line Number | Reported on Section/Paragraph |
| 1. Title | Indicate that the manuscript concerns an initiative to improve healthcare (broadly defined to include the quality, safety, effectiveness, patient- centeredness, timeliness, cost, efficiency, and equity of healthcare) | | |
| 2. Abstract | <p>Provide adequate information to aid in searching and indexing</p> <p>Summarize all key information from various sections of the text using the abstract format of the intended publication or a structured summary such as: background, local problem, methods, interventions, results, conclusions</p> | | |
| Introduction | <i>Why did you start?</i> | | |
| 3. Problem Description | Nature and significance of the local problem | | |
| 4. Available knowledge | Summary of what is currently known about the problem , including relevant previous studies | | |
| 5. Rationale | Informal or formal frameworks, models, concepts, and/or theories used to explain the problem , any reasons or assumptions that were used to develop the intervention(s) , and reasons why the intervention(s) was expected to work | | |
| 6. Specific aims | Purpose of the project and of this report | | |
| Methods | <i>What did you do?</i> | | |
| 7. Context | Contextual elements considered important at the outset of introducing the intervention(s) | | |
| 8. intervention(s) | <p>a. Description of the intervention(s) in sufficient detail that others could reproduce it</p> <p>b. Specifics of the team involved in the work</p> | | |

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| 9. Study of the Intervention(s) | <ul style="list-style-type: none"> a. Approach chosen for assessing the impact of the intervention(s) b. Approach used to establish whether the observed outcomes were due to the intervention(s) | | |
| 10. Measures | <ul style="list-style-type: none"> a. Measures chosen for studying processes and outcomes of the intervention(s), including rationale for choosing them, their operational definitions, and their validity and reliability b. Description of the approach to the ongoing assessment of contextual elements that contributed to the success, failure, efficiency, and cost c. Methods employed for assessing completeness and accuracy of data | | |
| 11. Analysis | <ul style="list-style-type: none"> a. Qualitative and quantitative methods used to draw inferences from the data b. Methods for understanding variation within the data, including the effects of time as a variable | | |
| 12. Ethical Considerations | Ethical aspects of implementing and studying the intervention(s) and how they were addressed, including, but not limited to, formal ethics review and potential conflict(s) of interest | | |
| Results | <i>What did you find?</i> | | |
| 13. Results | <ul style="list-style-type: none"> a. Initial steps of the intervention(s) and their evolution over time (e.g., time-line diagram, flow chart, or table), including modifications made to the intervention during the project b. Details of the process measures and outcome c. Contextual elements that interacted with the intervention(s) d. Observed associations between outcomes, interventions, and relevant contextual elements e. Unintended consequences such as unexpected benefits, problems, failures, or costs associated with the intervention(s). f. Details about missing data | | |
| Discussion | <i>What does it mean?</i> | | |
| 14. Summary | <ul style="list-style-type: none"> a. Key findings, including relevance to the rationale and specific aims b. Particular strengths of the project | | |
| 15. Interpretation | <ul style="list-style-type: none"> a. Nature of the association between the intervention(s) and the outcomes b. Comparison of results with findings from other publications c. Impact of the project on people and systems d. Reasons for any differences between observed and anticipated outcomes, including the influence of context e. Costs and strategic trade-offs, including opportunity costs | | |
| 16. Limitations | <ul style="list-style-type: none"> a. Limits to the generalizability of the work b. Factors that might have limited internal validity such as confounding, bias, or imprecision in the design, methods, measurement, or analysis c. Efforts made to minimize and adjust for limitations | | |

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| 17. Conclusions | <ul style="list-style-type: none"> a. Usefulness of the work b. Sustainability c. Potential for spread to other contexts d. Implications for practice and for further study in the field e. Suggested next steps | | |
| Other information | | | |
| 18. Funding | Sources of funding that supported this work. Role, if any, of the funding organization in the design, implementation, interpretation, and reporting | | |

Table 2. Glossary of key terms used in SQUIRE 2.0. This Glossary provides the intended meaning of selected words and phrases as they are used in the SQUIRE 2.0 Guidelines. They may, and often do, have different meanings in other disciplines, situations, and settings .

Assumptions

Reasons for choosing the activities and tools used to bring about changes in healthcare services at the [system](#) level.

Context

Physical and sociocultural makeup of the local environment (for example, external environmental factors, organizational dynamics, collaboration, resources, leadership, and the like), and the interpretation of these factors (“sense-making”) by the healthcare delivery professionals, patients, and caregivers that can affect the effectiveness and [generalizability](#) of [intervention\(s\)](#).

Ethical aspects

The value of [system](#)-level [initiatives](#) relative to their potential for harm, burden, and cost to the stakeholders. Potential harms particularly associated with efforts to improve the quality, safety, and value of healthcare services include [opportunity costs](#), invasion of privacy, and staff distress resulting from disclosure of poor performance.

Generalizability

The likelihood that the [intervention\(s\)](#) in a particular report would produce similar results in other settings, situations, or environments (also referred to as external validity).

Healthcare improvement

Any systematic effort intended to raise the quality, safety, and value of healthcare services, usually done at the [system](#) level. We encourage the use of this phrase rather than “quality improvement,” which often refers to more narrowly defined approaches.

Inferences

The meaning of findings or data, as interpreted by the stakeholders in healthcare services – improvers, healthcare delivery professionals, and/or patients and families

Initiative

A broad term that can refer to organization-wide programs, narrowly focused projects, or the details of specific interventions (for example, planning, execution, and assessment)

Internal validity

Demonstrable, credible evidence for efficacy (meaningful impact or change) resulting from introduction of a specific intervention into a particular healthcare [system](#).

Intervention(s)

The specific activities and tools introduced into a healthcare [system](#) with the aim of changing its performance for the better. Complete description of an intervention includes its inputs, internal activities, and outputs (in the form of a logic model, for example), and the mechanism(s) by which these components are expected to produce changes in a [system's](#) performance.

Opportunity costs

Loss of the ability to perform other tasks or meet other responsibilities resulting from the diversion of resources needed to introduce, test, or sustain a particular [improvement](#) initiative

Problem

Meaningful disruption, failure, inadequacy, distress, confusion or other dysfunction in a healthcare service delivery [system](#) that adversely affects patients, staff, or the [system](#) as a whole, or that prevents care from reaching its full potential

Process

The routines and other activities through which healthcare services are delivered

Rationale

Explanation of why particular [intervention\(s\)](#) were chosen and why it was expected to work, be sustainable, and be replicable elsewhere.

Systems

The interrelated structures, people, [processes](#), and activities that together create healthcare services for and with individual patients and populations. For example, systems exist from the personal self-care system of a patient, to the individual provider-patient dyad system, to the microsystem, to the macrosystem, and all the way to the market/social/insurance system. These levels are nested within each other.

Theory or theories

Any "reason-giving" account that asserts causal relationships between variables (causal theory) or that makes sense of an otherwise obscure [process](#) or situation (explanatory theory). Theories come in many forms, and serve different purposes in the phases of [improvement](#) work. It is important to be explicit and well-founded about any informal and formal theory (or theories) that are used.

Materials Design Analysis Reporting (MDAR) Checklist for Authors

The MDAR framework establishes a minimum set of requirements in transparent reporting applicable to studies in the life sciences (see Statement of Task: [doi:10.31222/osf.io/9sm4x](https://doi.org/10.31222/osf.io/9sm4x)). The MDAR checklist is a tool for authors, editors and others seeking to adopt the MDAR framework for transparent reporting in manuscripts and other outputs. Please refer to the MDAR Elaboration Document for additional context for the MDAR framework.

Materials

| | | |
|---|---|------------|
| Antibodies | Yes (indicate where provided: section/paragraph) | n/a |
| For commercial reagents, provide supplier name, catalogue number and RRID, if available. | | NA |
| Cell materials | Yes (indicate where provided: section/paragraph) | n/a |
| Cell lines: Provide species information, strain. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID | | NA |
| Primary cultures: Provide species, strain, sex of origin, genetic modification status. | | NA |
| Experimental animals | Yes (indicate where provided: section/paragraph) | n/a |
| Laboratory animals: Provide species, strain, sex, age, genetic modification status. Provide accession number in repository OR supplier name, catalog number, clone number, OR RRID | | NA |
| Animal observed in or captured from the field: Provide species, sex and age where possible | | NA |
| Model organisms: Provide Accession number in repository (where relevant) OR RRID | | NA |
| Plants and microbes | Yes (indicate where provided: section/paragraph) | n/a |
| Plants: provide species and strain, unique accession number if available, and source (including location for collected wild specimens) | | NA |
| Microbes: provide species and strain, unique accession number if available, and source | | NA |
| Human research participants | Yes (indicate where provided: section/paragraph) | n/a |
| Identify authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval. | End of first paragraph of methods. | |
| Provide statement confirming informed consent obtained from study participants. | | NA |
| Report on age and sex for all study participants. | | NA |

Design

| | | |
|---|---|------------|
| Study protocol | Yes (indicate where provided: section/paragraph) | n/a |
| For clinical trials, provide the trial registration number OR cite DOI in manuscript. | | NA |
| Laboratory protocol | Yes (indicate where provided: section/paragraph) | n/a |
| Provide DOI or other citation details if detailed step-by-step protocols are available. | | NA |
| Experimental study design (statistics details) | Yes (indicate where provided: section/paragraph) | n/a |
| State whether and how the following have been done, or if they were not carried out. | | |
| Sample size determination | | NA |
| Randomisation | | NA |
| Blinding | | NA |
| Inclusion/exclusion criteria | | NA |
| Sample definition and in-laboratory replication | Yes (indicate where provided: section/paragraph) | n/a |
| State number of times the experiment was replicated in laboratory | | NA |
| Define whether data describe technical or biological replicates | | NA |
| Ethics | Yes (indicate where provided: section/paragraph) | n/a |
| Studies involving human participants: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval. | First paragraph of methods section | |
| Studies involving experimental animals: State details of authority granting ethics approval (IRB or equivalent committee(s), provide reference number for approval. | | NA |
| Studies involving specimen and field samples: State if relevant permits obtained, provide details of authority approving study; if none were required, explain why. | | NA |
| Dual Use Research of Concern (DURC) | Yes (indicate where provided: section/paragraph) | n/a |
| If study is subject to dual use research of concern, state the authority granting approval and reference number for the regulatory approval | | NA |

Analysis

| | | |
|---|---|------------|
| Attrition | Yes (indicate where provided: section/paragraph) | n/a |
| State if sample or data point from the analysis is excluded, and whether the criteria for exclusion were determined and specified in advance. | End of first paragraph in results | |
| Statistics | Yes (indicate where provided: section/paragraph) | n/a |
| Describe statistical tests used and justify choice of tests. | End of methods | |
| Data Availability | Yes (indicate where provided: section/paragraph) | n/a |
| State whether newly created datasets are available, including protocols for access or restriction on access. | | NA |
| If data are publicly available, provide accession number in repository or DOI or URL. | | NA |
| If publicly available data are reused, provide accession number in repository or DOI or URL, where possible. | | NA |
| Code Availability | Yes (indicate where provided: section/paragraph) | n/a |
| For all newly generated code and software essential for replicating the main findings of the study: | | |
| State whether the code or software is available. | | NA |
| If code is publicly available, provide accession number in repository, or DOI or URL. | | NA |

Reporting

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|--|---|------------|
| Adherence to community standards | Yes (indicate where provided: section/paragraph) | n/a |
| MDAR framework recommends adoption of discipline-specific guidelines, established and endorsed through community initiatives. Journals have their own policy about requiring specific guidelines and recommendations to complement MDAR. | | |
| State if relevant guidelines (eg., ICMJE, MIBBI, ARRIVE) have been followed, and whether a checklist (eg., CONSORT, PRISMA, ARRIVE) is provided with the manuscript. | ICMJE guidelines were followed, as the journal follows ICMJE recommendations for publication. We've uploaded the SQUIRE Reporting Checklist. | |

Article information: <http://dx.doi.org/10.21037/jhmhp-21-5>