Testing design principles to improve the usability and impact of WHO guidelines

Report of a workshop
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Kidist Bartolomeos, Head, Product Design and Impact unit, conceptualized and coordinated the project with a consultant, Hans Linn, who managed the project.

The following experts from Monash University helped to lead, conceptualize and coordinate the workshop and prepare this report: Leah Heiss, Design Health Collab, provided strategic leadership and supervision and drafted the report in collaboration with her colleagues Amy Killen, Troy McGee, Myra Thiessen and Hatoun Ibrahim and with Monash Adjunct Associate Professor Olga Kokshagina, also Associate Professor at EDHEC (Ecole des Hautes Etudes Commerciales du Nord) Business School, Paris.

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Executive summary

The Product Design and Impact unit of the Department of Quality Assurance, Norms and Standards, in collaboration with the Monash University’s Design Health Collab, conducted a hybrid co-design workshop in Geneva and online on 7 September 2022. The objective of this ongoing collaboration is to understand how WHO guidelines can be planned and developed to improve their usability and impact.

The aim of this event, the second in a series of co-design workshops, was to evaluate the prototype design principles that are part of the Design toolkit for WHO guideline developers: principles and tools. The principles were developed on the basis of insights shared in the first workshop, held on 7 April 2022, and reported in Improving the usability and impact of WHO guidelines: report of a WHO workshop.1

During the second workshop, stakeholders conducted various activities to "socialize" the prototype design principles with stakeholders in WHO product development. The workshop was attended by 22 people from five countries, of whom three attended online. The participants included staff at WHO country and regional offices and headquarters, staff at academic institutions that are partners with ministries of health, and the team from Monash University’s Design Health Collab. The workshop was held in the Eureka facilities managed by the Innovation Hub, Digital Health and Innovation, which provided virtual facilitation and room.

Stakeholders were engaged through a participatory method to determine how the toolkit principles would be translated into daily practice and work routines. The workshop was centred on fictional persona that were co-created by WHO and the Monash Design Health Collab and a fictional scenario. Working in interdisciplinary groups, the participants answered prompts that guided their evaluation of seven design principles proposed in the Design toolkit. Discussions were facilitated on the practical usefulness of each principle and potential enablers and barriers to their implementation.

This report summarizes the thematic analyses of the workshop, including: roles and responsibilities, resources, document structure and format, context, and end users. The report concludes with a discussion of actionable insights and design recommendations that will be considered in revising the Design toolkit for further consideration by relevant stakeholders.

Introduction

The World Health Organization (WHO) designs, develops and delivers high-quality public health technical products, normative standards, data, research and guidelines to Member States. While these products may be available in various formats, they are typically digital and print publications. They provide recommendations on public health policy or for health interventions. Currently, there is no standard approach in WHO to ensure the usability and impact of these products in countries, which can lead to inconsistency in how documents are produced and disseminated to Member States. Lack of a coordinated process for systematic consultation with end users and for consideration of the basic principles of how people learn and engage with a publication jeopardize their adaptation and implementation and, therefore, their overall impact at country level. Despite WHO’s work on conceptualization and development of SMART guidelines, the existing formats are most frequently large PDF documents that may include overlapping steps, recommendations and approaches. This may limit their uptake and use in countries.

Consultations with over 70 stakeholders by the Department of Quality Assurance, Norms and Standards showed that lack of a systematic approach to guideline development resulted in disjunction between the authors of guidelines and the individuals who use them. This was identified as a limitation to meaningful uptake of guidelines by countries. Fragmentation has also resulted in digital solutions that are not clearly aligned with WHO clinical and data recommendations and inadequate adoption of standards of interoperability. To address these challenges to guideline development and uptake, the Department of Quality Assurance, Norms and Standards Design Lab at WHO, located in the Product Design and Impact unit, collaborated with Monash University’s Design Health Collab in a global consultation on guidelines, norms and standards design and their implementation at country level.

The collaboration included an online co-design workshop held on 7 April 2022, which was reported in Improving the usability and impact of WHO guidelines: report of a WHO workshop, with a participatory method that prioritizes design with rather than for end users. The participants identified several barriers to access and use of WHO guidelines in public health initiatives and programmes. In response, actionable design insights were outlined for the development of future WHO guidelines, including developing empathy for the lived experience of end users and understanding both the environmental and cultural contexts in which the guidelines will be used. Ensuring that guidelines are available in a number of languages, including those spoken locally, is likely to improve their accessibility, with content that is concise and plainly written. Digital formats will improve access globally and enable a “living documents” strategy, so that the recommendations in guidelines remain relevant and timely.
Insights from the workshop were used to develop prototype design principles that were tested in the second co-design workshop, the findings of which are presented in this report. The prototype design principles will form part of Design toolkit for WHO guideline developers: principles and tools, which is in preparation. With the same participatory method, the second workshop was conducted in person and online from WHO headquarters in Geneva, Switzerland, on 7 September 2022. Participants engaged in activities based on the Tactile Tools\textsuperscript{5,6} co-design method to promote understanding and raise awareness of and facilitate stakeholders' engagement with human-centred design to improve the usability and impact of WHO guidelines, norms and standards in countries. The workshop activities and discussions are analysed by theme in this report, and actionable insights are suggested for "re-prototyping" the design principles.


(See also www.tactiletools.com.au)
Researchers from the Monash Design Health Collab planned a hybrid co-design workshop with the Tactile Tools co-design method, which has been used by many health-care, education, engineering and public service organizations to find solutions to complex problems collaboratively.\textsuperscript{7,8} The approach helps interdisciplinary teams to find common ground and build cross-sectoral relationships. In this workshop, the method was used to help in understanding the people who use guidelines and to consider how the prototype design principles might be operationalized. Participants examined the prototype design principles for their viability in daily working contexts. Throughout this report, all material presented at the workshop as a written document appears unedited and exactly as presented.

Participants

A total of 22 participants from Bangladesh, Canada, Egypt, Ethiopia and the United Republic of Tanzania, the WHO regional offices for Africa, the Americas and the Eastern Mediterranean, and WHO headquarters joined the workshop either in person or online. In-person participants were organized into four groups of five to six people with different backgrounds, responsibilities and roles. One group, starting with three participants, joined online through video conferencing and a digital whiteboard.

Participants were invited on the basis of their expertise in the preparation of guidelines, from development to production, dissemination, adoption, adaptation and implementation. They included technical officers responsible for the development of guidelines, experts in quality assurance of WHO guidelines, editors, translators and graphic designers.

Workshop activities

The 2-hour workshop addressed a key activity that involved each of the seven prototype design principles in the Design toolkit for WHO guideline developers. Each group worked with one of four personas co-designed by Design Health Collab and WHO. The personas represented stakeholders in guideline development and were designed to represent the experience of real-world professionals involved in the creation and dissemination of guidelines as realistically as possible. The in-person participants were organized into groups, each group containing a cross-section of expertise relevant to the role of their persona and providing a mix of representation of the different steps of the guideline pathway.


(See also www.tactiletools.com.au)
In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents. The updated guidelines include new recommendations that cover diagnostic approaches for TB, shorter treatment for children with non-severe drug-susceptible TB, a new option for the treatment of TB meningitis, the use of bedaquiline and delamanid in young children with multidrug- and rifampicin-resistant TB and decentralized and family-centred, integrated models of care for TB case detection and prevention in children and adolescents.

The desired impact of WHO normative guidelines on the management of TB in children and adolescents is a reduction in the burden of TB morbidity and mortality in children and adolescents, in line with the targets included in the WHO End TB Strategy, goal 3 of the United Nations Sustainable Development Goals and the Political Declaration of the United Nations General Assembly High-level Meeting on the Fight against Tuberculosis.

Expectations are very high on Rosaline both from management and from regional/country offices as well as external stakeholders.

**Scenario**

In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents.

The updated guidelines include new recommendations that cover diagnostic approaches for TB, shorter treatment for children with non-severe drug-susceptible TB, a new option for the treatment of TB meningitis, the use of bedaquiline and delamanid in young children with multidrug- and rifampicin-resistant TB and decentralized and family-centred, integrated models of care for TB case detection and prevention in children and adolescents.

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Expectations are very high on Rosaline both from management and from regional/country offices as well as external stakeholders.

**Meet Rosaline**

Rosaline is the responsible technical officer (RTO) for the development of this product.

**Rosaline’s Role**

As the responsible technical officer (RTO), Rosaline works with a team of 4 colleagues (who have various complementary backgrounds, expertise and skills) that was responsible for mobilizing of funding, the WHO Expression of Interest to share data, the development of the guideline development proposal, an evaluation among stakeholders on how the previous guidelines were being used/implemented as well as gaps/skills (a survey among stakeholders), establishment and coordination of the WHO steering group, the guideline development group (internal experts and external members), the external evidence review group(s) for each of the PICO and background questions, coordination of the evidence profiles, writing as of Evidence to Decision Tables including outstanding research gaps, drafting of the guidelines and related operational handbook with implementation guidance, timely submission to WHO Guideline Review Committee addressing comments from the external reviewers. Another important step is to ensure alignment with other WHO guidelines.

She acts as the liaison with the Guideline Review Committee secretariat, the technical editors as well as the graphic designers and manages the different steps of the product development process and the relationships with the relevant stakeholders.

The RTO is also responsible to ensure the document is peer-reviewed, disseminated online, translated in one or more of the other WHO official languages. She is also in charge of developing the dissemination (e.g., official launch, webinars, regional consultations in collaboration with major technical and financial partners), implementation and monitoring and evaluation frameworks and plans for the product, in collaboration with other colleagues.
Each group completed each workshop activity. The workshop materials were modified for the online participants, while the activity remained unchanged. All groups reviewed both a realistic but fictional scenario and the seven prototype design principles, shown in Fig. 2. The scenario was co-developed by Design Health Collab and WHO from an existing guideline for the Global Tuberculosis Programme. The complete text of the scenario was:

In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents. The updated guidelines include new recommendations that cover diagnostic approaches for TB, shorter treatment for children with non-severe drug-susceptible TB, a new option for the treatment of TB meningitis, the use of bedaquiline and delamanid in young children with multidrug- and rifampicin-resistant TB and decentralized and family-centred, integrated models of care for TB case detection and prevention in children and adolescents. The desired impact of WHO normative guidelines on the management of TB in children and adolescents is a reduction in the burden of TB morbidity and mortality in children and adolescents, in line with the targets included in the WHO End TB Strategy, goal 3 of the United Nations Sustainable Development Goals and the Political Declaration of the United Nations General Assembly High-level Meeting on the Fight against Tuberculosis. Expectations are very high on Rosaline both from management and from regional/country offices as well as external stakeholders.

Fig. 2. An example of prototype design principles presented to workshop participants

1 Design with empathy by understanding people and their context

Authors and designers of WHO guidelines should develop a thorough understanding of the individuals implementing a given guideline and their unique circumstances and requirements for implementation. WHO guidelines aim to serve people and work toward their wellbeing. They do this by recommending changes to behaviours, systems, or procedures that support health. This cannot be achieved without first deeply understanding the lived experience of the people implementing the guidelines, the contexts in which they are working, and the enablers and barriers they may face in the change process. By understanding how end-users will use recommendations, guidelines can be developed that respond to diverse constraints and unique cultural contexts.

<table>
<thead>
<tr>
<th>Tool that can help</th>
<th>Why it’s useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empathy map canvas of end user(s)</td>
<td>This is a diagrammatic representation of what the reader of a WHO guideline might be thinking and feeling, doing and saying, and what obstacles they face in understanding and implementing the recommendations in the guideline. This tool contains prompts to help identify the end user(s) and understand their needs and unique requirements or context. It can be used to collect and synthesize notes from interviews or workshops or by WHO staff when planning or scoping a new WHO guideline, and identify pertinent constraints.</td>
</tr>
<tr>
<td>User network map</td>
<td>This is a prompt to map the people, organizations, objects, and systems that will help or hinder the final user’s access to and capacity to implement the guideline. This may include individuals (e.g. healthcare leaders, WHO staff, organizations (e.g. Ministry of Health)), infrastructures (e.g. technologies, transport) or systems (e.g. translation, political changes).</td>
</tr>
</tbody>
</table>

These principles were co-created with the Department of Quality Assurance, Norms and Standards (QNS) Design Lab at World Health Organization (WHO) located in the Product Design and Impact (PDI) Unit of QNS, and Monash University’s Design Health Collab.
The in-person groups worked with print materials and the online group with an online whiteboard tool, shown in Figs 3 and 4, respectively. The groups considered the role, experience and expertise of their persona and addressed a series of prompts to evaluate how each persona might respond, use and think about each prototype principle in the context of the scenario provided. The prototype design principles were evaluated one at a time in sequence. Discussions were facilitated on the appropriateness and usefulness of each principle in practice, with its potential enablers and barriers to implementation. The content, prompts and structure of each activity were co-designed by the Monash Design Health Collab researchers and WHO staff members.
Researchers from Monash Design Health Collab synthesized the discussions at the workshop by qualitative thematic analysis, which is a method for analysing, describing and interpreting qualitative data on a given subject to identify repeated patterns and which involves constructing themes derived from the subject of study. Once the sticky notes were transcribed, a digital whiteboard tool was used to organize and sort participants’ comments by principle and theme. Themes were then compared for each of the seven principles and each of the four personas in order to determine recurrent themes. This revealed themes that are broadly applied and relevant to most or all principles, and themes that are more specific to individual principles.

The findings presented in this report were validated by triangulation, in which the findings are supported by topics, ideas or themes that were repeatedly raised by workshop participants in separate groups.
Findings

Participants were invited to examine the prototype design principles. This section summarizes the themes that surfaced from the resulting discussions. Several broad recurrent themes were identified that were relevant for all or most of the principles as well as themes that were more specific to individual principles. The specific themes are discussed in relation to each principle.

### Table 1. A summary of themes and their relevance to each principle

<table>
<thead>
<tr>
<th>Themes</th>
<th>PRINCIPLE 1</th>
<th>PRINCIPLE 2</th>
<th>PRINCIPLE 3</th>
<th>PRINCIPLE 4</th>
<th>PRINCIPLE 5</th>
<th>PRINCIPLE 6</th>
<th>PRINCIPLE 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Roles and responsibilities</strong></td>
<td>Design with empathy by understanding people and their context</td>
<td>Design for access and accessibility</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>Clear individual, departmental and organizational roles and responsibilities at each stage of guideline development</td>
<td>Resources to promote standardization (e.g., document templates and checklists)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Document structure and format</strong></td>
<td>Resources to ensure access, translations, dissemination, implementation, monitoring and evaluation</td>
<td>Resources for targeted messaging (e.g., based on role, such as doctor, nurse, statistician)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Feedback from all user groups</td>
<td>Acknowledgement of the wide variety of users, environmental contexts and constraints, political and organizational factors and cultural practices, norms and beliefs and how they impact the structure and format of the document</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Stakeholders</strong></td>
<td>Consideration of the context in which a guideline will be used in determining dissemination strategy, approach to verbal and visual language and content development, including an evaluation of visual elements, such as photographs, diagrams, charts and tables</td>
<td>All information and visuals should be appropriate for specific cultural or local needs and practices, and translation could benefit from local expertise and support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>Evaluation of visual elements such as photographs, diagrams, charts and tables</td>
<td>Consideration of specific cultural or local needs and practices, with translation of information and visuals benefiting from local expertise and support</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
### Findings

**Testing design principles to improve the usability and impact of WHO guidelines: report of a workshop**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Summary of key points</th>
<th>Design with empathy by understanding people and their context</th>
<th>Design for access and accessibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>Simple terminology and a concise writing style should be maintained in translations, with careful consideration of language-related barriers</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Politically and culturally appropriate language should be used</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consideration of inclusion of a harmonized glossary; avoidance of jargon and “buzzwords”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End user</td>
<td>Clear, consistent and concise content presentation; easy access regardless of location, and availability of guidelines in a range of media</td>
<td>✅ ✅</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Availability of audio and video options to improve access and further improve communication for some end users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality control</td>
<td>Ensuring the right translator for a particular guideline and giving them sufficient time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use of templates for consistency</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoidance of jargon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence and evaluation (access)</td>
<td>Consideration of how to assess impact when creating guidelines, as simply the number of downloads may not be sufficiently nuanced</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Consideration of categorizing the guidelines to ensure that cost-effective interventions are easily identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence and evaluation (effectiveness and impact)</td>
<td>Consideration of ways to monitor effectiveness and impact, testing in countries of both low and high economic status to evaluate how comprehensive the document is before dissemination</td>
<td>✅</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recognition of the importance of an efficient monitoring plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Updates</td>
<td>Updating cycles should be planned, prioritized and “time-stamped”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Recognizing that in many cases, only parts of a guideline will be updated</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Areas that have been updated need to be clearly indicated and communicated to end users</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td>Guidelines must be organized so that the newest information is easily observed and understood</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>— Options for downloading newest guideline separately</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Roles and responsibilities

Individual, departmental and organizational roles and responsibilities must be clear at each stage of guideline development. Potential barriers to fulfilling roles and responsibilities also require consideration, including deadlines, budgets and language or translation capability. As explained by workshop participants with reference to the Kamal persona, who is a graphic designer:

The nature of understanding that [things may] not necessarily be the responsibility of Kamal, but Kamal was at the end of the line. So where do you draw that responsibility? How do you articulate the responsibility if there’s something wrong, someone’s going to pick up on it. So that it has to be engaged with, irrespective of if there is a defined role or not.

Resources

Resources that promote standardization, such as document templates and checklists, were considered beneficial. Additional resources were suggested to ensure accessibility and for translation, dissemination, implementation, monitoring and evaluation, with categorization of messages according to role (e.g. doctor, nurse, statistician). Participants noted that, in developing resources, the guideline’s purpose and end-user needs should be considered, as they might influence the type of template or resource required.

Document structure and format

The participants agreed with recommendations that guidelines be clear, consistent and concise, easy to access regardless of location, and available in various media. It was observed that audio and video options might improve access and further improve communication for some users.

Context

The context in which a guideline is to be used must be considered when determining the strategy for dissemination, use of verbal and visual language, and content. Visual elements such as photographs, diagrams, charts and tables should be evaluated. All information and visual representations should be culturally and contextually appropriate, and translation would benefit from local expertise and support.

End user

Application of the principles might be complicated by a wide variety of end users, environmental contexts and constraints, political and organizational factors and cultural practices, norms and beliefs. For example, the workshop revealed differences in how guidelines are used by policy-makers and by health-care providers. Feedback from all key user groups might benefit guideline development and contribute to a “bottom-up” rather than “top-down” approach. As further explained by workshop participants:

Ensure from the beginning that there’s input from the people who are going to use it, in such a way that their perspectives are incorporated in the new guideline. So, when they see it, they see that it is something they contributed to.

Developers and producers should also take into account how disabilities such as visual or auditory impairment might affect access to guidelines.

In addition to these broader themes, themes were identified that are more specific to individual principles. These include references to stakeholders, use of language,
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quality control, how evidence is used and evaluated, guideline development, and how guidelines are updated. These are discussed in relation to the relevant principles below.

**PRINCIPLE 1**

**Design with empathy by understanding people and their context**

Principle 1 was presented to the workshop participants as follows:

Authors and designers of WHO guidelines should develop a thorough understanding of the individuals implementing a given guideline and their unique circumstances and requirements for implementation. WHO guidelines aim to serve people and work toward their wellbeing. They do this by recommending changes to behaviours, systems, or procedures that support health. This cannot be achieved without first deeply understanding the lived experience of the people implementing the guidelines, the contexts in which they are working, and the enablers and barriers they may face in the change process. By understanding how end-users will use recommendations, guidelines can be developed that respond to diverse constraints and unique cultural contexts.

**Roles and responsibilities**

Participants called on WHO to provide clear, specific information and instructions for developing guidelines. For example, the responsible technical officer should be providing information about the end user to the editors and designers of guidelines. Participants also discussed the importance of identifying individuals with relevant background knowledge to undertake certain tasks or to be included in work on specific guidelines.

**Resources**

Participants recommended inclusion of a standardized guideline template and checklist. Further, a list of potential end users (e.g., patients, donors, internal groups, external groups) might be useful for guideline developers and producers.

**Stakeholders**

Stakeholders should be clearly recognized with a tool such as an "empathy canvas". Knowledge of the composition of the Guideline Review Committee is important, because empathy mapping is "wide", "varied" and "challenging". Participants proposed that meeting with stakeholders, such as representatives of the Ministry of Health, to seek feedback would provide further clarification and an opportunity to test the acceptability of a draft guideline before release.

**End user**

Participants reiterated the importance of understanding the end user’s point of view, location, language, culture and sensitivities, which can assist in "translating empathy" and increasing the acceptability of a guideline.

As a variety of individuals is often involved in guideline development, including professionals and topic experts, application of this principle may be difficult and may require a more focused approach:

Trying to write for multiple target audiences is problematic when technical units talk about not only policy-makers but also the hospitals or clinicians who will be implementing this guidance. Then they talk about health workers but they also talk about the public and this sets the alarm bells ringing. So [it is important to] really focus on the main target audience of the guideline and make sure that the text is appropriate.
**PRINCIPLE 2**

**Design for access and accessibility**

Principle 2 was presented to the workshop participants as follows:

WHO guidelines should be developed to be inclusive of all people who use them, and every effort should be made to eliminate barriers to access. This means that location and infrastructure should not affect one’s ability to obtain a guideline and nor should physical, cognitive, or language impairment (e.g. dyslexia) impact their ability to utilise its recommendations. Accessible versions of guidelines should be easy to find and easy to use.

Guidelines should also be readily available and easy to find using any platform, web browser, or internet search engine. File sizes should be kept to a minimum for faster downloads, and the guidelines should be readable on a range of devices from desktop computers to mobile phones and tablets. Importantly, hardcopy, print-on-demand versions must remain available when necessary.10

Roles and responsibilities

WHO should communicate its requirements for accessibility clearly to those who edit and lay out guidelines. Participants questioned the suggestion that Guideline Review Committee members review and provide advice on the editing and layout of guideline documents. Technical editors might provide advice on sections that could limit access and propose use of photographs and advice on inclusion of summaries or recommendations.

Resources

Participants confirmed that a checklist of minimum system requirements for document access and/or a dissemination plan would be useful. They also recognized that social media could be important and effective for dissemination, with other media and/or alternative platforms for launching guidelines (e.g. webinars).

Document structure and format

Participants agreed that the accessibility of guidelines should be a priority and that digital access is likely to achieve this, as it is common among end users. They emphasized the importance of ensuring that data were kept up to date and that the most recent versions be easily accessible and clearly labelled. Guidelines should be interoperable on various systems, and digital publications should be easy to locate, easy to read and easy to download (e.g. manageable file sizes). Audio versions were recommended by one group to improve access for visually impaired users; they also recommended use of alt text, a short, written description of an image used by screen readers.

Layout, font size, spacing, colour, the overall length of a guideline and the use of bullet points were confirmed as important to improve access.

Context

In determining dissemination methods, contextual limitations should be considered, such as access to electricity, the Internet, and/or wifi. For example, if users do not have access to a reliable internet connection or electricity, printed guidelines should be available for posting. This should be planned and budgeted for. Other contextual issues include the environment in which guidelines may be used; for example, laminating of guidelines may increase their longevity when they are used in environments like hospitals.

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**Language**

Participants agreed that simple terminology and a concise writing style increase clarity, including use of bullet points when appropriate. Simple language should be maintained in translations and language barriers carefully considered. Further, politically and culturally appropriate language should be used when possible. Participants noted that terms such as “accessibility” and “inclusion” be clearly defined by WHO.

**End user**

Participants agreed that it is important to know your readers and then write for them. This includes knowing whether the end users have a medical background or whether reference materials are necessary. Although the participants agreed that it was important to accommodate end users with vision impairment, they were ambiguous about whether colour blindness should be a consideration.

### PRINCIPLE 3

**Design for consistency and quality in planning and writing**

Principle 3 was presented to the workshop participants as follows:

Authors of WHO guidelines should aim to write with clarity, to a consistent structure, and to be as concise as possible. Ensuring that end users are able to easily read and understand the content by drawing on the principles of plain language should be prioritised wherever possible. Develop a strategy for language and linguistic structure that is clear and concise, eliminates jargon and colloquialisms, and draws from a harmonised glossary of terms. Although it is essential to ensure clear communication and to preserve pertinent details, aim to keep WHO guidelines as succinct as possible. In short, say it plainly with as few words as possible.

**Roles and responsibilities**

While the responsible technical officer ensures that guideline developers and producers understand the topic, participants recommended engagement of an editor before starting to write a document in order to maintain a “single voice” and to maintain consistency. The editor can use this principle to raise concerns about clarity with the responsible technical officer; however, this role should be clearly defined and protected from any repercussions. Participants also considered that some roles in guideline development (e.g. the designer) are not clearly defined and should be further clarified.

**Document structure and format**

Participants agreed that the structure of a guideline should be consistent, logical and precise to make the end user “feel more comfortable”. For example, if a guideline is formatted in chapters, each chapter should begin in the same way. A harmonized glossary of commonly used terms was also considered useful. Participants mentioned that high-quality (i.e. scholarly and recent) references should always be used.

**Language**

Participants confirmed that guidelines must be easily understood, with avoidance of jargon and “buzzwords”, and use of acronyms only for international standard (SI) scientific abbreviations, widely used technical and medical terms and the names of international and other organizations. Consistency can be maintained by use of harmonized language throughout the guideline, including consistent terminology.
(e.g. doctor or clinician), providing clear definitions when required and ensuring that the language is as clear as possible. For guidelines that require use of technical terms, considered use of technical language is advised, with definitions provided in a harmonized glossary of commonly used terms. A planning meeting before the writing stage could be used to decide on inclusion of new terms in both the original and other languages. In general, authors should endeavour to use clear, consistent language and be as succinct as possible, including providing references as hyperlinks rather than detailed citations.

**PRINCIPLE 4**

**Design for translation to multiple languages**

Principle 4 was presented to the workshop participants as follows:

> WHO guidelines should be written with translation in mind. International audiences bring with them a diversity of languages, cultural identities, and approaches to health and healthcare. WHO guidelines need to accommodate and be inclusive of diverse users, which includes translation into languages necessary to reach target audience(s). No matter the context the guideline will be used in, or its adaptation to a local environment, the reader experience should be the same. This means that in both screen or print, regardless of the language that the guideline is translated into, overall meaning should be the same and consistently conveyed.

**Roles and responsibilities**

Participants recognized that translation is a shared responsibility and also discussed the fragmented response often observed from the three levels of WHO (headquarters, regional offices and country offices). To address these concerns, WHO could increase its multilingual awareness and capabilities and ensure that authors understand that they are writing for an international audience who may be working in languages that are not their first language. Guideline development can include the expertise of translators from the beginning. Participants suggested that the Guideline Review Committee ensure verification of translations during quality planning.

Participants noted that graphic designers who are not familiar with the six official languages (Arabic, Chinese, English, French, Russian and Spanish) may find it difficult to respect principle 4. When possible, designers should be found who can work in all six official languages, as well as other languages, and editors should work with translation in mind.

**Resources**

Participants reiterated that a standardized document template that could accommodate the official languages would facilitate translation. Guidance for graphic designers on recommended fonts for different languages would also be helpful to ensure that appropriate fonts are used.

**Document structure and format**

Participants agreed that layout and formatting should be simple, including placement of tables, figures and images, the hierarchy of headings and ensuring enough space to accommodate other languages. As explained by a workshop participant:

> Moving from one language to another, you have different challenges. And again, if you are designing the document in such a way that something fits into a page, as you move from language to language, you may begin to find that they do not fit into pages as you have planned because some languages use more words than others.
A harmonized glossary of commonly used terms was again proposed, with categorization of technical information.

It should be remembered that diagrams and charts may be read differently in different cultures and languages. Use of simple diagrams and charts is therefore advised. Furthermore, care should be taken to ensure that visualizations do not contradict local information or regulations or risk misinterpretation. Explanatory text should clarify how and why a diagram has been used. Diagrams and flow charts should be provided in a format that allows editing and translation.

**Context**

Participants discussed the differences between global and regional translation and use of local language for technical terms, with the guidance and support of local expertise. The language used by guideline developers and producers must be sensitive to stigma, gender and politics.

**Quality control**

Translation is time-consuming. While it is now often assisted by translation tools, it remains a skilled professional activity. The right translator should be chosen for each guideline, with sufficient time for the job. Delays in translation can be avoided by good planning, a document with a simple structure in a standard Word template, written and edited with multilingual audiences and translation in mind, with planning for the necessary languages and budget.

Participants reiterated that the language should be simple, concise and consistent, with no jargon, ambiguities or colloquialisms. Roman numerals should not be used, to avoid any misinterpretation. Insufficient editing time will affect translation.

... even if we are not planning translation, those documents are usually going to be translated so ... we need to be sure that editors are given sufficient time for editing"

As some professional editors might not understand certain terms, it is important to identify those who understand the subject and can verify language and connotation. Even if documents are translated into the official languages, further translations may be undertaken in the country of use. WHO may consider providing guidance for verification of translations by local translators, perhaps by pilot-testing.

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**PRINCIPLE 5**

**Design for usability**

Principle 5 was presented to the workshop participants as follows:

Make WHO guidelines user-centric by prioritising end user needs. This involves simple and clear communication that reduces unnecessary elements and consolidates information so that end users can quickly locate it and easily determine its relevance to them. These aims are achieved by employing a well-defined and consistent typographic structure that facilitates efficient navigation of the content, regardless of format, so that end users can search for and find information easily. It draws on techniques like visual cueing to highlight key concepts and group related content. Finally, it employs a strategy for the considered use of images, diagrams, and infographics to visualise complicated processes so that they can be understood quickly and with less effort than reading a lengthy verbal explanation. Designing for usability aims to increase communication efficiency and improve end user satisfaction.
Roles and responsibilities

Participants reiterated that the technical officer is responsible for ensuring that the content is suitable for the target audience; however, the editor is responsible for ensuring that the structure is appropriate and consistent. Guideline designers should be informed about usability requirements.

Participants discussed who is responsible for providing comments on drafts and concluded that consultation with experts and other professionals is beneficial. All draft WHO publications should be reviewed before they are sent for editing; the editor should receive a final manuscript with validated content.

Resources

Authors of guidelines should be aware of who will use them and for what purpose. Participants proposed that guideline authors could use templates, particularly if they are writing for different users (e.g. doctor or nurse), as different rules or guidelines might be necessary in each case.

Participants agreed that the aim of a guideline should be decided collaboratively, with shared understanding. A checklist was proposed for categorizing messages according to WHO level (headquarters, regional offices and country offices). Participants recommended that tools be developed to facilitate implementation at country level:

“It’s important to keep in mind that there should be, in addition to the guidelines, tools that would help with implementation or their use.”

Document structure and format

Participants agreed that the usability of documents should be considered to ensure concise, clear communication. The table of contents should provide a logical flow of information, in steps. One participant said, “whatever is done in practice should be written in the same steps within the document”.

Participants noted that fonts and colours should be used strategically in the layout of a document to differentiate topics. Related information could be grouped or in several parts to assist communication. As guidelines may target different levels of health systems, participants suggested that each end user should be able to access the messages that are relevant to them. The accessibility of guideline visuals, including any video material, should be evaluated.

Context

Information and visuals should be locally relevant and adapted to the cultural context in which they will be used.

End user

Authors must know who their target readership is and keep them in mind when deciding on elements such as structure, lists, boxes, tables, figures and infographics. Participants defined “user-centred” as “editing for readers and not clients” and “writing for users and not self”. Engagement with end users may also help in defining “don’ts” for usability.
PRINCIPLE 6
Design for action, backed by evidence

Principle 6 was presented to the workshop participants as follows:

WHO guidelines should provide clear and feasible steps to implement recommendations that are context–relevant along with a plan and mechanism to monitor uptake, success, impact, and satisfaction. Providing up-to-date information about what support services are available at a country level is an important step to helping end users implement guidelines. Once a WHO guideline is released, WHO should have a strategy to collect data about who is accessing the guideline (e.g. from where it is being accessed) and how much it is being accessed (e.g. number of downloads). These coupled with user feedback detailing how useful they found the recommendations, how easy they were to implement, and if the desired result was achieved will generate contextualized evidence about the effectiveness of a guideline and inform the development of future products. Evidence from real-world use should drive decision-making about how guidelines are developed and monitoring their effectiveness after their release.

Roles and responsibilities

As guidelines should be verifiable to instil confidence, participants suggested that WHO identify people who can collect evidence for evaluation. Participants observed that monitoring derivative products that are not controlled by WHO can be difficult. They suggested that contact information be provided for continuing support.

The roles and responsibilities of graphic designers were queried, particularly in relation to details such as references.

Resources

Participants recommended use of desktop or mobile monitoring and evaluation applications to collect information. WHO already has a user-friendly platform for sending surveys.

Participants discussed inclusion of a case study of the success of a guideline.

Evidence and evaluation (access)

Participants noted that the number of downloads is not necessarily an indicator of success. Although it is easy to identify in which region a guideline was downloaded, that does not indicate whether it was implemented and does not capture the background or context of the user. Google analytics might provide further information on website traffic.

While it may be informative to obtain demographic information on individuals who download guidelines, this may act as a deterrent to some. A further deterrent might be placement of guidelines on webpages where they may be difficult to find. Participants commented that the “number of clicks matters”, and having to click through many links in order to locate guidelines may put off some users.

If a guideline is being downloaded only in a particular region, WHO may wish to question this and contact relevant people in the region. Participants also discussed access constraints, whether guidelines meet user needs and whether there is resistance or other barriers to implementation. With regard to the accessibility of the interface, participants suggested that WHO consider categorizing guidelines according to the cost–effectiveness of interventions.
Evidence and evaluation (effectiveness and impact)
Participants noted that the two key steps in this principle are implementation and impact. A survey to determine the effectiveness of a guideline and to identify barriers to its implementation would require two sets of questions. Regional priorities should be considered, and participants proposed that regional analyses of strengths, weaknesses, opportunities and threats (SWOT) be conducted.

Once a guideline is completed, it must be tested in several countries (of both low and high economic status) to evaluate how comprehensive it is before dissemination. For example, it could be evaluated for unclear or missing content, the flow of information and the structure. Qualitative and quantitative feedback should be collected, in the countries, if possible. Participants also discussed how feedback is documented. For example, if a guideline is tested in a rural context or in a setting like a hospital, printed feedback might be required. Deadlines should be set for feedback, with periodic reminders.

Participants emphasized the importance of an efficient monitoring plan. Carefully selected indicators are required to collect evidence on impact, such as an impact assessment. Participants noted, “if trying to reduce the rate of something, assess the statistics”. Further, a question was raised about whether “impact” should be measured at programme level (at which the guideline might be included) rather than at guideline level:

We don’t feel that a guideline should be linked to a measure. We should not intend to measure the impact of a single guideline because we feel that actually impacting the country would be a conjunction of guidelines, [and] also country support.... We are not talking about use or implementation, but if we want to look at impact, it should not be at the guideline’s level [on its own].

Principle title
Participants working with the persona Alma, a member of the Guideline Review Committee, suggested that the title of principle 6 be changed, as it could be confusing. They suggested that it read “Implementation, evaluation, feedback, impact, etc.”

PRINCIPLE 7
Design using living principles
Principle 7 was presented to the workshop participants as follows:

The system for producing WHO guidelines should be developed to be flexible so as to enable a timely response to new evidence, as soon as it becomes available. WHO guidelines are trusted documents and taking a living principles approach will strengthen this foundation within the communities where guidelines are implemented. This principle aims to accelerate the incorporation of emerging advice and new peer-reviewed evidence in guidelines where it is relevant and to avoid slow turnaround times that have delayed the development and dissemination of guidelines in the past.11 Importantly, guidelines should be viewed as ‘living’ in that they are published in a manner that is easy to update (i.e digital first), ensuring end users are able to access the most up-to-date and accurate recommendations at any given time.

Roles and responsibilities

Participants called for clear instructions, outlining tasks and roles for technical units. They also suggested that WHO consider establishing a working group with members from different regions to discuss updates and seek advice and peer-reviewed evidence. The updates would depend on national needs, and the Guideline Review Committee could consider requests as they are received. International consensus is required, in line with current practice.

Document structure and format

Participants commented that, as new evidence emerges every day, guidelines should be designed so that they are easy to update, including sections that can be “re-edited and re-translated”. Some participants also discussed the difference between guidelines and recommendations and whether updating recommendations would be more appropriate.

Updates

Updating cycles should be planned, prioritized and “timestamped”. The cycles might be changed according to medical information, usually within 1 or 5 years, as dictated by the topic and the speed at which information changes (e.g. the coronavirus disease pandemic). In many cases, only parts of a guideline will be updated, and these must be clearly indicated and communicated to end users.

Monitoring includes continuous scanning of evidence and systematic analysis. Participants noted that resources are necessary to ensure effective, efficient monitoring and that WHO should consider use of automation.

Access

Participants agreed that guidelines should be organized in such a way that the most recent information is easily identified, such as by placing the newest guidelines at the top of a webpage. This is important for both readers and translators. They observed that some documents provide new information in only one section, which can result in continued use of all versions (including those that are outdated). One participant said:

> When you go to the point of view of the user, how do you ensure that the user uses the latest version? Because even as you’re updating, you’re not deleting the older version. And how do you ensure that the user comes to check for newer versions?

When guidelines are downloaded in package format, an option should be provided for downloading the newest guideline separately. It is important that updates be clearly marked. Participants suggested that a table be provided that can be updated with current information.
The thematic analysis resulted in actionable insights that may be used to evaluate and inform further development of prototype design principles. The insights are organized thematically below in broad areas relevant for all seven principles. The insights point to areas and ways for “re-prototyping” the design principles in order to improve the distribution, uptake, usability and impact of WHO guidelines.

Understanding and engaging with end users and stakeholders
When planning a guideline, WHO might consider increasing its engagement with end users and stakeholders, so that the authors can empathize with their lived experience and factors that will influence their engagement with the guideline, such as the end users’ work context, culture (e.g. religion) and knowledge (e.g. whether the user has a medical background or whether reference materials will be necessary). Understanding cultural and community priorities, needs or requirements for use, contextual barriers (e.g. access to electricity, the Internet or wifi) and the consequences of those barriers (e.g. budget for printing) will assist guideline developers in anticipating what might hinder uptake and use. To support authors, WHO could provide a list of potential end users for the guideline (e.g. ministry of health officials, WHO focal points, patients, donors, internal or external groups). Knowing who will implement the guideline and its purpose will assist writers and developers in determining the necessary templates and other resources.

Ensuring clear roles and responsibilities
Definition and clear communication of the roles and responsibilities of those involved in planning each stage of guideline development will ensure clear, consistent planning, drafting, editing and translation. This includes defining who is responsible for providing comments and feedback at the first stage of drafting and the role of the Guideline Review Committee in overseeing a plan for updating the guideline.

Clear communication of the requirements for accessibility of guidelines and clear definition of terms such as “accessibility” and “inclusion” will help WHO writers, developers and designers to understand the essential requirements for usability.

Document language, format and structure
Improving the readability of guidelines is important. Several suggestions were made to help authors and editors achieve this, including writing concisely to reduce the length of documents, providing references and web links where available, grouping related content, and ensuring that the table of contents represents a logical flow of information according to the steps to be taken in practice. Clear, consistent technical language should be used that is not simplified to the point at which it is no longer useful to the reader.
Alternative formats might be considered. Audio and video options can improve access for some end users. A pilot study could be conducted to evaluate the accessibility of large text size, audio readings, animations and telephone access. Key terms or phrases could be pilot-tested before writing to ensure their comprehension by users.

Prioritization of electronic formats, especially for Member States, is important because print can pose “version control” problems, such as outdated guidelines.

**Document translation**

Guidelines should be written for translation into several languages from the start. WHO may wish to enhance its awareness and capability for multilingualism and ensure that authors recognize at the planning stage that they are writing for an international audience, who may be reading in a language that is not their first one. WHO might also consider including translations of the executive summaries of all guidelines into the six official languages. They might include a harmonized glossary of commonly used and technical terms, information on each chapter, and categorization of technical information. Guidance should also be provided for graphic designers about suitable fonts for publishing in different languages.

For local translations, guidance should be provided on verifying accuracy, in consultation with local translators. A pilot study might be beneficial, drawing on the expertise of people who know the context and subject matter, further supported by:

- involvement of the Guideline Review Committee to ensure that a translation is verified in planning quality and
- reducing translation delays where possible so that national end users need not translate documents themselves.

**Implementation, evaluation and monitoring**

When evaluating the effectiveness of a guideline, it is important to remember that its contribution to “impact” may require implementation of several guidelines, national support and various tools and resources. Other factors that may influence WHO’s ability to measure the impact of a guideline should be considered. For example, it may be necessary to assess whether a guideline is applicable in other contexts (e.g. when a guideline is applied for another purpose, which could result in skewed data).

When evaluating indicators of the success of a particular guideline, WHO should look beyond the number of downloads. Where access to the Internet is not a barrier to uptake, rapid, effective capture of background information on the user during downloading, without deterring users, might provide information on regional uptake and use. Feedback from relevant end users in regions where the guidelines are not being downloaded could also provide insight.

Indicators for evaluating the impact of a guideline, such as an impact assessment, could provide information for guideline developers for future revisions. Identification of people in the field who can collect evidence would also contribute. Documentation of feedback from users in rural settings should be carefully considered, because, although desktop or mobile applications for monitoring and evaluation are often recommended, these formats might not be suitable.
Before dissemination, guidelines could be tested in several countries to assess their comprehensiveness. Testing should be done in low-, middle- and high-income countries, with consideration of regional priorities (e.g. cancer, obesity, diabetes, kidney disease) and requirements for implementation. A SWOT analysis for each region could be conducted. Categorization of guidelines according to cost–effectiveness could be useful for end users.

To ensure that implementation, evaluation and monitoring are effective and efficient, additional resources may be required (including funding, personnel or training), with consideration of the role of automation. Awareness of guidelines and guideline updates could be increased through activities such as advertising, targeted messaging, social media, webinars and launch events.

**Tools and resources**

Engaging with and seeking feedback from stakeholders will help WHO to ensure the validity of tools to support guideline development and to effectively support implementation.
5 Next steps

This report summarizes a thematic analysis of discussions during the workshop on the themes: roles and responsibilities, resources, document structure and format, context and end user. Actionable insights arising from the thematic analysis are also presented, which could be evaluated and used to inform further development of prototype design principles.

The next steps will include “re-prototyping” the principles and tools and testing the revised version with stakeholders in the field through task forces and establishing feedback mechanisms. The principles and tools will then be revised and disseminated widely.
Annex 1
Persona used in the workshop

Scenario
In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents.

The updated guidelines include new recommendations that cover diagnostic approaches for TB, shorter treatment for children with non-severe drug-susceptible TB, a new option for the treatment of TB meningitis, the use of bedaquiline and delamanid in young children with multidrug- and rifampicin-resistant TB and decentralized and family-centred, integrated models of care for TB case detection and prevention in children and adolescents.

The desired impact of WHO normative guidelines on the management of TB in children and adolescents is a reduction in the burden of TB morbidity and mortality in children and adolescents, in line with the targets included in the WHO End TB Strategy, goal 3 of the United Nations Sustainable Development Goals and the Political Declaration of the United Nations General Assembly High-level Meeting on the Fight against Tuberculosis.

Expectations are very high on Rosaline both from management and from regional/country offices as well as external stakeholders.

Meet Rosaline
Rosaline is the responsible technical officer (RTO) for the development of this product.

Rosaline’s Role
As the responsible technical officer (RTO), Rosaline works with a team of 4 colleagues (who have various complementary backgrounds, expertise and skills) that was responsible for mobilizing of funding, the WHO Expression of Interest to share data, the development of the guideline development proposal, an evaluation among stakeholders on how the previous guidelines were being used/implemented as well as gaps/needs (a survey among stakeholders), establishment and coordination of the WHO steering group, the guideline development group (external experts and end users), the external evidence review group(s) for each of the PICOs and background questions, coordination of the evidence profiles, writing up of Evidence to Decision Tables including outstanding research gaps, drafting of the guideline and related operational handbook with implementation guidance, timely submission to WHO Guideline Review Committee addressing comments from the external reviewers. Another important step is to ensure alignment with other WHO guidelines.

She acts as the liaison with the Guideline Review Committee secretariat, the technical editor, as well as the graphic designer, and manages the different steps of the product development process and the relationships with the relevant stakeholders.

The RTO is also responsible to ensure the document is published online, disseminated and translated in one or more of the other WHO official languages. She is also in charge of developing the dissemination (e.g., official launch, webinars, regional consultations in collaboration with major technical and financial partners), implementation and monitoring and evaluation frameworks and plans for the product, in collaboration with other colleagues.
In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents. The updated guidelines include new recommendations that cover diagnostic approaches for TB, shorter treatment for children with non-severe drug-susceptible TB, a new option for the treatment of TB meningitis, the use of bedaquiline and delamanid in young children with multi-drug- and rifampicin-resistant TB and decentralized and family-centred, integrated models of care for TB case detection and prevention in children and adolescents.

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Expectations are very high on Rosaline both from management and from regional / country offices as well as external stakeholders.

Meet Alma

Alma is a Guideline Review Committee member that reviews document and appraises the quality of the proposal and final guideline according to predefined quality standards (summarized in a checklist).

Alma’s Role

As a member of the Guideline Review Committee (GRC), Alma is one of two independent reviewers alongside the GRC Secretariat who will independently review the document and appraise the quality of the proposal and final guideline according to predefined quality standards (summarized in a checklist). Each reviewer summarizes their main concerns to the Committee in plenary, and makes a recommendation on the appropriate action (approve/approve with revisions/revise and resubmit). Where reviewers’ recommendations differ, the Committee will discuss the main points raised and a decision will be made by consensus by the full Committee. If consensus cannot be reached, the Committee takes a vote. The Chair has the deciding vote.

A consolidated set of comments is shared by the GRC secretariat with the responsible technical officer (RTO) within 48 hours of the GRC meeting. This usually consists of clear instructions on how s/he can strengthen the quality of the product.

Depending on the extent of the revisions requested, the revised guideline may be reviewed by either the Chair and GRC Secretariat or by the full Committee at its next meeting.

- **Approved:** The Committee approves a planning proposal or a final guideline if no major revisions are required and the document meets WHO’s standards.
- **Approved with revisions:** This decision is provided when there are significant mandatory comments that require amendments or clarifications to the document. Final approval by the Committee is contingent upon an adequate response by the responsible technical officer, to the satisfaction of the Chair or his/her designee on behalf of the Committee.
- **Revise and resubmit:** In this case the Committee has determined that the planning proposal or final guideline does not meet WHO standards for guidelines. The responsible technical officer must submit a revised planning proposal or final guideline document for review by the entire Committee.
In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents.

The updated guidelines include new recommendations that cover diagnostic approaches for TB, shorter treatment for children with non-severe drug-susceptible TB, a new option for the treatment of TB meningitis, the use of bedaquiline and delamanid in young children with multidrug- and rifampicin-resistant TB and decentralized and family-centred, integrated models of care for TB case detection and prevention in children and adolescents.

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Expectations are very high on Rosaline both from management and from regional / country offices as well as external stakeholders.

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**Scenario**

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Expectations are very high on Rosaline both from management and from regional / country offices as well as external stakeholders.

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**Meet John**

John is a technical editor, listed within the WHO roster.

| NAME: John | NATIONALITY: British | OCCUPATION: Technical editor |

**John’s Role**

As a technical editor listed within the WHO roster, John regularly receives requests for technical editing from responsible technical officers (RTOs) for the development of technical products. He is hired based on standardized terms of reference and fees, through an agreement for performance of work (APW). He is an expert of the WHO house style guide and applies it throughout in his writing and editing work.

- When hired, he meets with the RTO to understand the document, its end-user and context of implementation.
- At times the editor faces challenges:
  - Documents (in word) are lengthy and dense, written in an unstructured and not coherent way and in a very complex technical language. There are several references to back up statements. Evidence comes only from certain regions. Country names change throughout the document.
  - Documents are not yet finalized internally by the technical unit and are delivered with track changes and comments. Often, he receives these documents after the start date of the contract has passed, or with no contract already in place, while he is expected to deliver on time.
  - The RTO may also face the challenges of receiving the document back from the editor with delays, and/or edited not according to the WHO house style guide. The conditions of the contract need to be clearly negotiated from the start and communications regularly maintained.
  - The RTO may also face the challenges of receiving the document back from the editor with delays, and/or edited not according to the WHO house style guide. The conditions of the contract need to be clearly negotiated from the start and communications regularly maintained.

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**Tactile Tools**
In the Global Tuberculosis Programme, Rosaline was tasked with the development of WHO consolidated guidelines on Tuberculosis Module 5: Management of tuberculosis in children and adolescents.

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The desired impact of WHO normative guidelines on the management of TB in children and adolescents is a reduction in the burden of TB morbidity and mortality in children and adolescents, in line with the targets included in the WHO End TB Strategy, goal 3 of the United Nations Sustainable Development Goals and the Political Declaration of the United Nations General Assembly High-level Meeting on the Fight against Tuberculosis.

Expectations are very high on Rosaline both from management and from regional / country offices as well as external stakeholders.

Scenario

Meet Kamal

Kamal is the art director of a graphic design company. He receives requests for quotes to design WHO technical products.

Kamal's Role

As an art director of a graphic design company, Kamal receives requests for quotes from the Responsible Technical Officer to design/layout guidelines/technical products. He works with his team to prepare a quotation.

When hired, he is invited to a kick-off briefing about the product, the key messages, communications ideas, the branding guidance and WHO house style. The end-user and context for implementation is described. After the meeting, he presents a few design proposals for the RTO to decide. For guidelines, the template is the same.

At times he faces challenges:

- He receives the document in separate sections and in different formats.
- He needs to liaise and negotiate with RTOs that have a very particular idea about the design of the product, often not in line with the design principles.
- He receives the document with track changes and comments, and has to liaise with the RTO for clarification.
- He receives requests for changes to the design (font or size of section title) once the whole layout of the document is finalized.
- He has to harmonize several infographics, diagrams, tables and layout photos that come in a different style.

After layout, the RTO will send the document to the proof-reader. Once proof-read, the RTO addresses the proof-reader comments, and sends back the document to the graphic designer. It is important that the proof-reader and graphic designer agree on standards for proof-reading the pdf document. The graphic designer includes all proof-reader comments and finalizes the layout.

The RTO does the final review and submits it for production clearance, and finally to the printing services (internal or external) for printing and to the WHO web team for online publishing.
These principles have been co-created with the Department of Quality Assurance, Norms and Standards (QNS) Design Lab at World Health Organization (WHO) located in the Product Design and Impact (PDI) Unit of QNS, and Monash University’s Design Health Collab.

Design with empathy by understanding people and their context

Authors and designers of WHO guidelines should develop a thorough understanding of the individuals implementing a given guideline and their unique circumstances and requirements for implementation. WHO guidelines aim to serve people and work toward their wellbeing. They do this by recommending changes to behaviours, systems, or procedures that support health. This cannot be achieved without first deeply understanding the lived experience of the people implementing the guidelines, the contexts in which they are working, and the enablers and barriers they may face in the change process. By understanding how end users will use recommendations, guidelines can be developed that respond to diverse constraints and unique cultural contexts.

Tool that can help

Empathy map canvas
This is a diagrammatic representation of what the reader of a WHO guideline might be thinking and feeling, doing and saying, and what obstacles they face to understanding and implementing the recommendations in the guideline. This tool contains prompts to help identify the end user(s) and understand their needs and unique requirements or context. It can be used to collect and synthesise notes from interviews or workshops or by WHO staff when planning or scoping a new WHO guideline, and identify pertinent constraints.

User network map
This is a prompt to map the people, organizations, objects, and systems that will help or hinder the final user’s access to and capacity to implement the guideline. This may include individual people (e.g. healthcare leaders, WHO staff), organizations (e.g. Ministry of Health), infrastructures (e.g. technologies, transport systems), and systems (e.g. translation, political changes).

Annex 2
Prototype design principles presented to participants
2 Design for access and accessibility

WHO guidelines should be developed to be inclusive of all people who use them, and every effort should be made to eliminate barriers to access. This means that location and infrastructure should not affect one’s ability to obtain a guideline and nor should physical, cognitive, or language impairment (e.g., dyslexia) impact their ability to utilise its recommendations. Accessible versions of guidelines should be easy to find and easy to use.

Guidelines should also be readily available and easy to find using any platform, with browser, or internet search engine. As with all guidelines, they should be instantly available in multiple formats, and the guidelines should be available on a range of devices from desktop computers to mobile phones and tablets. Importantly, hardcopy, print-on-demand versions must remain available when necessary.

<table>
<thead>
<tr>
<th>Tool that can help</th>
<th>Why it’s useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample guideline chapter and style guide</td>
<td>Provides a specific example of best-practice principles for communication design.</td>
</tr>
<tr>
<td>File compression checklist</td>
<td>Checklist to guide the creation of minimised files or a specific set of guidelines to reduce file size.</td>
</tr>
<tr>
<td>WHO guideline for accessibility checklist</td>
<td>Provides templates that draw on established W3C Web Accessibility Initiative guidance to ensure that WHO publications are accessible for everyone, including those with cognitive or physical disability.</td>
</tr>
</tbody>
</table>

3 Design for consistency and quality in planning and writing

Authors of WHO guidelines should aim to write with clarity, in a consistent structure, and to be as concise as possible. Ensuring that end users are able to easily read and understand the content by drawing on the principles of plain language should be prioritised wherever possible. Develop a strategy for language and linguistic structure that is clear and concise, eliminates jargon and colloquialisms, and draws from a harmonised glossary of terms. Although it is essential to ensure clear communication and to preserve pertinent details, aim to keep WHO guidelines as succinct as possible. In short, say it plainly with as few words as possible.

<table>
<thead>
<tr>
<th>Tool that can help</th>
<th>Why it’s useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document mapping canvas</td>
<td>This helps authors of WHO guidelines plan and understand all the phases, steps, and elements that should be employed in order to develop a WHO guideline.</td>
</tr>
<tr>
<td>Guideline structure template</td>
<td>This helps authors of WHO guidelines to visually represent the logical flow of the document and ensures consistency across all WHO documents.</td>
</tr>
<tr>
<td>Harmonised WHO glossary of terms</td>
<td>This harmonised glossary of terms should be used to ensure that the meaning of key terms is preserved across standardised WHO language.</td>
</tr>
<tr>
<td>Language usage checklist</td>
<td>This checklist ensures that language is consistent and reflects the user’s needs.</td>
</tr>
</tbody>
</table>

These principles have been co-created with the Department of Quality Assurance, Norms and Standards (QNS) Design Lab at World Health Organization, the Product Design and Impact (PDI) Unit of QNS, and Monash University’s Design Health Collab.
4 Design for translation to multiple languages

WHO guidelines should be written with translation in mind. International audiences bring with them a diversity of languages, cultural identities, and approaches to health and healthcare. WHO guidelines need to accommodate and be inclusive of diverse users, which includes translation into languages necessary to reach target audiences. No matter the context the guideline will be used in, or its adaptation to a local environment, the reader experience should be the same. This means that in both screen or print, regardless of the language that the guideline is translated into, overall meaning should be the same and consistently conveyed.

Tool that can help Why it’s useful
One sample guideline with demonstration page across 6 official languages Provides a specific example of best-practice principles for communication design that accommodates translation needs. The goal is to ensure there is enough space for languages that use more or different characters for the same word or languages that read left-to-right, right-to-left, or top to bottom.

Document template designed to accommodate multiple languages Template in file formats (.indd, .idml) and stylesheets suitable for use by professional graphic designers and typesetting services. These templates are designed to accommodate translation of content across a range of languages, such as using a single column (because multiple columns are more difficult for professional translators to work with).

Principles for WHO images, diagrams, and tables Principles to guide image development with examples for adaptation across languages and cultures.

5 Design for usability

Make WHO guidelines user centric by prioritising end user needs. This involves simple and clear communication that reduces unnecessary elements and consolidates information so that end users can quickly locate it and easily determine its relevance to them. These aims are achieved by employing a well-defined and consistent typographic structure that facilitates efficient navigation of the content, regardless of format, so that end users can search for and find information easily. It draws on techniques like visual cueing to highlight key concepts and group related content. Finally, it explores a strategy for the considered use of images, diagrams, and infographics to visualise complicated processes so that they can be understood quickly and with less effort than reading a lengthy verbal explanation. Designing for usability aims to increase communication efficiency and improve end user satisfaction.

Tool that can help Why it’s useful
Sample guideline Provides a specific example of best-practice principles for communication design.

Document template Templates in file formats (.indd, .idml) and stylesheets suitable for use by professional graphic designers and typesetting services. These templates build upon established evidence of what does and does not work for uptake of WHO guidelines. Documentation and literature of this evidence is made available in the additional resources section of this guideline.

Principles for WHO images, diagrams, and tables Principles to guide image development, with examples of best practice for development across a range of relevant visualisation approaches (e.g., infographic, diagram, table).

The Design Toolkit for WHO Guideline Developers: Principles & Tools
Design for action, backed by evidence

WHO guidelines should provide clear and feasible steps to implement recommendations that are context-relevant along with a plan and mechanism to monitor uptake, success, impact, and satisfaction. Providing up-to-date information about what supports services are available on a country level is an important step to helping end users implement guidelines. Once a WHO guideline is released, WHO should have a strategy to collect data about who is accessing the guidelines (e.g., from where it is being accessed) and how much it is being accessed (e.g., number of downloads). Analyzing data about how much the guidelines are accessed can be useful if they found the recommendations, how easy they were to implement, and if the desired result was achieved. Self- generated contextualized evidence about the effectiveness of a guideline and inform the development of future products. Evidence from real-world use should drive discussion-making about how guidelines are developed and monitoring their effectiveness after their release.

Design using living principles

The system for producing WHO guidelines should be developed to be as flexible as to enable a timely response to new evidence, as soon as it becomes available. WHO guidelines are trusted documents and taking a living principles approach will strengthen this foundation within the communities where guidelines are implemented. This principle aims to accelerate the incorporation of emerging advice and new peer-reviewed evidence in guidelines where it is relevant and to avoid slow turnaround times that have delayed the development and dissemination of guidelines in the past. Importantly, guidelines should be viewed as living in that they are published in a manner that is easy to update (i.e., digital first), ensuring end users are able to access the most up-to-date and accurate recommendations at any given time.

The Design Toolkit for Principles & Tools

Annex 2
Annex 3

Workshop canvas for each persona

Evaluating the Principles

Principles to support the design, development, and authoring of WHO guidelines

Principle #1) Design with empathy by understanding people and their context

Principle #2) Design for access and accessibility

Principle #3) Design for consistency and quality in planning and writing

Principle #4) Design for translation to multiple languages

Principle #5) Design for usability

Principle #6) Design for action, backed by evidence

Principle #7) Design using living principles

– Could Rosaline use this principle in her work? Why / why not?
– What might make it hard for Rosaline to apply this principle in her work?
– Do you think the tools could help Rosaline build empathy?
– Could Rosaline use this principle in her work? Why / why not?
– What does being ‘user-centred’ mean to Rosaline?
– What might make it hard for Rosaline to apply this principle in her work?
– Could Rosaline use this principle in her work? Why / why not?
– What does Rosaline need to consider when designing for translation?
– What might make it hard for Rosaline to apply this principle in her work?
– Could Rosaline use this principle in her work? Why / why not?
– How might Rosaline identify possible access and accessibility issues before the product is released? How would she do this?
– What do you think Rosaline would need in an accessibility checklist?
– Could Rosaline use this principle in her work? Why / why not?
– How might Rosaline monitor the product after its released? What data needs to be collected?
– How does Rosaline act upon the evidence she collects?
– Could Rosaline use this principle in her work? Why / why not?
– What does consistency mean for Rosaline?
– What makes it hard for Rosaline to maintain consistency?
– Could Rosaline use this principle in her work? Why / why not?
– How might Rosaline keep up to date with emerging advice and new peer reviewed evidence that might impact this product?
– How does Rosaline make a change or update the product after it's released?

Rosaline

Rosaline is the responsible technical officer (RTO) for the development of this product.

Activity

How do the principles here support Rosaline in the design and development of this product?

Record your notes on this poster.

15 mins

10 mins

10 mins

10 mins

10 mins

Tools that can help...

Empathy canvas

Stakeholder canvas

Document canvas

Experimentation canvas

Accessibility checklist

Language checklist

Review template

Action checklist

Translation examples
## Evaluating the Principles

### Principles to support the design, development, and authoring of WHO guidelines

| Principle #1 | Design with empathy by understanding people and their context |
| Principle #2 | Design for access and accessibility |
| Principle #3 | Design for consistency and quality in planning and writing |
| Principle #4 | Design for translation to multiple languages |
| Principle #5 | Design for usability |
| Principle #6 | Design for action, backed by evidence |
| Principle #7 | Design using living principles |

**Could Kamal use this principle in his work? Why / why not?**

**What might make it hard for Kamal to apply this principle in his work?**

**Do you think the tools could help Kamal build empathy?**

**Could Kamal use this principle in his work? Why / why not?**

**What does being 'user-centred' mean to Kamal?**

**What might make it hard for Kamal to apply this principle in his work?**

**Could Kamal use this principle in his work? Why / why not?**

**What does Kamal need to consider when designing for translation?**

**What might make it hard for Kamal to apply this principle in his work?**

**Could Kamal use this principle in his work? Why / why not?**

**How might Kamal identify possible access and accessibility issues before the product is released? How would he do this?**

**What do you think Kamal would need in an accessibility checklist?**

**Could Kamal use this principle in his work? Why / why not?**

**How might Kamal monitor the product after its released? What data needs to be collected?**

**How does Kamal act upon the evidence he collects?**

**Could Kamal use this principle in his work? Why / why not?**

**What does consistency mean for Kamal?**

**What makes it hard for Kamal to maintain consistency?**

**Could Kamal use this principle in his work? Why / why not?**

**How might Kamal keep up to date with emerging advice and new peer reviewed evidence that might impact this product?**

**How does Kamal make a change or update the product after it's released?**

---

**Kamal**

Kamal is the art director of a graphic design company. He receives requests for quotes to design WHO technical products.

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## Activity

**How do the principles here support Kamal in the design and development of this product?**

*Record your notes on this poster.*

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**Tools that can help ...**

- Empathy canvas
- Experimentation canvas
- Document canvas
- Stakeholder canvas
- Sample documents
- Version history
- Survey templates
- Accessibility checklist
- Language checklist
- Review template
- Action checklist
- Translation examples
Design with empathy by understanding people and their context

Authors and designers of WHO guidelines should develop a deep understanding of the individuals and groups that will implement the recommendations and of the situations and experiences that are barriers and enablers to their wellbeing. WHO guidelines aim to serve people and work toward their wellbeing. They do this by recommending changes to behaviours, systems, or procedures that support health. These recommendations can only be developed through a thorough understanding of the people implementing the guidelines. To achieve this, we recommend that designers engage with stakeholders, including end users, to gain an understanding of the factors that support implementation and the barriers that may impede it. In this way, recommendations can be developed that are relevant to diverse communities and unique cultural contexts.

Tools that can help...

- Empathy canvas
- Stakeholder canvas

Principle #1

Design with empathy by understanding people and their context

- Could Rosaline use this principle in her work? Why / why not?
- What might make it hard for Rosaline to apply this principle in her work?
- Do you think the tools could help Rosaline build empathy?

Annex 4

Online workshop canvases

The Design Toolkit for WHO Guideline Developers

Evaluating the Principles
Principle #2)
Design for access and accessibility

- Could Rosaline use this principle in her work? Why / why not?
- How might Rosaline identify possible access and accessibility issues before the product is released? How would she do this?
- What do you think Rosaline would need in an accessibility checklist?

Tools that can help...
- Sample documents
- Accessibility checklist

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Principle #3)
Design for consistency and quality in planning and writing

- Could Rosaline use this principle in her work? Why / why not?
- What does consistency mean for Rosaline?
- Could Rosaline use this principle in her work? Why / why not?

Tools that can help...
- Document canvas
- Sample documents
- Language checklist

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The Design Toolkit for WHO Guideline Developers
Evaluating the Principles

Design for access and accessibility

WHO guidelines should be developed in the best interests of all people who use them, and every effort should be made to enhance barriers to access. This means that language used in guidelines should be clear, consistent, and concise. Additionally, the language used should be simple, clear, and incorporate definitions that are clearly stated and referenced. Tools that can help...

- Sample documents
- Accessibility checklist

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Design for consistency and quality in planning and writing

Authors of WHO guidelines should aim to work with consistency, in a consistent document, and for an audience that is clear, clear, clear! Ensuring that each part of the document is translated and reviewed consistently helps to ensure that the meaning of each term is preserved when translated into languages other than English. Another strategy for language used by people who are learning or relearning the language is to provide additional information in a way that is consistent with their reading level.

Tools that can help...
- Document canvas
- Sample documents
- Language checklist

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Principle #4)
Design for translation to multiple languages

- Could Rosaline use this principle in her work? Why / why not?
- What does Rosaline need to consider when designing for translation?
- Could Rosaline use this principle in her work? Why / why not?

Tools that can help...

Empathy canvas
Stakeholder canvas
Translation examples

Principle #5)
Design for usability

- Could Rosaline use this principle in her work? Why / why not?
- What does Rosaline need to consider when designing for usability?
- Could Rosaline use this principle in her work? Why / why not?

Tools that can help...

Document canvas
Sample documents
The Design Toolkit for WHO Guideline Developers

Evaluating the Principles

**Principle #6)**

Design for action, backed by evidence

- Could Rosaline use this principle in her work? Why / why not?
- How might Rosaline monitor the product after its released?
- What data needs to be collected?
- How does Rosaline act upon the evidence she collects?

Tools that can help...

- Experimentation canvas
- Survey templates
- Checklist

**Principle #7)**

Design using living principles

- Could Rosaline use this principle in her work? Why / why not?
- How might Rosaline keep up to date with emerging advice and new peer reviewed evidence that might impact this product?
- How does Rosaline make a change or update the product after it's released?

Tools that can help...

- Review templates
- Survey templates