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RESEARCH ARTICLE

Current international tools and guidance for the implementation of hand hygiene recommendations in community settings: a scoping review

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ده سال برتری در بهداشت دست خلاصه‌ای از نتایج و مقایسه شاخص‌ها از بیمارستان‌های برنده جایزه در سراسر جهان

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Abstract

Hand hygiene is an important public health measure to prevent disease transmission. This scoping review identifies and summarises current tools and guidance for the implementation of hand hygiene recommendations in community settings. We conducted a scoping review following the Arksey and O'Malley framework. To identify relevant documents, we searched: 1) a grey literature database, 2) Google search engine, and 3) the websites of international organisations in November 2024. We included tools and implementation guidance relevant to hand hygiene in community settings, categorised as domestic, public, or institutional, and published in English by multilateral agencies and international organisations between January 1990 and November 2024. Tools and implementation guidance were mapped to an existing conceptual framework adapted for this review that includes a six-step implementation approach. We included 37 documents, comprising 33 implementation guidance documents and 4 stand-alone tools. Among these 37 documents, we identified 210 implementation recommendations and 24 unique tools for the six implementation steps. The 24 tools include 4 stand-alone tools and 20 tools embedded within guidance documents. Most implementation guidance was mapped to steps 1 (prepare for action), 2 (analyse the situation), 3 (develop an action plan), and 5 (monitor, evaluate, and course correct) of the conceptual framework, with limited guidance for step 4 (executing the action plan) and step 6 (cross-cutting themes). Over half

Data availability statement: The data extracted for this scoping review is included in S8 Table of the Supplementary information.

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of identified tools are for step 2 (analyse the situation) and primarily for undertaking a situation analysis. Only two documents provided guidance or a tool across the six steps. Implementation guidance for hand hygiene in community settings is available yet inconsistently spread across the six implementation steps. There is also a limited number of tools available to support implementation. Future work should focus on developing comprehensive practical tools for the implementation of hand hygiene recommendations in community settings to support international guidelines.

Introduction

Hand hygiene, which includes handwashing with soap and the use of alcohol-based hand rub (ABHR), is an important public health measure for the control and prevention of infectious diseases [1–3]. Handwashing with soap has been found to be a cost-effective intervention that can reduce the risk of both diarrhoeal disease and acute respiratory infections by over 20% [4–7]. Despite the international recognition of hand hygiene as a critical public health measure, there continues to be insufficient access to products and basic services in community settings, particularly in low- and middle-income countries [8–10]. A recent global hygiene assessment found that most surveyed countries had national policies for hand hygiene, but over a third did not have a financial plan for implementing them [11].

While clear and robust recommendations developed by the World Health Organization (WHO) exist for hand hygiene in health care settings, there are gaps in global normative guidance on hand hygiene in settings where health care is not routinely delivered [12]. A previous scoping review identified and summarised international guideline recommendations for hand hygiene in community settings – categorised as non-healthcare settings – published by multilateral agencies and international non-governmental organisations. The review highlighted a lack of consistent and evidence-based recommendations across four key areas: (1) what constitutes effective hand hygiene, (2) minimum requirements for practicing hand hygiene, (3) effective behaviour change approaches to sustain hand hygiene, and (4) the role of government [12]. As part of its mandate to address demand for guidance on public health topics where there is uncertainty and demand from governments, WHO is developing Guidelines for hand hygiene in community settings [13]. The Guidelines will provide evidence-based recommendations on how to improve hand hygiene in non-healthcare settings, collectively referred to as community settings (including domestic, public and institutional settings), based on a series of systematic reviews summarising the available evidence [14–17].

Implementation guidance and tools are critical for the uptake of guidelines, as well as for translating recommendations into practice for guideline users. The WHO Guidelines will include practical guidance on how to implement the guideline recommendations, which will be provided through step-by-step guidance and a set of accompanying tools to support adaptation of global recommendations into national action plans for hand hygiene in community settings [18]. For the hand hygiene in

health care guidelines, for example, WHO published a guide to the implementation of the WHO multimodal hand hygiene improvement strategy. The guide is accompanied by several tools, including a planning and costing tool to help health-care facilities determine the feasibility of implementing alcohol-based handrub [19]. However, for the community setting, it is unclear what implementation guidance and tools currently exist. While a previous similar review focused on guideline recommendations [12], this review summarises international implementation tools and guidance that can be used to support international guideline recommendations for hand hygiene in community settings. This review also provides a repository of tools that can be used to address hand hygiene in community settings as part of WHO's forthcoming Guidelines, as well as identify gaps for future work.

Aim

The aim of this scoping review is to identify and summarise current implementation guidance and tools on hand hygiene in community settings to support the implementation of international recommendations. The objectives are to: 1) identify implementation guidance and tools for hand hygiene in community settings, 2) map the guidance and tools to a six-step implementation approach, 3) provide a repository of tools for future use.

Methods

This review follows the six stages of the Arksey and O'Malley methodological framework for scoping reviews [20]. Our review is reported according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist (S1 Checklist) and PRISMA flow diagram (Fig 1). The protocol was preregistered with OSF Registries [21].

Identifying the research question (stage 1)

Our primary research question is: "What current international implementation guidance and tools are available to support the implementation of international recommendations for hand hygiene in community settings?".

Hand hygiene

For this review, hand hygiene refers to any hand cleansing undertaken for the purpose of removing or deactivating pathogens from hands and thereby limiting diseases transmission [22]. The review considers implementation tools for planning, designing, executing, and monitoring and evaluating various aspects of hand hygiene interventions or programmes.

Implementation guidance and tools

We define an implementation guide as a document, such as a manual, handbook, or guide, that provides practical recommendations on how governments, non-governmental, and private sector actors can improve the uptake of hand hygiene in community settings [23]. For this review, tools are defined as documents, such as checklists, worksheets, advocacy materials, costing spreadsheets, and education and training materials, that end-users can use to practically implement guideline recommendations to improve hand hygiene in community settings [23]. Tools are intended to provide users with a structured approach and decision-making support to ensure that recommended practices are effectively implemented. For example, there are several available tools related to planning, costing, and monitoring to guide users on the implementation of the guidelines on hand hygiene in health care [19,24,25]. The WHO multimodal hand hygiene improvement strategy is another example of a tool to support the guideline implementation of hand hygiene in the healthcare setting [26]. A tool may be included as part of an implementation guide, a toolkit (here defined as a set of practical tools and resources to support hand hygiene improvement and sustainability), or be a stand-alone tool. A stand-alone tool refers to a document that operates independently and is not integrated as part of a toolkit or broader document. Stand-alone tools provide targeted support for improving hand hygiene in community settings.

Community settings

This scoping review focuses on settings where health care is not routinely delivered [27], broadly spanning all places where people 'learn, play, work and love', referred to as 'community settings' [28]. For this review, 'community settings' include: 1) domestic, 2) public, and 3) institutional settings globally (e.g., high-, medium-, and low-income countries). The domestic setting refers to households. The public setting includes markets, public transportation hubs, parks, squares, and other public spaces, such as shops and restaurants. The public setting also includes spaces that vulnerable populations, such as people experiencing homelessness, may occupy. Institutional settings include the workplace, schools and universities, places of worship, and prisons and places of detention [12].

Conceptual framework

To map the identified guidance and tools, we developed a conceptual framework, which includes a six-step approach to support the implementation of recommendations for hand hygiene in community settings (Figs 2). The conceptual framework also categorises community settings by domestic, public, and institutional setting. The six implementation steps were adapted from the five-step approach from Burke et al. (2012) [29] and WHO (2009) [30] to include a cross-cutting sixth step. This approach has been utilised among WHO guidelines [31] based on the Centre for Effective Services (CES) Guide to Implementation [29]. Step 1 (prepare for action) ensures the overall preparedness to design, implement and monitor a hand hygiene improvement plan. This includes appointing a lead ministry, identifying ministries responsible

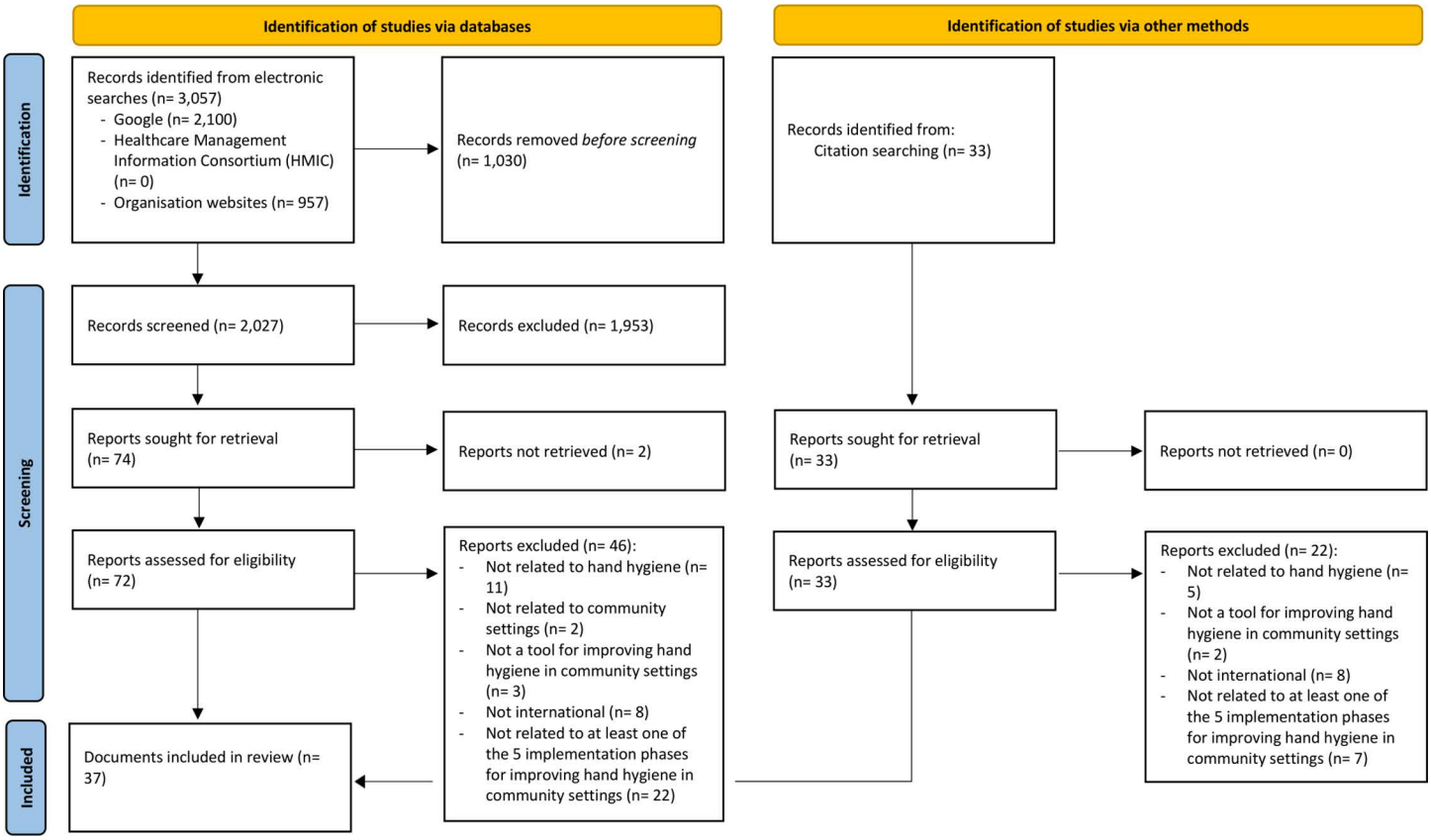

Fig 1. PRISMA flow diagram.

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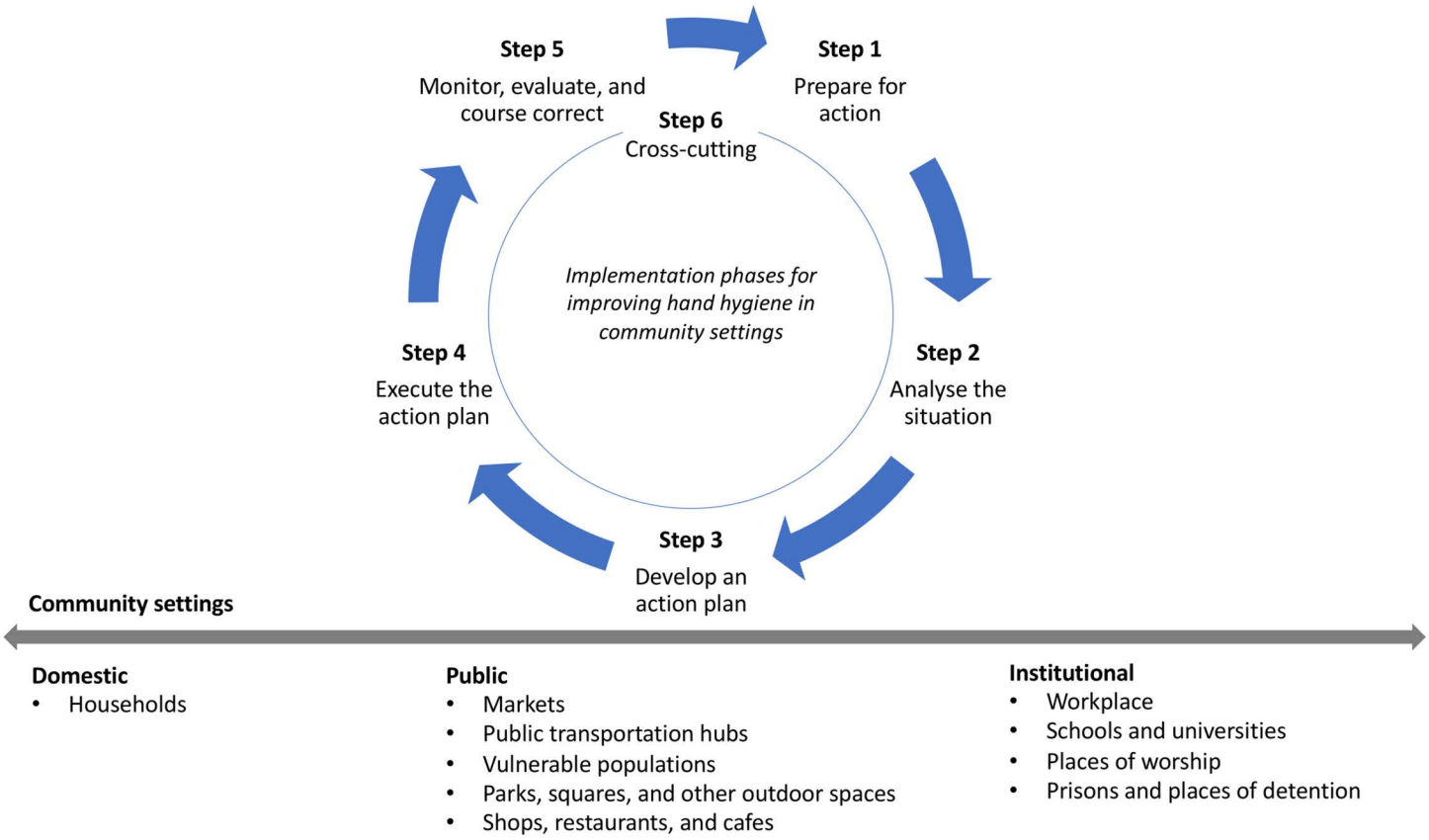

Fig 2. Conceptual framework developed for this scoping review that includes a six-step approach to support the implementation of recommendations for hand hygiene in community settings. The framework was adapted from the 5-step approach from Burke et al. (2012) [29] and WHO (2009) [30] to include a cross-cutting sixth step.

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for each community setting of interest, establishing a coordination mechanism, and funding the development of a hand hygiene improvement plan. Step 2 (analyse the situation) aims to understand the national hand hygiene landscape for each community setting. This includes, where possible, information on hand hygiene practice, access to the minimum requirements, behaviour change programmes, and the enabling environment. Step 3 (develop an action plan) involves developing, costing, and financing a community setting-specific plan to implement a hand hygiene improvement programme based on findings from step 2. Step 4 (execute the action plan) ensures the implementation of the action plan. Step 5 (monitor, evaluate, and course correct) aims to ensure that the lead ministry monitors the action plan for each community setting, evaluates the impact of the plan, and coordinates cyclical review and analysis [32]. Step 6 (cross-cutting themes) refers to topics such as equity, gender, inclusion, and non-discrimination, that should be integrated throughout the five previous steps, rather than addressed as stand-alone topics. The specific parameters for each step are defined in S1 Table.

Identifying relevant studies (stage 2)

The search strategy queried (1) Google search engine, (2) websites of international organisations known to work on hand hygiene (S2 Table), and 3) (Healthcare Management Information Consortium) (HMIC), a grey literature database. The electronic database search was conducted using keyword searches and Medical Subject Headings (MeSH) terms

(S3 Table). Each search term, with synonyms, variations, and subject headings, was combined and truncated to capture all possible variations of relevant terms. The search in Google was carried out using the anonymous function in the web browser (Chrome) to reduce the influence of the reviewer's (CM) individual search history. Search strings were constructed by using multiple combinations of search terms (S3 Table). For each combination of search terms, the first 10 pages of Google were screened by one reviewer (CM) [33]. Only clearly irrelevant documents were excluded at this stage. Documents that appeared related to the research question and met the inclusion criteria were included for further screening. The reference lists of included documents were also hand-searched for any additional relevant documents. The search was limited to English and publication date was restricted to 1 January 1990 onwards to capture current tools and implementation guidance [34].

Study selection (stage 3)

Documents were included if they met all of the following criteria: (1) international tool or guidance document, (2) is relevant to one of the six implementation steps in the conceptual framework, (3) targets at least one community setting, as defined in the conceptual framework, (4) published by an international non- governmental organisation (NGO), multilateral agency or public health agency, (5) published in English, and (6) published between 1 January 1990 and 15 November 2024 to identify current tools and guidance documents.

Training handbooks and training modules related to hand hygiene were excluded from this review as they are intended for teaching and learning step-by-step procedures. Tools published as an application software were also excluded. In addition, we excluded tools for humanitarian settings as internationally agreed guidance on hand hygiene in humanitarian settings or complex emergencies is available through the Sphere standards for water, sanitation, and hygiene (WASH) promotion [35]. Implementation guidance documents and tools that have a more recent edition available were excluded to only include the most recent available version. Country- or region-specific implementation guidance and tools were excluded to align with the aim of this scoping review to identify international guidance and tools for hand hygiene in community settings.

All documents retrieved from electronic searches were transferred to EndNote (Version 21). Screening was completed in two stages: (1) title and document objective were screened for eligibility by one reviewer (CM); and (2) full texts of all potentially eligible documents were retrieved and independently assessed for inclusion by two reviewers (CM and LB). Disagreement between reviewers on inclusion was resolved through arbitration by a third reviewer (OC).

Charting the data (stage 4)

Tool characteristics and implementation recommendations from included documents were independently double extracted by two reviewers (CM and LB) using a standardised data extraction template in MS Excel (S4 Table) and then cross-checked for accuracy. As with inclusion, a third reviewer (OC) provided arbitration if agreement on extraction could not be reached. The data extraction form included information on document characteristics, such as author, year of publication, target setting, as well as on specific parameters related to the six implementation steps for hand hygiene in community settings described in the conceptual framework (Fig 2). Definitions of the parameters are included in the Supplementary Information (S1 Table). Implementation guidance for each parameter was extracted from included documents where possible.

Collating, summarising, and reporting the results (stage 5)

To synthesise evidence, implementation guidance and tools were first mapped against the six implementation steps, then summarised for each implementation step. We also summarised the number of documents that provided guidance or tools across all six steps. Finally, we identified steps with little or no implementation guidance or tools.

Results

Search results

The electronic searches identified 3,057 records (2,100 from Google, 957 from organisation websites, and 33 from reference screening). No documents were retrieved from the grey literature database. One hundred and seven documents were sought for retrieval for full-text screening. Finally, 37 documents with implementation guidance and tools are included in the review (Fig 1). The 68 documents excluded during full-text review are coded with reasons for exclusion (S5 Table).

Description of included studies

We included 37 documents in the review, consisting of 33 implementation guidance documents and 4 stand-alone tools. Among the 33 implementation guidance documents, 24 provide implementation guidance only and 9 include implementation guidance and at least one tool (a total of 20 tools were extracted from the 9 documents with tools) (Fig 3). Among these implementation guidance documents, we extracted 210 implementation recommendations (Fig 3). One hundred and sixty-four implementation recommendations were extracted from the 24 implementation guidance documents and 46 recommendations were extracted from the 9 documents with implementation guidance and tools. We also identified a total of 24 unique tools in the review, including 4 stand-alone tools and 20 tools extracted from 9 documents with implementation guidance and tools (Fig 3).

Forty six percent of included documents are published by multilateral agencies (WHO, UNICEF), 38% by international NGOs, 8% by global partnerships (e.g., Global Handwashing Partnership), 5% by academic institutions, and 3% by development agencies. Most included documents are WASH-related (76%, n = 28), while 24% (n = 9) are hand hygiene specific. There are no documents with a broader aim that provide implementation guidance or tools on hand hygiene (e.g., cholera guidance that include hand hygiene tools). Most documents are for the programme level (68%, n = 25),

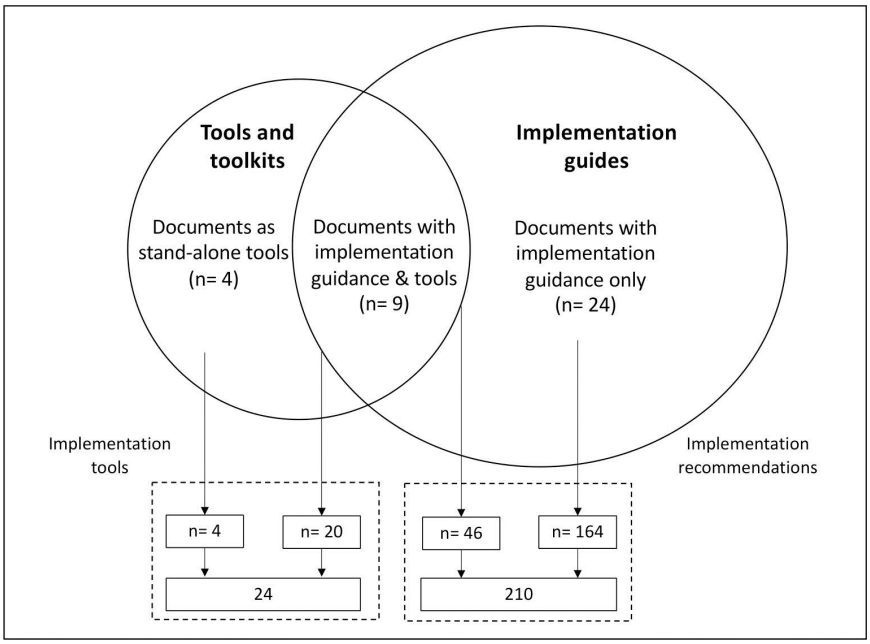

Fig 3. Diagram indicating the number of included documents categorised as tools or implementation guidance, as well as the total number of extracted implementation guidance recommendations and unique tools.

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while 32% (n = 12) are for national-level planning and implementation. Documents for the programme level are typically widely applicable to any programme related to hand hygiene, though the applicability may vary by community setting. Similarly, national-level documents are applicable widely across countries. Among the community settings outlined in the conceptual framework (Fig 2), almost half of included documents target the institutional setting (37%, n = 14), one targets the domestic setting (3%), and one targets both the institutional and public setting (3%). The remaining documents do not specify the targeted community setting (57%, n = 21). Among documents for the institutional setting, 12 concern schools and 2 concern the workplace. The included documents are for high-, medium-, and low-income settings and applicable across these settings. All documents were published between 2005 and 2024. Full details of included documents can be found in S6 Table.

Implementation guidance and tools for hand hygiene in community settings

There is guidance for the implementation of hand hygiene recommendations in community settings, but there is a limited number of available tools (Fig 4). The implementation recommendations and tools were mapped against the six

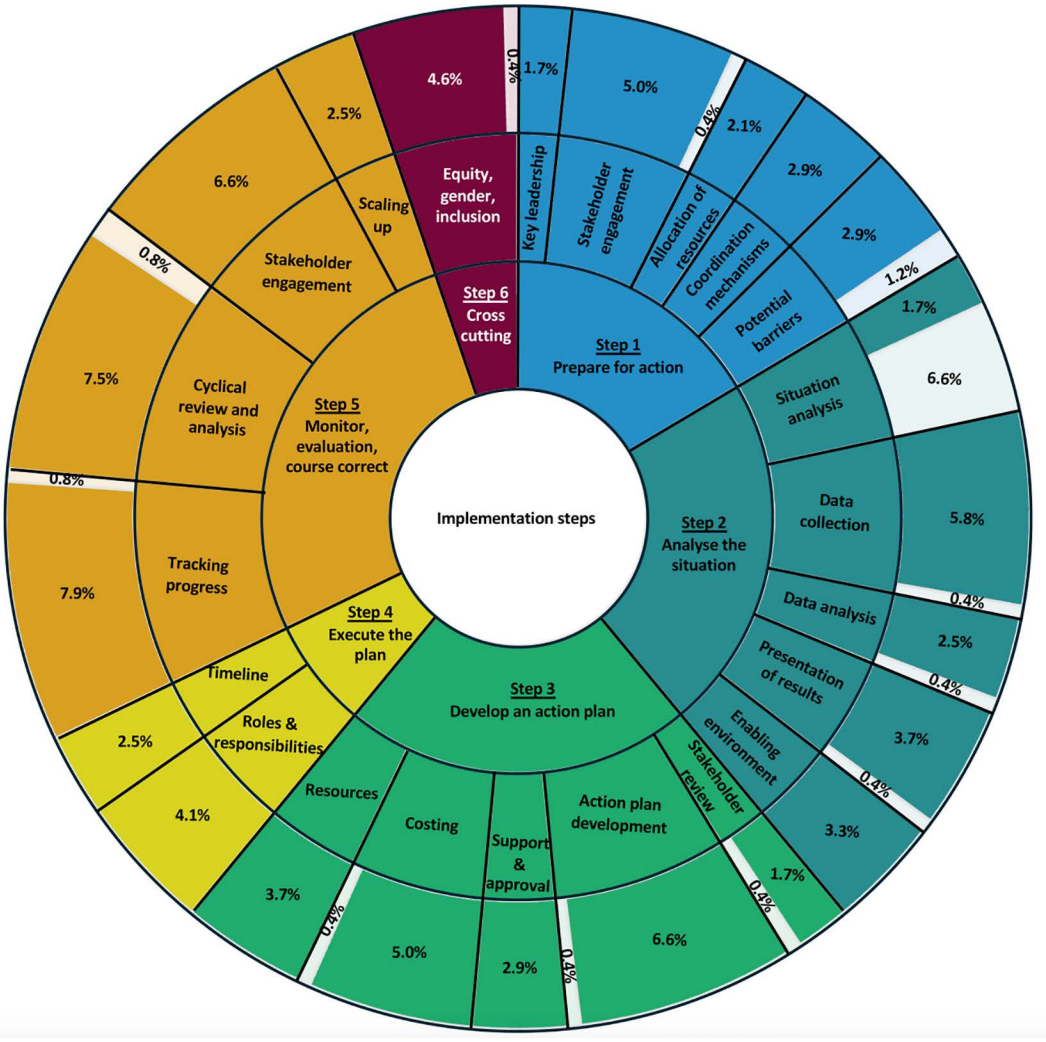

Fig 4. Sunburst diagram of implementation guidance documents and toolkits for the six implementation steps, in addition to cross-cutting issues. For each key parameter, light shading indicates a tool, and dark shading indicates implementation guidance.

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implementation steps for hand hygiene in community settings with most guidance and tools relevant to the middle and end of the implementation cycle. Specifically, these are for step 5 (monitoring, evaluation, and course correction) (26%, 63/241), followed by step 2 (analyse the situation) (23%, 52/241), step 3 (develop an action plan) (22%, 51/241), and step 1 (prepare for action) (16%, 39/241) (Fig 4). There is little guidance and tools for step 4 (execute the action plan) (7%, 16/241) and step 6 (cross-cutting) (5%, 12/241). Only five documents provided guidance or a tool across the first five implementation steps. Of these documents, only two provided guidance or a tool for the sixth implementation (cross-cutting) (S7 Table).

Implementation guidance for hand hygiene in community settings

The 210 implementation recommendations were mapped across key parameters for the six implementation steps (Table 1). Overall, most implementation guidance was for 'tracking progress' and 'cyclical review and analysis' (n = 19 and 18, respectively), both part of step 5. For example, several guidance documents recommended conducting monitoring and evaluation of hand hygiene programmes and ensuring the participation of stakeholders to share the monitoring and evaluation results. The number of guidance ranged from 3 to 16 for all other steps. For example, for step 2, several guidance documents suggested undertaking a baseline survey of hand hygiene in the setting of interest, as well as conducting formative research. For step 3, the guidance mainly focused on costing the hand hygiene programme or developing a financial plan. The least amount of guidance was provided for 'identifying situation analysis tools' (step 2, n = 4), 'key leadership' (step 1, n = 4) and 'stakeholder review of baseline data' (step 3, n = 4).

Tools for hand hygiene in community settings

In total, we identified 24 unique tools (4 stand-alone tools and 20 tools extracted from the 9 implementation guidance documents) (S8 Table). The 24 tools were mapped to the six-step approach and were relevant to key parameters in 31 instances, as several tools were applicable to more than one step (Table 2). Most tools are for step 2 (analysing the situation) (61%, 19/31). Of these, most are for undertaking a situation analysis (84%, 16/19) (Table 2). Other tools were commonly mapped to step 1 (prepare for action) (13%, 4/24), step 3 (develop an action plan) (10%, 3/24), and step 5 (monitoring, evaluating, and course correcting) (13%, 4/24). There is only one tool for step 6 (cross-cutting issues) and no tools available for step 4 (executing the action plan). The tools ranged from checklists to surveys, self-assessment tools, planning and costing tools, and a list of monitoring questions (Table 2). Of the 4 stand-alone tools, only one is specific to hand hygiene only, which is to cost interventions for improving hand hygiene in the domestic setting [68]. The other 3 stand-alone tools are part a wider tool relevant to WASH [69–71] (S8 Table).

Discussion

Most documents are for all community settings, suggesting they are intended to be generalisable across the different community settings. The only exception is that 12 documents focused exclusively on the school setting. In addition, the included documents are for high-, medium-, and low-income settings and applicable across country settings. While the included documents have a global focus, most implementation guidance and tools will require some form of adaptation to specific country contexts where implementation modalities and options can vary significantly. Most documents were published by multilateral agencies, such as UNICEF and WHO, and NGOs, such as WaterAid and World Vision, that have significant experience designing and implementing WASH or hand hygiene programmes globally.

To our knowledge, this is the first scoping review to identify tools and guidance documents for hand hygiene in community settings. Only one other scoping review and four inter-connected systematic reviews have been published on this subject. The scoping review focused on identifying and summarising international guideline recommendations for hand hygiene in communities [12], while the four systematic reviews synthesised the available evidence on hand hygiene in community settings across four key areas (effective hand hygiene, minimum requirements, behaviour change and government measures) [14–17]. This review, in contrast, focused on identifying and mapping implementation tools and guidance

Table 1. Implementation guidance for hand hygiene in community settings.

Implementation phase	Key parameter	Implementation guidance (%, n)	References
Step 1: prepare for action	Key leadership	2% (4)	IRC, 2007 [36]; UNICEF, 2016 [37]; UNICEF, 2023 [38]; UNICEF, 2022 [39]
	Stakeholder engagement	6% (12)	World Bank, 2005 [40]; World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; Live & Learn, 2011 [42]; UNICEF, 2012 [43]; UNICEF, 2016 [37]; Rotary International, 2017a [44]; Rotary International 2017c [45]; WaterAid, 2017 [46]; GHP, 2018 [47]; UNICEF, 2019 [38]; UNICEF, 2022 [39]
	Allocation of resources for planning	2% (5)	World Bank, 2005 [40]; IRC, 2007 [36]; UNICEF, 2012 [43]; UNICEF, 2023 [38]; UNICEF, 2022 [39]
	Coordination mechanisms	3% (7)	World Bank, 2005 [40]; IRC, 2007 [36]; UNICEF, 2012 [43]; Rotary International, 2017a [44]; Rotary International 2017c [45]; UNICEF, 2023 [38]; UNICEF, 2022 [39]
	Potential barriers and challenges	3% (7)	UNICEF, 2012 [43]; UNICEF, 2016 [37]; Rotary International, 2017a [44]; UNICEF, 2017 [46]; WaterAid, 2017 [46]; UNICEF, 2021 [48]; World Vision, 2021 [49]
Step 2: analyse the situation	Identification of tools for situation analysis	2% (4)	Rotary International, 2017a [44]; Concern Worldwide, 2021 [50]; World Vision, 2021 [49]
	Data collection	7% (14)	World Bank, 2005 [40]; IRC, 2007 [36]; WBCSD, 2013 [51]; PPPHW, 2015 [52]; EAWAG, 2016 [53]; UNICEF, 2016 [37]; LSHTM, 2017 [54]; Rotary International, 2017b [55]; WaterAid, 2017 [46]; UNICEF, 2023 [38]; Concern Worldwide, 2021 [50]; UNICEF, 2021 [48]; World Vision, 2021 [49]; World Vision, 2022 [56]
	Data analysis	3% (6)	PPPHW, 2015 [52]; UNICEF & WHO, 2016 [57]; Rotary International, 2017a [44]; UNICEF, 2021 [48]; WaterAid, 2017 [46]; UNICEF, 2022 [39]
	Presentation of results	4% (9)	WBCSD, 2013 [51]; PPPHW, 2015 [52]; UNICEF & WHO, 2016 [57]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; WaterAid, 2017 [46]; UNICEF, 2019 [38]; UNICEF, 2021 [48]; UNICEF, 2022 [39]
	Enabling environment	4% (8)	IRC, 2007 [36]; UNICEF, 2016 [58]; UNICEF, 2016b [58]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; Rotary International, 2017c [45]; SWA, 2020 [59]; World Vision, 2022 [56]
Step 3: develop an action plan	Stakeholder review of baseline data	2% (4)	World Bank, 2005 [40]; IRC, 2007 [36]; UNICEF, 2012 [43]; UNICEF, 2022 [39]
	Action plan development	8% (16)	World Bank, 2005 [40]; World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; Live & Learn, 2011 [42]; GIZ, 2013 [60]; WBCSD, 2013 [51]; UNICEF, 2016 [37]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; Rotary International, 2017c [45]; GHP, 2018 [47]; UNICEF, 2023 [38]; Concern Worldwide, 2021 [50]; UNICEF, 2022 [39]; World Vision, 2021 [49]; WaterAid, 2024 [61]
	Action plan support and approval	3% (7)	World Bank, 2005 [40]; IRC, 2007 [36]; UNICEF, 2012 [43]; Rotary International, 2017a [44]; UNICEF, 2023 [38]; UNICEF, 2022 [39]; World Vision, 2022 [56]
	Action plan costing	6% (12)	World Bank, 2005 [40]; World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; UNICEF, 2012 [43]; GIZ, 2013 [60]; UNICEF, 2016 [37]; Rotary International, 2017a [44]; Rotary International, 2017c [45]; UNICEF, 2023 [38]; Concern Worldwide, 2021 [50]; UNICEF, 2022 [39]; World Vision, 2022 [56]
	Action plan resources	4% (9)	World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; GIZ, 2013 [60]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; Rotary International, 2017c [45]; SWA, 2020 [59]; UNICEF, 2022 [39]; World Vision, 2022 [56]
Step 4: execute plans	Roles and responsibilities	5% (10)	World Bank, 2005 [40]; World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; UNICEF, 2012 [43]; GIZ, 2013 [60]; UNICEF, 2016 [37]; LSHTM, 2017 [54]; Rotary International, 2017c [45]; UNICEF, 2022 [39]; World Vision, 2022 [56]
	Action plan completion timeline	3% (6)	World Bank, 2005 [40]; IRC, 2007 [36]; UNICEF, 2016 [37]; Rotary International, 2017c [45]; UNICEF, 2023 [38]; UNICEF, 2022 [39]

(Continued)

Table 1. (Continued)

Implementation phase	Key parameter	Implementation guidance (%, n)	References
Step 5: monitor, evaluate, and course correct	Tracking progress	9% (19)	World Bank, 2005 [40]; IRC, 2007 [36]; World Bank, 2010 [62]; Live & Learn, 2011 [42]; UNICEF, 2011 [63]; UNICEF, 2012 [43]; UNICEF, 2013 [64]; WBCSD, 2013 [51]; PPPHW, 2015 [52]; UNICEF, 2016 [37]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; UN-Water, 2017 [65]; GHP, 2018 [47]; UNICEF, 2017 [66]; Concern Worldwide, 2021 [50]; UNICEF, 2021 [48]; World Vision, 2021 [49]; UNICEF, 2022 [39]
	Cyclical review and analysis	9% (18)	World Bank, 2005 [40]; IRC, 2007 [36]; Live & Learn, 2011 [42]; UNICEF, 2011 [63]; UNICEF, 2012 [43]; UNICEF, 2013 [64]; UNICEF, 2016a [37]; UNICEF, 2016b [58]; UNICEF & WHO, 2016 [57]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; WaterAid, 2017 [46]; UNICEF, 2023 [38]; UN-Water, 2017 [65]; Concern Worldwide, 2021 [50]; UNICEF, 2021 [48]; World Vision, 2021 [49]; UNICEF, 2022 [39]
	Stakeholder engagement	8% (16)	World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; Live & Learn, 2011 [42]; UNICEF, 2011 [63]; UNICEF, 2012 [43]; UNICEF, 2013 [64]; WBCSD, 2013 [51]; UNICEF, 2016 [37]; LSHTM, 2017 [54]; Rotary International, 2017a [44]; WaterAid, 2017 [46]; UNICEF, 2023 [38]; Concern Worldwide, 2021 [50]; UNICEF, 2021 [48]; World Vision, 2021 [49]; World Vision, 2022 [56]
	Scaling up	3% (6)	IRC, 2007 [36]; Live & Learn, 2011 [42]; UNICEF, 2012 [43]; UNICEF, 2016 [58]; World Vision, 2021 [49]; UNICEF, 2022 [39]
Step 6: Cross-cutting	Equity, gender, inclusion, and non-discrimination	5% (11)	World Bank & UNICEF, 2005 [41]; IRC, 2007 [36]; UNICEF, 2012 [43]; PPPHW, 2015 [52]; Rotary International, 2017a [44]; WaterAid, 2017 [46]; UNICEF, 2023 [38]; WaterAid, 2020 [67]; Concern Worldwide, 2021 [50]; UNICEF, 2021 [48]; World Vision, 2022 [56]
Total		100% (210)	33 documents

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for the uptake of guideline recommendations. The six-step implementation approach used in this review was previously used by WHO for the guidelines on hand hygiene in healthcare settings. WHO also used a similar six-step approach for the sustainable implementation of national action plans on antimicrobial resistance [74]. The implementation guidance and repository of 24 tools identified in this review can be leveraged to implement and adapt the forthcoming WHO guideline recommendations on hand hygiene in community settings.

The amount of available implementation guidance varied across the implementation steps, as well as amongst parameters within each step. This might be expected, as each implementation step may not require the same amount of guidance. For example, more guidance for steps 1–3 and 5, compared to step 4, is expected as it relates to supporting end-users to prepare an action plan and monitor its implementation. However, for steps 1–3 and 5, where guidance is generally available, more guidance may be required for specific parameters, such as 'identifying key leadership' and 'allocation of resources for planning' under step 1, 'data analysis' and 'enabling environment' under step 2, 'stakeholder review of baseline data' under step 3, and 'scaling up' under step 5. Further implementation guidance is needed for step 6 (cross-cutting themes). While cross-cutting themes were classified under step 6 of the implementation framework, in practice, they should be integrated across the previous five steps to enhance equitable guideline uptake. Future implementation guidance could focus on providing specific recommendations on how to include cross-cutting themes throughout the implementation cycle. This scoping review also highlights the fragmentation of guidance and tools across the implementation cycle. Only two included documents provided guidance across the six steps, suggesting that guidance among each included document is rarely comprehensive.

The limited number of relevant tools suggests that more comprehensive or implementation step-specific tools may be needed to support the implementation of hand hygiene recommendations. Only 1 tool of the 5 stand-alone tools was developed for hand hygiene specifically, further suggesting the limited number of tools tailored for hand hygiene in community settings. Like implementation guidance, the tools were inconsistently available across the implementation steps.

Table 2. Twenty-four unique tools mapped to the six-step approach in the conceptual framework to support the implementation of hand hygiene recommendations in community settings (one tool can be relevant to more than one step and key action).

Implementation phase	Key actions	# of relevant tools	Relevant tool(s)	Objective	References
Step 1: prepare for action	Stakeholder engagement	3% (1)	Tool to advocate for hygiene	To make the case for hand hygiene	(PPPHW, 2015) [52]
	Potential barriers and challenges	10% (3)	SWOT analysis	To identify the strengths, weaknesses, opportunities, and threats (SWOT) for a handwashing programme	(World Bank, 2005) [40]
			SWOT external analysis	To identify external factors that may influence the handwashing programme	(World Bank, 2005) [40]
			WASH Bottleneck Analysis Tool (BAT)	To help formulate costed and prioritized Action Plans to remove the bottlenecks that constrain the WASH sector and hinder the delivery of sustainable WASH services.	(UNICEF, 2011) [71]
Step 2: analyse the situation	Identification of tools for situation analysis	52% (16)	SWOT external analysis	To identify external factors that may influence the handwashing programme	(World Bank, 2005) [40]
			School WASH survey	To conduct a thorough needs assessment of a school for improving school WASH conditions	(Peace Corps, 2017) [72]
			Barrier analysis tool	To identify the barriers that prevent people experiencing marginalisation from accessing WASH on an equal basis with others	(WaterAid, 2017) [46]
			Gender analysis tool	To understand how a particular situation affects women and men differently	(WaterAid, 2017) [46]
			Stakeholder analysis tool	To map current stakeholders and assess the role they play, particularly in helping you to achieve inclusive WASH	(WaterAid, 2017) [46]
			Power analysis tool	To identify who has formal power over an issue, who has informal power, and who can influence those with power	(WaterAid, 2017) [46]
			Disability self-assessment tool	To identify specific actions that can be taken to increase the inclusion of disabled people in programmes	(WaterAid, 2017) [46]
			Political economy analysis tool	To provide a structured approach for analysing how change happens, from the national to the local level	(WaterAid, 2017) [46]
			WASH assessment tool	To measure the current WASH status of an organisation or business	(WaterAid, 2021) [70]
			Tool for identifying persons with disabilities	To identify persons with disabilities and disaggregate WASH data by disability	(UNICEF, 2021) [48]
			Self-assessment tool to understand current practices	To understand the current level of WASH provisions business-wide	(WBCSD, 2013) [51]
			Core hygiene questions	To support increased monitoring of hand hygiene in schools	(UNICEF & WHO, 2016) [57]
			Observation checklist for WASH in schools	To understand observed existing WASH infrastructure at the school	(Rotary International, 2017a) [55]
			School WASH survey	To understand WASH practices and education at the school	(Rotary International, 2017a) [55]
			Focus group discussion questions	To understand the challenges regarding WASH at the school	(Rotary International, 2017a) [55]
			WASH in schools target challenge measurements	To gather baseline measurements on WASH in schools targets	(Rotary International, 2017a) [55]

(Continued)

Table 2. (Continued)

Implementation phase	Key actions	# of relevant tools	Relevant tool(s)	Objective	References
	Data collection	3% (1)	WASH assessment tool (tab 3 and 5b)	To measure the current WASH status of an organisation or business	(WaterAid, 2021) [70]
	Data analysis	3% (1)	WASH assessment tool (tabs 4 and 5d)	To measure the current WASH status of an organisation or business	(WaterAid, 2021) [70]
	Presentation of results	3% (1)	WASH assessment tool (tabs 4 and 5d)	To measure the current WASH status of an organisation or business	(WaterAid, 2021) [70]
Step 3: develop an action plan	Stakeholder review of baseline data	3% (1)	WASH assessment tool (tab 5a)	To measure the current WASH status of an organisation or business	(WaterAid, 2021) [70]
	Action plan development	3% (1)	WASH assessment tool (tab 6)	To measure the current WASH status of an organisation or business	(WaterAid, 2021) [70]
	Action plan costing	3% (1)	Costing tool for estimating the cost of interventions to improve hand hygiene in the domestic settings	This tool aims to provide country-specific cost estimates for achieving universal hand hygiene in households by 2030	(WHO and UNICEF, 2021) [73]
Step 5: monitor, evaluate, and course correct	Tracking progress	10% (2)	Participation ladder	To monitor participation in a programme over time	(WaterAid, 2017) [46]
			Washington Group questions for collecting data on disability	A set of questions designed to identify people with a disability, such as difficulty performing basic universal activities such as walking, seeing, hearing, cognition, self-care, and communication	(WaterAid, 2017) [46]
	Cyclical review and analysis	10% (2)	Hand hygiene acceleration framework tool	To track the process that a government has undergone to develop and implement a plan of action for hand hygiene improvement and assesses the quality of that plan	(WHO, UNICEF, and WaterAid, 2022) [69]
			WASH assessment tool	To measure the current WASH status of an organisation or business	(WaterAid, 2017) [46]
Step 6: cross-cutting	Equity, gender, inclusion, and non-discrimination	3% (1)	Questions on accessibility for children with physical disabilities	To assess the accessibility of facilities and hygiene education programmes for children with physical disabilities	(UNICEF, 2011) [63]
Total		100% (31)			

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Over half of identified tools are for step 2 (analyse the situation) and primarily for one sub-step (undertaking a situation analysis). The identified tools varied in terms of content and purpose and can support various data collection and decision-making efforts for a more systematic and tailored adoption of guideline recommendations. However, more tools are needed to effectively be used as a guideline knowledge translation strategy to facilitate the implementation of recommendations into action, such as tools to support the costing of national action plans. In addition, further research can assess whether and how the tools translate into the implementation of recommendations. Tools can act as an important link between guideline recommendations and the development of national policies and programmes for hand hygiene in community settings. This is especially crucial for moving from emergency response, such as during the COVID-19 pandemic, to building sustainable and equitable services [13].

Despite gaps, the identified tools and implementation guidance can be used for the uptake of guidelines for hand hygiene in community settings to further contextualise and adapt recommendations. Resources have been published in other public health areas for the implementation of guideline recommendations. For example, WHO published a set of documents to support the implementation of recommendations for the hand hygiene in health care guidelines [75]. These

resources are intended to guide healthcare facilities to develop action plans for hand hygiene. Similarly, WHO published implementation guidance to advise countries on how to develop and implement national malaria strategic plans [74], recommended as part of the guidelines for malaria [76]. While gaps remain, the implementation guidance and tools identified in this review can be leveraged to support the upcoming WHO guidelines on hand hygiene in community settings.

Limitations

This scoping review has several limitations. First, most documents were retrieved through the Google search engine and the websites of organisations known to work on hand hygiene. Implementation guidance documents and tools may have been missed if the publishing organisation's website was not searched or the content was not indexed by Google. In addition, the one database that we searched for grey literature did not provide any relevant results. To mitigate this, we outlined a comprehensive search strategy in our protocol and screened the first 10 pages of Google for each combination of search terms. Second, despite a comprehensive search strategy, relevant documents may not have appeared in the search results due to the lack of consistency in terminology for tools and implementation guidance amongst organisations. To minimise this, we included various terms for tools and guides, such as manuals, handbooks, training manuals, costing spreadsheet, in our search strategy. Third, the search was restricted to English and may have missed relevant documents published in other languages. Fourth, we excluded national and regional tools and guidance documents. While this review focused on globally relevant documents, national and regional guides and tools can nonetheless provide useful information and lessons on how to locally adapt and implement hand hygiene recommendations in local or regional contexts. Future research could explore how these adaptations can specifically be leveraged when implementing the forthcoming WHO guidelines. Fifth, the analysis did not seek to comparatively and qualitatively assess the included tools and implementation guidance. Instead, specific guidance was mapped to the implementation steps to understand where guidance is available and where there are gaps. Sixth, implementation guidance and tools were not disaggregated by community settings as most guidance and tools were for all community settings, thereby limiting the use of guidance and tools for community-specific settings. Nonetheless, the guidance and tools identified in this review can be leveraged and adapted for future use in all community settings or in individual community settings. Finally, we did not undertake a quality assessment of the tools nor assess whether implementation guidance was cited by evidence.

Conclusion

Overall, this scoping review identified 37 documents with both tools and implementation guidance for hand hygiene in community settings. The mapping exercise suggests that implementation guidance is available, yet inconsistently available for the different implementation steps. In addition, few implementation tools exist to support the more general guidance. Future work should focus on developing comprehensive practical tools for the implementation of hand hygiene recommendations in community settings, in line with international guidelines.

Supporting information

S1 Checklist. The completed Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist.
(DOC)

S1 Table. Definitions of key terms.
(DOC)

S2 Table. List of websites of international organisations known to work on hand hygiene searched.
(DOC)

S3 Table. Search strategy.
(DOC)

S4 Table. Data extraction template.
(DOC)

S5 Table. Excluded documents with reasons.
(DOC)

S6 Table. Characteristics of included documents.
(DOC)

S7 Table. Implementation guidance and tools mapped to the six implementation steps and their parameters.
(DOC)

S8 Table. Twenty-four unique tools (4 stand-alone and 20 tools extracted from 9 implementation guidance documents) identified in the scoping review.
(DOC)

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