

Systematic evidence map

eHealth interventions for HIV prevention, diagnosis, treatment and care for key populations and young people worldwide



A Community Adolescent Treatment Supporter (CATS) and beneficiary in Manzini, Swaziland, test the prototype of an app to help young people adhere to their anti-retroviral treatment as part of the [READY+](#) programme.

1. Introduction

This evidence map was produced as part of an evidence synthesis project funded by ViiV through the International HIV/AIDS Alliance (Alliance) to assess how information-communication technologies (ICT) can improve HIV programmes for transgender people in sub-Saharan Africa. However, given the dearth of evidence on eHealth interventions for transgender people in sub-Saharan Africa, the scope of this map was expanded to be global and include literature on all key populations and young people. This document briefly explains how the evidence map was created and acts as a guide to its use.

Evidence mapping is part of the family of evidence synthesis methodologies, such as systematic reviews and rapid evidence assessments. Evidence maps present a structured, transparent, and replicable overview of all the available research evidence on a question of interest. They allow decision-makers and researchers to investigate the entire body of evidence, rigorously accessed and organised using systematic review principles.

2. Methodology

This evidence map was developed by carrying out five key steps: (i) framework development; (ii) defining what constitutes evidence; (iii) searching for evidence; (iv) accessing and screening evidence; and (v) visualising the evidence-base.

2.1. Framework development

This evidence map is concerned with the impact of eHealth interventions that support HIV prevention, diagnosis, treatment and care for key populations worldwide. Therefore, the evidence mapping framework reflects an intervention-to-outcome configuration. To develop the framework for this evidence map, the research team drew on academic evidence synthesis literature, key topic organisations, and content experts. In drafting the intervention-to-outcome framework, the research team engaged with the Alliance to ensure that the framework accurately reflects a useful understanding of eHealth interventions and HIV outcomes.

2.2. Inclusion criteria

Clearly defined and transparent inclusion and exclusion criteria were formulated to outline what type of research evidence featured on the evidence map. In this, the Population, Intervention, Comparator, and Outcome (PICO) concept was applied. More information on the PICO criteria is provided Section 3: scope of the evidence map.

2.3. Searching

We designed a targeted but broad search strategy to identify relevant evidence. This search strategy applied Boolean operators and wild cards adapted for different search sources. The scientific search for evidence took place in two different bodies of literature using key terms related to eHealth, reviews, and HIV. In both instances we were interested in identifying reviews (systematic and non-systematic) on the topic of eHealth and HIV from which we would then extract primary studies for inclusion in the map. The academic literature was accessed by searching 13 databases¹, while grey literature searches reviewed three websites to access relevant systematic reviews. The total number of records screened in the academic and grey literature searches to identify reviews, as well as the screening of included studies in the reviews amounted 854; of these 74 were included in the evidence map. It should be kept in mind that

¹ ISI Web of Science, PubMed, MEDLINE, Global Health, EBSCOHost (Academic Search Complete, Cinahl, Africa-wide Information, ERIC, EBSCO e-journals, Family Studies, Social Work Abstracts, ScINDEX, Women's Studies).

each review from which primary studies have been extracted had in turn applied broad and systematic search strategies of their own and together represent the screening and appraising of thousands of records.

2.4. Accessing and screening

All identified citations were accessed and imported into EPPI-Reviewer 4 software to manage screening each piece of evidence for relevance. Records were screened on title, abstract and full text. In order to be included on the map, studies needed to cover the PICO inclusion criteria, most notably related to eHealth as intervention, empirical data collection, and an outcome related to HIV prevention, diagnosis, treatment and care.

2.5. Visualising the evidence-base

Following the screening process, all included evidence was coded according to key characteristics and then populated on a visual interface. This visual interface allows decision-makers and researchers to directly engage with the available evidence-base, identify patterns and gaps, and to tailor the evidence map according to their own needs using the filters provided. The interface thereby allows its users to create multiple evidence maps depending on the configurations of research required by those engaging with it.

3. Scope of the evidence map

The scope of the evidence map was kept broad, with relevant interventions and outcomes being broadly defined so as to capture as much of the relevant evidence as possible.

3.1. Interventions and outcomes

Any interventions where the authors report to be using eHealth technologies that is specifically aimed at strengthening access to and knowledge of HIV preventions, diagnosis, treatment and care were included. Examples of such interventions or applications include telephone calls, mobile phones (mHealth), computers and tablets, personal digital assistants, Internet (e.g. websites and email), social media etc (Stevenson et al. 2016).² eHealth technologies could have wide application and for example be used in patient self-management interventions or clinician decision support tools, and as a stand-alone intervention or in addition to usual care (Stevenson et al. 2016).

Studies that focus on any HIV prevention and treatment outcomes, as well as how key populations experience, understand, or engage with eHealth interventions in the continuum of HIV prevention and care (Canoy et al. 2018, adapted)³ were included. Studies considering other health outcomes were also included as long as HIV/AIDS-related outcomes were also studied. For the outcomes in the map we drew on the WHO (2014)⁴ Guidelines for Key Populations that sets out various categories in relation to HIV prevention, testing, treatment, and care.

3.2. Region and date

The evidence map is concerned with worldwide research evidence that has been conducted between January 2000 and June 2017. Existing systematic reviews on eHealth indicate that research on this topic

² Stevenson JK, Campbell ZC, Webster AC, Chow CK, Campbell KL, Lee VWS (2016) eHealth interventions for people with chronic kidney disease. Cochrane Database of Systematic Reviews 2016, Issue 10, Art. No. CD012379. DOI 10.1002/14651858/CD012379

³ Canoy N, Hannes K, Thapa S (2018) A systematic review of the facilitators and barriers influencing transgender persons' (dis)engagement with HIV prevention and treatment programs: introducing a network analytical approach to synthesis from an ecological systems theory perspective. PROSPERO CRD42018089956

⁴ WHO (2014) Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. World Health Organization

started to be published from 2000 onwards, and this date therefore informed the start date of the searches (Hutchesson, 2015)⁵.

3.3. Study design

The evidence map only includes research studies that empirically evaluated the effect of eHealth interventions on HIV-related outcomes. Qualitative as well as quantitative evaluation approaches were eligible for inclusion as long as empirical data and analysis on intervention effects were provided.

3.4 Target group

This map follows the UNAIDS⁶ definition of key populations which include “gay men and other men who have sex with men, sex workers and their clients, transgender people, people who inject drugs and prisoners and other incarcerated persons.” In addition, we have included adolescents and young adults under the ‘youth’ filter as they have been identified by both UNAIDS and WHO as a vulnerable population.

3.5 Effectiveness

Although the evidence map does not provide an indication of the quality of the various included studies, we have included a filter of effect, based on the findings presented in the full text of the papers to indicate whether the intervention has a positive effect, mixed effect, no effect, or a negative effect on the outcomes.

4. Guidelines for using the map

When viewing the evidence map, the interventions will appear on the left-hand axis with the outcomes appearing on the top axis. The size of each bubble is relative to the number of studies included: the larger the bubble, the more pieces of research have been done on a specific intervention and outcome combination.

4.1. Accessing research evidence

- To view the list of studies contained within each bubble, click on the bubble. A list of titles, authors, and dates should open in a new box.
- The number of research evidence listed can be changed by selecting the dropdown menu at the top left corner of the box that lists the research articles contained within a particular box.
- Specific terms contained within the titles, abstracts, or author fields can be searched for using the search function at the top right of the research evidence box.
- To access a specific abstract, click on the title of the desired study, and another box will open which contains the abstract and other publication details.
- Do note that the search terms entered are retained when you exit a specific box and enter another one. This may cause your new box to be empty. Be sure to remove all search terms from the search function within a box when you exit.

⁵ Hutchesson M, Oosterveen E, Ashton L, Tzelepis F (2015) A systematic review of eHealth behavioral interventions targeting smoking, nutrition, alcohol, physical activity and/or obesity for young adults. PROSPERO 2015 CRD42015019462

⁶ UNAIDS (2015) UNAIDS Terminology Guidelines. United Nations Programme on HIV/AIDS (UNAIDS).

4.2. Applying the filters

- The filters that can be tweaked on this evidence map are: country, region, study design, date, target group, and effectiveness.
- The default setting is for the evidence map to display all research evidence. To view only research with a particular feature (e.g. all research from only the USA), click on the dropdown menu of the relevant filter (e.g. country), deselect the *Select all* option, scroll down to the relevant feature (e.g. USA), select this feature by ticking the box next to it, and click on *Apply* to retrieve research conducted in the USA.
- Use different combinations of features by applying different filters to retrieve a map of research evidence that fulfils your specific purpose.

5. Limitations

Limitations of the map include that only studies in English were screened and included, and only interventions that had been tested with results published and included in systematic reviews were included. Nonetheless, drawing on existing reviews meant indirectly drawing on extensive searching and screening done by multiple authors over a number of years. Although the literature in the map has not been appraised (quality assessed) during the process of compiling the map, appraisal did take place when the studies were included in the systematic reviews, and a filter is included in the map based on the findings presented in the studies to indicate the direction of effect of the intervention. Despite these limitations, this is the first systematic evidence map on eHealth interventions for HIV prevention, diagnosis, treatment and care for key populations worldwide. It provides insights into which countries and regions has been researched, and which key populations have been focused on, while visually illustrating the absence of research evidence in relation to some regions, key populations and eHealth interventions.

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