

1 **Social marketing interventions for neglected tropical diseases (NTDs): A**
2 **systematic review protocol**

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21 **Abstract**

22 **Background.** Social marketing influences behaviors to improve the health and wellbeing of
23 individuals and society, and this approach could be used in the field of public health for the
24 prevention and control Neglected Tropical Diseases (NTDs). NTDs are diseases of poverty
25 that place a burden in individuals, communities and health systems, and that exacerbate the
26 cycle of poverty. Differences in risk and socio-cultural factors make women and children
27 differently vulnerable. Guided by the Hierarchical Model of Social Marketing, this systematic
28 review will assess the breadth of coverage of social marketing interventions about the 17
29 World Health Organization's priority NTDs. Additionally, it will use the WHO Gender
30 Assessment Tool (GAT) to assess the gender responsiveness of the included interventions.

31 **Methods.** This protocol follows the guidelines of the Preferred Reporting Items for
32 Systematic Review and Meta-Analysis Protocols (PRISMA-P). Searches will be conducted in
33 the databases of PubMed, EbscoHost, ProQuest, Web of Science (WOS), Global Index
34 Medicus and Virtual Health Library (VHL) Regional Portal, and there will be no language
35 restriction. Social marketing interventions implemented at the community, health facility and
36 public policy settings will be included if they target an NTD; it applies at least 1 of the 4 core
37 social marketing concepts, and 1 of the 5 social marketing techniques as described in the
38 Hierarchical Model of Social Marketing. Data management of records will be done in
39 Covidence, a Cochrane systematic review platform, and of data extracted in Excel. The
40 QATSDD Critical Appraisal Tool will be used to assess the quality of individual studies in
41 terms of how they report their research processes.

42 **Discussion.** The results of this review will contribute to understand the social marketing
43 concepts and techniques that have been used to address NTDs, and their behavioral
44 determinants and behavioral outcomes. Furthermore, the results of this review will bring

45 together the strengths from multidisciplinary fields by integrating gender, social marketing
46 and NTDs in a systematic manner.

47 **Systematic review registration.** PROSPERO CRD42017063858

48

49 **Keywords.** Neglected Tropical Diseases, Social Marketing, Gender

50 **Background**

51 Neglected tropical diseases (NTDs) are diseases of poverty (Bangert et al., 2017, p. 2), “the
52 product of social inequity” (Pinto Dias, 1996, p. 243), that represent numerous challenges for
53 the health and economic development of low-income countries (Hotez et al., 2007). Gender
54 differences in risks, socio-cultural practices, behaviors and sequelae (Allotey, Gyapong &
55 Diseases, 2005; Okwa, 2007) make women and children differently vulnerable to NTDs.
56 Efforts to support behavioral change are needed (WHO, 2015a; Molyneux, 2015; Bangert et
57 al., 2017) and social marketing as an ethical approach to influence behaviors, portray
58 opportunities to help reduce health inequities attributed to NTDs.

59

60 **Neglected Tropical Diseases**

61 NTDs are communicable diseases that affect the lives of approximately one billion people
62 around the world (WHO, 2016a). The World Health Organization (WHO) recognizes 17
63 NTDs, including some zoonotic diseases, that are caused by a variety of pathogens: viruses,
64 protozoa, helminth and bacteria (Molyneux, Savioli & Engels, 2017). Cross-sector
65 collaboration is needed as well as quality research about effective hygiene and behavior
66 change promotion for both the control and care of NTDs (WHO, 2015a). Moreover, most of
67 these diseases are caused or spread by insects or worms (Bill & Melinda Gates Foundation,
68 2017) and in the case of neglected zoonotic diseases food is a relevant vehicle for zoonotic
69 pathogens (Wielinga & Schlundt, 2013), therefore behaviors associated to vector control, food
70 and water safety, such as not consuming raw meat or washing vegetables with clean water,
71 are important to prevent these diseases (CDC, 2014).

72 To make the control, prevention and even elimination of several NTDs feasible, the WHO
73 prioritizes five strategic interventions: the expansion of preventive chemotherapy, intensified
74 case-detection and case-management, improved vector control, appropriate veterinary public

75 health measures, and provision of safe water, sanitation and hygiene (WHO, 2010). These
76 strategies often require promoting behavior change (Molyneux, 2014; Bangert et al., 2017),
77 which can be addressed by the use of social marketing to benefit individuals and societies
78 facing the burden of NTDs.

79

80 **Social Marketing**

81 “The use of social marketing in public health programs is common” (Lefebvre, 2013, p. 14)
82 and behavioral influence is what determines social marketing effectiveness (Andreasen,
83 2003). The definition of social marketing that will guide this systematic review is the
84 following:

85

86 “Social marketing seeks to develop and integrate marketing concepts with other
87 approaches to influence behaviours that benefit individuals and communities for the
88 greater social good. Social marketing practice is guided by ethical principles. It seeks to
89 integrate research, best practice, theory, audience and partnership insight, to inform the
90 delivery of competition sensitive and segmented social change programmes that are
91 effective, efficient, equitable and sustainable.” (iSMA, ESMA & AASM, 2013).

92

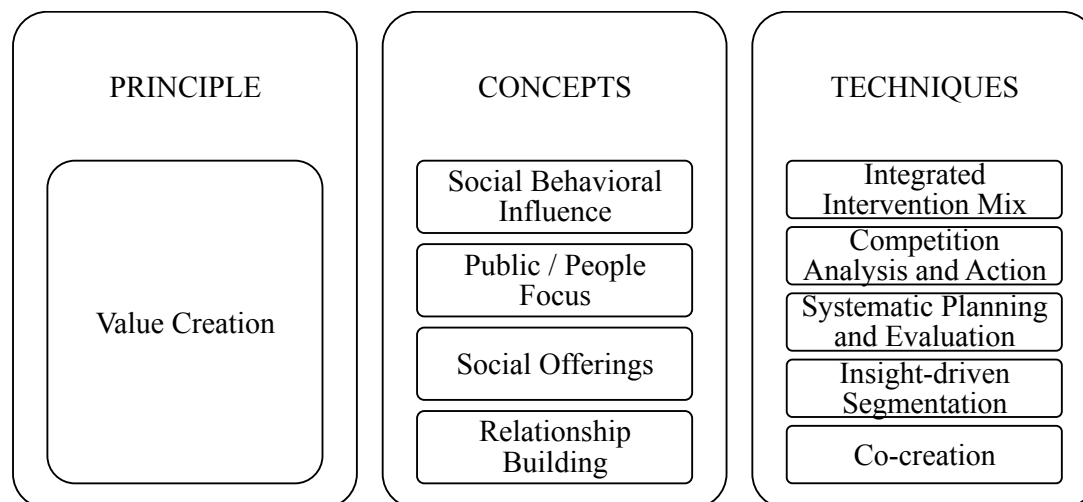
93 **Social Marketing Analysis Framework**

94 Social marketing interventions are characterized by adhering to a framework for planning,
95 developing and evaluating their consistency. This framework includes a set of criteria, also
96 known as “benchmarks”. The *Hierarchical Model of Social Marketing* (French & Russell-
97 Bennett, 2015) proposes a classification of the benchmark criteria (Andreasen, 2002; French
98 & Blair-Stevens, 2006) that consists of three categories of criteria with a hierarchical
99 relationship (see Figure1). The first category “Principle” is about social value creation

100 through exchange and is supported by the second category “Concepts” that comprises four
 101 essential social marketing concepts. The third category is “Techniques” and consists of
 102 methods, models and tactics that are commonly used in social marketing interventions.
 103 According to the model, the core principle supported by the four social marketing concepts
 104 constitute essential elements of any social marketing intervention, whereas the techniques are
 105 not exclusive to social marketing (French & Russell-Bennett, 2015). A description of the
 106 elements that constitute the hierarchical model of Social Marketing is presented in this
 107 protocol (see Table 1).

108

109 Figure 1: Three Categories of Criteria of the Hierarchical Model of Social Marketing



110

111 Adapted from: French & Russell-Bennet (2015)

112

113 Table 1: The hierarchical model of Social Marketing: principle, concepts and techniques

Social Marketing Principle	Core Social Marketing Concepts	Social Marketing Techniques
- Aim: To bring social value through reciprocal exchange of resources or assets at the individual, community, societal or global level.	<i>1 - Social behavioral influence</i> - Behavioral analysis is undertaken to understand what is influencing behavioral patterns and trends. - Interventions seek to influence	<i>1 - Integrated intervention mix</i> - Strategies for change that include the marketing mix (Product, price, place, promotion, partnership, policy). - Driven by target market insight

<p>- Social policy, strategy, products, services, and/or experiences are developed that will enable or assist publics to derive social benefits individually or collectively.</p>	<p>specific behaviors or clusters of related behaviors.</p> <p>- Specific actionable and measurable objectives and indicators are established.</p> <p>- Behavioral theory is used to analyze, implement and evaluate interventions.</p> <p>- Behaviors could be upstream, midstream or downstream.</p>	<p>data, segmentation analysis, competition analysis and feasibility analysis.</p> <p>- Mix of “types” and “forms” of interventions that are selected and coordinated to produce an effective and efficient program to influence target group behaviors.</p>
	<p><u>2 – Public / people orientation focus</u></p> <p>- Policy planning, delivery and evaluation are focused on building understanding and interventions around people’s beliefs, attitudes, behaviors, needs and wants.</p> <p>- Different research analyses combining qualitative and quantitative data gathering are used and synthesized to plan, deliver and review interventions.</p>	<p><u>2 - Competition analysis and action</u></p> <p>- Internal (e.g. internal psychological factors, pleasure, desire, risk taking, genetics, and addiction, etc.) and external competition is assessed (e.g. economic, social, cultural and environmental influences).</p> <p>- Strategies are developed to reduce the impact of negative competition on the target behavior.</p>
	<p><u>3 - Social offerings (idea, product, service experience)</u></p> <p>- Publics (citizens, policy-makers or stakeholders) are offered products, ideas, understanding, services, experiences, systems and environments that provide value and advantage.</p> <p>- Social offerings are in most cases positive in nature, although some can involve the imposition of restrictions that have collective support and benefit.</p>	<p><u>3 - Systematic planning and evaluation</u></p> <p>Interventions use proven strategy and planning theory and models to construct robust intervention plans that include formative research pretesting, situational analysis, monitoring evaluation and the implementation of learning strategies.</p>
	<p><u>4 - Relationship building</u></p> <p>- Citizens, policymakers or stakeholders are engaged in the selection of priorities, and the development, design, implementation and evaluation of</p>	<p><u>4 - Insight-driven segmentation</u></p> <p>- The aim is to develop “actionable insights” and hypotheses about how to help citizens that are drawn from what target market know, feel,</p>

	interventions.	<p>believe and do and the environmental circumstances that influence them.</p> <ul style="list-style-type: none"> - Segmentation using demographic, observational data and psycho-graphic data is used to identify groups that are similar and can be influenced in common ways. -Segmentation leads to the development of an intervention mix directly tailored to specific target market needs, values and circumstances.
		<p><u>5 - Co-creation</u></p> <ul style="list-style-type: none"> - Citizens, stakeholders and other civic and commercial institutions are engaged in the selection, development, testing, delivery and evaluation of interventions. - Strategies are developed to maximize the contribution of partner and stakeholder coalitions in achieving targeted behaviors.

114 Adapted from: French & Russell-Bennet (2015)

115

116 **Gender and Social Marketing**

117 It is important to design appropriate behavior change strategies that are responsive to
 118 gendered differences that may exist between women and men, girls and boys. As defined by
 119 Keleher (2004, p. 277) “gender, as a determinant of health, refers to inter-related dimensions
 120 of biological difference, psychological difference and social experience”. The interaction of
 121 these dimensions influences health behaviors and outcomes (WHO, 2016b), and highlights
 122 the relevance of integrating gender analysis in health. Furthermore, social marketing creates
 123 social change strategies that are equitable. However, little is known about how social

124 marketing interventions are gendered. As expressed by Robertson and Davidson (2013, p.
125 169) there is a “dearth of research examining the influence of gender-role depictions in ISMC
126 [Integrated Social Marketing Communication] or examining attitudes towards the diverse
127 range of gendered behaviors targeted by social marketing”.

128

129 **Gender Responsiveness Analysis Framework**

130 In 2010 “The Sex and Gender Appraisal Tool for Systematic Reviews (SGAT-SR)” was
131 developed and tested (Doull et al., 2010) to know the content of systematic reviews about sex
132 and gender, but not to analyze the interventions within those systematic reviews. To
133 contribute to the evidence base about how gender is considered in social marketing health
134 interventions, this systematic review will also be looking at the gender responsiveness of the
135 included NTD interventions. This will be done by applying a tool developed by the
136 WHO (2011) presented in the manual “Gender Mainstreaming for Health Managers: A
137 Practical Approach” (WHO, 2011) that includes the *WHO Gender Responsive Assessment*
138 *Scale (GRAS)* to assess how programs and policies respond to gender-based health inequities.
139 To operationalize the GRAS, the manual also presents the *Gender Assessment Tool (GAT)*
140 (WHO, 2011, p. 49) that through a series of critical questions permits the rapid and overall
141 assessment of the gender responsiveness of policies and programs, in this review it will be
142 used to assess the interventions.

143

144 **Rationale for the study**

145 Reviews of social marketing literature often start with the premise “is this social marketing or
146 not” by assessing adherence to the benchmark criteria before including a study or labeling an
147 intervention as ‘social marketing’. Other reviews focus on specific disease category (e.g
148 HVI/STI, see (Wei et al., 2011)) and examine effectiveness (see (Stead et al., 2007; Luca &

149 Suggs, 2010; Firestone et al., 2016)). While, to date, there are several published reviews of
150 social marketing addressing physical activity, substance abuse, disease prevention, teenage
151 pregnancies reduction and other health behaviors, (Stead et al., 2007; Luca & Suggs, 2010;
152 Wakhisi et al., 2011; Aceves-Martins et al., 2016), and suggesting that social marketing is an
153 effective approach to influence behaviors, no such review of social marketing interventions to
154 combat NTDs or the gender responsiveness of such social marketing interventions has been
155 conducted.

156 To date, two social marketing systematic reviews have assessed interventions related to risk
157 behaviors associated with NTDs, both being focused on water, sanitation and hygiene. Mah et
158 al. (2008) published a review of hand hygiene behavioral interventions assessed using the
159 social marketing benchmark criteria. The authors found no significant association between the
160 outcome of an intervention and the number of benchmarks used. In 2014, Evans et al.
161 published a systematic review of interventions targeting behaviors related to water or
162 sanitation, and diarrhea prevalence and/or morbidity as a health objective.(2014, p. 19), and
163 reported on the four “Ps” of the marketing mix. They found a widespread use of the Ps, with
164 some interventions not reporting explicitly on the “price” strategy, and a mixed evidence of
165 behavior change where successes were concentrated in Safe Water System (SWS) programs.
166 Although these studies reviewed behaviors related to NTDs, this disease category was not
167 their focus.

168

169 Although systematic reviews assessing gender in health programs exist (Sherr, Mueller &
170 Varrall, 2009; Small, Nikolova & Narendorf, 2013; Phillips & Hamberg, 2016; Hartmann et
171 al., 2016), none, to date, have been conducted on social marketing programs. Until now, there
172 is no systematic review of social marketing interventions addressing behaviors directly
173 associated with NTDs nor the gender responsiveness of such programs. This study intends to

174 bridge this scientific gap by building evidence on the breadth of coverage of social marketing
175 interventions on the prevention and control of NTDs, using the hierarchical model of social
176 marketing (French & Russell-Bennett, 2015). Additionally, responding to the call for
177 additional social science research about gender inequalities for NTDs (Hotez, 2009) and to
178 claims about the absence of sex/gender analysis in systematic reviews (Doull et al., 2010;
179 Runnels et al., 2014), this study will use an adapted version of the *WHO Gender Assessment*
180 *Tool (GAT)* (WHO, 2011) (see Additional file 1) to assess the extent to which the included
181 interventions have been gender responsive.

182

183 **Objectives**

184 The aim of this systematic review is to assess the breadth of coverage of social marketing
185 interventions for NTDs, and to assess the gender responsiveness of those interventions by
186 answering the following questions:

187

- 188 1. What NTDs have been targeted by social marketing interventions; which diseases,
189 populations, geographic areas?
- 190 2. What social marketing concepts and techniques have been used in social marketing
191 interventions aimed at influencing behaviors to prevent and control NTDs at
192 community, health facility and policy level?
- 193 3. What behavioral determinants and behavioral outcomes were addressed by social
194 marketing interventions aimed at influencing behaviors to prevent and control NTDs
195 at community, health facility and policy levels?
- 196 4. To what extent are the interventions gender responsive? Does the gender
197 responsiveness vary according to the NTD or to the behavioral focus of the
198 intervention?

199 5. What is the overall effectiveness of social marketing interventions aimed at changing
200 behaviors related to NTD prevention and control at community, health facility and
201 policy levels? And, does this vary by concepts and techniques used or by the extent
202 they were gender responsive?

203

204 **Methods**

205 The methods and design of this systematic review protocol follow the guidelines of the
206 Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P)
207 (Moher et al., 2015). A checklist is provided as an additional file (see Additional file 2). This
208 protocol is registered with PROSPERO CRD42017063858.

209

210 **Eligibility criteria**

211 **Types of studies**

212 Reviews and systematic reviews will not be included. The published studies must have been
213 peer-reviewed, published between January 1971 and April 2017. No restrictions will be
214 applied to the languages in which the studies are written. Additionally, building from the
215 experience of previous systematic reviews (Stead et al., 2007; Firestone et al., 2016), studies
216 will be included if they labeled the intervention as a social marketing program or used social
217 marketing terminology in their title or abstract. Examples of social marketing terminology
218 include the words marketing mix, segmentation, exchange, social offering, and behavioral
219 influence. Moreover, included studies must report their intended or actual influence on
220 behavioral determinants or behavioral outcomes.

221

222 Participants

223 Interventions implemented at community, health facility and public policy settings will be
224 included, the target audience(s) of the interventions will be coded.

225

226 Intervention

227 A social marketing intervention will be included if:

- 228 • It targets an NTD.
- 229 • It applies at least 1 of the 4 core social marketing concepts: (i) social behavioral
230 influence, (ii) public orientation focus, (iii) social offerings, (iv) relationship building.
231 Social behavioral influence must be the minimum concept applied.
- 232 • It applies at least 1 of the 5 social marketing techniques, namely the integrated
233 intervention mix that must include the marketing mix: (i) integrated intervention mix,
234 (ii) competition analysis and action, (iii) systematic planning and evaluation, (iv)
235 insight-driven segmentation, (v) co-creation.

236 The Hierarchical Model of Social Marketing was published in 2015 and thus studies from
237 1971 may not report all concepts and techniques. Thus, at least one concept and one technique
238 are required to be able to capture the variety of criteria applied by the interventions.

239

240 Comparator/control

241 No comparisons will be made.

242

243 Outcomes

244 Interventions will be included if they aimed to influence behavioral determinants and/or
245 behavioral outcomes.

246

247 *Primary outcomes:* Behavioral outcomes that could influence the prevention and control of
248 any of the 17 WHO priority NTDs (WHO, 2016a) (see Additional file 3).

249

250 *Secondary outcomes:* Behavioral determinants including: changes in awareness, knowledge,
251 skills, norms and attitudes, as well as structural and policy changes as a result of the social
252 marketing intervention.

253

254 **Search Strategies**

255 A literature search will be conducted in the databases of PubMed, EbscoHost, ProQuest, Web
256 of Science (WOS), Global Index Medicus and Virtual Health Library (VHL) Regional Portal.

257 A different search strategy will be designed for each database (see Additional file 4) and will
258 be crosschecked by a librarian and professionals with experience in systematic review

259 methodology. Scoping searches will be conducted to test the databases and search terms, if

260 studies with the potential to be included in the review are identified, they will be incorporated

261 to the screening process. Additionally, bibliographies of the selected studies will be manually
262 searched to identify other relevant articles.

263

264 If full-text articles of the studies that reach the full-text screening phase are not available, the

265 lead researcher (NAP) will search for them in other online databases, ResearchGate, and

266 Google Scholar or will request support from a library to obtain a full text copy. If they are still

267 not available, the lead author will be contacted by email. If it is not possible to have access to

268 full papers, the study will not be included and this will be reported in the results. Moreover, to

269 clarify aspects that are not clear from the articles, the lead author will be contacted by email.

270

271 **Data management**

272 The studies identified in the databases search will be imported to Covidence (Veritas Health
273 Innovation, 2016), a Cochrane systematic review platform that will be used for the screening
274 process. The inclusion and exclusion criteria listed above will be operationalized according to
275 specifications of the data management software (see Additional file 5). Data extraction,
276 coding and analysis processes, as well as quality assessment will be conducted using
277 Microsoft Excel.

278

279 **Selection process**

280 Two independent reviewers will be involved in the processes of title and abstract screening
281 and full-text screening. Each reviewer will work independently using their Covidence (Veritas
282 Health Innovation, 2016) personal accounts, and a third reviewer will resolve discrepancies.
283 This process will consist of four phases.

284

285 During the first phase “Import studies to Covidence”, one reviewer will conduct the searches
286 in the databases and export the results to Zotero (Roy Rosenzweig Center for History and
287 New Media) where other studies identified through manual or scoping searches will also be
288 added. Afterwards, all the files will be imported to Covidence (Veritas Health Innovation,
289 2016), using RIS file format, where duplicates will be removed.

290

291 In the second phase “Title and abstract screening”, each reviewer will read the title and
292 abstract of each of the studies imported from the databases into Covidence (Veritas Health
293 Innovation, 2016). Studies that meet the inclusion criteria will move to the following phase.
294 If the title or abstract include key words such as: health education, health promotion, health
295 communication, health campaign or hygiene promotion, and social marketing terminology, or

296 NTDs behavioral outcomes or mention any NTD, the study will move to the next phase. If a
297 study does not have an abstract, but its title clearly denotes potential for inclusion, it will
298 move to the following phase. In this second phase, the two reviewers must rate a study (i.e.
299 yes, no, maybe), if either reviewer selects “maybe”, the study will be categorized by
300 Covidence (Veritas Health Innovation, 2016) as “in conflict” and a third reviewer will help
301 reach consensus.

302

303 During the third phase “Full-text screening”, each of the two reviewers will review the
304 content of the studies and confront it with the criteria presented above. Covidence (Veritas
305 Health Innovation, 2016) will provide a list with exclusion options, if a reviewer considers a
306 study should not be included a reason must be provided by selecting one of the options of the
307 list. It is expected that some studies will explicitly state some criteria but some other studies
308 may not, in this case, reviewers will decide based on the terminology they use, whether they
309 meet or not the criteria. If both reviewers agree a study should be included for analysis, the
310 study will be moved to the data extraction phase. If they do not agree, the third reviewer will
311 intervene to reach consensus.

312

313 The references of the studies that reach the fourth phase “Data extraction”, will be exported
314 from Covidence (Veritas Health Innovation, 2016) as RIS and as excel files and will be stored
315 in a secured server. The lead researcher will keep records using the PRISMA 2009 Flow
316 Diagram (Moher et al., 2009) of the number of studies evaluated at each phase.

317

318 **Data collection process**

319 The process of extracting data from studies will be conducted in Microsoft Excel by one
320 reviewer and crosschecked by a second reviewer. Discrepancies will be identified and will be

321 resolved through dialogue until reaching consensus. Data forms for data extraction will be
322 developed and piloted during scoping searches.

323

324 The data analysis will include the application of the GAT questionnaire (WHO, 2011, p. 49)
325 for rapid assessment of the gender responsiveness of the included interventions, using an
326 updated version of the questionnaire (see Additional file 1). If it is not possible to answer
327 “yes” or “no” from the data presented in the paper, the answer will be coded as “not
328 applicable”.

329

330 **Data items**

331 Extracted information will include: authors, paper title, intervention name (if one exists),
332 setting, aim of the intervention, public characteristics, social marketing concepts (Behavioral
333 influence, public / people orientation focus, social offerings, relationship building), Social
334 Marketing techniques (integrated intervention mix, competition analysis and action,
335 systematic planning and evaluation, insight-driven segmentation, co-creation), NTD(s)
336 associated with the intervention, behavioral determinants, behavioral outcomes. Gender, age,
337 rural/peri-urban/urban location, and country income category as classified by the World Bank
338 will be coded if data are available. Disease, behavior and category of intervention
339 (downstream, midstream and upstream) will be coded (if applicable). The data extraction
340 form is also provided (see Additional file 6).

341

342 To answer the third research question that intends to determine the gender responsiveness of
343 the social marketing interventions included, a set of questions based on an updated version of
344 the *WHO Gender Assessment Tool (GAT)* (WHO, 2011) (Additional file 1) and guided by
345 WHO’s definitions contained in the manual (See Additional file 7) will be used, and will

346 comprise inquiries such as commitment towards gender equality; piloting of methods or tools
347 with men and women; stakeholders involved; gender norms, roles and relations. When data is
348 available, data supporting the GAT answers will be extracted (See Additional file 1).

349

350 **Outcomes and prioritization**

351 Behavioral outcomes will be extracted, prioritized and coded based on the five WHO strategic
352 interventions for NTDs (primary outcomes), and on the influence on behavioral determinants
353 (secondary outcomes). A table summarizing the populations, interventions and outcomes will
354 be presented (See Additional file 8).

355

356 *Primary outcomes:* Influence (e.g. changes, maintenance) in the following behavioral
357 outcomes associated with NTDs (WHO, 2007, 2010, 2013; CDC, 2014; WHO, 2015b,a):

- 358 1. **Preventive chemotherapy and transmission control (PCT):** Providing preventive
359 chemotherapy, multidrug treatment (MDT) or Mass Drug Administration (MDA),
360 swallowing drugs for the prevention, control and elimination of NTDs.
- 361 2. **Innovative and intensified disease management (IDM):** Seeking for early diagnosis,
362 seeking for treatment, advocating for new diagnostic tools, advocating for new drugs.
- 363 3. **Vector ecology and management:** Spraying of larvacides, using mosquito nets, covering
364 domestic water-holding containers with lids, changing (emptying) water-holding
365 containers every week, installing window and/or door screens.
- 366 4. **Veterinary public health measures:** Improving political commitment towards neglected
367 zoonotic diseases, increasing intersectoral and interdisciplinary collaboration among three
368 sectors: human health, veterinary health and environmental health (One Health Concept).
- 369 5. **Water, sanitation and hygiene:** Improving personal hygiene, hand washing with soap,
370 face washing, increasing latrine use, improving human feces and urine disposal,

371 improving animal feces disposal, preventing animals to have contact with human feces,
372 reducing the consumption of raw or undercooked meat, washing fruits and vegetables
373 with clean water, accessing clean drinking water, using safe / clean drinking water,
374 protecting freshwater from animal waste, boiling drinking water, drinking boiled water,
375 using cloth/pipe filters for drinking water, improving hygiene practices in food
376 preparation.

377

378 *Secondary outcomes:* Behavioral determinants namely changes in awareness, knowledge,
379 skills, norms and attitudes, as well as structural and policy changes as a result of the social
380 marketing intervention addressing the behavioral outcomes.

381

382 **Risk of bias in individual studies**

383 The quality of individual studies will be assessed in the final stage of the review after data
384 extraction and using Microsoft Excel. This will be carried out using the QATSDD Critical
385 Appraisal Tool (Sirriyeh et al., 2012) that assesses “the congruency, transparency and
386 organized reporting of the research processes” (Fenton, Lauckner & Gilbert, 2015, p. 1125) of
387 studies of diverse designs (qualitative and quantitative). The QATSDD Critical Appraisal
388 Tool (Sirriyeh et al., 2012) comprises 16 criteria each having a scoring scale from 0 to 3 (0 =
389 not at all, 1 = very slightly, 2 = moderately, 3 = complete). Each reviewer will assign a score
390 to each study and subsequently both reviewers will compare results to identify and resolve
391 differences until reaching consensus. All studies will be included independently of the
392 appraisal results.

393

394 **Data synthesis**

395 The unit of analysis of this systematic review will be the intervention; therefore all the
396 published papers reporting on the same social marketing intervention will be grouped and
397 analyzed together. For this, each intervention will be assigned a code named “Intervention
398 ID” that will consist of the letter I followed by a consecutive number and will be accompanied
399 by the first three letters of the intervention name (if one exists) or by the three first letters of
400 the disease it addresses.

401

402 A summary consolidating the included interventions will be presented in a table (see
403 Additional file 8) and will contain general information, the names of the NTDs addressed,
404 public and setting, a brief description of the intervention, the application of the social
405 marketing principle, concepts and techniques, and the main results, changes in behavioral
406 determinants and behavioral outcomes.

407

408 From the studies included data will be gathered using the GAT questionnaire to determine the
409 gender responsiveness of each intervention and an overall score will be calculated. The
410 original tool of 23 questions was adjusted (see footnotes of Additional file 1) and in this
411 review it will comprise 25 questions instead. If the answer is “yes” to at least 55% of
412 questions 1 – 20, the intervention could be considered gender responsive but the level of
413 gender responsiveness (either gender-sensitive, gender-specific or gender transformative) will
414 not be determined, as the tool was not designed by WHO (2011) for this purpose. In addition,
415 if the answer is “yes” to at least 60% of questions 22 – 25, the intervention may not be
416 gender-responsive, it could be either gender-blind or gender-unequal, but a more thorough
417 gender analysis will be needed to identify the specific level and will not be pursued in this
418 systematic review.

419

420 Summary data will include (see Additional file 9) the number of interventions applying each
421 of the social marketing concepts and techniques, and the number of interventions that
422 achieved behavioral determinants and/or behavioral outcomes classified by the five WHO
423 NTD strategic interventions. To analyze the social marketing concepts and techniques used
424 per behavioral outcome, data will be grouped according to the NTDs the interventions address
425 and to the WHO strategy the behaviors belong. Subsets will also be made according to the
426 gender responsiveness of the interventions and will be classified by disease and by behavioral
427 outcome.

428

429 **Meta-biases**

430 This systematic review will not perform assessment of meta-biases within studies nor across
431 studies.

432

433 **Discussion**

434 The results of this review will be presented in two distinct papers; one answering research
435 questions 1-3 and 5, and a second paper addressing research question 4 and 5 about the
436 gender responsiveness of the included interventions. The findings will be submitted to
437 relevant peer-reviewed journals and form part of the doctoral thesis of NAP, for a Ph.D. in
438 Communication Sciences at Università della Svizzera italiana, Switzerland.

439

440 **List of abbreviations**

441 NTDs, Neglected Tropical Diseases; WHO, World Health Organization; ISMC, Integrated
442 Social Marketing Communication; GRAS, Gender Responsive Assessment Scale; GAT,
443 Gender Assessment Tool; WOS, Web of Science; VHL, Global Index Medicus and Virtual

444 Health Library Regional Portal; PICO, Participants, Interventions, Comparisons and
445 Outcomes; PRISMA, Preferred Reporting Items for Systematic Reviews and Meta-Analyses;
446 PCT, Preventive Chemotherapy; MDT, Multidrug Treatment; MDA, Mass Drug
447 Administration; IDM, Innovative and Intensified Disease Management; USI, Università della
448 Svizzera italiana; COHESION, COmmunity HEalth System InnovatiON.

449

450 **Declarations**

451 **Ethics approval and consent to participate**

452 Not applicable to this protocol.

453

454 **Consent for publication**

455 Not applicable to this protocol.

456

457 **Availability of data and material**

458 Not applicable to this protocol.

459

460 **Competing interest**

461 The authors declare that they have no competing interests.

462

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468

469 **Author's contributions**

470 All authors conceived this review. NAP, LSS and CS agreed in the use of the Gender
471 Assessment Tool (GAT). NAP, JJM and LSS contributed in the development and refinement
472 of the methodology. NAP developed the literature search strategy. NAP and LSS obtained
473 full-text articles. NAP developed this manuscript, which has the approval of all authors.

474

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482

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599

1 **Additional file 1: Adapted WHO Gender Assessment Tool (GAT)**

2

Question	Yes	No	Information Not Available ²	Extraction of text evidencing answer ²
1. Do the vision, goals or principles have an explicit commitment to promoting or achieving gender equality?				
2. Does the intervention include sex as a selection criterion for the public? ³				
3. Does the intervention clearly understand the difference between sex and gender?				
4. Does the public purposely include both women and men? ³				
5. Have women and men participated in the intervention <i>design</i> stage? ⁴				
6. Have women and men participated in the intervention <i>implementation</i> stage? ⁴				
7. Have women and men participated in the intervention <i>monitoring</i> stage? ⁴				
8. Have women and men participated in the intervention <i>evaluation</i> stage? ⁴				
9. Have steps been taken to ensure equal participation of women and men?				
10. Does the intervention consider the conditions and opportunities of women and men?				
11. Does the intervention consider and include women's practical and strategic needs?				
12. Have methods or tools been piloted with both sexes?				
13. Does the intervention consider family or household dynamics including different effects and opportunities for individual members, such as the allocation of resources or decision-making power within the household?				
14. Does the intervention include a range of stakeholders with gender expertise as partners, such as government-affiliated bodies, national or international non-governmental organizations or community organizations?				
15. Does the intervention collect and report evidence by sex?				
16. Is the evidence generated by or informing the intervention based on gender analysis?				
17. Does the intervention consider different health needs for women and men?				
18. Does the intervention include quantitative				

and qualitative indicators to monitor women's and men's participation?				
19. Does the intervention consider gender-based divisions of labor (paid versus unpaid and productive versus reproductive)				
20. Does the intervention address gender norms, roles and relations?				
21. Does the intervention exclude (intentionally or not) one sex but assume that the conclusions apply to both sexes?				
22. Does the intervention exclude one sex in areas that are traditionally thought of as relevant only for the other sex? ⁵				
23. Does the intervention treat women and men as homogeneous groups when there are foreseeable, different outcomes for subgroups, such as low-income versus high-income women or employed versus unemployed men?				
24. Do materials or publications portray men and women based on gender-based stereotypes?				
25. Does the language exclude or privilege one sex?				

3

4 Footnotes:

5 ¹ *In the entire questionnaire, the words "policy or programme" were replaced with "intervention"*6 ² *The columns "Information not available" and "Extraction of text evidencing answer" were added to*
7 *the original WHO Gender Assessment Tool (GAT).*8 ³ *In questions No.2 and No.4, the words "target population" were replaced with "public" to be*
9 *coherent with the language of the Hierarchical Model of Social Marketing.*10 ⁴ *These questions were adjusted from the original WHO Gender Assessment Tool (GAT). The original*
11 *question, number 5, included the four stages: design, implementation, monitoring and evaluation. In*
12 *this systematic review the question was divided in four, one for each stage.*13 ⁵ *Questions adjusted from original version. The final part "...such as maternal health or occupational*
14 *health?" was removed.*15 ⁶ *Question No. 7 of the original questionnaire asking: "Do both male and female team members have*
16 *an equal role in decision-making?" was not included in this version.*

1 **Additional file 2: PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist.**
 2 **Recommended items to address in a systematic review protocol***
 3

Section and topic	Item No	Checklist item	Reported
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	This is a protocol of a systematic review.
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	This is not an update of a previous systematic review.
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	PROSPERO CRD42017063858
Authors:			
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	Names, institutional affiliations and email addresses of all protocol authors and the mailing address of the corresponding author are included in the title page.
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	Contributions of protocol authors are mentioned throughout the manuscript.
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	The corresponding author will keep a record of protocol amendments.
Support:			
Sources	5a	Indicate sources of financial or other support for the review	As stated in the manuscript, this research forms part of a thesis for a Ph.D. funded by the Università della Svizzera italiana (USI), and by the COHESION Project (#160366) financed by the Swiss National Science Foundation (SNF) and the Swiss Development Cooperation (SDC) under the funding scheme “r4d (Swiss Programme for Research on

			Global Issues for Development)”. Università della Svizzera italiana (USI) and the COHESION Project
Sponsor	5b	Provide name for the review funder and/or sponsor	First and last author are affiliated with the Università della Svizzera italiana (USI) and all authors are part of the COHESION Project. Neither the Università della Svizzera italiana (USI) nor the Swiss Program for Research on Global Issues for Development took part in developing the content of this protocol.
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	Detailed in manuscript – “Background” section
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	Detailed in manuscript – “Objectives”
METHODS			
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	Detailed in manuscript – “Methods: Eligibility criteria” and “Additional file 3”
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	Detailed in manuscript – “Methods”
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	Presented in “Additional file 4”
Study records:			

Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	Detailed in manuscript – “Methods: Data management” and “Additional file 5”
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	Detailed in manuscript – “Methods: Selection process”
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	Detailed in manuscript – “Methods: Data collection process” and “Additional file 8”
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	Detailed in manuscript – “Methods: Data items” and Additional files: 1, 6 and 7
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	Detailed in manuscript – “Methods: Outcomes and prioritization”
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	Detailed in manuscript – “Methods: Risk of bias in individual studies”
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	N/A
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2 , Kendall’s τ)	N/A
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	N/A
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	Detailed in manuscript – “Data Synthesis”, “Additional file 1”, and “Additional file 8”

Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	This systematic review will not perform assessment of meta-biases within studies nor across studies.
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	Detailed in manuscript – “Method - Risk of bias in individual studies”

4
5

6 *** It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when**
7 **available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for**
8 **PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**

9

10 *From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items*
11 *for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647.*

12

1 **Additional file 3: World Health Organization Priority NTDs**

2

3 1. Buruli ulcer

4 2. Chagas disease

5 3. Dengue and Chikungunya

6 4. Dracunculiasis (guinea-worm disease)

7 5. Echinococcosis

8 6. Foodborne trematodiasis

9 7. Human African trypanosomiasis (sleeping sickness)

10 8. Leishmaniasis

11 9. Leprosy (Hansen's disease)

12 10. Lymphatic filariasis

13 11. Onchocerciasis (river blindness)

14 12. Rabies

15 13. Schistosomiasis

16 14. Soil-transmitted helminthiasis

17 15. Taeniasis/Cysticercosis

18 16. Trachoma

19 17. Yaws (Endemic treponematoses)

20

21

22

1 **Additional file 4: Search strategies**2
3
4**PubMed**

#	Searches	Results
1	(Ulcer, Buruli) OR mycobacterium ulcerans	1,169
2	((Disease, Chagas) OR american trypanosomiasis) OR trypanosoma cruzi	14,229
3	(dengue) OR mosquito	52,709
4	(chikungunya) OR Chikungunya virus	3,189
5	((dracunculiasis) OR guinea-worm disease) OR dracunculus medinensis) OR Dracunculiasis	844
6	((((((((((echinococcosis) OR echinococcus granulosus) OR cystic echinococcosis) OR hydatidosis) OR hydatid disease) OR alveolar echinococcosis) OR echinococcus multilocularis) OR polycystic echinococcosis) OR echinococcus vogeli) OR unicystic echinococcosis) OR echinococcus oligarthrus) OR Echinococcoses	16,008
7	((((((((((foodborne trematodiasis) OR trematode worms) OR flukes) OR freshwater snail) OR freshwater fish) OR clonorchis sinensis) OR opisthorchis viverrini) OR opisthorchis Felineus) OR fasciola hepatica) OR fasciola gigantica) OR paragonimus) OR Disease, Foodborne	68,193
8	((((((human african trypanosomiasis) OR sleeping sickness) OR trypanosoma brucei gambiense) OR tsetse flies) OR glossina genus) OR trypanosoma brucei rhodesiense) OR nagana) OR Trypanosomiasis, African	8,354
9	((((((leishmaniasis) OR visceral leishmaniasis) OR cutaneous leishmaniasis) OR mucocutaneous leishmaniasis) OR kala-azar) OR leishmania parasites) OR phlebotomine sandflies) OR Leishmaniasis	25,901
10	((leprosy) OR hansen's disease) OR mycobacterium leprae) OR Leprosies) OR Hansen Disease	28,111
11	((((((((((lymphatic filariasis) OR elephantiasis) OR nematodes) OR roundworms) OR wuchereria bancrofti) OR brugia malayi) OR brugia timori) OR culex) OR anopheles) OR aedes) OR Elephantiasis, Filarial	99,638
12	((onchocerciasis) OR river blindness) OR onchocerca volvulus) OR simulium) OR blackflies) OR Onchocerciasis	5,512
13	(rabies) OR Lyssa	11,274
14	((((((((((schistosomiasis) OR parasitic worms) OR blood flukes) OR trematode worms) OR Intestinal schistosomiasis) OR schistosoma mansoni) OR schistosoma japonicum) OR schistosoma mekongi) OR schistosoma guineensis) OR schistosoma intercalatum) OR urogenital schistosomiasis) OR schistosoma haematobium) OR Schistosomiasis	117,465
15	((((((((((soil-transmitted helminthiasis) OR soil-transmitted helminth infection) OR roundworm) OR ascaris lumbricoides) OR whipworm) OR trichuris trichiura) OR hookworms) OR necator americanus) OR ancylostoma duodenale) OR Helminthiasis) OR Infections, Nematomorpha	130,821

16	((((((((((taeniasis/cysticercosis) OR taeniasis) OR cysticercosis) OR tapeworms) OR taenia solium) OR pork tapeworm) OR taenia saginata) OR beef tapeworm) OR taenia asiatica) OR cysticerci) OR cysticercus) OR Cysticercoses	16,558
17	((trachoma) OR chlamydia trachomatis) OR Trachomas	16,325
18	((((endemic treponematoses) OR yaws) OR treponema pallidum) OR pertenuae) OR Frambesia	4,699
19	((((Disease, Neglected) OR "neglected tropical disease") OR "tropical disease") OR "neglected disease") OR NTD	14,404
20	1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19	335,835
21	((Marketing, Social) OR Communication, Health) OR Promotion, Health	220,223
22	(((((Campaign, Health) OR Campaign) OR Intervention) OR Program) OR Strategy) OR Project	1,581,579
23	#20 AND #21 AND #22 AND ("1971/01/01"[PDAT] : "2017/04/26"[PDAT])	1,088

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Limiters - Scholarly (Peer Reviewed) Journals; Published Date: 19710101-20170426; Publication Type: Academic Journal; Publication Type: Academic Journal; Publication Type: Academic Journal; Publication Year: 1971-2017; Publication Type: Peer Reviewed Journal

Search modes - Boolean/Phrase

Databases - CINAHL, Business Source Premier, Communication & Mass Media Complete, GreenFILE, Psychology and Behavioral Sciences Collection, PsycINFO

#	Search Terms	Results
1	"social marketing" OR "health promotion" OR "health communication"	100,804
2	buruli ulcer OR mycobacterium ulcerans OR chagas disease OR american trypanosomiasis OR trypanosoma cruzi OR dengue OR mosquito OR chikungunya OR dracunculiasis OR guinea worm disease OR dracunculus medinensis OR echinococcosis	4,994
3	echinococcus granulosus OR cystic echinococcosis OR hydatidosis OR hydatid disease OR alveolar echinococcosis OR echinococcus multilocularis OR polycystic echinococcosis OR echinococcus vogeli OR unicystic echinococcosis OR echinococcus oligarthrus OR foodborne trematodiasis OR trematode worms	249
4	flukes OR freshwater snails OR freshwater fish OR clonorchis sinensis OR opisthorchis viverrini OR opisthorchis Felineus OR fasciola hepatica OR fasciola gigantica OR paragonimus OR human african trypanosomiasis OR sleeping sickness OR trypanosoma brucei gambiense	2,768

5	tsetse flies OR glossina genus OR trypanosoma brucei rhodesiense OR nagana OR leishmaniasis OR visceral leishmaniasis OR cutaneous leishmaniasis OR mucocutaneous leishmaniasis OR kala-azar OR phlebotomine sandflies OR leprosy OR hansen's disease	2,123
6	mycobacterium leprae OR lymphatic filariasis OR elephantiasis OR nematodes OR roundworms OR (roundworms or nematodes) OR wuchereria bancrofti OR brugia malayi OR brugia timori OR culex OR anopheles OR aedes	3,885
7	onchocerciasis OR river blindness OR onchocerca volvulus OR simulium OR blackflies OR rabies OR schistosomiasis OR parasitic worms OR blood fluke OR trematode worms OR Intestinal schistosomiasis OR schistosoma mansoni	2,537
8	schistosoma japonicum OR schistosoma mekongi OR schistosoma guineensis OR schistosoma intercalatum OR urogenital schistosomiasis OR schistosoma haematobium OR soil-transmitted helminthiasis OR soil-transmitted helminth infection OR roundworm OR ascaris lumbricoides OR whipworm OR trichuris trichiura	858
9	hookworms in humans OR hookworms OR necator americanus OR ancylostoma duodenale OR taeniasis/cysticercosis OR taeniasis OR cysticercosis OR tapeworm OR taenia solium OR pork tapeworm OR taenia saginata OR beef tapeworm	741
10	taenia asiatica OR cysticerci OR trachoma OR chlamydia trachomatis OR endemic treponematoses OR yaws OR treponema pallidum OR pertenue	3,429
11	neglected tropical diseases OR tropical diseases OR neglected diseases OR ntds	2,712
12	2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11	21,199
13	intevention OR campaign OR program OR project OR strategy	1,775,092
14	1 AND 12 AND 13	188

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ProQuest

Databases: ABI/INFORM Global, ABI/INFORM Trade & Industry, ERIC, MEDLINE
Limiters: Peer reviewed, Scholarly journals
Publication date: 01 Jan 1971 - 26 Apt 2017

#	Search	Results
1	all("social marketing") OR all("health promotion") OR all("health communication")	70,731
2	all("neglected tropical diseases*") OR all("neglected diseases*") OR all("tropical diseases*") AND all("NTD*")	7,363
3	all("buruli ulcer") OR all("mycobacterium ulcerans") OR all("chagas disease") OR all("american trypanosomiasis") OR all("trypanosoma cruzi") OR all("dengue") OR all("mosquito")	45,362

OR all("chikungunya")

	all("dracunculiasis") OR all("guinea-worm disease") OR all("dracunculus medinensis") OR all("echinococcosis") OR 4 all("echinococcus granulosus") OR all("cystic echinococcosis") OR 10,325 all("hydatidosis") OR all("hydatid disease") OR all("alveolar echinococcosis") OR all("echinococcus multilocularis")
	all("polycystic echinococcosis") OR all("echinococcus vogeli") OR 5 all("unicystic echinococcosis") OR all("echinococcus oligarthrus") 5,711 OR all("foodborne trematodiasis") OR all("trematode worms") OR all("flukes") OR all("freshwater snail") OR all("freshwater fish") OR all("clonorchis sinensis")
	all("opisthorchis viverrini") OR all("opisthorchis Felineus") OR 6 all("fasciola hepatica") OR all("fasciola gigantica") OR 8,472 all("paragonimus") OR all("human african trypanosomiasis") OR all("sleeping sickness") OR all("trypanosoma brucei gambiense") OR all("tsetse flies") OR all("glossina genus")
	all("trypanosoma brucei rhodesiense") OR all("nagana") OR 7 all("leishmaniasis") OR all("visceral leishmaniasis") OR 18,278 all("cutaneous leishmaniasis") OR all("mucocutaneous leishmaniasis") OR all("kala-azar") OR all("leishmania parasites") OR all("phlebotomine sandflies")
	all(leprosy) OR all("hansen's disease") OR all("mycobacterium 8 leprae") OR all("lymphatic filariasis") OR all("elephantiasis") OR 31,506 all("nematodes") OR all("roundworms") OR all("wuchereria bancrofti") OR all("brugia malayi")
	all("brugia timori") OR all("culex") OR all("anopheles") OR 9 all("aedes") OR all("onchocerciasis") OR all("river blindness") OR 27,879 all("onchocerca volvulus") OR all("simulium") OR all("blackflies")
	all("rabies") OR all("schistosomiasis") OR all("parasitic worms") 10 OR all("blood flukes") OR all("trematode worms") OR 25,209 all("Intestinal schistosomiasis") OR all("schistosoma mansoni") OR all("schistosoma japonicum") OR all("schistosoma mekongi")
	all("schistosoma guineensis") OR all("schistosoma intercalatum") 11 OR all("urogenital schistosomiasis") OR all("schistosoma 4,914 haematobium") OR all("soil-transmitted helminthiasis") OR all("soil-transmitted helminth infection") OR all("roundworm") OR all("ascaris lumbricoides") OR all("whipworm") OR all("trichuris trichiura")
	all("hookworms") OR all("necator americanus") OR 12 all("ancylostoma duodenale") OR all(taeniasis/cysticercosis) OR 7,269 all(taeniasis) OR all(cysticercosis) OR all(tapeworms) OR all("taenia solium") OR all("pork tapeworm") OR all("taenia saginata")
	all("beef tapeworm") OR all("taenia asiatica") OR all("cysticerci") 13 OR all("trachoma") OR all("chlamydia trachomatis") OR 15,938 all("endemic treponematoses") OR all("yaws") OR all("treponema pallidum") OR all("pertenuis")

14	2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13	174,796
15	all(intervention) OR all(campaign) OR all(strategy) OR all(program) OR all(project)	2,465,516
15	#1 AND #14 AND #15	329

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Web of Science (WOS)

All databases
Timespan=1971-2017
Search language=Auto

#	Searches	Results
1	TOPIC: ("buruli ulcer") OR TOPIC: ("mycobacterium ulcerans") OR TOPIC: ("chagas disease") OR TOPIC: ("american trypanosomiasis") OR TOPIC: ("trypanosoma cruzi") OR TOPIC: ("dengue") OR TOPIC: ("mosquito") OR TOPIC: ("chikungunya") OR TOPIC: ("dracunculiasis") OR TOPIC: ("guinea-worm disease") OR TOPIC: ("dracunculus medinensis") OR TOPIC: ("echinococcosis") OR TOPIC: ("echinococcus granulosis") OR TOPIC: ("cystic echinococcosis") OR TOPIC: (hydatidosis) OR TOPIC: ("hydatid disease") OR TOPIC: ("alveolar echinococcosis") OR TOPIC: ("echinococcus multilocularis") OR TOPIC: ("polycystic echinococcosis") OR TOPIC: ("echinococcus vogeli") OR TOPIC: ("unicystic echinococcosis") OR TOPIC: ("echinococcus oligarthrus") OR TOPIC: ("foodborne trematodiasis") OR TOPIC: ("trematode worms") OR TOPIC: ("flukes")	113,353
2	TOPIC: ("freshwater snail") OR TOPIC: ("freshwater fish") OR TOPIC: ("clonorchis sinensis") OR TOPIC: ("opisthorchis viverrini") OR TOPIC: ("opisthorchis Felineus") OR TOPIC: ("fasciola hepatica") OR TOPIC: ("fasciola gigantica") OR TOPIC: ("paragonimus") OR TOPIC: ("human african trypanosomiasis") OR TOPIC: ("sleeping sickness") OR TOPIC: ("trypanosoma brucei gambiense") OR TOPIC: ("tsetse flies") OR TOPIC: ("glossina genus") OR TOPIC: ("trypanosoma brucei rhodesiense") OR TOPIC: (nagana) OR TOPIC: (leishmaniasis) OR TOPIC: ("visceral leishmaniasis") OR TOPIC: ("cutaneous leishmaniasis") OR TOPIC: ("mucocutaneous leishmaniasis") OR TOPIC: (kala-azar) OR TOPIC: ("leishmania parasites") OR TOPIC: ("phlebotomine sandflies") OR TOPIC: ("leprosy") OR TOPIC: ("hansen's disease") OR TOPIC: ("mycobacterium leprae")	87,557

- 3 TITLE: ("freshwater snail") OR TITLE: ("freshwater fish") OR
TITLE: ("clonorchis sinensis") OR TITLE: ("opisthorchis viverrini")
OR TITLE: ("opisthorchis Felineus") OR TITLE: ("fasciola hepatica")
OR TITLE: ("fasciola gigantica") OR TITLE: ("paragonimus") OR
TITLE: ("human african trypanosomiasis") OR TITLE: ("sleeping
sickness") OR TITLE: ("trypanosoma brucei gambiense") OR TITLE:
("tsetse flies") OR TITLE: ("glossina genus") OR TITLE: 42,273
("trypanosoma brucei rhodesiense") OR TITLE: (nagana) OR TITLE:
(leishmaniasis) OR TITLE: ("visceral leishmaniasis") OR TITLE:
("cutaneous leishmaniasis") OR TITLE: ("mucocutaneous
leishmaniasis") OR TITLE: (kala-azar) OR TITLE: ("leishmania
parasites") OR TITLE: ("phlebotomine sandflies") OR TITLE:
("leprosy") OR TITLE: ("hansen's disease") OR TITLE:
("mycobacterium leprae")
-
- 4 TI=("buruli ulcer") OR TI=("mycobacterium ulcerans") OR
TI=("chagas disease") OR TI=("american trypanosomiasis") OR
TI=("trypanosoma cruzi") OR TI=("dengue") OR TI=("mosquito")
OR TI=("chikungunya") OR TI=("dracunculiasis") OR TI=("guinea-
worm disease") OR TI=("dracunculus medinensis") OR
TI=("echinococcosis") OR TI=("echinococcus granulosus") OR 46,052
TI=("cystic echinococcosis") OR TI=(hydatidosis) OR TI=("hydatid
disease") OR TI=("alveolar echinococcosis") OR TI=("echinococcus
multilocularis") OR TI=("polycystic echinococcosis") OR
TI=("echinococcus vogeli") OR TI=("unicystic echinococcosis") OR
TI=("echinococcus oligarthrus") OR TI=("foodborne trematodiasis")
OR TI=("trematode worms") OR TI=("flukes")
-
- 5 TOPIC: ("lymphatic filariasis") OR TOPIC: (elephantiasis) OR
TOPIC: (nematodes) OR TOPIC: (roundworms) OR TOPIC:
("wuchereria bancrofti") OR TOPIC: ("brugia malayi") OR TOPIC:
("brugia timori") OR TOPIC: (culex) OR TOPIC: (anopheles) OR
TOPIC: (aedes) OR TOPIC: (onchocerciasis) OR TOPIC: ("river
blindness") OR TOPIC: ("onchocerca volvulus") OR TOPIC: 258,919
(simulium) OR TOPIC: (blackflies) OR TOPIC: (rabies) OR TOPIC:
(schistosomiasis) OR TOPIC: ("parasitic worms") OR TOPIC: ("blood
flukes") OR TOPIC: ("trematode worms") OR TOPIC: ("Intestinal
schistosomiasis") OR TOPIC: ("schistosoma mansoni") OR TOPIC:
("schistosoma japonicum") OR TOPIC: ("schistosoma mekongi") OR
TOPIC: ("schistosoma guineensis")
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- 6 TITLE: ("lymphatic filariasis") OR TITLE: (elephantiasis) OR TITLE:
(nematodes) OR TITLE: (roundworms) OR TITLE: ("wuchereria
bancrofti") OR TITLE: ("brugia malayi") OR TITLE: ("brugia timori")
OR TITLE: (culex) OR TITLE: (anopheles) OR TITLE: (aedes) OR
TITLE: (onchocerciasis) OR TITLE: ("river blindness") OR TITLE:
("onchocerca volvulus") OR TITLE: (simulium) OR TITLE: 85,801
(blackflies) OR TITLE: (rabies) OR TITLE: (schistosomiasis) OR
TITLE: ("parasitic worms") OR TITLE: ("blood flukes") OR TITLE:
("trematode worms") OR TITLE: ("Intestinal schistosomiasis") OR
TITLE: ("schistosoma mansoni") OR TITLE: ("schistosoma
japonicum") OR TITLE: ("schistosoma mekongi") OR TITLE:
("schistosoma guineensis")
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7	TOPIC: ("schistosoma intercalatum") OR TOPIC: ("urogenital schistosomiasis") OR TOPIC: ("schistosoma haematobium") OR TOPIC: ("soil-transmitted helminthiasis") OR TOPIC: ("soil-transmitted helminth infection") OR TOPIC: (roundworm) OR TOPIC: ("ascaris lumbricoides") OR TOPIC: (whipworm) OR TOPIC: ("trichuris trichiura") OR TOPIC: (hookworms) OR TOPIC: ("necator americanus") OR TOPIC: ("ancylostoma duodenale") OR TOPIC: ("taeniasis/cysticercosis") OR TOPIC: (taeniasis) OR TOPIC: (cysticercosis) OR TOPIC: (tapeworms) OR TOPIC: ("taenia solium") OR TOPIC: ("pork tapeworm") OR TOPIC: ("taenia saginata") OR TOPIC: ("beef tapeworm") OR TOPIC: ("taenia asiatica") OR TOPIC: (cysticerci) OR TOPIC: (trachoma) OR TOPIC: ("chlamydia trachomatis")	53,915
8	TITLE: ("schistosoma intercalatum") OR TITLE: ("urogenital schistosomiasis") OR TITLE: ("schistosoma haematobium") OR TITLE: ("soil-transmitted helminthiasis") OR TITLE: ("soil-transmitted helminth infection") OR TITLE: (roundworm) OR TITLE: ("ascaris lumbricoides") OR TITLE: (whipworm) OR TITLE: ("trichuris trichiura") OR TITLE: (hookworms) OR TITLE: ("necator americanus") OR TITLE: ("ancylostoma duodenale") OR TITLE: ("taeniasis/cysticercosis") OR TITLE: (taeniasis) OR TITLE: (cysticercosis) OR TITLE: (tapeworms) OR TITLE: ("taenia solium") OR TITLE: ("pork tapeworm") OR TITLE: ("taenia saginata") OR TITLE: ("beef tapeworm") OR TITLE: ("taenia asiatica") OR TITLE: (cysticerci) OR TITLE: (trachoma) OR TITLE: ("chlamydia trachomatis")	20,129
9	TOPIC: ("endemic treponematoses") OR TITLE: ("endemic treponematoses") OR TOPIC: (yaws) OR TITLE: (yaws) OR TOPIC: ("treponema pallidum") OR TITLE: ("treponema pallidum") OR TOPIC: (pertenue) OR TITLE: (pertenue)	17,935
10	TOPIC: ("neglected tropical disease") OR TITLE: ("neglected tropical disease") OR TOPIC: ("neglected disease") OR TITLE: ("neglected disease") OR TOPIC: ("tropical disease") OR TITLE: ("tropical disease") OR TOPIC: (NTD) OR TITLE: (NTD)	6,169
11	#10 OR #9 OR #8 OR #7 OR #6 OR #5 OR #4 OR #3 OR #2 OR #1	453,644
12	TOPIC: ("social marketing") OR TITLE: ("social marketing") OR TOPIC: ("health communication") OR TITLE: ("health communication") OR TOPIC: ("health promotion") OR TITLE: ("health promotion")	99,458
14	TOPIC: (intervention) OR TOPIC: (campaign) OR TOPIC: (project) OR TOPIC: (program) OR TOPIC: (strategy) OR TITLE: (intervention) OR TITLE: (campaign) OR TITLE: (project) OR TITLE: (program) OR TITLE: (strategy)	4,724,095
15	11 AND 12 AND 13	662

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Global Index Medicus

Regional Indexes AIM (AFRO), LILACS (AMRO/PAHO), IMEMR (EMRO), IMSEAR (SEARO), WPRIM (WPRO)

40 **Global Index** Regional Indexes, MEDLINE, SciELO

41 **Institutional Repository** WHO IRIS

42 **Results:** 932

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44 (tw:((tw:("social marketing")) OR (tw:("health promotion")) OR (tw:("health
 45 communication")) AND (tw:("neglected disease")) OR (tw:("neglected tropical disease")) OR
 46 (tw:("tropical disease")) OR (tw:("NTD")) OR (tw:(buruli ulcer)) OR (tw:(mycobacterium
 47 ulcerans)) OR (tw:(chagas disease)) OR (tw:(american trypanosomiasis)) OR
 48 (tw:(trypanosoma cruzi)) OR (tw:(dengue)) OR (tw:(mosquito)) OR (tw:(chikungunya)) OR
 49 (tw:(dracunculiasis)) OR (tw:(guinea-worm disease)) OR (tw:(dracunculus medinensis)) OR
 50 (tw:(echinococcosis)) OR (tw:(echinococcus granulosus)) OR (tw:(cystic echinococcosis))
 51 OR (tw:(hydatidosis)) OR (tw:(hydatid disease)) OR (tw:(alveolar echinococcosis)) OR
 52 (tw:(echinococcus multilocularis)) OR (tw:(polycystic echinococcosis)) OR
 53 (tw:(echinococcus vogeli)) OR (tw:(unicystic echinococcosis)) OR (tw:(echinococcus
 54 oligarthrus)) OR (tw:(foodborne trematodiasis)) OR (tw:(trematode worms)) OR
 55 (tw:(flukes)) OR (tw:(freshwater snail)) OR (tw:(freshwater fish)) OR (tw:(clonorchis
 56 sinensis)) OR (tw:(opisthorchis viverrini)) OR (tw:(opisthorchis felinus)) OR (tw:(fasciola
 57 hepatica)) OR (tw:(fasciola gigantica)) OR (tw:(paragonimus)) OR (tw:(human african
 58 trypanosomiasis)) OR (tw:(sleeping sickness)) OR (tw:(trypanosoma brucei gambiense)) OR
 59 (tw:(tsetse flies)) OR (tw:(glossina genus)) OR (tw:(trypanosoma brucei rhodesiense)) OR
 60 (tw:(nagana)) OR (tw:(leishmaniasis)) OR (tw:(visceral leishmaniasis)) OR (tw:(cutaneous
 61 leishmaniasis)) OR (tw:(mucocutaneous leishmaniasis)) OR (tw:(kala-azar)) OR
 62 (tw:(leishmania parasites)) OR (tw:(phlebotomine sandflies)) OR (tw:(leprosy)) OR
 63 (tw:(hansen's disease)) OR (tw:(mycobacterium leprae)) OR (tw:(lymphatic filariasis)) OR
 64 (tw:(elephantiasis)) OR (tw:(nematodes)) OR (tw:(roundworms)) OR (tw:(wuchereria
 65 bancrofti)) OR (tw:(brugia malayi)) OR (tw:(brugia timori)) OR (tw:(culex)) OR
 66 (tw:(anopheles)) OR (tw:(aedes)) OR (tw:(onchocerciasis)) OR (tw:(river blindness)) OR
 67 (tw:(onchocerca volvulus)) OR (tw:(simulium)) OR (tw:(blackflies)) OR (tw:(rabies)) OR
 68 (tw:(schistosomiasis)) OR (tw:(parasitic worms)) OR (tw:(blood flukes)) OR (tw:(trematode
 69 worms)) OR (tw:(intestinal schistosomiasis)) OR (tw:(schistosoma mansoni)) OR
 70 (tw:(schistosoma japonicum)) OR (tw:(schistosoma mekongi)) OR (tw:(schistosoma
 71 guineensis)) OR (tw:(schistosoma intercalatum)) OR (tw:(urogenital schistosomiasis)) OR
 72 (tw:(schistosoma haematobium)) OR (tw:(soil-transmitted helminthiasis)) OR (tw:(soil-
 73 transmitted helminth infection)) OR (tw:(roundworm)) OR (tw:(ascaris lumbricoides)) OR
 74 (tw:(whipworm)) OR (tw:(trichuris trichiura)) OR (tw:(hookworms)) OR (tw:(necator
 75 americanus)) OR (tw:(ancylostoma duodenale)) OR (tw:(taeniasis/cysticercosis)) OR
 76 (tw:(taeniasis)) OR (tw:(cysticercosis)) OR (tw:(tapeworms)) OR (tw:(taenia solium)) OR
 77 (tw:(pork tapeworm)) OR (tw:(taenia saginata)) OR (tw:(beef tapeworm)) OR (tw:(taenia
 78 asiatica)) OR (tw:(cysticerci)) OR (tw:(trachoma)) OR (tw:(chlamydia trachomatis)) OR
 79 (tw:(endemic treponematoses)) OR (tw:(yaws)) OR (tw:(treponema pallidum)) OR
 80 (tw:(pertenuis))) AND (tw:(intervention)) OR (tw:(strategy)) OR (tw:(program)) OR
 81 (tw:(campaign)) OR (tw:(project)))

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84 **Virtual Health Library (VHL) Regional Portal**

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86 **Results:** 975

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88 (tw:((tw:("social marketing")) OR (tw:("health promotion")) OR (tw:("health
 89 communication")) AND (tw:("neglected disease")) OR (tw:("neglected tropical disease")) OR

90 (tw:("tropical disease")) OR (tw:("NTD")) OR (tw:(buruli ulcer)) OR (tw:(mycobacterium
91 ulcerans)) OR (tw:(chagas disease)) OR (tw:(american trypanosomiasis)) OR
92 (tw:(trypanosoma cruzi)) OR (tw:(dengue)) OR (tw:(mosquito)) OR (tw:(chikungunya)) OR
93 (tw:(dracunculiasis)) OR (tw:(guinea-worm disease)) OR (tw:(dracunculus medinensis)) OR
94 (tw:(echinococcosis)) OR (tw:(echinococcus granulosus)) OR (tw:(cystic echinococcosis))
95 OR (tw:(hydatidosis)) OR (tw:(hydatid disease)) OR (tw:(alveolar echinococcosis)) OR
96 (tw:(echinococcus multilocularis)) OR (tw:(polycystic echinococcosis)) OR
97 (tw:(echinococcus vogeli)) OR (tw:(unicystic echinococcosis)) OR (tw:(echinococcus
98 oligarthrus)) OR (tw:(foodborne trematodiasis)) OR (tw:(trematode worms)) OR
99 (tw:(flukes)) OR (tw:(freshwater snail)) OR (tw:(freshwater fish)) OR (tw:(clonorchis
100 sinensis)) OR (tw:(opisthorchis viverrini)) OR (tw:(opisthorchis felinus)) OR (tw:(fasciola
101 hepatica)) OR (tw:(fasciola gigantica)) OR (tw:(paragonimus)) OR (tw:(human african
102 trypanosomiasis)) OR (tw:(sleeping sickness)) OR (tw:(trypanosoma brucei gambiense)) OR
103 (tw:(tsetse flies)) OR (tw:(glossina genus)) OR (tw:(trypanosoma brucei rhodesiense)) OR
104 (tw:(nagana)) OR (tw:(leishmaniasis)) OR (tw:(visceral leishmaniasis)) OR (tw:(cutaneous
105 leishmaniasis)) OR (tw:(mucocutaneous leishmaniasis)) OR (tw:(kala-azar)) OR
106 (tw:(leishmania parasites)) OR (tw:(phlebotomine sandflies)) OR (tw:(leprosy)) OR
107 (tw:(hansen's disease)) OR (tw:(mycobacterium leprae)) OR (tw:(lymphatic filariasis)) OR
108 (tw:(elephantiasis)) OR (tw:(nematodes)) OR (tw:(roundworms)) OR (tw:(wuchereria
109 bancrofti)) OR (tw:(brugia malayi)) OR (tw:(brugia timori)) OR (tw:(culex)) OR
110 (tw:(anopheles)) OR (tw:(aedes)) OR (tw:(onchocerciasis)) OR (tw:(river blindness)) OR
111 (tw:(onchocerca volvulus)) OR (tw:(simulium)) OR (tw:(blackflies)) OR (tw:(rabies)) OR
112 (tw:(schistosomiasis)) OR (tw:(parasitic worms)) OR (tw:(blood flukes)) OR (tw:(trematode
113 worms)) OR (tw:(intestinal schistosomiasis)) OR (tw:(schistosoma mansoni)) OR
114 (tw:(schistosoma japonicum)) OR (tw:(schistosoma mekongi)) OR (tw:(schistosoma
115 guineensis)) OR (tw:(schistosoma intercalatum)) OR (tw:(urogenital schistosomiasis)) OR
116 (tw:(schistosoma haematobium)) OR (tw:(soil-transmitted helminthiasis)) OR (tw:(soil-
117 transmitted helminth infection)) OR (tw:(roundworm)) OR (tw:(ascaris lumbricoides)) OR
118 (tw:(whipworm)) OR (tw:(trichuris trichiura)) OR (tw:(hookworms)) OR (tw:(necator
119 americanus)) OR (tw:(ancylostoma duodenale)) OR (tw:(taeniasis/cysticercosis)) OR
120 (tw:(taeniasis)) OR (tw:(cysticercosis)) OR (tw:(tapeworms)) OR (tw:(taenia solium)) OR
121 (tw:(pork tapeworm)) OR (tw:(taenia saginata)) OR (tw:(beef tapeworm)) OR (tw:(taenia
122 asiatica)) OR (tw:(cysticerci)) OR (tw:(trachoma)) OR (tw:(chlamydia trachomatis)) OR
123 (tw:(endemic treponematoses)) OR (tw:(yaws)) OR (tw:(treponema pallidum)) OR
124 (tw:(pertenuis))) AND (tw:(intervention)) OR (tw:(strategy)) OR (tw:(program)) OR
125 (tw:(campaign)) OR (tw:(project)))
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1 **Additional file 5: Inclusion and exclusion criteria for screening in Covidence**

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3 The following list presents key words that will be used to screen titles and abstracts in

4 Covidence:

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6 **Inclusion**

7 Community setting

8 Health facility setting

9 Public policy setting

10 NTDs Behavioral determinants

11 NTDs Behavioral outcomes

12 1 SM concept

13 1 SM technique

14

15 **Exclusion**

16 Interventions not about NTDs

17 0 SM concepts

18 0 SM techniques

19

20 Note: SM refers to Social Marketing

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1 **Additional file 6: Data extraction form with intervention description**

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Item	Description
General Information	
1. Intervention ID	Provide the identification number of the intervention in this systematic review
2. Intervention Name	Name of the intervention (if one exists)
3. Author(s), year of publication, paper title	Last name of authors, year when the study was published and paper title
3. Provider of the intervention and background	General information about the team and organization(s) that designed and implemented the intervention
4. Funding source	Name of organization(s) that provided the funds to carry out the intervention
5. Year when the study was conducted	Year when the intervention was carried out
6. City/Country of implementation/Country income category	Name of city and/or country where the intervention took place, and the country income category according to the World Bank classification
Basic Characteristics	
7. Aim of the intervention	Mention the goal the intervention intends to reach
8. NTD(s) associated with the intervention	Name the NTD(s) the intervention is addressing
9. Intervention	Provide a summary of the intervention (Approx. 50 words)
10. Public characteristics	Describe the intended audience the intervention aims to influence, including its level (downstream, midstream, upstream) and demographic characteristics (e.g. gender, age)
11. Setting characteristics	Location(s) where the intervention occurred and brief description, including rural, peri-urban, urban location
12. Who delivers the intervention	Describe the intervention provider(s) (e.g. health promoters, schoolteachers) and any training given to

	them
13. Frequency and duration of the intervention	Number of times the intervention was delivered, and duration
Social Marketing Characteristics	
14. Social Marketing Principle	Describe how the exchange was valuable to the audience, the social benefits the audience received from the intervention
15. Social Marketing Concepts	15.1 Social Behavioral influence: - <i>Behavior influence goal</i> - <i>Use of behavioral analyses and/or behavioral theory including how it was used and how</i>
	15.2 Audience orientation: - <i>Research to understand target audience (beliefs, attitudes, behaviors, needs, wants)</i> - <i>Research analyses used (e.g. segmentation analysis, competition analysis, feasibility analysis)</i> - <i>Quantitative and qualitative data gathering</i>
	15.3 Social offerings: <i>Describe the ideas, products, services and/or policies developed to reach the behavioral goal</i>
	15.4 Relationship building: <i>Describe the stakeholder engagement process (e.g. recruitment, meetings) and partnerships generated</i>
16. Social Marketing techniques	16.1 Integrated intervention mix: - <i>Strategies for change, including the marketing mix (product, price, place, promotion, partnership, policy)</i> - <i>Positioning statement</i>
	16.2 Competition analysis and action: - <i>Internal (e.g. psychological factors, pleasure, desire, genetics, addiction, etc)</i> - <i>External (e.g. economic, social, cultural and environmental influences)</i> - <i>Strategies developed to reduce impact of negative</i>

	<i>competition on the target behavior</i>
	16.3 Systematic planning and evaluation <i>- Describe the process used to plan and evaluate interventions, including use of formative research, pretesting, situational analysis, monitoring, evaluation and implementation of learning strategies</i>
	16.4 Insight-driven segmentation <i>- Use of demographic, observational and/or psychographic data to identify groups that are similar</i> <i>- Describe the social offerings developed to the specific audience needs, values and circumstances</i>
	16.5 Co-creation <i>Describe how the audience and other stakeholders participated in the selection, development, testing, delivery and evaluation of interventions (e.g. role they played)</i>
Monitoring and Evaluation	
17. Modifications in the intervention	Describe any changes made in the intervention during its different phases and provide reasons
18. Monitoring and Evaluation	Describe the process of monitoring and evaluation (e.g. frequency, who participated)
19. Results	Describe the main results of the intervention, including: Behavioral determinants: <i>- Describe changes in awareness, knowledge, skills, attitudes structural changes, policy changes</i> Behavioral outcomes: <i>- Describe effects on behaviors</i>

1 **Additional file 7: Definitions from WHO**

2

Sex: “The different biological and physiological characteristics of males and females, such as reproductive organs, chromosomes, hormones, etc”

Gender: “Refers to the socially constructed characteristics of women and men – such as norms, roles and relationships of and between groups of women and men. It varies from society to society and can be changed”

Gender Analysis: “Gender analysis identifies, assesses and informs actions to address inequality that come from: 1) different gender norms, roles and relations; 2) unequal power relations between and among groups of men and women, and 3) the interaction of contextual factors with gender such as sexual orientation, ethnicity, education or employment status.”

Gender analysis in health: “Examines how biological and sociocultural factors interact to influence health behaviour, outcomes and services. It also uncovers how gender inequality affects health and well-being.”

Gender based division of labor: “Refers to where, how and under what conditions women and men work (for without pay) based on gender norms and roles.”

Gender norms: “Refer to beliefs about women and men, boys and girls that are passed from generation to generation through the process of socialization. They change over time and differ in different cultures and populations. Gender norms lead to inequality if they reinforce: a) mistreatment of one group or sex over the other; b) differences in power and opportunities.”

Gender relations: “Refers to social relations between and among women and men that are based on gender norms and roles. Gender relations often create to hierarchies between and among groups of men and women that can lead to unequal power relations, disadvantaging one group over another.”

Gender roles: “Refers to what males and females are expected to do (in the household, community and workplace) in a given society.”

Gender equality: “Refers to equal chances or opportunities for groups of women and men to access and control social, economic and political resources, including protection under law (such as health services, education and voting rights). It is also known as equality of opportunity – or formal equality...”

Gender Equity: “...refers to the different needs, preferences and interest of women and men. This may mean that different treatment is needed to ensure equality of opportunity. This is often referred to as substantive equality (or equality of results) and requires considering the realities of women’s and men’s lives...”

3

4 Source: WHO. Gender mainstreaming for health managers: a practical approach. 2011.

5 http://origin.who.int/gender-equity-rights/knowledge/health_managers_guide/en/. Accessed 7

6 Jul 2016.

1 **Additional file 8: Summary of interventions**

2

3 A summary consolidating all the included interventions will be presented in a table with the

4 following columns:

5

6 1. **General Information:** Intervention ID, intervention name, author(s), year of
7 publication, year when the study was conducted, city/country of implementation.

8 2. **Basic Characteristics:** NTD(s) associated with the intervention, public and setting.

9 3. **Intervention**

10 4. **Social Marketing Characteristics**

11 a. Principle

12 b. Concepts

13 c. Techniques

14 5. **Results:** main results, changes in behavioral determinants, changes in behavioral
15 outcomes

16

1 **Additional file No.9: Subgroups**

2

3 Number of interventions applying each of the social marketing concepts and techniques:

4

Category of social marketing criteria	Criteria	Number of interventions applying the criteria
Concepts	Social Behavioral Influence	
	Public / People Focus	
	Social Offerings	
	Relationship Building	
Techniques	Integrated Intervention Mix	
	Competition Analysis and Action	
	Systematic Planning and Evaluation	
	Insight-driven Segmentation	
	Co-creation	

5

6 Number of interventions that achieved behavioral determinants and/or behavioral outcomes classified by the five WHO NTD strategic
7 interventions.

8

WHO NTD Strategy	Behavioral Determinants	Behavioral Outcomes
Preventive chemotherapy and transmission control (PCT)	Determinant 1 (Quantity)	Beh. Outcome 1 (Quantity)
	Determinant <i>n</i> (Quantity)	Beh. Outcome <i>n</i> (Quantity)
Innovative and intensified disease management (IDM)	Determinant 1 (Quantity)	Beh. Outcome 1 (Quantity)
	Determinant <i>n</i> (Quantity)	Beh. Outcome <i>n</i> (Quantity)
Vector ecology and management	Determinant 1 (Quantity)	Beh. Outcome 1 (Quantity)
	Determinant <i>n</i> (Quantity)	Beh. Outcome <i>n</i> (Quantity)
Veterinary public health measures	Determinant 1 (Quantity)	Beh. Outcome 1 (Quantity)

	Determinant n (Quantity)	Beh. Outcome n (Quantity)
Water, sanitation and hygiene	Determinant 1 (Quantity)	Beh. Outcome 1 (Quantity)
	Determinant n (Quantity)	Beh. Outcome n (Quantity)

9

10 Social marketing concepts and techniques used per behavioral outcome, grouped according to the NTDs the interventions address and
 11 to the WHO strategy the behaviors belong.

12

NTD (quantity)	WHO NTD Strategy (quantity)	Outcomes Behavioral Determinant (BD) Behavioral Outcome (BO)	Social Marketing Concepts	Social Marketing Techniques
NTD 1 (quantity)	Strategy 1 (quantity)	BD1 (quantity) BO1 (quantity)	1. Social Behavioral Influence (quantity) 2. Public / People Focus (quantity) 3. Social Offerings (quantity) 4. Relationship Building (quantity)	1. Integrated Intervention Mix (quantity) 2. Competition Analysis and Action (quantity) 3. Systematic Planning and Evaluation (quantity) 4. Insight-driven Segmentation (quantity) 5. Co-creation (quantity)
	Strategy n (quantity)	BD n (quantity) BO n (quantity)		
NTD n (quantity)	Strategy 1 (quantity)	BD1 (quantity) BO1 (quantity)	1. Social Behavioral Influence (quantity) 2. Public / People Focus (quantity) 3. Social Offerings (quantity) 4. Relationship	1. Integrated Intervention Mix (quantity) 2. Competition Analysis and Action (quantity) 3. Systematic Planning and Evaluation (quantity) 4. Insight-driven Segmentation
	Strategy n (quantity)	BD n (quantity) BO n (quantity)		

			Building (quantity)	(quantity) 5. Co-creation (quantity)
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13

14 Gender responsiveness of the interventions classified by disease and by behavioral outcome.

15

Gender Responsiveness	NTD (quantity)	Outcomes	
		Behavioral Determinant (BD)	Behavioral Outcome (BO)
Gender Responsive (quantity)	NTD 1 (quantity)	BD1 (quantity)	BO1 (quantity)
	NTD <i>n</i> (quantity)	BD <i>n</i> (quantity)	BO <i>n</i> (quantity)
Not Gender Responsive (quantity)	NTD 1 (quantity)	BD1 (quantity)	BO1 (quantity)
	NTD <i>n</i> (quantity)	BD <i>n</i> (quantity)	BO <i>n</i> (quantity)
Not possible to determine due to lack of data (quantity)	NTD 1 (quantity)	BD1 (quantity)	BO1 (quantity)
	NTD <i>n</i> (quantity)	BD <i>n</i> (quantity)	BO <i>n</i> (quantity)

16