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“Power plays plus push”: Experts’ insights into the development and implementation of active tuberculosis case-finding policies

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2019-036285
Article Type:	Original research
Date Submitted by the Author:	09-Dec-2019
Complete List of Authors:	Biermann, Olivia; Karolinska Institutet, Public Health Sciences Atkins, Salla; Tampere University, New Social Research and Faculty of Social Sciences; Karolinska Institute, Department of Public Health Sciences Lönnroth, Knut; Karolinska Institutet Department of Public Health Sciences, Caws, Maxine; Liverpool School of Tropical Medicine, Department of Clinical Sciences Viney, Kerri ; Karolinska Institute, Public Health Sciences
Keywords:	PUBLIC HEALTH, Tuberculosis < INFECTIOUS DISEASES, QUALITATIVE RESEARCH, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

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3 1 **“Power plays plus push”**: Experts’ insights into the development and implementation of
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5 2 **active tuberculosis case-finding policies**
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3 **26 Abstract**
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8 **28 Objective**
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10 29 To explore factors that influence national and global ACF policy development and
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12 30 implementation, and the use of evidence in these processes from the perspective of experts.
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17 **32 Design**
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19 33 Exploratory study based on semi-structured expert interviews.
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25 **35 Participants**
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27 36 A purposive sample of 39 experts from international, non-governmental and non-profit
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29 37 organizations, funders, government institutions, international networks, think tanks,
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31 38 universities and research institutions worldwide were conducted. Framework analysis was
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33 39 applied.
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39 **41 Results**
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41 42 This study accentuated the perceived need among experts for different types of evidence for
42
43 43 ACF policy development and implementation, and for stakeholder engagement including
44
45 44 researchers and policymakers to foster evidence use. Interviewees stressed the influence of
46
47 45 government, donor and non-governmental stakeholders in ACF policy development. Such key
48
49 46 stakeholders also influence ACF policy implementation, in addition to available systems and
50
51 47 processes in a given health system, and implementers' motivation and incentives. According
52
53 48 to the interviewees, the WHO guidelines for systematic screening face the innate challenge of
54
55 49 providing guidance to countries across the broad area of ACF in terms of target groups,
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57 50 settings and screening algorithms. The guidelines could be improved by focusing on what
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3 51 *should* be done rather than what *can* be done in ACF, and by providing *how to* examples.

4
5 52 Leadership, integration into health systems and long-term financing are key for ACF to be
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7
8 53 sustainable.

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11 55 **Conclusions**

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15 56 We generated new knowledge regarding ACF policy processes globally, particularly
16
17 57 regarding facilitators for and barriers to ACF policy development, evidence need and use, and
18
19 58 donor organizations' influence. According to expert participants, national and global ACF
20
21 59 policy development and implementation can be improved by broadening stakeholder
22
23 60 engagement. Meanwhile, using diverse evidence to inform ACF policy development and
24
25 61 implementation could mitigate the “power plays plus push” that might otherwise disrupt and
26
27 62 mislead these policy processes.

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31 63

32 64 **Key words**

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34 65 Tuberculosis, active case-finding, community, policy development, policy implementation,
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36 66 evidence use

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41 68 **Article summary**

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44 69

45 70 **Strengths and limitations of this study**

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51 71
- 52 • Expert interviews allowed a unique insight into ACF policy development and
 - 53 implementation from a wide range of experts' perspectives.
 - 54
 - 55
 - 56 72 • New knowledge was generated, in particular about factors influencing ACF policy
 - 57 development and the use of evidence in ACF policy processes.
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2
3 75 • Women and interviewees from low- and middle-income countries were
4
5 76 underrepresented in the study.
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12 78 **Manuscript (6,813 words)**
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16
17 80 ***Background***
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20 81 Tuberculosis (TB) is a major global health emergency, especially in low- and middle-income
21
22 82 countries. TB is curable and preventable. Still, it remains the leading cause of death from a
23
24 83 single infectious agent and one of the top 10 causes of death worldwide [1]. In 2019, there
25
26 84 was a gap of three million between estimated incident TB cases and those notified globally,
27
28 85 reflecting a combination of underreporting of detected TB cases and underdiagnosis,
29
30 86 specifically in countries with major financial and geographic barriers to accessing care [1].
31
32 87 Many people with TB are diagnosed only after long delays [2-4], causing increased morbidity,
33
34 88 much suffering and economic hardship, and sustaining transmission [1].
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39 89 The World Health Organization (WHO) End TB Strategy [5] was endorsed by member states
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41 90 at the World Health Assembly in 2014, while the United Nations Sustainable Development
42
43 91 Goals [6] were adopted in 2015. Both aim at ending the global TB epidemic. Subsequently,
44
45 92 there has been increasing international attention on TB. In 2017, the Global Ministerial
46
47 93 Conference on Ending TB in the Sustainable Development Era took place in Russia, with the
48
49 94 aim of accelerating implementation of the End TB Strategy [7]. In 2018, the UN held the first-
50
51 95 ever General Assembly high-level meeting on TB in New York, which endorsed a political
52
53 96 declaration to speed up progress towards ending TB. This declaration was adopted by the
54
55 97 General Assembly on 10 October 2018 [8]. Both the Global Ministerial Conference and the
56
57 98 General Assembly re-emphasized the importance of active case-finding (ACF).
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3 99 Ending TB will require intensified activity to increase TB case detection [5]. One strategy for
4
5 100 increased TB case detection is systematic screening, which is defined by the WHO as the
6
7 101 “systematic identification of people with suspected active TB, in a predetermined target
8
9 102 group, using tests, examinations or other procedures that can be applied rapidly” [9]. ACF is
10
11 103 synonymous with systematic screening for active TB, although it usually implies screening
12
13 104 outside of health facilities. ACF is mostly provider-initiated. It may target people who do not
14
15 105 seek appropriate health care because they: a) do not have or recognize symptoms, b) do not
16
17 106 perceive that they have a health problem requiring medical attention, or c) face barriers in
18
19 107 accessing appropriate care [9].
20
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23

24 108 ACF has been implemented for decades primarily in high-income countries, starting with
25
26 109 mass screening campaigns in the general population in the 1950s and 1960s, then moving
27
28 110 towards specific risk populations in recent decades, such as migrants from high-incidence
29
30 111 countries and prison populations [10,11]. In low- and middle-income countries, the interest in
31
32 112 ACF has increased in recent years, mainly as a response to a sustained case detection gap
33
34 113 documented in TB prevalence surveys, annual Global TB Reports produced by WHO [1] and
35
36 114 the development of new WHO guidelines on systematic screening [9].
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41 115 Questions remain about both *if* ACF in general is worthwhile, as well as *how* to best develop
42
43 116 and implement ACF in a given context as a synergistic, rather than parallel structure to the
44
45 117 given health system. The evidence base is weak concerning the benefits and cost-effectiveness
46
47 118 of ACF on both individual and community levels and how these vary between target risk
48
49 119 groups [12]. However, potential benefits of ACF for patients include reduced morbidity,
50
51 120 mortality and socioeconomic consequences due to earlier diagnosis, while society can benefit
52
53 121 from reduced transmission and a reduced burden of TB, which often affects the most
54
55 122 economically productive members of a society [9]. There is some evidence that TB screening
56
57 123 in high-risk groups can significantly increase TB case notifications [13-15]. However, from
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1
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3 124 the health system perspective screening can be costly and lead to diversion of scarce
4
5 125 resources. It can also cause harm to patients, e.g. by increasing the risk of false positive
6
7 126 diagnoses, creating an additional financial burden associated with attending screening and
8
9 127 follow-up, or increased stigma and discrimination, if not properly targeted and implemented
10
11
12 128 [16].

13
14
15 129 The potential benefits and challenges of ACF need to be carefully balanced when designing
16
17 130 and implementing ACF. Given the relatively weak evidence base for ACF, related policy
18
19 131 development and implementation processes rely on stakeholders' tacit knowledge, values and
20
21 132 preferences. Yet, little is known about the latter, which potentially impact the development
22
23 133 and implementation of national and global ACF policies. The aim of this study was to explore
24
25 134 the views of experts on the factors that influence ACF policy development and
26
27 135 implementation, and their views of the use of evidence in these processes.
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33 138 ***Methods***

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36 139 This was an exploratory study based on semi-structured expert interviews [17]. The research
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38 140 team used the COREQ (COnsolidated criteria for REporting Qualitative research) Checklist
39
40 141 [18] to report the study (*Additional file 1*).
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45 142

46 143 ***Recruitment and sample selection***

47
48 144 The interviewees were purposively sampled to include stakeholders involved in ACF policy
49
50 145 development and implementation based at international (n=16), non-governmental (n=2) and
51
52 146 non-profit organizations (n=2), funders (n=4), government institutions (n=2), international
53
54 147 networks (n=2), think tanks (n=1), universities (n=6) and research institutions (n=3), as well
55
56 148 as one independent consultant. The research team compiled the initial list of interviewees
57
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60

149 based on knowledge of networks of experts and on the published scientific literature. The list
 150 was discussed with, expanded and verified by two independent experts in the field.

151

152 OB contacted 50 individuals via email. Of these, two suggested that their colleagues be
 153 interviewed instead, eight did not reply and one declined participation due to lack of time and
 154 interest. Table 1 provides an overview of the 39 participants who agreed to participate, their
 155 sex, professional affiliation and country where they are currently based, classified according
 156 to the World Bank [19]. In the results section, we have used quotes from interviewees across
 157 all country income levels to increase the dependability of the results [20]. Moreover, where
 158 possible in the results, we have tried to reflect all participants' voices.

159

160 *Table 1. Participants and their background information (in chronological order)*

ID	Sex	Affiliation	Country classification according to the World Bank [19]
1	M	University	High-income country
2	M	International organization	Low-income country
3	M	Government institution	Low-income country
4	M	International organization	Low-income country
5	M	Government institution	Low-income country
6	M	International organization	Low-income country
7	M	Non-governmental organization	Low-income country
8	M	Non-governmental organization	Low-income country
9	F	Research institution	High-income country
10	M	International organization	High-income country

11	M	International organization	High-income country
12	M	Research institution	High-income country
13	F	Non-profit organization	Upper middle-income country
14	F	International network	Lower middle-income country
15	M	Funder	High-income country
16	M	International organization	High-income country
17	F	International organization	High-income country
18	M	Research institution	High-income country
19	M	International organization	High-income country
20	M	University	High-income country
21	M	University	High-income country
22	M	International network	High-income country
23	F	Think tank	High-income country
24	F	International organization	High-income country
25	M	International organization	High-income country
26	M	International organization	High-income country
27	M	Independent consultant	Lower middle-income country
28	M	International organization	High-income country
29	M	International organization	Lower middle-income country
30	M	Funder	High-income country
31	M	Funder	Lower middle-income country
32	M	University	High-income country
33	M	Funder	High-income country
34	M	International organization	Lower middle-income country

35	M	International organization	High-income country
36	F	University	Low-income country
37	M	University	High-income country
38	M	Non-profit organization	High-income country
39	M	International organization	Upper middle-income country

161

162 *Data collection*

163 OB collected the data between February and May 2018 through semi-structured interviews in
 164 conversational form via the phone or in person. She developed the interview guides
 165 (*Additional file 2*) which MC, KL and KV provided feedback on. The first interview was
 166 conducted as a pilot interview after which the guide was revised by making it shorter to focus
 167 on the principal topics of interest.

168

169 OB asked the interviewees about their experience in developing and/or implementing ACF
 170 policies, factors that influenced these policy processes, and the use of evidence. The
 171 interviews were audio-recorded. No repeat interviews were carried out and no formal field
 172 notes were taken. In order to capture opinions from the diverse range of experts involved in
 173 ACF policy development and implementation, OB conducted interviews beyond reaching
 174 information power [21]

175

176 Eleven interviews were carried out face-to-face; out of these, eight interviews were conducted
 177 during a field visit to Nepal, two during WHO meetings and one at an international
 178 organization. During the interviews, only OB and the respective interviewee were present.
 179 The typical duration of an interview was 30-60 minutes. The audio-recorded interviews were
 180 transcribed verbatim. The anonymity and confidentiality of the participants was ensured by

181 coding the participants as numbers and removing all identifiers except the respondent
 182 affiliation in the presentation of the results. OB offered all participants the opportunity to view
 183 their transcripts for comments or correction, however, only a handful of participants requested
 184 to see the transcripts. No comments or corrections were made by those who chose to view the
 185 transcripts.

186
 187 OB is a doctoral student in public health sciences focusing on ACF and with experience in
 188 qualitative research. The multidisciplinary research team consisting of a medical doctor, an
 189 epidemiologist, a microbiologist and a social scientist helped elicit the diverse perspectives on
 190 ACF policy development and implementation.

191

192 *Data analysis*

193 OB analysed the qualitative data from the expert interviews with *NVivo 11* using framework
 194 analysis [17]. The data was analysed abductively; identifying themes a priori, while allowing
 195 for additional themes to emerge from the data. Using the framework analysis approach as
 196 described by Gale et al. [22], OB coded all interviews and developed an analytical framework.
 197 SA and KV provided comments on the coding, based on which OB revised the codes. The
 198 data was then charted into a framework matrix, on which SA and KV provided feedback. OB
 199 interpreted the data by writing memos for each study theme, and discussed these with SA, KL
 200 and KV. Table 2 provides an example of the coding process.

201

202 *Table 2. Example of the coding process*

Interviewee	Quote	Code	Category	Theme
I-27, independent consultant in a	<i>“So, I think it’s the political push that then</i>	Government influencing	Government leadership and	Factors influencing

lower middle- income country	<i>forces the technocrats to develop policies.”</i>		commitment	ACF policy development
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205 *Patient and public involvement*

206 The preliminary findings were shared at different scientific conferences in 2018, such as the
 207 Global Symposium on Health Systems Research, the First Annual Conference on
 208 Implementation Science and Scale-up and the World Union Conference on Lung Health. The
 209 interaction with participants of these events provided unique opportunities for validating the
 210 findings. For the presentation of preliminary findings at the Union conference, personalized
 211 invitations were sent to all 39 interviewees. A few interviewees attended and provided
 212 feedback. As such, the presentation of preliminary findings gave an opportunity for member-
 213 checking. No direct changes were made based on the validation and member-checking, but
 214 these processes helped to more critically reflect on the findings. Once published, the results of
 215 this study will be reported back to each interviewee individually. In addition, targeted issue
 216 briefs will be developed for researchers and decision-makers in the field. We will also share
 217 the results with the public via a video and short messages on social media.

218

219 **Results**

220 We generated the following themes from the data: 1) evidence generation and use, 2) factors
 221 influencing ACF policy development, 3) factors influencing ACF policy implementation, 4)
 222 WHO guidelines on systematic screening and 5) sustainability of ACF. Table 3 provides an
 223 overview of the 5 main themes and the 16 related codes. The benefits and risks of ACF were
 224 additional major themes which will be analyzed and discussed in a separate publication.
 225 Overall, the interviewees had a wide variety of views on ACF; from ACF being a “waste

226 basket” for resources to it being “common sense”.

227

228 *Table 3 Summary of major themes and categories related to ACF policy development and*

229 *implementation*

1	Evidence generation and use	1	Dissemination and exchange of evidence
		2	Demand for evidence by decision-makers
		3	Stakeholder engagement to facilitate evidence use
2	Factors influencing ACF policy development	1	Government leadership and commitment
		2	Donor funding
		3	Non-governmental organizations’ experience
3	Factors influencing ACF policy implementation	1	Human and financial resources
		2	Systems, processes and resources to build on
		3	Donor funding and related target-setting
		4	Government power
		5	Health workers’ motivation and incentives
4	WHO guidelines on systematic screening	1	Positive and negative perceptions
		2	Contextualization of global guidelines locally
		3	Suggested improvements
5	Sustainability of ACF	1	Opportunities for sustainability
		2	Challenges for sustainability

230

231 **Theme one: Evidence generation and use**

232 Most interviewees described the evidence on ACF as being relatively limited and emphasized

233 the need to generate different types of evidence to inform ACF policy development and

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3 234 implementation. They stressed the importance of disseminating and exchanging evidence, of
4
5 235 the demand for evidence by decision-makers and stakeholder engagement to enable evidence
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7 236 use. Apart from highlighting specific types of evidence, interviewees across the different
8
9
10 237 settings had similar views with regards to this theme.

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12 238
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14 239 Interviewees underlined that a variety of evidence is needed and demanded by decision-
15
16 240 makers working on ACF; from effectiveness and health economic evaluations to
17
18 241 implementation and operational research. One interviewee from a university in a high-income
19
20 242 country stressed that to demonstrate effectiveness, there is a need *“to do ACF in the context of*
21
22 243 *randomized controlled trials”* (I-32). Another interviewee from a non-governmental
23
24 244 organization (NGO) in a low-income country highlighted the importance of distinguishing
25
26 245 clearly where the decisions are being made; be it at the community, district or national level:
27
28 246 *“I think this is very important, i.e. what types of evidence you would need to make decisions*
29
30 247 *at various levels (...). What evidence is enough evidence at what level to take the decision”* (I-
31
32 248 7). Local evidence was said by many to play a significant role, e.g. about available health and
33
34 249 diagnostic facilities, and health workers' capacity and experience in communicating with
35
36 250 communities. In particular, evidence from national TB prevalence surveys was described as
37
38 251 significant for TB policy development more broadly. Two interviewees from funding
39
40 252 organizations in high-income countries concluded that countries should be encouraged *“to*
41
42 253 *adopt [ACF] policies based on the local evidence and then move forward, rather than waiting*
43
44 254 *for systematic reviews”* (I-30) and *“you should implement enough to figure out what’s*
45
46 255 *practicable and what works, and then that should become policy”* (I-15).

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52 257 According to the interviewees, evidence use in ACF policy development and implementation
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54 258 necessitates evidence dissemination and exchange, especially to share unpublished findings.
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259 One interviewee from an international organization highlighted: *“Unfortunately, we are [from*
260 *a low-income country] and we are not very good at publishing. We’ve got a wealth of*
261 *experience that is unpublished (...) but it has been presented at several conferences.”* (I-35).

262 Depending on the country context, gaps may exist between evidence and policy and/or
263 between policy and practice. As one interviewee from an international organization in a high-
264 income country pointed out: *“Countries are different. As I said, in [that country] (...) from*
265 *evidence to policy was difficult. But once it [ACF] was inside the policy or even without the*
266 *policy, they used to easily convert it to practice. But here [in our country] (...) evidence to*
267 *policy is easier, but policy to practice is more difficult.”* (I-28)

269 Interviewees emphasized that researchers should engage with key stakeholders from the
270 beginning of the research process to foster research use in ACF policy development and
271 implementation; stakeholders may include the WHO, the Ministry of Health and the National
272 TB Programme (NTP). *“Make sure that you have the right partners from the beginning;*
273 *partners who are going to take your results and actually do something with them. Because*
274 *otherwise you are kind of doing it [research on ACF] in a vacuum”,* said one interviewee
275 from a university in a high-income country (I-37). Moreover, to spark dialogue through
276 stakeholder engagement, an interviewee from an NGO in a low-income country stressed that
277 one must *“create platforms, or you need to use the platforms which are already there.”* (I-7)

278 Regular review meetings at sub-national and national levels to discuss challenges and
279 successes related to ACF offer one such platform. Overall, evidence use was said to be
280 influenced by *who* is being engaged and by personal contacts which may be *“more important*
281 *than they should be”,* as another interviewee from a university in a low-income country
282 described (I-36).

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3 283
45 284 **Theme two: Factors influencing ACF policy development**

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7 285 According to the interviewees, many different stakeholders influence ACF policy
8
9 286 development, specifically governments, donors and NGOs. Interviewees underlined
10
11 287 stakeholder involvement as being necessary for policy development and the contextualization
12
13 288 of global policy into local realities. Interviewees did not have any contradicting views with
14
15 289 regards to this theme, but rather highlighted the specific roles of certain stakeholders they
16
17 290 thought were most influential in ACF policy development.
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19 291

20
21 292 The leadership, buy-in and commitment of governments and NTPs, were described as being
22
23 293 vital for ACF policy development and implementation. India was mentioned as a prime
24
25 294 example where political push *“forced the technocrats to develop policies and implement*
26
27 295 *them”* (I-27, an independent consultant in a lower middle-income country). Governments
28
29 296 make decisions for political reasons or donor incentives, even if these contradict the evidence.
30
31 297 One representative from an international organization in a high-income country highlighted an
32
33 298 example of action perceived to be contradicting their view of the evidence: *“Women and*
34
35 299 *children of reproductive age (...) should only be included as part of the passive system not as*
36
37 300 *a priority for ACF ever. But when you talk to NTP managers, there is strong political*
38
39 301 *pressure and a perception that donors want them to focus on women and children.”* (I-24)
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41 302

42
43 303 Donor organizations such as the Global Fund and the case-finding initiative TB REACH (the
44
45 304 latter is coordinated by the Stop TB Partnership and funded largely by Global Affairs Canada)
46
47 305 were described as being influential in ACF policy development, e.g. TB REACH was said to
48
49 306 have *“brought this concept of ACF to the country”* (I-2, interviewee from an international
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51 307 organization in a low-income country), while the Global Fund *“hold[s] every power to*
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3 308 *change things and not to change things*” regarding ACF policy development (I-7,
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5 309 representative from an NGO in a low-income country). Likewise, interviewees pointed out
6
7 310 that donors’ influence was linked to WHO’s influence, as donors request countries to adopt
8
9 311 WHO guidelines to be eligible for funding: “*Why national policymakers are looking mainly at*
10
11 312 *things like WHO documents: because a lot of them get Global Fund money and Global Fund*
12
13 313 *money is often aligned with countries implementing WHO policies*”, described an interviewee
14
15 314 who is based at a research institution in a high-income country (I-9). This observation was
16
17 315 shared by another interviewee, from an NGO in low-income country (I-8). Linking back to
18
19 316 the preceding theme on evidence generation and use, it seemed from the interviews that it was
20
21 317 important to acknowledge that TB REACH projects have the potential to generate useful
22
23 318 evidence for future policy and practice, as an independent consultant in a lower middle-
24
25 319 income country pointed out (I-27).

26
27 320
28
29 321 Interviewees said that NGOs are often the “implementers” of ACF whose years of experience
30
31 322 are of great value for ACF policy development and they should therefore be involved in the
32
33 323 same, e.g. in policy dialogues with the government and other key stakeholders. One
34
35 324 representative of an NGO in a low-income country stated: “*We [NGOs] are the one who*
36
37 325 *really deal with the people, really deal with the community. We have the evidence. We have*
38
39 326 *the good photographs. We have the data. We have a number. And, if I can speak very nicely in*
40
41 327 *the presentation, data has to speak and that data is brought by the hard-working, my dear*
42
43 328 *friends working in the field level. We are the ones who can influence [ACF policy*
44
45 329 *development].*” (I-8)

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47 330

331 **Theme 3: Factors influencing ACF policy implementation**

332 Interviewees elaborated on available resources, systems, processes and resources within a

1
2
3 333 given health system, donor and government stakeholders, as well as the motivation and
4
5 334 incentives for health workers as major factors influencing ACF policy implementation.
6
7 335 Interviewees emphasized the role of particular stakeholders, as well as barriers and facilitators
8
9 336 they thought were most influential in ACF policy implementation, while no clearly
10
11 337 contradictory views on this theme emerged.
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16
17 339 The implementation and scale-up of ACF policies depends on the availability of financial
18
19 340 resources, as many interviewees stressed. *“We realized that in a country like [our country],*
20
21 341 *we have great policies. The problem is the implementation. So, getting it done is always*
22
23 342 *problematic. And this is where the support of the development partners, funded through*
24
25 343 *PEPFAR, have been key to implement these policies, particularly ACF policies”*, one
26
27 344 interviewee described (I-39, interviewee from an international organization in an upper
28
29 345 middle-income country). ACF implementation may *“just stop because [there is] no funding”*
30
31 346 (I-29, interviewee from an international organization in a lower middle-income country). An
32
33 347 interviewee from a funding organization in a high-income country provided a different
34
35 348 perspective regarding the funding for ACF by highlighting that *“ACF through government*
36
37 349 *funding can be more difficult than doing it through donor funding”* (I-15). This perspective
38
39 350 may inhibit long-term thinking about ACF, as it seems to focus on immediate action to
40
41 351 implement rather than sustainability, which is more likely to come with government
42
43 352 investment. In addition to limited financial resources, human resource constraints for ACF
44
45 353 were highlighted as a major challenge by experts from low-, middle- and high-income
46
47 354 countries. These constraints could hinder NTPs in thinking more strategically and ambitiously
48
49 355 about how to address TB comprehensively.
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58 357 The use of existing systems and processes in a given health system was said to be central
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3 358 because “if you start from scratch, it [ACF] is much more difficult than if there are already
4
5 359 things to which you can link”, as an interviewee from an international organization in a high-
6
7 360 income country pointed out (I-17). Interviewees mentioned that ACF policy implementation
8
9 361 can build upon experience from existing screening programmes (e.g. cervical cancer
10
11 362 screening), activities for vulnerable populations (e.g. needle exchange programmes), health
12
13 363 care infrastructure (e.g. chest X-ray busses), already known locations for screening in high
14
15 364 incidence areas and trained human resources (e.g. those involved in prevalence surveys). Yet,
16
17 365 pursuing synergies may be challenging due to the fragmentation of activities. In addition, the
18
19 366 structure and financing of TB within a health system matters in terms of availability of
20
21 367 resources: “TB has tended to fall into the preventative [arm of the health system] and that has
22
23 368 limited the availability for resources”, described an interviewee from a university in a high-
24
25 369 income country (I-32).

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33 371 Processes including supportive supervision, monitoring and the use of Standard Operating
34
35 372 Procedures are critical for ACF policy implementation and are necessary to avoid corruption,
36
37 373 interviewees discussed. In one country, the “whole case-finding system collapsed along with
38
39 374 the supervision” (I-16, interviewee from an international organization in a high-income
40
41 375 country). Moreover, processes that strengthen communication with, engagement of and
42
43 376 awareness-raising among communities were described as instrumental for ACF policy
44
45 377 implementation, e.g. to help reduce stigma. One interviewee from a university in a high-
46
47 378 income country mentioned how the community “has started to advocate loudly for ACF
48
49 379 services” (I-20).

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53 380
54
55 381 Many interviewees underlined that donors influence the implementation of ACF policies in
56
57 382 countries with no or insufficient domestic resources. “The piper will determine what music
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1
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3 383 *you play*” (I-35, interviewee from an international organization in a high-income country),
4
5 384 which, again, highlights the power which donor organizations are perceived to have in
6
7 385 influencing ACF policy implementation, and the possible resulting lack of a sense of policy
8
9 386 ownership in some countries. Donors influence ACF policy implementation by setting targets
10
11 387 for their funding recipients and pushing them towards reaching them. One interviewee from
12
13 388 an international organization in a high-income country described: *“These targets that*
14
15 389 *countries have set, that donors have set; people are very anxious (...) and that often means*
16
17 390 *the easiest short cut is to do ACF, even if it is a little bit unethical or little bit using low*
18
19 391 *specificity tools, so you have a little bit of over diagnosis. Donors are very comfortable with*
20
21 392 *that.*” (I-24) The consequences of implementing ACF under donor pressure are unclear, and
22
23 393 should be balanced against the unethical nature of inaction on the TB epidemic, but scale-up
24
25 394 of inaccurate diagnostic strategies might lead to heightening the potential risks of ACF such
26
27 395 as increasing false-positive diagnoses, as the interviewee mentioned.
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33 396
34
35 397 ACF policy development and implementation depend on *“power plays plus push”*, e.g. in a
36
37 398 country with no written ACF policy, ACF was still being implemented because the NTP
38
39 399 manager was respected and able to push for it (I-29, interviewee from an international
40
41 400 organization in a lower middle-income country). The aforementioned pressure by politicians,
42
43 401 donors and WHO may be seen as additional examples of *“power plays plus push”*. Many
44
45 402 interviewees highlighted the important role of power dynamics in ACF policy
46
47 403 implementation. It seems crucial to be aware of such dynamics, while the use of evidence may
48
49 404 help mitigate them. ACF policy implementation is in itself a balancing act, which power
50
51 405 imbalances might negatively impact.
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58 407 The motivation of health workers and volunteers is an important enabler for ACF policy
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3 408 implementation. These “implementers” can be strongly motivated by their desire to help
4
5 409 people, by understanding the benefit of ACF for communities, by receiving feedback on the
6
7 410 outcomes of their work (e.g. using performance indicators) and/or by feeling ownership of the
8
9 411 ACF process, according to the interviewees. Financial and non-financial incentives (e.g.
10
11 412 salaries, transportation allowances, provision of motorbikes or mobile airtime) have a
12
13 413 significant role in motivating health workers and volunteers to implement ACF as an outreach
14
15 414 activity, interviewees discussed. Nevertheless, incentives can raise expectations and distort
16
17 415 ACF policy implementation in the long-term, e.g. if government health workers are paid extra
18
19 416 as part of an ACF project, they will also expect an extra pay for such activities in the future
20
21 417 and for other work; another balancing act. While incentives should be in line with what a
22
23 418 country could adopt later, they are often difficult or impossible for governments to sustain, an
24
25 419 interviewee said.

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34 421 **Theme 4: WHO guidelines on systematic screening**

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37 422 This theme focuses on stakeholders’ perceptions of the WHO guidelines on systematic
38
39 423 screening, the need for their contextualization and suggestions for improving them. This
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41 424 theme elicited different views among stakeholders, which are described in the following.

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45
46 426 The WHO guidelines on systematic screening are perceived positively by many, e.g. as a
47
48 427 reference document when planning ACF activities as well as to put ACF on the agenda.
49
50 428 Positive perceptions of the guidelines were described by interviewees from different
51
52 429 countries, while negative perceptions were only voiced by interviewees in high-income
53
54 430 countries. Such negative perceptions included the guidelines being vague, lacking information
55
56 431 about the *how-to* of ACF and being unduly negative in terms of mentioning the risk of
57
58 432 increasing false-positive diagnoses through ACF. Low-income countries may be more

1
2
3 433 receptive to and reliant on WHO guidelines, while in a middle-income country “*you’ve got*
4
5 434 *really serious domestic universities providing the formal policy evidence. And the country*
6
7 435 *kind of says ‘Thanks but no thanks’ to outside opinions. They are really driving their own*
8
9 436 *decisions. WHO is really not consulted very much, if at all*”, a representative of a funding
10
11 437 organization in a high-income country described (I-15). An interviewee from an international
12
13 438 organization in a high-income country said: “*When you have something that is so broad – and*
14
15 439 *you’re talking about ACF which can be so many different things – it’s just very hard to have*
16
17 440 *something that works the same way in different countries (...). I think that’s the main*
18
19 441 *shortcoming around the guidance.*” (I-28)
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26 443 Interviewees emphasized the necessity of contextualizing the WHO guidelines on systematic
27
28 444 screening, e.g. depending on a country’s income level, epidemiology and availability of
29
30 445 diagnostic tools. One interviewee from a funding organization in a high-income country
31
32 446 pointed out that “*you just can’t be as prescriptive and exact as you are in the more clinical*
33
34 447 *guidelines*” (I-15), which seems like an important observation and reminder about the
35
36 448 limitations that ACF policies will always have. According to the interviewees,
37
38 449 contextualization of guidelines can happen in a stepwise approach, e.g. a country pilots the
39
40 450 use of a guideline before adopting and adapting it.
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47 452 Review meetings with WHO and other partners can provide a platform for discussions around
48
49 453 guideline adaptation, interviewees said. Yet, countries have faced challenges in
50
51 454 contextualization, e.g. WHO recommends using chest X-ray which was too expensive in a
52
53 455 country and could thus not be used (I-4, from an international organization in a low-income
54
55 456 country). In another instance, WHO describes how contacts of an index TB patient should
56
57 457 provide their address, while individuals were hesitant to do so due to the stigma surrounding
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3 458 TB in the country (I-14, interviewee from an international network in a lower middle-income
4
5 459 country). More support for the contextualization of guidelines may be needed.
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8 460
9
10 461 The interviewees suggested that the WHO guidelines for systematic screening [9] must be
11
12 462 updated based on new evidence, e.g. evidence from prevalence surveys, gender analyses,
13
14 463 studies about specific risk groups (e.g. drug users and indigenous populations) and what
15
16 464 works and how this works, with regards to ACF. In this process, WHO should be aware of
17
18 465 and avoid conflicts of interest. This comment is in line with what an interviewee previously
19
20 466 highlighted about the role of personal contacts to bridge the research-policy gap. These types
21
22 467 of biases may undermine the integrity of the process and the resulting quality of guidelines
23
24 468 and policies.
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30 469
31 470 Some interviewees lamented that WHO can be paralyzed by the need to use the strongest
32
33 471 evidence available and suggested that the organization should consider more programmatic,
34
35 472 less scientifically rigorous data. One interviewee from a university in a high-income country
36
37 473 described: *“Usually we’re relying very heavily on WHO for global policy using the GRADE¹*
38
39 474 *approach with the PICO² and all that stuff. I think that’s laudable, but sometimes I find that*
40
41 475 *weird, subjected to the tyranny of the great process, and you don’t make progress in smaller*
42
43 476 *areas with a paucity of evidence.”* (I-21)
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48
49 478 In addition, interviewees pointed out that WHO recommendations should be based on what
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53 ¹ GRADE (Grading of Recommendations Assessment, Development, and Evaluation) was developed for
54 creating summaries of research evidence to help guide health decision-making. It is currently the most widely
55 used tool for evaluating the quality of science, with more than 110 organizations endorsing the method [23].

56 ² The PICO acronym stands for: P – Patient, Problem or Population; I – Intervention; C – Comparison, control or
57 comparator; O – Outcome(s) (e.g. pain, fatigue, nausea, infections, death). The PICO process (or framework) is a
58 mnemonic used in evidence-based practice to frame and answer a clinical or health care related question. The
59 PICO framework is also used to develop literature search strategies, e.g. in systematic reviews [24].
60

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3 479 *should* be done, not on what *can* be done. For example, countries (not WHO) have to be the
4
5 480 ones to decide about their ability to pay for Xpert MTB/RIF® as a diagnostic tool. This point
6
7 481 of view illustrates a stark contrast to the contextualization challenges mentioned above, e.g.
8
9 482 where the use of X-ray was recommended, but, frustratingly, was unable to be applied in a
10
11 483 country as it was not feasible to implement. Moreover, the WHO guidelines could be
12
13 484 improved by not only describing the *what*, but the *how* of systematic screening including
14
15 485 ACF, many interviewees said. One interviewee from an NGO in a low-income country
16
17 486 suggested: “*You can come up with different scenarios: ‘If the context is this, then...’, ‘If the*
18
19 487 *context is that, then...’.* (...) *Unless guidelines presents [the] ‘how’ better – how and who*
20
21 488 *would do that, how long would it take – then it's meaningless.*” (I-7)
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27 489

28 29 490 **Theme 5: Sustainability of ACF**

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31 491 The sustainability of ACF was a cross-cutting theme in this analysis. Interviewees elaborated
32
33 492 on opportunities and challenges related to sustainability. “*TB is not a like smallpox or polio.*
34
35 493 *It's a long-term sustainable (...) matter*”, an independent consultant in a lower middle-income
36
37 494 country described (I-27). That is, even more perseverance and long-term thinking may be
38
39 495 required to end TB. Interviewees expressed similar views and concerns regarding this theme.
40
41 496
42
43 497 Interviewees highlighted that the interest in and leadership for ACF through the government
44
45 498 and the NTP are important for the sustainability of ACF. Additionally, the sustainability of
46
47 499 ACF requires its integration in and funding through the given health system. An interviewee
48
49 500 from an international organization in a low-income country described: “*If this [ACF] were to*
50
51 501 *be sustainable, it should start with the initiation of the NTP. (...) It has to be supported,*
52
53 502 *facilitated, monitored. Because it is actually the NTP which later needs to uptake that, if it is*
54
55 503 *effective and it's also NTP's role to monitor what's happening.*” (I-2) Many interviewees
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3 504 highlighted the important role of NTPs. We have also conducted a cross-sectional survey with
4
5 505 NTP managers from the 30 high-burden TB countries which will shed light on their views on
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7 506 ACF policy development and implementation, including the sustainability of ACF
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9
10 507 (manuscript in preparation).

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12 508
13
14 509 The sustainability of ACF may be restricted in places with frequent government and staff
15
16
17 510 turnover, which makes it difficult to get long-term commitment for ACF from decision-
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19 511 makers, interviewees stressed. Of course, such turnover will affect areas beyond ACF. Also,
20
21 512 ACF cannot be sustainable, if it depends on donor funding. One interviewee from an
22
23
24 513 international organization in a high-income country summarized the situation as follows: “*It*
25
26 514 *[ACF] is difficult to sustain. Most of the activities that have been done for ACF have been*
27
28 515 *project-based. (...) So, the Global Fund comes and says: ‘Here is a pot of money for ACF for*
29
30 516 *the next three years.’ (...) And then the USAID comes and says: ‘We will run this project that*
31
32 517 *is forecasting on ACF. We should do it for five years.’ And then the money goes. Or TB*
33
34 518 *REACH comes and says: ‘Here you have 1 million dollars to find cases of TB, chase them all*
35
36 519 *over the villages and tell us how many you get with this money.’ And people do it. But that’s*
37
38 520 *not a sustainable way of doing this and this should be part and parcel of routine*
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40 521 *programming.” (I-35)*

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46 47 48 523 **Discussion**

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52 524 In summary, this study accentuated experts’ perceived need for different types of evidence for
53
54 525 ACF policy development and implementation, and for stakeholder engagement to foster
55
56 526 evidence use. Interviewees stressed the influence of government, donor and NGO
57
58 527 stakeholders as influential players in ACF policy development. Such key stakeholders also
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3 528 influence ACF policy implementation, in addition to available systems and processes in a
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5 529 given health system and implementers' motivation and incentives. The WHO guidelines for
6
7 530 systematic screening were said to face the innate challenge of covering the broad area of ACF
8
9 531 in terms of target groups, settings and screening algorithms. Interviewees suggested that the
10
11 532 guidelines could be improved by incorporating new and different types of evidence, by
12
13 533 focusing on what *should* be done rather than what *can* be done, and by providing examples of
14
15 534 the *how* of ACF. Finally, for ACF to be sustainable, interviewees stressed the need for
16
17 535 leadership for ACF, its integration into health systems and the transition from donor to
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19 536 government funding.
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26 538 *Strengths and limitations*

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28 539 While the available evidence in this area often focuses on ACF policy implementation [25],
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30 540 this study fills important knowledge gaps by identifying factors influencing ACF policy
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32 541 development and characterizing evidence use in ACF policy development and
33
34 542 implementation, from the perspective of experts in the field. Moreover, this study offers an
35
36 543 increased understanding of donor organizations' influence on ACF policy processes. The
37
38 544 number and diverse range of experts involved in this study, as well as the member-checking
39
40 545 carried out, increase the study's trustworthiness, including its confirmability and
41
42 546 transferability [20]. The transferability of this study's results may be limited given that only a
43
44 547 minority of the experts were from low- and middle-income countries (38%; 15 out of 39
45
46 548 experts). Nevertheless, all had working experience from low- and middle-income countries.
47
48 549 The results may furthermore be limited as an even smaller minority were women (18%; 7 out
49
50 550 of 39 experts). The gender bias reflects the lack of gender parity in leadership positions in the
51
52 551 field of global health [26]. We did not systematically conduct analyses by stakeholder group.
53
54 552 We have highlighted the affiliations of interviewees quoted, when relevant. Due to the
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3 553 richness of the data, we will publish a separate in-depth analysis of the perceived benefits and
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5 554 risks of ACF based on the expert interviews. We will furthermore complement the results of
6
7 555 this study with a cross-sectional survey with NTP managers from the 30 high-burden TB
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9 556 countries, which gives in-depth insights into contextual factors and evidence use in national
10
11 557 and local ACF policy development and implementation.
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16 17 559 *Building on a broad evidence base*

18
19 560 Interviewees emphasized the need for a variety of evidence, such as impact and economic
20
21 561 evaluations, operational and qualitative research. Qualitative evidence has proven essential in
22
23 562 developing and implementing health policies including in low- and middle-income countries,
24
25 563 e.g. to prevent and treat malaria during pregnancy [27]. In the case of ACF, decision-makers
26
27 564 may need qualitative evidence on, for example, factors influencing participation in ACF or the
28
29 565 retention of health workers. Likewise, qualitative evidence syntheses have emerged as an
30
31 566 important approach to inform national and global health policy development and
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33 567 implementation [28] and could also be useful for improving future ACF policies.
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38 39 569 *Making and implementing better ACF policies through stakeholder engagement*

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41 570 Successful ACF policy development and implementation necessitate stakeholder engagement,
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43 571 interviewees highlighted. Stakeholder engagement is an inclusive process essential for
44
45 572 achieving legitimate decisions, which are accepted by the population and conducive to
46
47 573 effective implementation [29]. Specifically, interviewees stressed the importance of
48
49 574 community engagement to enhance the implementation of ACF. Available evidence also
50
51 575 shows the importance of community engagement and support for ACF implementation, e.g.
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53 576 through collaboration with respected community leaders (i.e. chiefs, civic leaders, village
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55 577 elders and counsellors) [30,31]. In addition, familiarity with the community [32] and
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3 578 community buy-in [33] as well as community appreciation and respect through the
4
5 579 engagement of community health workers were said to be important [34,35]. Stakeholder
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7 580 engagement is also relevant for the development of WHO guidelines at the global level, and
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9 581 their adaptation to the national or subnational levels, where a wide array of stakeholders with
10
11 582 diverse sets of values should be involved [36,37].
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16 583 *Moving from “paralyzing” to “empowering” WHO guidance*

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18 584 The interviewees had many suggestions for improving the WHO guidelines on systematic
19
20 585 screening [9], questioning the appropriateness of only using the GRADE approach in the
21
22 586 context of ACF. The WHO guidelines make graded recommendations about screening
23
24 587 specific risk groups for TB, including three strong recommendations³ and four conditional
25
26 588 recommendations⁴ [9]. The conditionality makes decision-making in ACF complex by leaving
27
28 589 recommendations open to interpretation. For example, the conditionality may “paralyze”
29
30 590 decision-makers to move screening outside of health facilities, as ACF in many vulnerable
31
32 591 groups is only conditionally recommended. However, despite conditional recommendations
33
34 592 and “low-quality” or “very low-quality evidence” that all of the WHO’s recommendations on
35
36 593 systematic screening are based on [9], decision-makers must still act, either in deciding to
37
38 594 implement or taking the decision not to. The Global Fund and TB REACH can provide
39
40 595 guidance in interpreting the guidelines. Yet, countries should guarantee that these
41
42 596 interpretations and adaptations are based on the local epidemiology, health system capacity,
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44 597 resources, feasibility, effects and economic impact, etc. This information is most likely from
45
46 598 qualitative studies, monitoring and evaluation research and quasi-experimental studies. This
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55 ³ Strong recommendations: Screening in household contacts and other close contacts, people living with HIV
56 and current and former workers in workplaces with silica exposure.

57 ⁴ Conditional recommendations: Screening among prisoners, in people with an untreated fibrotic lesion seen on
58 chest X-ray, in settings where the TB prevalence in the general population is 100/100 000 population or higher,
59 in geographically defined subpopulations with extremely high levels of undetected TB and other subpopulations
60 that have very poor access to health care.

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3 599 would be paramount in order not to move away from the guidelines' original intention.
4
5 600 Ensuring continuous monitoring and evaluation is therefore important [38]. GRADE-
6
7 601 CERQual (Grading of Recommendations Assessment, Development and Evaluation-
8
9 602 Confidence in the evidence from reviews of qualitative research) [39,40] may be a useful
10
11 603 resource for future global systematic TB screening guideline development. It has been
12
13 604 developed to assess confidence in findings from qualitative evidence syntheses. Additionally,
14
15 605 the GRADE Evidence to Decision Framework for Health System and Public Health Decisions
16
17 606 [38] or the WHO-INTEGRATE Evidence to Decision Framework [41] could be valuable to
18
19 607 assess evidence for a complex intervention such as ACF.
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25 608 *Integrating ACF into health systems for sustainability*

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27 609 Interviewees underlined the need to integrate ACF into a given health system for it to be
28
29 610 sustainable. Such integration may start with an assessment of the given health system context
30
31 611 to understand available structures (e.g. infrastructure, budget structure and trained human
32
33 612 resources) and processes (e.g. supportive supervision and monitoring). Interviewees described
34
35 613 these resources as being paramount to link to and build upon. The fact that participants
36
37 614 highlighted the need for health system integration, which seems to be relevant for any health
38
39 615 intervention, may indicate that such integration cannot be taken for granted and/or might not
40
41 616 always occur in ACF. It is important to acknowledge that "integration" may describe a variety
42
43 617 of organizational arrangements across different settings [42]. Additionally, in many low-
44
45 618 income countries, interventions generally operate through a complex patchwork of
46
47 619 arrangements, rather than through totally stand-alone or totally integrated approaches [43].
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53 620 To embed ACF into health systems, available systems for outreach and health promotion [4],
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55 621 laboratory networks [44] and free services [45] have been highlighted. Moreover, given the
56
57 622 importance of community health workers for implementing ACF, their integration into the
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3 623 health system has been emphasized [46,47]. Importantly, the collaboration between various
4
5 624 actors has been described as key for sustainable ACF implementation. The latter includes
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7 625 collaboration between public health practitioners and clinicians [48], district TB teams and
8
9 626 government health staff [49], health care staff and community health workers [32,46].
10
11
12 627 Moreover, collaboration between HIV and TB sectors [50], with laboratory staff [46] and with
13
14 628 community organizations [50,51] has been described as important. Government, NTPs, WHO
15
16 629 and donors, whose key roles in ACF policy development and implementation have been
17
18 630 described by the interviewees, should contribute to the long-term thinking and long-term
19
20 631 action related to ACF and towards ending TB. Murphy and colleagues [52] emphasize that
21
22 632 only a mix of appropriate evidence, key stakeholders, processes and structures would be a
23
24 633 solution for evidence-informed policy development and implementation.
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635 *Answering the “how-to” questions of ACF through future research*

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33 636 This qualitative study demonstrated that we know much about facilitators and barriers for
34
35 637 ACF policy development and implementation, as well as about the need and use of evidence
36
37 638 in these processes. Still, we know less about *how* to strengthen those facilitators, *how* to
38
39 639 overcome those barriers and *how* to strengthen research use. Implementation research that
40
41 640 sheds light on what works for whom and under which conditions may be particularly helpful
42
43 641 to answer some of those *how* questions. Moreover, operational research that uses available
44
45 642 local data, e.g. on TB notifications, may help inform local decision-making around ACF.
46
47 643 Finally, mixed-methods studies can help explore the complexity of ACF policy development
48
49 644 and implementation in the future, as they have the potential to both increase contextual
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51 645 understanding and reduce biases.
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3 648 **Conclusion**
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6 649 Based on a variety of experts' perspectives, we generated new knowledge regarding ACF
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8 650 policy processes globally, in particular regarding facilitators for and barriers to ACF policy
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10 651 development, evidence need and use, and donor organizations' influence. Bringing together
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12 652 these different views creates a more comprehensive picture of ACF policy development and
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14 653 implementation today and indicates ways to strengthen such processes in the future: National
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16 654 and global ACF policy development and implementation can be improved by broadening
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18 655 stakeholder engagement and ownership; from decision-makers at the Ministry of Health to
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20 656 community leaders and members. Meanwhile, using diverse evidence to inform ACF policy
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22 657 development and implementation could mitigate the "power plays plus push" that might
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24 658 otherwise disrupt and mislead these policy processes. Our findings complement the existing
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26 659 evidence base and can inform future national and global ACF policy processes.
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811 **List of abbreviations**

812 ACF – Active Case-Finding

813 COREQ – COnsolidated criteria for REporting Qualitative research

814 NGO – Non-governmental organization

815 NTP – National TB Programme

816 TB – Tuberculosis

817 WHO – World Health Organization

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819 **Ethics approval and consent to participate**

820 This study has been approved by Regionala Etikprövningsnämnden i Stockholm

821 (diarienummer: 2017/2281-31/2). Participants received background information about the

822 study and provided written informed consent.

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824 **Consent for publication**

825 Participants provided written informed consent.

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3 **827 Availability of data and materials**
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6 828 All data relevant to the study are included in the article or uploaded as supplementary
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8 829 information. The data generated and/or analysed in the study are not publicly available due to
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10 830 participant anonymity.
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16 **832 Additional files**
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19 833 Additional file 1: COREQ Checklist
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22 834 Additional file 2: Interview guide
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28 **836 Competing interests**
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31 837 We have no competing interests to declare.
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37 **839 Funding**
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40 840 This work was supported by the EU-Horizon 2020-funded IMPACT-TB project (grant
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42 841 733174).
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47 **843 Authors' contributions**
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49
50 844 OB, KL, MC and KV conceived the study. OB developed the interview guides, which KL,
51
52 845 MC and KV provided feedback on. OB conducted all interviews, coded them and developed
53
54 846 an analytical framework. OB revised the coding and the analytical framework based on SA
55
56 847 and KV's input. OB charted the data into a framework matrix, which SA and KV provided
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3 848 feedback on. OB interpreted the data writing memos for each study theme, and discussed
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5 849 these with SA, KL and KV. All authors read and approved the final manuscript.
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11 851 **Acknowledgements**

13
14 852 OB, KL and MC are part funded by the EU-Horizon 2020-funded IMPACT-TB project (grant
15
16 853 733174). The authors thank the interviewees who generously shared their time to participate
17
18 854 in the study. The authors also thank Jenny Siméus, writing instructor at Karolinska Institutet
19
20 855 University Library, for her valuable feedback in writing this manuscript. Kerri Viney is
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22
23 856 supported by a Sidney Sax Early Career Fellowship from the Australian National Health and
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26 857 Medical Research Council, GNT1121611.
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COREQ (CONsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the interview or focus group?	
Duration	21	What was the duration of the interviews or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

Additional file 2. Interview guide

Basic information and active case-finding (ACF) policy and implementation work in your organization

1. What is your role in ACF policy development and/or implementation?
 - Since when have you been working in this role?
2. Could you briefly describe (current) ACF policy development and implementation supported by your organization?
 - What is the status of implementation and scale-up?
 - What do monitoring and evaluation efforts look like?
 - i. Which indicators are being used?
 - ii. Is there any data available/published?
 - What are the future plans for ACF in this context?

Personal view/values and preferences

3. What are the benefits of ACF in your view?
 - ... at the level of the individual?
 - ... at the community level?
 - ... at the level of the health system?
 - ... compared to other interventions for early case detection?
 - Have you/has your organization deprioritized other activities in order to prioritize resources for ACF?
 - i. If so, why do you/does your organization prioritize ACF?
 - What other activities for early case detection are you/is your organization engaging in? (e.g. improve lab/diagnostic services, train health workers in identifying people with possible tuberculosis (TB), reduce financial/access barriers, address social protection)
 - Do you think the scale-up of ACF is essential for reaching the goals outlined in the End TB Strategy?
 - i. If so, what's the most important action to achieve this scale-up?
 - ii. Should anything else instead be prioritized less?
4. What are the risks of ACF in your opinion? (e.g. harm for individual, stigma and discrimination, cost, operational risks)
 - ... at the level of the individual?
 - ... at the community level?
 - ... at the level of the health system?
 - ... compared to other interventions for early case detection?
5. What do you think about the World Health Organization (WHO) guidelines related to ACF? (e.g. on improving early TB detection, screening guideline, screening operational guide, contact investigation)
 - Have you used any of the WHO guidelines?
 - Do you think others are using them?
 - Does anything need to be improved in these guidelines?

Engagement in ACF project, policy or scale up in specific country(ies)

6. Are you engaged in an ACF project in a particular country?
 - How are you engaged?
 - In which country are you engaged?
 - Could you describe an example(s)? (e.g. setting, risk group, activities, timeline)
7. Has this ACF project developed into/influenced policy?
 - If yes, what kind of policy? (e.g. become part of National Strategic Plan, sectoral policy or law)
 - If not, why?
8. Could you describe the/a ACF policy? (e.g. setting, risk group, activities, timeline)
9. Who was/is responsible for the different parts of the ACF policy cycle (agenda setting, policy formulation, implementation and evaluation)?
 - ... in terms of human resources?
 - ... in terms of collaboration?
 - ... when it comes to technical input?
 - ... when it comes to management?
10. Who was/is funding which part of the ACF policy cycle?
11. Which factors influence(d) the ACF policy development? / Which factors influence(d) the ACF policy implementation?
 - ... thinking about the overall country context?
 - i. How did it influence the ACF policy cycle?
 - ... in terms of the health system and policy context?
 - i. How did it influence the ACF policy cycle?
 - ... when it comes to financing?
 - i. How did it influence the ACF policy cycle?
 - Which factor is most powerful in influencing these processes?
12. Which other organizations/partners influence/influenced the ACF policy development? / Which other organizations/partners influence/influenced the ACF policy implementation?
 - ... Donors (e.g. Global Fund, bilateral donors, researchers, etc.)
 - i. How did they influence the ACF policy cycle?
 - ... Funding mechanisms, specific funds, existing resources
 - i. How did they influence the ACF policy cycle?
 - ... International technical agencies (WHO, Stop TB Partnership, etc.)
 - i. How did they influence the ACF policy cycle?
 - ... Other organizations (civil society organization, non-governmental organizations, etc.)
 - i. How did they influence the ACF policy cycle?
 - Which organization/partner is most powerful in influencing these processes?
13. When it comes to the use of evidence in the ACF policy development process... /
When it comes to the use of evidence in the ACF policy implementation process...

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- ... Which type of evidence was/is being used? (e.g. global, local, scientific, tacit)?
 - ... What type of outcomes did/does the evidence focus on? (e.g. case detection, reduce delays, treatment outcomes, cost-effectiveness)
 - ... In which part of the policy cycle was/is evidence used (e.g. priority-setting, policy formulation, policy implementation, policy evaluation)?
 - ... What are the opportunities in using evidence for improving ACF policy cycle?
 - ... What are the challenges in using evidence for improving the ACF policy cycle?

14. What is your most important lesson learned related to ACF?

15. What would you like to say about future ACF policy?

16. Do you have any additional comments?

BMJ Open

“Power plays plus push”: Experts’ insights into the development and implementation of active tuberculosis case-finding policies globally, a qualitative study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2019-036285.R1
Article Type:	Original research
Date Submitted by the Author:	12-Mar-2020
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Primary Subject Heading:	Health policy
Secondary Subject Heading:	Global health, Infectious diseases, Public health, Qualitative research
Keywords:	PUBLIC HEALTH, Tuberculosis < INFECTIOUS DISEASES, QUALITATIVE RESEARCH, Health policy < HEALTH SERVICES ADMINISTRATION & MANAGEMENT

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5 2 **active tuberculosis case-finding policies globally, a qualitative study**
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3 **25 Abstract (292 words)**
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8 **27 Objective**
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10 28 To explore experts' views on factors influencing national and global active case-finding
11
12 (ACF) policy development and implementation, and the use of evidence in these processes.
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17 **31 Design**
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19 32 This is an exploratory study based on semi-structured expert interviews.
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25 **34 Participants**
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27 35 The study involved a purposive sample of 39 experts from international, non-governmental
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29 and non-profit organizations, funders, government institutions, international societies, think
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31 tanks, universities and research institutions worldwide. Framework analysis was applied.
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36 **39 Results**
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38 40 This study highlighted the perceived need among experts for different types of evidence for
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40 ACF policy development and implementation, and for stakeholder engagement including
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42 researchers and policymakers to foster evidence use. Interviewees stressed the influence of
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44 government, donor and non-governmental stakeholders in ACF policy development. Such key
45
46 stakeholders also influence ACF policy implementation, in addition to available systems and
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48 processes in a given health system, and implementers' motivation and incentives. According
49
50 to the interviewees, the World Health Organization (WHO) guidelines for systematic
51
52 screening face the innate challenge of providing guidance to countries across the broad area of
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54 ACF in terms of target groups, settings and screening algorithms. The guidelines could be
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56 improved by focusing on what *should* be done rather than what *can* be done in ACF, and by
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3 50 providing *how to* examples. Leadership, integration into health systems and long-term
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5 51 financing are key for ACF to be sustainable.
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10 53 **Conclusions**

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13 54 We provide new insights into ACF policy processes globally, particularly regarding
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15 55 facilitators for and barriers to ACF policy development, evidence need and use, and donor
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17 56 organizations' influence. According to expert participants, national and global ACF policy
18
19 57 development and implementation can be improved by broadening stakeholder engagement.
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22 58 Meanwhile, using diverse evidence to inform ACF policy development and implementation
23
24 59 could mitigate the “power plays plus push” that might otherwise disrupt and mislead these
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26 60 policy processes.
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31 62 **Key words**

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33 63 Tuberculosis, active case-finding, community, policy development, policy implementation,
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35 64 evidence use
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41 66 **Article summary**

46 68 **Strengths and limitations of this study**

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48
49 69 • Expert interviews were able to elicit a unique insight into ACF policy development
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51 70 and implementation.
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54 71 • Expert interviews filled knowledge gaps regarding factors influencing ACF policy
55
56 72 development, donors' influence and evidence use in ACF policy processes.
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3 73 • The number and diverse range of experts involved increase the study's trustworthiness
4
5 74 and confirmability.
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7
8 75 • Women and interviewees from low- and middle-income countries were
9
10 76 underrepresented in the study, potentially limiting the transferability of the results.
11
12 77 • We did not systematically conduct analyses by stakeholder group but described the
13
14 78 patterns we observed and highlighted the affiliations of interviewees quoted.
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21 80 **Manuscript (6,704 words)**
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26
27 82 ***Background***
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29 83 Tuberculosis (TB) is a major global health emergency, especially in low- and middle-income
30
31 84 countries. TB is curable and preventable. Still, it remains the leading cause of death from a
32
33 85 single infectious agent and one of the top 10 causes of death worldwide [1]. In 2019, the
34
35 86 estimated incident TB cases and those notified globally resulted in a difference of three
36
37 87 million cases, reflecting a combination of underreporting of detected TB cases and
38
39 88 underdiagnosis, specifically in countries with major financial and geographic barriers to
40
41 89 accessing care [1]. Many people with TB are diagnosed only after long delays [2-4], causing
42
43 90 increased morbidity, much suffering and economic hardship, and sustaining transmission [1].
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48 91 The World Health Organization (WHO) End TB Strategy [5] was endorsed by member states
49
50 92 at the World Health Assembly in 2014, while the United Nations Sustainable Development
51
52 93 Goals [6] were adopted in 2015. Both are aimed at ending the global TB epidemic.

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55 94 Subsequently, there has been increasing international attention on TB. In 2017, the Global
56
57 95 Ministerial Conference on Ending TB in the Sustainable Development Era took place in
58
59 96 Russia, with the aim of accelerating implementation of the End TB Strategy [7]. In 2018, the

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3 97 UN held the first-ever General Assembly high-level meeting on TB in New York, which
4
5 98 endorsed a political declaration to speed up progress towards ending TB. This declaration was
6
7 99 adopted by the General Assembly on 10 October 2018 [8]. Both the Global Ministerial
8
9
10 100 Conference and the General Assembly re-emphasized the importance of active case-finding
11
12 101 (ACF).

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15 102 Ending TB will require intensified activity to increase TB case detection [5]. One strategy for
16
17 103 increased TB case detection is systematic screening, which is defined by the WHO as the
18
19 104 “systematic identification of people with suspected active TB, in a predetermined target
20
21 105 group, using tests, examinations or other procedures that can be applied rapidly” [9]. ACF is
22
23 106 synonymous with systematic screening for active TB, although it usually implies screening
24
25 107 outside of health facilities. ACF is mostly provider-initiated. It may target people who do not
26
27 108 seek appropriate health care because they: a) do not have or recognize symptoms, b) do not
28
29 109 perceive that they have a health problem requiring medical attention, or c) face barriers in
30
31 110 accessing appropriate care [9].

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36 111 ACF has been implemented for decades primarily in high-income countries, starting with
37
38 112 mass screening campaigns in the general population in the 1950s and 1960s, then moving
39
40 113 towards specific risk populations in recent decades, such as migrants from high-incidence
41
42 114 countries and prison populations [10,11]. In low- and middle-income countries, the interest in
43
44 115 ACF has increased in recent years, mainly as a response to a sustained case detection gap
45
46 116 documented in TB prevalence surveys, annual Global TB Reports produced by WHO [1] and
47
48 117 the development of new WHO guidelines on systematic screening [9].

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53 118 Questions remain about both *if* ACF in general is worthwhile, as well as *how* to best develop
54
55 119 and implement ACF in a given context as a synergistic, rather than parallel structure to the
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57 120 given health system. The evidence base is weak concerning the benefits and cost-effectiveness
58
59 121 of ACF on both individual and community levels and how these vary between target risk
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3 122 groups [12]. However, potential benefits of ACF for patients include reduced morbidity,
4
5 123 mortality and socioeconomic consequences due to earlier diagnosis, while society can benefit
6
7 124 from TB infection prevention, reduced transmission and a reduced burden of TB [9]. There is
8
9 125 some evidence that TB screening in high-risk groups can significantly increase TB case
10
11 126 notifications [13-15]. However, from the health system perspective screening can be costly
12
13 127 and lead to diversion of scarce resources. It can also cause harm to patients, e.g. by increasing
14
15 128 the risk of false positive diagnoses, creating an additional financial burden associated with
16
17 129 attending screening and follow-up, or increased stigma and discrimination, if not properly
18
19 130 targeted and implemented [16].
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24 131 The potential benefits and challenges of ACF need to be carefully balanced when designing
25
26 132 and implementing ACF. Given the relatively weak evidence base for ACF, related policy
27
28 133 development and implementation processes rely on stakeholders' tacit knowledge, values and
29
30 134 preferences. Yet, little is known about the latter, which potentially impact the development
31
32 135 and implementation of national and global ACF policies. The aim of this study was to explore
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34 136 the views of experts on the factors that influence ACF policy development and
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36 137 implementation, and their views of the use of evidence in these processes.
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43 140 **Methods**

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47 141 This was an exploratory study based on semi-structured expert interviews [17]. The research
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49 142 team used the COREQ (COnsolidated criteria for REporting Qualitative research) Checklist
50
51 143 [18] to report the study (*Additional file 1*).
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55 144 OB is a doctoral student in public health sciences focusing on ACF with experience in
56
57 145 qualitative research. The multidisciplinary research team consisting of a medical doctor, an
58
59
60

146 epidemiologist, a microbiologist and a social scientist were involved in this study to ensure
 147 different viewpoints were included on ACF policy development and implementation.

148

149 *Recruitment and sample selection*

150 The interviewees were purposively sampled to include stakeholders involved in ACF policy
 151 development and implementation based at international (n=16), non-governmental (n=2) and
 152 non-profit organizations (n=2), funders (n=4), government institutions (n=2), international
 153 societies (such as the International Society of Travel Medicine, but in the TB field) (n=2),
 154 think tanks (n=1), universities (n=6) and research institutions (n=3), as well as one
 155 independent consultant. The research team compiled the initial list of interviewees based on
 156 knowledge of networks of experts and on the published scientific literature. The list was
 157 discussed with, expanded and verified by two independent experts in the field.

158 The primary investigator (OB) contacted 50 individuals via email. Of these, two suggested
 159 that their colleagues be interviewed instead, eight did not reply and one declined participation
 160 due to lack of time and interest. Seven of the 11 people (64%) who declined participation
 161 were female. Table 1 provides an overview of the 39 participants who agreed to participate,
 162 their sex, professional affiliation and country where they are currently based, classified
 163 according to the World Bank [19]. In the results section, we have used quotes from
 164 interviewees across all country income levels to increase the dependability of the results [20].
 165 Moreover, where possible in the results, we have tried to reflect all participants' voices.

166

167 *Table 1. Participants and their background information (in chronological order)*

ID	Sex	Affiliation	Country classification according to the World Bank [19]
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1	M	University	High-income country
2	M	International organization	Low-income country
3	M	Government institution	Low-income country
4	M	International organization	Low-income country
5	M	Government institution	Low-income country
6	M	International organization	Low-income country
7	M	Non-governmental organization	Low-income country
8	M	Non-governmental organization	Low-income country
9	F	Research institution	High-income country
10	M	International organization	High-income country
11	M	International organization	High-income country
12	M	Research institution	High-income country
13	F	Non-profit organization	Upper middle-income country
14	F	International society	Lower middle-income country
15	M	Funder	High-income country
16	M	International organization	High-income country
17	F	International organization	High-income country
18	M	Research institution	High-income country
19	M	International organization	High-income country
20	M	University	High-income country
21	M	University	High-income country
22	M	International society	High-income country
23	F	Think tank	High-income country
24	F	International organization	High-income country

25	M	International organization	High-income country
26	M	International organization	High-income country
27	M	Independent consultant	Lower middle-income country
28	M	International organization	High-income country
29	M	International organization	Lower middle-income country
30	M	Funder	High-income country
31	M	Funder	Lower middle-income country
32	M	University	High-income country
33	M	Funder	High-income country
34	M	International organization	Lower middle-income country
35	M	International organization	High-income country
36	F	University	Low-income country
37	M	University	High-income country
38	M	Non-profit organization	High-income country
39	M	International organization	Upper middle-income country

168

169 *Data collection*

170 OB collected the data between February and May 2018 through semi-structured interviews
 171 via the phone or in person. She developed the interview guides (*Additional file 2*) which MC,
 172 KL and KV provided feedback on. The first interview was conducted as a pilot interview after
 173 which the guide was revised by making it shorter to focus on the principal topics of interest.
 174 After providing information about the study and obtaining informed written consent, OB
 175 asked the interviewees about their experience in developing and/or implementing ACF
 176 policies, factors that influenced these policy processes, and the use of evidence. The
 177 interviews were audio-recorded. No repeat interviews were carried out and no formal field

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3 178 notes were taken. OB conducted interviews aiming to ensure that the sample would hold
4
5 179 adequate information power to develop new knowledge [21]. The large number of participants
6
7 180 was deemed necessary given the broad aim of the study and that all interviewees had
8
9 181 extremely relevant experience related to different aspects of ACF policy development and
10
11 182 implementation. This allowed capturing opinions from the diverse range of experts involved
12
13 183 in ACF policy development and implementation, but also led to the decision to present parts
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15 184 of the results (on the perceived benefits and risks of ACF) in a separate article in order to do
16
17 185 justice to the breadth and depth of the findings.

18
19 186 Eleven interviews were carried out in person; out of these, eight interviews were conducted
20
21 187 during a field visit to Nepal, two during WHO meetings and one at an international
22
23 188 organization. During the interviews, only OB and the respective interviewee were present.
24
25 189 The typical duration of an interview was 30-60 minutes. OB transcribed 10 of the audio-
26
27 190 recorded interviews verbatim, while the remaining ones were transcribed by a professional
28
29 191 company. The anonymity and confidentiality of the participants were ensured by unique
30
31 192 assigned number codes and removing all identifiers except the respondent affiliation in the
32
33 193 presentation of the results. OB offered all participants the opportunity to view their transcripts
34
35 194 for comments or correction, however, only three participants requested to see the transcripts.
36
37 195 No comments or corrections were made by those who chose to view the transcripts.
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46 197 *Data analysis*

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49 198 OB analysed the qualitative data from the expert interviews with *NVivo 11* using framework
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51 199 analysis [17]. The data were analysed abductively; identifying themes a priori, while allowing
52
53 200 for additional themes to emerge from the data. Using the framework analysis approach as
54
55 201 described by Gale et al. [22], OB coded all interviews and developed an analytical framework.
56
57 202 SA and KV provided comments on the coding, based on which OB revised the codes. The
58
59
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203 data was then charted into a framework matrix, on which SA and KV provided feedback. OB
 204 interpreted the data by writing memos for each study theme, and discussed these with SA, KL
 205 and KV. Table 2 provides an example of the coding process.

207 *Table 2. Example of the coding process*

Interviewee	Quote	Code	Category	Theme
I-27, independent consultant in a lower middle-income country	<i>“So, I think it’s the political push that then forces the technocrats to develop policies.”</i>	Government influencing	Government leadership and commitment	Factors influencing ACF policy development

210 *Patient and public involvement*

211 The preliminary findings were shared at three different scientific conferences in 2018. The
 212 interaction with participants of these events provided unique opportunities for validating the
 213 findings. For the presentation of preliminary findings at the World Union Conference on Lung
 214 Health, personalized invitations were sent to all 39 interviewees. A few interviewees attended
 215 and two provided feedback. As such, the presentation of preliminary findings gave an
 216 opportunity for member-checking. No direct changes were made based on the validation and
 217 member-checking, but these processes helped to more critically reflect on the findings. Once
 218 published, the results of this study will be reported back to each interviewee individually. In
 219 addition, targeted issue briefs will be developed for researchers and decision-makers in the
 220 field. We will also share the results with the public via a video and short messages on social
 221 media.

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3 **223 Results**
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5
6 224 We generated the following themes from the data: 1) evidence generation and use, 2) factors
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8 225 influencing ACF policy development, 3) factors influencing ACF policy implementation, 4)
9
10 226 WHO guidelines on systematic screening and 5) sustainability of ACF. Table 3 provides an
11
12 227 overview of the five main themes and the 16 related codes. The benefits and risks of ACF
13
14 228 were additional major themes which will be analysed and discussed in a separate publication.
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16
17 229 Overall, the interviewees had a wide variety of views on ACF; from ACF being a “*waste*
18
19 230 *basket*” for resources to it being “*common sense*”.
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22 231

23
24 232 *Table 3 Summary of major themes and categories related to ACF policy development and*
25
26 233 *implementation*
27

1	Evidence generation and use	1	Dissemination and exchange of evidence
		2	Demand for evidence by decision-makers
		3	Stakeholder engagement to facilitate evidence use
2	Factors influencing ACF policy development	1	Government leadership and commitment
		2	Donor funding
		3	Non-governmental organizations' experience
3	Factors influencing ACF policy implementation	1	Human and financial resources
		2	Systems, processes and resources to build on
		3	Donor funding and related target-setting
		4	Government power
		5	Health workers' motivation and incentives
4	WHO guidelines on systematic	1	Positive and negative perceptions

	screening	2	Contextualization of global guidelines locally
		3	Suggested improvements
5	Sustainability of ACF	1	Opportunities for sustainability
		2	Challenges for sustainability

234

235 **Theme one: Evidence generation and use**

236 Most interviewees described the evidence on ACF as being relatively limited and emphasized
 237 the need to generate different types of evidence to inform ACF policy development and
 238 implementation. They stressed the importance of disseminating and exchanging evidence, of
 239 the demand for evidence by decision-makers and stakeholder engagement to enable evidence
 240 use. Apart from highlighting specific types of evidence, interviewees across the different
 241 settings had similar views with regards to this theme.

242 Interviewees highlighted that a variety of evidence is needed and demanded by decision-
 243 makers working on ACF; from effectiveness and health economic evaluations to
 244 implementation and operational research. One interviewee from a university in a high-income
 245 country stressed that to demonstrate effectiveness, there is a need “to do ACF in the context of
 246 *randomized controlled trials*” (I-32). Another interviewee from a non-governmental
 247 organization (NGO) in a low-income country highlighted the importance of distinguishing
 248 clearly where the decisions are being made; be it at the community, district or national level:

249 *“I think this is very important, i.e. what types of evidence you would need to*
 250 *make decisions at various levels (...). What evidence is enough evidence at what*
 251 *level to take the decision” (I-7).*

252 Local evidence was said by many to play a significant role in for instance available health and
 253 diagnostic facilities, and health workers' capacity and experience in communicating with
 254 communities. In particular, evidence from national TB prevalence surveys was described as

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3 255 significant for TB policy development more broadly. Two interviewees from funding
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5 256 organizations in high-income countries concluded that countries should be encouraged “to
6
7 257 *adopt [ACF] policies based on the local evidence and then move forward, rather than waiting*
8
9 258 *for systematic reviews*” (I-30) and “*you should implement enough to figure out what’s*
10
11 259 *practicable and what works, and then that should become policy*” (I-15).

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14 260 According to the interviewees, evidence use in ACF policy development and implementation
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16 261 necessitates evidence dissemination and exchange, especially to share unpublished findings.
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18 262 One interviewee from an international organization highlighted:

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22 263 *“Unfortunately, we are [from a low-income country] and we are not very good*
23
24 264 *at publishing. We’ve got a wealth of experience that is unpublished (...) but it*
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26 265 *has been presented at several conferences.”* (I-35).

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29 266 Depending on the country context, gaps may exist between evidence and policy and/or
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31 267 between policy and practice. As one interviewee from an international organization in a high-
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33 268 income country pointed out:

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36 269 *“Countries are different. As I said, in [that country] (...) from evidence to policy*
37
38 270 *was difficult. But once it [ACF] was inside the policy or even without the policy,*
39
40 271 *they used to easily convert it to practice. But here [in our country] (...) evidence*
41
42 272 *to policy is easier, but policy to practice is more difficult.”* (I-28)

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45
46 273 Interviewees emphasized that researchers should engage with key stakeholders from the
47
48 274 beginning of the research process to foster research use in ACF policy development and
49
50 275 implementation; stakeholders may include the WHO, the Ministry of Health and the National
51
52 276 TB Programme.

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55
56 277 *“Make sure that you have the right partners from the beginning; partners who*
57
58 278 *are going to take your results and actually do something with them. Because*
59
60

279 *otherwise you are kind of doing it [research on ACF] in a vacuum*", said one
280 interviewee from a university in a high-income country (I-37).

281 Moreover, to spark dialogue through stakeholder engagement, an interviewee from an NGO
282 in a low-income country stressed that one must *"create platforms, or you need to use the*
283 *platforms which are already there."* (I-7) Regular review meetings at sub-national and
284 national levels to discuss challenges and successes related to ACF offer one such platform.
285 Overall, evidence use was said to be influenced by *who* is being engaged and by personal
286 contacts which may be *"more important than they should be"*, as another interviewee from a
287 university in a low-income country described (I-36).

289 **Theme two: Factors influencing ACF policy development**

290 According to the interviewees, many different stakeholders influence ACF policy
291 development, specifically governments, donors and NGOs. Interviewees underlined
292 stakeholder involvement as being necessary for policy development and the contextualization
293 of global policy into local realities. Interviewees did not have any contradicting views with
294 regards to this theme, but rather highlighted the specific roles of certain stakeholders they
295 thought were most influential in ACF policy development.

296 The leadership, buy-in and commitment of governments and National TB Programmes, were
297 described as being vital for ACF policy development and implementation. India was
298 mentioned as a prime example where political push *"forced the technocrats to develop*
299 *policies and implement them"* (I-27, an independent consultant in a lower middle-income
300 country). Governments make decisions for political reasons or donor incentives, even if these
301 contradict the evidence. One representative from an international organization in a high-
302 income country highlighted an example of action perceived to be contradicting their view of
303 the evidence:

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2
3 304 *“Women and children of reproductive age (...) should only be included as part*
4
5 305 *of the passive system not as a priority for ACF ever. But when you talk to NTP*
6
7 306 *[National TB Programme] managers, there is strong political pressure and a*
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10 307 *perception that donors want them to focus on women and children.” (I-24)*
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12
13 308 Donor organizations such as the Global Fund and the case-finding initiative TB REACH (the
14
15 309 latter is coordinated by the Stop TB Partnership and funded largely by Global Affairs Canada)
16
17 310 were described as being influential in ACF policy development, e.g. TB REACH was said to
18
19 311 have *“brought this concept of ACF to the country”* (I-2, interviewee from an international
20
21 312 organization in a low-income country), while the Global Fund *“hold[s] every power to*
22
23 313 *change things and not to change things”* regarding ACF policy development (I-7,
24
25 314 representative from an NGO in a low-income country). Likewise, interviewees pointed out
26
27 315 that donors’ influence was linked to WHO’s influence, as donors request countries to adopt
28
29 316 WHO guidelines to be eligible for funding:
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34 317 *“Why national policymakers are looking mainly at things like WHO documents:*
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36 318 *because a lot of them get Global Fund money and Global Fund money is often*
37
38 319 *aligned with countries implementing WHO policies”,* described an interviewee
39
40 320 who is based at a research institution in a high-income country (I-9).
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44 321 This observation was shared by another interviewee, from an NGO in low-income country (I-
45
46 322 8). Linking back to the preceding theme on evidence generation and use, it seemed from the
47
48 323 interviews that it was important to acknowledge that TB REACH projects have the potential
49
50 324 to generate useful evidence for future policy and practice, as an independent consultant in a
51
52 325 lower middle-income country pointed out (I-27).
53

54
55 326 Interviewees said that NGOs are often the “implementers” of ACF whose years of experience
56
57 327 are of great value for ACF policy development and they should therefore be involved in the
58
59
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1
2
3 328 same, e.g. in policy dialogues with the government and other key stakeholders. One
4
5 329 representative of an NGO in a low-income country stated:

6
7
8 330 *“We [NGOs] are the one who really deal with the people (...). We have the*
9
10 331 *evidence. We have the good photographs. We have the data. (...) We are the*
11
12 332 *ones who can influence [ACF policy development].” (I-8)*

13
14
15 333

16 334 **Theme 3: Factors influencing ACF policy implementation**

17
18 335 Interviewees elaborated on available resources, systems, processes and resources within a
19
20 336 given health system, donor and government stakeholders, as well as the motivation and
21
22 337 incentives for health workers as major factors influencing ACF policy implementation.

23
24 338 Interviewees emphasized the role of particular stakeholders, as well as barriers and facilitators
25
26 339 they thought were most influential in ACF policy implementation, while no clearly
27
28 340 contradictory views on this theme emerged.

29
30 341 The implementation and scale-up of ACF policies depends on the availability of financial
31
32 342 resources, as many interviewees stressed.

33
34 343 *“We realized that in a country like [our country], we have great policies. The*
35
36 344 *problem is the implementation. (...) And this is where the support of the*
37
38 345 *development partners, funded through PEPFAR, have been key to implement*
39
40 346 *these policies, particularly ACF policies”, one interviewee described (I-39,*
41
42 347 *interviewee from an international organization in an upper middle-income*
43
44 348 *country).*

45
46 349 ACF implementation may *“just stop because [there is] no funding”* (I-29, interviewee from
47
48 350 an international organization in a lower middle-income country). An interviewee from a
49
50 351 funding organization in a high-income country provided a different perspective regarding the
51
52 352 funding for ACF by highlighting that *“ACF through government funding can be more*

1
2
3 353 *difficult than doing it through donor funding*” (I-15). This perspective may inhibit long-term
4
5 354 thinking about ACF, as it seems to focus on immediate action to implement rather than
6
7 355 sustainability, which is more likely to come with government investment. In addition to
8
9 356 limited financial resources, human resource constraints for ACF were highlighted as a major
10
11 357 challenge by experts from low-, middle- and high-income countries. These constraints could
12
13 358 hinder National TB Programmes in thinking more strategically and ambitiously about how to
14
15 359 address TB comprehensively.

16
17 360 The use of existing systems and processes in a given health system was said to be central
18
19 361 because *“if you start from scratch, it [ACF] is much more difficult than if there are already*
20
21 362 *things to which you can link”*, as an interviewee from an international organization in a high-
22
23 363 income country pointed out (I-17). Interviewees mentioned that ACF policy implementation
24
25 364 can build upon experience from existing screening programmes (e.g. cervical cancer
26
27 365 screening), activities for vulnerable populations (e.g. needle exchange programmes), health
28
29 366 care infrastructure (e.g. chest X-ray buses), already known locations for screening in high
30
31 367 incidence areas and trained human resources (e.g. those involved in prevalence surveys). Yet,
32
33 368 pursuing synergies may be challenging due to the fragmentation of activities. In addition, the
34
35 369 structure and financing of TB within a health system matters in terms of availability of
36
37 370 resources:

38
39
40 371 *“TB has tended to fall into the preventative [arm of the health system] and that*
41
42 372 *has limited the availability for resources”*, described an interviewee from a
43
44 373 university in a high-income country (I-32).

45
46
47 374 Processes including supportive supervision, monitoring and the use of Standard Operating
48
49 375 Procedures are critical for ACF policy implementation and are necessary to avoid corruption,
50
51 376 interviewees discussed. In one country, the *“whole case-finding system collapsed along with*
52
53 377 *the supervision”* (I-16, interviewee from an international organization in a high-income
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1
2
3 378 country). Moreover, processes that strengthen communication with, engagement of and
4
5 379 awareness-raising among communities were described as instrumental for ACF policy
6
7 380 implementation, e.g. to help reduce stigma. One interviewee from a university in a high-
8
9 381 income country mentioned how the community *“has started to advocate loudly for ACF*
10
11 *services”* (I-20).
12 382

13
14 383 Many interviewees underlined that donors influence the implementation of ACF policies in
15
16 384 countries with no or insufficient domestic resources. *“The piper will determine what music*
17
18 *you play”* (I-35, interviewee from an international organization in a high-income country),
19 385
20 386 which, again, highlights the power which donor organizations are perceived to have in
21
22 387 influencing ACF policy implementation, and the possible resulting lack of a sense of policy
23
24 388 ownership in some countries. Donors influence ACF policy implementation by setting targets
25
26 389 for their funding recipients and pushing them towards reaching them. One interviewee from
27
28 390 an international organization in a high-income country described:
29
30

31
32
33 391 *“These targets that countries have set, that donors have set; people are very*
34
35 392 *anxious (...) and that often means the easiest short cut is to do ACF, even if it is*
36
37 393 *a little bit unethical or little bit using low specificity tools, so you have a little bit*
38
39 394 *of over diagnosis. Donors are very comfortable with that.”* (I-24)
40
41
42

43 395 The consequences of implementing ACF under donor pressure are unclear and should be
44
45 396 balanced against the unethical nature of inaction on the TB epidemic, but scale-up of
46
47 397 inaccurate diagnostic strategies might lead to heightening the potential risks of ACF such as
48
49 398 increasing false-positive diagnoses, as the interviewee mentioned.

50
51
52 399 ACF policy development and implementation depend on *“power plays plus push”*, e.g. in a
53
54 400 country with no written ACF policy, ACF was still being implemented because the National
55
56 401 TB Programme manager was respected and able to push for it (I-29, interviewee from an
57
58 402 international organization in a lower middle-income country). The aforementioned pressure
59
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1
2
3 403 by politicians, donors and WHO may be seen as additional examples of “power plays plus
4
5 404 push”. Many interviewees highlighted the important role of power dynamics in ACF policy
6
7 405 implementation. It seems crucial to be aware of such dynamics, while the use of evidence may
8
9 406 help mitigate them. ACF policy implementation is in itself a balancing act, which power
10
11 407 imbalances might negatively impact.

12
13
14 408 The motivation of health workers and volunteers is an important enabler for ACF policy
15
16 409 implementation. These “implementers” can be strongly motivated by their desire to help
17
18 410 people, by understanding the benefit of ACF for communities, by receiving feedback on the
19
20 411 outcomes of their work (e.g. using performance indicators) and/or by feeling ownership of the
21
22 412 ACF process, according to the interviewees. Financial and non-financial incentives (e.g.
23
24 413 salaries, transportation allowances, provision of motorbikes or mobile airtime) have a
25
26 414 significant role in motivating health workers and volunteers to implement ACF as an outreach
27
28 415 activity, interviewees discussed. Nevertheless, incentives can raise expectations and distort
29
30 416 ACF policy implementation in the long-term, e.g. if government health workers are paid extra
31
32 417 as part of an ACF project, they will also expect an extra pay for such activities in the future
33
34 418 and for other work; another balancing act. While incentives should be in line with what a
35
36 419 country could adopt later, they are often difficult or impossible for governments to sustain, an
37
38 420 interviewee said.
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47 422 **Theme 4: WHO guidelines on systematic screening**

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50 423 This theme focuses on stakeholders’ perceptions of the WHO guidelines on systematic
51
52 424 screening, the need for their contextualization and suggestions for improving them. This
53
54 425 theme elicited different views among stakeholders, which are described in the following.
55
56 426 The WHO guidelines on systematic screening are perceived positively by many, e.g. as a
57
58 427 reference document when planning ACF activities as well as to put ACF on the agenda.
59
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3 428 Positive perceptions of the guidelines were described by interviewees from different
4
5 429 countries, while negative perceptions were only voiced by interviewees in high-income
6
7 430 countries. Such negative perceptions included the guidelines being vague, lacking information
8
9 431 about the *how-to* of ACF and being unduly negative in terms of mentioning the risk of
10
11 432 increasing false-positive diagnoses through ACF. Low-income countries may be more
12
13 433 receptive to and reliant on WHO guidelines, while in a middle-income country “*you’ve got*
14
15 434 *really serious domestic universities providing the formal policy evidence. And the country*
16
17 435 *kind of says ‘Thanks but no thanks’ to outside opinions. They are really driving their own*
18
19 436 *decisions. WHO is really not consulted very much, if at all*”, a representative of a funding
20
21 437 organization in a high-income country described (I-15). An interviewee from an international
22
23 438 organization in a high-income country said:

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28
29 439 “*When you have something that is so broad – and you’re talking about ACF*
30
31 440 *which can be so many different things – it’s just very hard to have something*
32
33 441 *that works the same way in different countries (...). I think that’s the main*
34
35 442 *shortcoming around the guidance.*” (I-28)

36
37
38 443 Interviewees emphasized the necessity of contextualizing the WHO guidelines on systematic
39
40 444 screening, e.g. depending on a country’s income level, epidemiology and availability of
41
42 445 diagnostic tools. One interviewee from a funding organization in a high-income country
43
44 446 pointed out that “*you just can’t be as prescriptive and exact as you are in the more clinical*
45
46 447 *guidelines*” (I-15), which seems like an important observation and reminder about the
47
48 448 limitations that ACF policies will always have. According to the interviewees,
49
50 449 contextualization of guidelines can happen in a stepwise approach, e.g. a country pilots the
51
52 450 use of a guideline before adopting and adapting it.
53
54
55 451 Review meetings with WHO and other partners can provide a platform for discussions around
56
57 452 guideline adaptation, interviewees said. Yet, countries have faced challenges in
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3 453 contextualization, e.g. WHO recommends using chest X-ray which was too expensive in a
4
5 454 country and could thus not be used (I-4, from an international organization in a low-income
6
7 455 country). In another instance, WHO describes how contacts of an index TB patient should
8
9 456 provide their address, while individuals were hesitant to do so due to the stigma surrounding
10
11 457 TB in the country (I-14, interviewee from an international society in a lower middle-income
12
13 458 country). More support for the contextualization of guidelines may be needed.

14
15
16 459 The interviewees suggested that the WHO guidelines for systematic screening [9] must be
17
18 460 updated based on new evidence, e.g. evidence from prevalence surveys, gender analyses,
19
20 461 studies about specific risk groups (e.g. drug users and indigenous populations) and what
21
22 462 works and how this works, with regards to ACF. In this process, WHO should be aware of
23
24 463 and avoid conflicts of interest, e.g. by ensuring potential conflicts of interests are adequately
25
26 464 declared and managed. This comment is in line with what an interviewee previously
27
28 465 highlighted about the role of personal contacts to bridge the research-policy gap. These types
29
30 466 of biases may undermine the integrity of the process and the resulting quality of guidelines
31
32 467 and policies.

33
34
35 468 Some interviewees lamented that WHO can be paralyzed by the need to use the strongest
36
37 469 evidence available and suggested that the organization should consider more programmatic,
38
39 470 less scientifically rigorous data. One interviewee from a university in a high-income country
40
41 471 described:

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43
44 472 *“Usually we’re relying very heavily on WHO for global policy using the*
45
46 473 *GRADE¹ approach with the PICO² and all that stuff. I think that’s laudable, but*

53
54
55 ¹ GRADE (Grading of Recommendations Assessment, Development, and Evaluation) was developed for
56 creating summaries of research evidence to help guide health decision-making. It is currently the most widely
57 used tool for evaluating the quality of science, with more than 110 organizations endorsing the method [23].

58
59 ² The PICO acronym stands for: P – Patient, Problem or Population; I – Intervention; C – Comparison, control or
60 comparator; O – Outcome(s) (e.g. pain, fatigue, nausea, infections, death). The PICO process (or framework) is a
mnemonic used in evidence-based practice to frame and answer a clinical or health care related question. The
PICO framework is also used to develop literature search strategies, e.g. in systematic reviews [24].

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3 474 *sometimes I find that weird, subjected to the tyranny of the great process, and*
4
5 475 *you don't make progress in smaller areas with a paucity of evidence.” (I-21)*
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8 476 In addition, interviewees pointed out that WHO recommendations should be based on what
9
10 477 *should* be done, not on what *can* be done. For example, countries (not WHO) have to be the
11
12 478 ones to decide about their ability to pay for Xpert MTB/RIF® as a diagnostic tool. This point
13
14 479 of view illustrates a stark contrast to the contextualization challenges mentioned above, e.g.
15
16 480 where the use of X-ray was recommended, but, frustratingly, was unable to be applied in a
17
18 481 country as it was not feasible to implement. Moreover, the WHO guidelines could be
19
20 482 improved by not only describing the *what*, but the *how* of systematic screening including
21
22 483 ACF, many interviewees said. One interviewee from an NGO in a low-income country
23
24 484 suggested:

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28
29 485 *“You can come up with different scenarios: ‘If the context is this, then...’, ‘If the*
30
31 486 *context is that, then...’. (...) Unless guidelines presents [the] ‘how’ better, (...)*
32
33 487 *it's meaningless.” (I-7)*
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39 489 **Theme 5: Sustainability of ACF**

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42 490 The sustainability of ACF was a cross-cutting theme in this analysis. Interviewees elaborated
43
44 491 on opportunities and challenges related to sustainability.

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46
47 492 *“TB is not a like smallpox or polio. It's a long-term sustainable (...) matter”, an*
48
49 493 *independent consultant in a lower middle-income country described (I-27).*

50
51
52 494 That is, even more perseverance and long-term thinking may be required to end TB.

53
54 495 Interviewees expressed similar views and concerns regarding this theme.

55
56 496 Interviewees highlighted that the interest in and leadership for ACF through the government
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3 497 and the National TB Programme are important for the sustainability of ACF. Additionally, the
4
5 498 sustainability of ACF requires its integration in and funding through the given health system.

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7
8 499 An interviewee from an international organization in a low-income country described:

9
10
11 500 *“If this [ACF] were to be sustainable, it should start with the initiation of the*
12
13 501 *NTP [National TB Programme]. (...) It has to be supported, facilitated,*
14
15 502 *monitored. Because it is actually the NTP which later needs to uptake that.” (I-*
16
17 503 *2)*

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19
20 504 Many interviewees highlighted the important role of National TB Programmes.

21
22 505 The sustainability of ACF may be restricted in places with frequent government and staff
23
24 506 turnover, which makes it difficult to get long-term commitment for ACF from decision-
25
26 507 makers, interviewees stressed. Of course, such turnover will affect areas beyond ACF. Also,
27
28 508 ACF cannot be sustainable, if it depends on donor funding. One interviewee from an
29
30 509 international organization in a high-income country summarized the situation as follows:

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32
33
34 510 *“It [ACF] is difficult to sustain. Most of the activities that have been done for*
35
36 511 *ACF have been project-based. (...) So, the Global Fund comes and says: ‘Here*
37
38 512 *is a pot of money for ACF for the next three years.’ (...) And then USAID comes*
39
40 513 *(...). Or TB REACH (...). And people do it. But that’s not a sustainable way of*
41
42 514 *doing this and this should be part and parcel of routine programming.” (I-35)*

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48 49 50 516 **Discussion**

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54 517 In summary, this study accentuated experts’ perceived need for different types of evidence for
55
56 518 ACF policy development and implementation, and for stakeholder engagement to foster
57
58 519 evidence use. Interviewees stressed the influence of government, donor and NGO

1
2
3 520 stakeholders as influential players in ACF policy development. Such key stakeholders also
4
5 521 influence ACF policy implementation, in addition to available systems and processes in a
6
7 522 given health system and implementers' motivation and incentives. The WHO guidelines for
8
9 523 systematic screening were said to face the innate challenge of covering the broad area of ACF
10
11 524 in terms of target groups, settings and screening algorithms. Interviewees suggested that the
12
13 525 guidelines could be improved by incorporating new and different types of evidence, by
14
15 526 focusing on what *should* be done rather than what *can* be done, and by providing examples of
16
17 527 the *how* of ACF. Finally, for ACF to be sustainable, interviewees stressed the need for
18
19 528 leadership for ACF, its integration into health systems and the transition from donor to
20
21 529 government funding.
22
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28 531 *Building on a broad evidence base*

29
30 532 Interviewees emphasized the need for a variety of evidence, such as impact and economic
31
32 533 evaluations, operational and qualitative research. Qualitative evidence has proven essential in
33
34 534 developing and implementing health policies including in low- and middle-income countries,
35
36 535 e.g. to prevent and treat malaria during pregnancy [25]. In the case of ACF, decision-makers
37
38 536 may need qualitative evidence on, for example, factors influencing participation in ACF or the
39
40 537 retention of health workers. Likewise, qualitative evidence syntheses have emerged as an
41
42 538 important approach to inform national and global health policy development and
43
44 539 implementation [26] and could also be useful for improving future ACF policies.
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51 541 *Making and implementing better ACF policies through stakeholder engagement*

52 542 Successful ACF policy development and implementation necessitate stakeholder engagement,
53
54 543 interviewees highlighted. Stakeholder engagement is an inclusive process essential for
55
56 544 achieving legitimate decisions, which are accepted by the population and conducive to
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1
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3 545 effective implementation [27]. Specifically, interviewees stressed the importance of
4
5 546 community engagement to enhance the implementation of ACF. Available evidence also
6
7 547 shows the importance of community engagement and support for ACF implementation, e.g.
8
9 548 through collaboration with respected community leaders (i.e. chiefs, civic leaders, village
10
11 549 elders and counsellors) [28,29]. In addition, familiarity with the community [30] and
12
13 550 community buy-in [31] as well as community appreciation and respect through the
14
15 551 engagement of community health workers were said to be important [32,33]. Stakeholder
16
17 552 engagement is also relevant for the development of WHO guidelines at the global level, and
18
19 553 their adaptation to the national or subnational levels, where a wide array of stakeholders with
20
21 554 diverse sets of values should be involved [34,35].
22
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27 555 *Moving from “paralyzing” to “empowering” WHO guidance*

28
29 556 The interviewees had many suggestions for improving the WHO guidelines on systematic
30
31 557 screening [9], questioning the appropriateness of only using the GRADE approach in the
32
33 558 context of ACF. The WHO guidelines make graded recommendations about screening
34
35 559 specific risk groups for TB, including three strong recommendations³ and four conditional
36
37 560 recommendations⁴ [9]. The conditionality makes decision-making in ACF complex by leaving
38
39 561 recommendations open to interpretation. For example, the conditionality may “paralyze”
40
41 562 decision-makers to move screening outside of health facilities, as ACF in many vulnerable
42
43 563 groups is only conditionally recommended. However, despite conditional recommendations
44
45 564 and “low-quality” or “very low-quality evidence” that all of the WHO’s recommendations on
46
47 565 systematic screening are based on [9], decision-makers must still act, either in deciding to
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55 ³ Strong recommendations: Screening in household contacts and other close contacts, people living with HIV
56 and current and former workers in workplaces with silica exposure.

57 ⁴ Conditional recommendations: Screening among prisoners, in people with an untreated fibrotic lesion seen on
58 chest X-ray, in settings where the TB prevalence in the general population is 100/100 000 population or higher,
59 in geographically defined subpopulations with extremely high levels of undetected TB and other subpopulations
60 that have very poor access to health care.

1
2
3 566 implement or taking the decision not to. The Global Fund and TB REACH can provide
4
5 567 guidance in interpreting the guidelines. Yet, countries should guarantee that these
6
7 568 interpretations and adaptations are based on the local epidemiology, health system capacity,
8
9
10 569 resources, feasibility, effects and economic impact, etc. This would be paramount in order not
11
12 570 to move away from the guidelines' original intention. Ensuring continuous monitoring and
13
14 571 evaluation is therefore important [36]. GRADE-CERQual (Grading of Recommendations
15
16 572 Assessment, Development and Evaluation-Confidence in the evidence from reviews of
17
18 573 qualitative research) [37,38] may be a useful resource for future global systematic TB
19
20 574 screening guideline development. It has been developed to assess confidence in findings from
21
22 575 qualitative evidence syntheses. Additionally, the GRADE Evidence to Decision Framework
23
24 576 for Health System and Public Health Decisions [36] or the WHO-INTEGRATE Evidence to
25
26 577 Decision Framework [39] could be valuable to assess evidence for a complex intervention
27
28
29
30 578 such as ACF.

34 579 *Integrating ACF into health systems for sustainability*

36 580 Interviewees underlined the need to integrate ACF into a given health system for it to be
37
38 581 sustainable. Such integration may start with an assessment of the given health system context
39
40 582 to understand available structures (e.g. infrastructure, budget structure and trained human
41
42 583 resources) and processes (e.g. supportive supervision and monitoring). Interviewees described
43
44 584 these resources as being paramount to link to and build upon. The fact that participants
45
46 585 highlighted the need for health system integration, which seems to be relevant for any health
47
48 586 intervention, may indicate that such integration cannot be taken for granted and/or might not
49
50 587 always occur in ACF. It is important to acknowledge that "integration" may describe a variety
51
52 588 of organizational arrangements across different settings [40]. Additionally, in many low-
53
54 589 income countries, interventions generally operate through a complex patchwork of
55
56 590 arrangements, rather than through totally stand-alone or totally integrated approaches [41].
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3 591 To embed ACF into health systems, available systems for outreach and health promotion [4],
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5 592 laboratory networks [42] and free services [43] have been highlighted. Moreover, given the
6
7 593 importance of community health workers for implementing ACF, their integration into the
8
9 594 health system has been emphasized [44,45]. Importantly, the collaboration between various
10
11 595 actors has been described as key for sustainable ACF implementation. The latter includes
12
13 596 collaboration between public health practitioners and clinicians [46], district TB teams and
14
15 597 government health staff [47], health care staff and community health workers [30,44].
16
17 598 Moreover, collaboration between HIV and TB sectors [48], with laboratory staff [44] and with
18
19 599 community organizations [48,49] has been described as important. Government, National TB
20
21 600 Programmes, WHO and donors, whose key roles in ACF policy development and
22
23 601 implementation have been described by the interviewees, should contribute to the long-term
24
25 602 thinking and long-term action related to ACF and towards ending TB. Murphy and colleagues
26
27 603 [50] emphasize that only a mix of appropriate evidence, key stakeholders, processes and
28
29 604 structures would be a solution for evidence-informed policy development and
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31 605 implementation.
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606

607 *Future research*

608 Implementation research that sheds light on what works for whom and under which
609 conditions may be particularly helpful to answer some of the *how* questions which our study
610 exposed. Moreover, operational research that uses available local data, e.g. on TB
611 notifications, may help inform local decision-making around ACF. Finally, mixed-methods
612 studies can help explore the complexity of ACF policy development and implementation in
613 the future, as they have the potential to both increase contextual understanding and reduce
614 biases.

615

616 *Strengths and limitations*

617 While the available evidence in this area often focuses on ACF policy implementation [51],
618 this study fills important knowledge gaps by identifying factors influencing ACF policy
619 development and characterizing evidence use in ACF policy development and
620 implementation, from the perspective of experts in the field. Moreover, this study offers an
621 increased understanding of donor organizations' influence on ACF policy processes. The
622 number and diverse range of experts involved in this study, as well as the member-checking
623 carried out, increase the study's trustworthiness, including its confirmability and
624 transferability [52]. The transferability of this study's results may be limited given that only a
625 minority of the experts were from low- and middle-income countries (38%; 15 out of 39
626 experts). Nevertheless, all had working experience from low- and middle-income countries.
627 Seven of the interviews with experts from low- and middle-income countries were conducted
628 with experts from Nepal. Though all of them have different affiliations, their perspectives
629 may be overrepresented. The results may furthermore be limited as an even smaller minority
630 were women (18%; 7 out of 39 experts). The gender bias reflects the lack of gender parity in
631 leadership positions in the field of global health [26]. We did not systematically conduct
632 analyses by stakeholder group but described the patterns we observed and highlighted the
633 affiliations of interviewees quoted..

634

635 ***Conclusion***

636 Based on a variety of experts' perspectives, we generated new insights on ACF policy
637 processes, in particular regarding facilitators for and barriers to ACF policy development,
638 evidence need and use, and donor organizations' influence. Still, we know little about *how* to
639 strengthen those facilitators, *how* to overcome those barriers and *how* to strengthen research
640 use. Bringing together these different views creates a more comprehensive picture of ACF

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3 641 policy development and implementation today and indicates ways to strengthen such
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5 642 processes in the future: National and global ACF policy development and implementation can
6
7 643 be improved by broadening stakeholder engagement and ownership; from decision-makers at
8
9 644 the Ministry of Health to community leaders and members. Meanwhile, using diverse
10
11 645 evidence to inform ACF policy development and implementation could mitigate the “power
12
13 646 plays plus push” that might otherwise disrupt and mislead these policy processes. Our
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15 647 findings complement the existing evidence base and can inform future national and global
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17 648 ACF policy processes.
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30 800 **List of abbreviations**

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32 801 ACF – Active Case-Finding
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34 802 COREQ – Consolidated criteria for REporting Qualitative research
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36 803 NGO – Non-governmental organization
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38 804 TB – Tuberculosis
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40 805 WHO – World Health Organization
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48 807 **Ethics approval and consent to participate**

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50 808 This study has been approved by Regionala Etikprövningsnämnden i Stockholm
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52 809 (diarienummer: 2017/2281-31/2). Participants received background information about the
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54 810 study and provided written informed consent.
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3 812 **Consent for publication**
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6 813 Participants provided written informed consent.
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12 815 **Availability of data and materials**
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15 816 All data relevant to the study are included in the article or uploaded as supplementary
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17 817 information. The data generated and/or analysed in the study are not publicly available due to
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19 818 participant anonymity.
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25 820 **Additional files**
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28 821 Additional file 1: COREQ Checklist
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31 822 Additional file 2: Interview guide
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37 824 **Competing interests**
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40 825 We have no competing interests to declare.
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46 827 **Funding**
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48

49 828 This work was supported by the EU-Horizon 2020-funded IMPACT-TB project (grant
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51 829 733174).
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56 831 **Authors' contributions**
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3 832 OB, KL, MC and KV conceived the study. OB developed the interview guides, which KL,
4
5 833 MC and KV provided feedback on. OB conducted all interviews, coded them and developed
6
7 834 an analytical framework. OB revised the coding and the analytical framework based on SA
8
9 835 and KV's input. OB charted the data into a framework matrix, which SA and KV provided
10
11 836 feedback on. OB interpreted the data writing memos for each study theme, and discussed
12
13 837 these with SA, KL and KV. All authors read and approved the final manuscript.
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20 839 **Acknowledgements**

21
22
23 840 OB, KL and MC are part funded by the EU-Horizon 2020-funded IMPACT-TB project (grant
24
25 841 733174). The authors thank the interviewees who generously shared their time to participate
26
27 842 in the study. The authors also thank Jenny Siméus, writing instructor at Karolinska Institutet
28
29 843 University Library, for her valuable feedback in writing this manuscript. Kerri Viney is
30
31 844 supported by a Sidney Sax Early Career Fellowship from the Australian National Health and
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33 845 Medical Research Council, GNT1121611.
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COREQ (CONsolidated criteria for REporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	
Occupation	3	What was their occupation at the time of the study?	
Gender	4	Was the researcher male or female?	
Experience and training	5	What experience or training did the researcher have?	
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	
Domain 2: Study design			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	
Sample size	12	How many participants were in the study?	
Non-participation	13	How many people refused to participate or dropped out? Reasons?	
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	
Field notes	20	Were field notes made during and/or after the interview or focus group?	
Duration	21	What was the duration of the interviews or focus group?	
Data saturation	22	Was data saturation discussed?	
Transcripts returned	23	Were transcripts returned to participants for comment and/or	

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	
Description of the coding tree	25	Did authors provide a description of the coding tree?	
Derivation of themes	26	Were themes identified in advance or derived from the data?	
Software	27	What software, if applicable, was used to manage the data?	
Participant checking	28	Did participants provide feedback on the findings?	
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	
Data and findings consistent	30	Was there consistency between the data presented and the findings?	
Clarity of major themes	31	Were major themes clearly presented in the findings?	
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.

Additional file 2. Interview guide

Basic information and active case-finding (ACF) policy and implementation work in your organization

1. What is your role in ACF policy development and/or implementation?
 - Since when have you been working in this role?
2. Could you briefly describe (current) ACF policy development and implementation supported by your organization?
 - What is the status of implementation and scale-up?
 - What do monitoring and evaluation efforts look like?
 - i. Which indicators are being used?
 - ii. Is there any data available/published?
 - What are the future plans for ACF in this context?

Personal view/values and preferences

3. What are the benefits of ACF in your view?
 - ... at the level of the individual?
 - ... at the community level?
 - ... at the level of the health system?
 - ... compared to other interventions for early case detection?
 - Have you/has your organization deprioritized other activities in order to prioritize resources for ACF?
 - i. If so, why do you/does your organization prioritize ACF?
 - What other activities for early case detection are you/is your organization engaging in? (e.g. improve lab/diagnostic services, train health workers in identifying people with possible tuberculosis (TB), reduce financial/access barriers, address social protection)
 - Do you think the scale-up of ACF is essential for reaching the goals outlined in the End TB Strategy?
 - i. If so, what's the most important action to achieve this scale-up?
 - ii. Should anything else instead be prioritized less?
4. What are the risks of ACF in your opinion? (e.g. harm for individual, stigma and discrimination, cost, operational risks)
 - ... at the level of the individual?
 - ... at the community level?
 - ... at the level of the health system?
 - ... compared to other interventions for early case detection?
5. What do you think about the World Health Organization (WHO) guidelines related to ACF? (e.g. on improving early TB detection, screening guideline, screening operational guide, contact investigation)
 - Have you used any of the WHO guidelines?
 - Do you think others are using them?
 - Does anything need to be improved in these guidelines?

Engagement in ACF project, policy or scale up in specific country(ies)

6. Are you engaged in an ACF project in a particular country?
 - How are you engaged?
 - In which country are you engaged?
 - Could you describe an example(s)? (e.g. setting, risk group, activities, timeline)
7. Has this ACF project developed into/influenced policy?
 - If yes, what kind of policy? (e.g. become part of National Strategic Plan, sectoral policy or law)
 - If not, why?
8. Could you describe the/a ACF policy? (e.g. setting, risk group, activities, timeline)
9. Who was/is responsible for the different parts of the ACF policy cycle (agenda setting, policy formulation, implementation and evaluation)?
 - ... in terms of human resources?
 - ... in terms of collaboration?
 - ... when it comes to technical input?
 - ... when it comes to management?
10. Who was/is funding which part of the ACF policy cycle?
11. Which factors influence(d) the ACF policy development? / Which factors influence(d) the ACF policy implementation?
 - ... thinking about the overall country context?
 - i. How did it influence the ACF policy cycle?
 - ... in terms of the health system and policy context?
 - i. How did it influence the ACF policy cycle?
 - ... when it comes to financing?
 - i. How did it influence the ACF policy cycle?
 - Which factor is most powerful in influencing these processes?
12. Which other organizations/partners influence/influenced the ACF policy development? / Which other organizations/partners influence/influenced the ACF policy implementation?
 - ... Donors (e.g. Global Fund, bilateral donors, researchers, etc.)
 - i. How did they influence the ACF policy cycle?
 - ... Funding mechanisms, specific funds, existing resources
 - i. How did they influence the ACF policy cycle?
 - ... International technical agencies (WHO, Stop TB Partnership, etc.)
 - i. How did they influence the ACF policy cycle?
 - ... Other organizations (civil society organization, non-governmental organizations, etc.)
 - i. How did they influence the ACF policy cycle?
 - Which organization/partner is most powerful in influencing these processes?
13. When it comes to the use of evidence in the ACF policy development process... /
When it comes to the use of evidence in the ACF policy implementation process...

- ... Which type of evidence was/is being used? (e.g. global, local, scientific, tacit)?
- ... What type of outcomes did/does the evidence focus on? (e.g. case detection, reduce delays, treatment outcomes, cost-effectiveness)
- ... In which part of the policy cycle was/is evidence used (e.g. priority-setting, policy formulation, policy implementation, policy evaluation)?
- ... What are the opportunities in using evidence for improving ACF policy cycle?
- ... What are the challenges in using evidence for improving the ACF policy cycle?

14. What is your most important lesson learned related to ACF?

15. What would you like to say about future ACF policy?

16. Do you have any additional comments?