

1 **A SITUATIONAL AND STAKEHOLDER ANALYSIS OF HEALTH TECHNOLOGY**
2 **ASSESSMENT IN ZIMBABWE**

3 **Short title: HTA in Zimbabwe**

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20 **Abstract**

21 **Introduction:** Systematic priority setting is necessary for achieving high-quality healthcare
22 using limited resources in low and middle-income countries. Health technology assessment
23 (HTA) is a tool that can be used for systematic priority setting. The objective of this study
24 was to conduct a stakeholder and situational analysis of HTA in Zimbabwe.

25 **Methods:** We identified and analyzed stakeholders using the International Decision Support
26 Initiative checklist. The identified stakeholders were invited to a HTA workshop convened at
27 the University of Zimbabwe. We used an existing HTA situational analysis questionnaire to
28 ask for participants' views on the need, demand, and supply of HTA. A follow-up survey was
29 done among representatives of stakeholder organizations that failed to attend the workshop.
30 We reviewed two health policy documents relevant to HTA. Qualitative data from the survey
31 and document review were analyzed using thematic analysis.

32 **Results:** Forty-eight organizations were identified as stakeholders for HTA in Zimbabwe. A
33 total of 41 respondents from these stakeholder organizations participated in the survey.
34 Respondents highlighted that HTA was needed for transparent decision-making. The demand
35 for HTA-related evidence was high except for the health economic and ethics dimensions,
36 perhaps reflecting a lack of awareness. Ministry of Health was listed as a major supplier of
37 HTA data.

38 **Conclusion.** There is no formal HTA agency in the Zimbabwe healthcare system. Various
39 institutions make decisions on prioritization, procurement, and coverage of health services. The
40 activities undertaken by these organizations provide context for institutionalization of HTA in
41 Zimbabwe.

42 **Keywords:** Health technology assessment, priority setting, stakeholder participation,
43 **Zimbabwe.**

44 **Introduction**

45 The Zimbabwean government adopted the universal health coverage (UHC) political
46 declaration in 2019 and aims to achieve UHC by 2030¹. The critical concepts of UHC require
47 information on the range of health services to be provided, the population to be covered, and
48 financial protection². Zimbabwe must define its own UHC pathway by generating these key
49 data based on the health needs of the population and available resources. Health technology
50 assessment (HTA) is increasingly being used to inform decisions in the UHC context^{3,4}. HTA
51 has been used to aid in priority setting, formulate essential medicine lists, establish treatment
52 guidelines, establish essential health packages, and identify health interventions that provide
53 the best value in similar economic settings as Zimbabwe⁵⁻⁷. HTA can be a very important tool
54 for achieving UHC goals in Zimbabwe.

55 HTA is a multidisciplinary process in which explicit methods are used to determine the value
56 of health technology at different points in its lifecycle⁸. In 2014, the World Health Organization
57 (WHO) encouraged member states to establish national HTA systems to support policy
58 decisions⁹. Despite the recommendation from the WHO and the great need very few low and
59 middle-income countries (LMICs) have institutionalized HTA^{10,11}. The major challenges,
60 associated with the institutionalization of HTA in LMICs, include lack of expertise and
61 awareness, a paucity of local utility and unit cost data, and a lack of political will^{10,11}. Despite
62 these challenges, some LMICs (Ethiopia, Ghana, Tanzania, and Kenya) have initiated HTA
63 activities with donor support^{6,7,12,13}. For example, Tanzania has created an HTA committee that
64 has revised its essential medicine list and treatment guidelines¹². Zimbabwe can draw lessons
65 from the countries that have begun the HTA journey.

66 The Zimbabwean healthcare system is composed of public institutions supported by private
67 health facilities, local authority clinics, and church-based health institutions¹⁴. The public

68 healthcare system has 5 tiers and operates on a referral basis from the lowest to the highest level.
69 The levels of care are primary (rural health facilities and private general practitioners),
70 secondary (district hospitals), tertiary (provincial hospitals), quaternary (specialist services and
71 medical schools teaching hospitals) and quinary (research and development hospitals linked to
72 universities). The government, external funders, private insurance, and out-of-pocket
73 expenditures fund the healthcare sector¹⁴. The government funding, currently at 11 percent of
74 the total national budget in 2023, falls short of the Abuja Declaration target¹⁵. As a result of
75 low government funding, there is dependence on external funding, which averaged 60 percent
76 of the total health expenditure for 2014-2021¹⁶. In addition to limited government expenditures
77 on health, Zimbabwe does not operate a mandatory socialised health insurance system and
78 private health insurance is very low covering around 10 percent only¹⁴.

79

80 In a guidance document for setting up HTA in LMICs, the Management Sciences for Health
81 recommended a model that involves agenda setting, policy formulation,
82 adoption/implementation, and impact evaluation¹⁷. Various models may be used in the agenda
83 setting process for the introduction of HTA, such as the stakeholder analysis model¹⁷ and
84 Kingdon's model of policy analysis¹⁸, content, context, and process¹⁷. For example, Kingdon's
85 model states that a window of opportunity for HTA introduction occurs when the problem,
86 policy, and politics around priority setting in healthcare converge¹⁷. All three models highlight
87 context consideration as pivotal to successfully implementing HTA. The contextual aspects
88 that need to be defined for the institutionalization of HTA include the fiscal environment, health
89 systems, regulation, and stakeholders. Situational and stakeholder analyses are vital inputs in
90 the agenda-setting step of HTA introduction. The objective of this study was to conduct
91 situational and stakeholder analyses to inform the future institutionalization of HTA in
92 Zimbabwe.

93 **Methods**

94 **Stakeholder mapping**

95 Stakeholder mapping and analysis were independently performed by two researchers using a
96 checklist developed by the International Decision Supportive Initiative (iDSI)¹⁹. This checklist
97 has recently been used to determine relevant HTA stakeholders in the Egyptian context²⁰, and
98 it characterizes stakeholders into nodes, networks and, environments, based on the capacity-
99 building framework of the iDSI²¹. For each category of stakeholders, the tool suggests a set of
100 questions that help identify relevant stakeholders for a particular country. The results of the
101 mapping exercise were compared between the researchers and discussion was used to reach
102 consensus in case of differences.

103 **Data collection**

104 We convened an HTA workshop at the University of Zimbabwe in July 2019. The stakeholders
105 identified from the mapping exercise were invited to attend the workshop. Presentations
106 focusing on HTA were given at the workshop by a health economist from the University of
107 Sheffield (UK). Other presentations were given on how decisions are made to produce essential
108 medicine lists and treatment guidelines, establish health priorities, and determine health tariffs
109 in Zimbabwe. After the workshop, we surveyed the workshop participants using the adapted
110 questionnaire developed by Health Interventions and Technology Assessment (HITAP) and
111 the National Institute of Health and Care Excellence (NICE) International²⁰. An adapted
112 version of the questionnaire was used in similar studies in Uganda and Nigeria^{22,23}. The
113 conceptual framework of the questionnaire describes three elements i. the need for HTA, ii. the
114 demand for HTA, and iii. the supply for HTA. We also distributed the questionnaire to
115 stakeholders who were not represented at the workshop as a follow-up survey. We also
116 reviewed the National Health Strategy (NHS) 2021-2025 and the Zimbabwe Health Financing

117 Strategy (HFS) 2017 documents^{1,14}. The selection of the documents was informed by previous
118 research that explored health policy documents in Zimbabwe²⁴.

119

120 **Data analysis**

121 Qualitative data from the survey and strategic document review were analyzed using thematic
122 analysis²⁵. We utilized the predefined themes as informed by the HITAP-NICE HTA
123 conceptual framework to carry out deductive, structural coding²³. The themes were as follows:
124 current HTA activities in Zimbabwe, the need for HTA, the demand for HTA, the supply of
125 HTA and the challenges in institutionalizing HTA in Zimbabwe. Two of the researchers read
126 through the transcripts and coded the data into predefined themes by answering the questions
127 “who”, “what”, “where” and “how”. The thematic coding tree for the qualitative data is shown
128 in **Figure S1** in the **supplementary file 1**. All the data recorded under the themes were used
129 for the write-up.

130 **Ethical Approval**

131 Ethical approval to conduct the study was granted by the Joint Research Ethics Committee for
132 University of Zimbabwe College of Health Sciences and Parirenyatwa Hospitals
133 (JREC/89/19). The study participants signed informed consent forms before taking part in the
134 survey.

135

136

137 **Results**

138 **Stakeholder mapping**

139 A total of 48 stakeholders (organizations) were identified as key to the HTA process in
140 Zimbabwe. A summary of all the stakeholders identified to be relevant to the introduction of
141 HTA in Zimbabwe is shown in **Table S1** in **supplementary file 1**. A total of 33 participants
142 attended the workshop and participated in the survey. An additional 8 key informants
143 participated in the follow-up survey for a total of 41 respondents for this study. The
144 organizations represented by the participants are shown in **Table 1**.

145 **Survey Results**

146 **Current HTA activities in Zimbabwe**

147 At the time of the study, there was no formal institution that performed coordinated and explicit
148 HTA processes in Zimbabwe. However, from the presentations at the workshop and the
149 document review we obtained information on how various organizations perform activities that
150 aid decision-making on priority setting, market authorization of medicines, developing
151 essential medicine lists and treatment guidelines, and reimbursement. These activities provide
152 context for HTA institutionalization.

153 **Ministry of Health and Child Care**

154 The Ministry of Health and Child Care (MoHCC) provides coordination and regulatory roles
155 to all health institutions in Zimbabwe. The MoHCC sets health sector priorities for every five-
156 year cycle using National Health Strategy (NHS) documents. The MoHCC, through the 2021-
157 2025 NHS aims to “*provide, administer, coordinate, promote and advocate for the provision*
158 *of equitable, appropriate, accessible, affordable, and acceptable quality health services and*
159 *care to Zimbabweans while maximizing the use of available resources*”¹. The MoHCC priority
160 setting process is informed through consultation with stakeholders, information from routine
161 surveillance, and surveys by the MoHCC and Sustainable Development Goals (SDGs).
162 Stakeholders involved in priority setting include academic institutions, other government

163 ministries with roles in health (e.g., the Ministry of Finance), health profession councils, private
164 health providers, health insurance providers, traditional leaders, and development partners.
165 Within the NHS, the MoHCC defined the essential health services package. Currently, essential
166 health service packages are defined for primary and secondary tiers of public healthcare and
167 the MoHCC plans to define packages for the tertiary and quaternary tiers. The MoHCC is also
168 responsible for allocating financial resources to healthcare interventions, another key activity
169 where HTA can be used. The MoHCC utilizes program-based budgeting (PBB), results-based
170 financing (RBF), and need-based resource allocation frameworks to allocate financial
171 resources in the public healthcare system. The PBB was introduced in 2017 and links spending
172 to health outcomes. Under the PBB, the MoHCC defined four programs namely policy and
173 administration, public health, primary and hospital care and biomedical engineering, and
174 pharmaceuticals. The objectives and expected outcomes of every program are defined and
175 funding is allocated to the programs with the greatest health impact. The RBF was introduced
176 in 2011 and involved reimbursing district hospitals after achieving pre-set outcomes in
177 maternal and child health services. Needs-based resource allocation involves allocating funds
178 based on geographical health indicators such as population size. The review of the HFS also
179 revealed challenges in resource allocation that included a lack of transparency, accountability,
180 and weak procurement systems. The Zimbabwean government intends to establish a national
181 health insurance (NHI) system, as outlined in the NHS 2021-25. The government's rationale
182 for establishing the NHI is to ensure equitable health financing and protect people from out-of-
183 pocket payments for health. At the time of this study, no NHI had been established in the
184 Zimbabwean health system.

185 **Essential Medicines List and Treatment Guidelines**

186 The MoHCC established the National Medicine and Therapeutics Policy Advisory Committee
187 (NMTPAC) which is responsible for the development and periodic review of the Essential

188 Medicines List and Standard Treatment Guidelines of Zimbabwe (EDLIZ). The committee
189 consists of medical doctors and pharmacists working voluntarily. In addition to the selection
190 of medicines for inclusion, the EDLIZ is also used to classify medicines in terms of priority for
191 availability. For example, some medicines are categorized as vital(V) and are supposed to be
192 available at all public health institutions. The EDLIZ is also a tool used to determine coverage
193 of access to medicines and health services. For example, some medicines are coded B
194 medicines and can be accessed only at the district hospital level (secondary care tier) and
195 above. The classification of medicines by level of availability is based on the availability of
196 expertise and diagnostic tests to support the administration of the medicines at different levels
197 of care. The NMTPAC considers evidence on relevance to disease burden, efficacy, quality,
198 cost, and potential for local manufacture as criteria for inclusion of medicines in the EDLIZ.
199 Although cost-effectiveness is listed in the EDLIZ as one of the criteria for drug inclusion,
200 cost-effectiveness analysis evidence is currently not used to inform the selection of medicines.

201

202 **Market authorization of medicines**

203 The Medicines Control Authority of Zimbabwe (MCAZ) is mandated by an act of parliament
204 to register and provide market authorization for medicines before they can be accessed for use
205 in Zimbabwe. The MCAZ considers evidence on efficacy, safety, and quality submitted as a
206 dossier by the applicants (manufacturers or their representatives). The MCAZ also makes
207 decisions on the removal of medicines from the register based on a lack of effectiveness or
208 safety issues. To accomplish this, the MCAZ collects data on adverse events from the general
209 public and health professionals using post-marketing surveillance frameworks.

210

211 **Private players**

212 The private players in the healthcare sector in Zimbabwe include private health providers and
213 medical insurance institutions (medical aid societies). Medical health insurance companies are
214 registered with the Association of Healthcare Funders of Zimbabwe (AFHOZ). Private health
215 providers must also register with the AFHOZ for their claims to be reimbursed by medical
216 insurance companies. The AFHOZ sets tariffs for health services. AFHOZ's presentation at the
217 workshop revealed that they were in the process of implementing a new framework for
218 determining tariffs as a way to resolve tariff inequalities. The new tariff schedule is based on
219 the resource-based relative value scale (RBRVS). The RBRVS tariff is a product of a relative
220 value unit (RVU) and a conversion factor for each health service. The RVU accounts for health
221 professional expertise, the time used to provide the service, and the cost of maintaining the
222 practice. Stakeholders consulted in developing the new tariff system included health
223 professionals and medical insurance companies. Private healthcare providers are also
224 collecting valuable data for HTA such as drug utilization and coverage of health interventions.
225 One of the challenges highlighted by the respondents is situations where healthcare
226 funders/purchasers assume provider roles. For example, some private health insurance players
227 are involved in providing clinical and pharmaceutical services potentially resulting in a
228 distorted valuation of health interventions because of potential conflicting interests.
229 Furthermore, they highlighted discrepancies between private healthcare providers' tariffs and
230 what healthcare funders agree to reimburse resulting in patients having to pay the resulting
231 shortfalls. These out-of-pocket payments of shortfalls may expose individuals to potential
232 catastrophic health expenditures.

233

234 **Academic and research institutions**

235 The Medical Research Council of Zimbabwe (MRCZ) oversees all health research and ethics
236 in health research in Zimbabwe. Various academic and research institutions performed research
237 and generated evidence on disease burden, coverage and effectiveness of health interventions,
238 health-related quality of life, costs and cost-effectiveness. For example, researchers from the
239 National Blood Service of Zimbabwe presented a paper on the cost-effectiveness of adding
240 nucleic acid testing in screening blood in Zimbabwe during the workshop²⁶. This finding
241 clearly showed that HTA can aid in blood safety decisions in Zimbabwe.

242

243 **The Need for HTA**

244 Respondents to the study listed the attributes of HTA that were important to the Zimbabwean
245 context and policy areas that needed HTA in Zimbabwe. The responses are presented in
246 **Figures 1 and 2**. Most respondents to the survey reported that the capability of HTA to increase
247 transparency (32 percent) followed by to improve the quality of health (24 percent) were the
248 most important attributes. Most respondents suggested that HTA was needed more for the
249 registration of health technologies (27 percent) and for the production of the essential medicine
250 lists and treatment guidelines (26 percent).

251 *<Insert Figure 1>*

252

253 *<Insert Figure 2>*

254

255 **The Demand for HTA**

256 The respondents were asked to identify potential users of HTA output in Zimbabwe and
257 indicate their perceived level of demand on a scale of 0-10 where 0 represented no demand and
258 10 indicated high demand. The organizations that were identified as potential users of HTA
259 outputs and the average scores for the perceived level of demand are presented in **Figure 3**.

260 The level of demand for all types of evidence was high except for economics and social/ethical
261 evidence which had some scores below 5.

262 <Insert Figure 3>

263

264 **The Supply of HTA**

265 The Zimbabwe Demographic Health Survey (ZDHS) was identified a source of demographic
266 information as well as health services utilisation and health indicators data. The MoHCC health
267 information system was listed as a source of data on disease burden, unit costs and health
268 outcomes. Research institutes were listed as sources of clinical effectiveness data. **Table S2** in
269 the **supplementary file 1** summarizes the potential data sources for HTA in Zimbabwe.

270

271 **Challenges to the implementation of HTA**

272 Several potential challenges to introducing institutionalized HTA in Zimbabwe were identified
273 from the survey. The major challenge highlighted by the participants was the lack of financial
274 resources. A greater part of the government expenditure on health is spent on salaries leaving
275 very little for patient care. The lack of local health economic evaluation expertise to
276 successfully implement HTA was highlighted as another barrier. The number of health
277 economists in the country is very small mainly because there are no universities that offer
278 health economics training. Most of the participants were willing to send their staff for training
279 in skills relevant to HTA processes and methods. We also noted a paucity of data on unit costs,
280 health-related quality of life scores, and outcomes of health interventions.

281 **Discussion**

282 To our knowledge, this was the first study to explore the situational analysis of HTA in
283 Zimbabwe. Despite the absence of an HTA agency, there are formal decision-making processes

284 characterized by consideration of scientific evidence and multidisciplinary consultations in the
285 Zimbabwe healthcare system. Examples include the processes involved in developing the NHS
286 by the MoHCC, the essential medicines list by the NMTPAC, and the registration of medicines
287 by the MCAZ. A multidisciplinary decision-making approach is a crucial aspect of HTA and
288 provides a strong platform conducive to introducing HTA. The challenges in the Zimbabwean
289 health system(lack of health personnel, medicines, and funding²⁷⁻²⁹), which represent the
290 problem stream of Kingdon's model, can be leveraged to advocate for the implementation of
291 HTA.

292

293 Stakeholders relevant to the HTA processes in Zimbabwe were identified in this study. Further
294 analysis of the stakeholders is required to establish their position, power, and views regarding
295 HTA. This approach is important for determining the level of engagement required to build
296 consensus and political will for HTA³⁰. The key stakeholders that drive political will for HTA
297 introduction in Zimbabwe's healthcare system are the Parliament and MOHCC because they
298 are responsible for enacting and implementing the legislation respectively²⁴. Additionally, it is
299 important to involve academic institutions and professionals in the formative stages of HTA
300 institutionalization³¹. HTA processes based or affiliated with academic institutions have the
301 advantages of established scientific rigor and a positive perception of authenticity by the
302 public³². Examples of academic institution engagement in HTA include HTA agencies based
303 at academic institutions, contracted academic institutions, and technical working groups.
304 Zimbabwe has several universities that can engage in various ways to drive HTA. However,
305 there is a need to identify institutions that have the capacity for HTA processes. Other key
306 stakeholders in the introduction of HTA in Zimbabwe are developmental partners such as
307 WHO, UN, and UNICEF. Developmental partners are important because they contribute a

308 substantial proportion of the healthcare funding in Zimbabwe¹⁶ and are potential sources of
309 funding for capacity building.

310 The need for public and patient involvement in priority setting in healthcare is an important
311 element of HTA and should be carefully considered in Zimbabwe. Public and patient
312 involvement is important for capturing experiences of living with a disease or condition, and
313 the impact of a technology, that would otherwise not be obtained from the available literature
314 and expert knowledge.^{33,34} Patient and public involvement should go beyond mere
315 representation on decision-making committees by equipping individuals to understand and
316 analyze technical evidence on health interventions. Lessons can be drawn from Brazil where
317 the HTA agency (CONITEC) produced a lay technical report for trastuzumab for public
318 consultation before registration³⁵. Some HTA agencies have moved further and developed tools
319 to capture and include patient and public views in the frameworks to determine the value of
320 health technologies^{36,37}. All these examples are useful for informing public and patient
321 involvement initiatives in the Zimbabwean context.

322 The need for HTA in Zimbabwe was highlighted by a plan to roll out an NHI, existing conflicts
323 of interest in the valuation of health services, out-of-pocket expenditures to cover shortfalls,
324 and policy areas that require HTA evidence. HTA is needed to support the efficient
325 implementation of the NHI. HTA has a potential role in defining the health packages to be
326 covered and the levels of reimbursement that are acceptable. Valuable lessons on how to use
327 HTA to inform prioritisation can be drawn from South Africa³⁸ and Ethiopia⁷. In South Africa,
328 the government has embarked on setting up an institutionalized HTA agency as part of
329 implementing an NHI. In Ethiopia, the Ministry of Health defined the essential health services
330 package by assigning priority scores to health interventions using seven criteria, which
331 included disease burden, cost-effectiveness, budget impact, equity, financial risk protection,
332 public acceptability, and political acceptability⁷. A study by Hansen and Chapman provides

333 another approach for priority setting. Hansen and Chapman estimated the costs and benefits of
334 65 health interventions in Zimbabwe and ranked them based on cost per disability-adjusted life
335 years averted³⁹.

336

337 The respondents, suggested that Zimbabwe would benefit from the transparency attribute of
338 HTA. This reflects an important area of weakness in the current healthcare decision making in
339 Zimbabwe. HTA is characterised by explicit and predetermined frameworks used to determine
340 the value of health services and can be useful for enhancing transparency.^{40,41} In addition to
341 transparency, allocative efficiency and improving the quality of healthcare were also identified
342 as important attributes of HTA. This was consistent with results from similar studies in
343 Nigeria²³ and Uganda²². A potential explanation is that allocative efficiency and quality are
344 key aspects of UHC⁴² and with the country focusing on achieving UHC participants may be
345 aware of these aspects. Additionally, quality and efficiency were emphasized in the health
346 policy documents that were reviewed in this study hence the participants were knowledgeable
347 about their importance in healthcare.

348

349 The policy areas with a potential need for HTA and the corresponding organizations that can
350 use HTA outputs in Zimbabwe were identified. The policy areas and organizations that need
351 HTA identified in this study were similar to those reported in studies carried out in Nigeria and
352 Egypt^{20,23}. However, in this study, lower levels of demand for health economic and
353 social/ethical evidence were reported across all the listed organizations. This can be explained
354 by low levels of awareness of how health economics and ethics can be incorporated into
355 decision-making.

356 Zimbabwe faces similar challenges as other LMICs in implementing HTA, such as limited
357 resources, expertise and data^{10,11}. One way to overcome the lack of financial resources is

358 providing evidence to justify government investment in HTA. An investment case for HTA
359 can be useful for convincing political leaders of health to invest in HTA. In addition to
360 government investment, international partners such as the iDSI can be considered in the
361 provision of financial and technical support for the introduction of HTA⁴³. For example, iDSI
362 provided financial and technical support for HTA in Ghana⁴⁴ and South Africa⁴⁵. The lack of
363 data can be overcome by incorporating data collection into the routine management of patients.
364 For example, community pharmacies can provide drug utilization and cost data from their
365 dispensing records. Zimbabwe has quality of life weights for the EuroQol 5 dimension (EQ-
366 5D)⁴⁶ which is important for estimating utilities in health economic evaluations. A review of
367 the study that developed the EQ-5D tariff for Zimbabwe showed very low utilization of the
368 data in Zimbabwe, maybe due to low awareness.

369 **Limitations**

370 The main limitation of this study was that the knowledge of HTA among the participants was
371 not assessed before the survey. Knowledge of HTA may impact one's response to the survey.
372 The other limitation was that most of the participants were drawn from the capital city where
373 the administration offices of the key institutions are based. The patient groups were also not
374 represented in the study. Despite these limitations, the results of this study are useful for
375 obtaining a picture of HTA in Zimbabwe.

376 **Conclusions:** There is no formal HTA agency in the Zimbabwe healthcare system. The
377 stakeholders who participated in the study indicated that introducing HTA in the Zimbabwean
378 health system is required to increase transparency, quality and efficiency in decision-making.
379 HTA is also currently needed to support the establishment of national health insurance by the
380 government in order to achieve UHC. Formal HTA can be instituted to help in decision-
381 making in the policy areas identified in this study. Stakeholders identified in the study are key

382 in constituting an HTA agency, formulating HTA frameworks, and building local capacity for
383 HTA.

384 **Abbreviations**

385 UHC-Universal Health Coverage, HTA-Health Technology Assessment, LMICs-low and
386 middle income countries , iDSI- International Decision Supportive Initiative, HITAP- Health
387 Interventions and Technology assessment, NICE- and National Institute of Health and Care
388 Excellence, NHS-National Health Strategy, HFS- Health Finance Strategy, MoHCC-Ministry
389 of Health and Child Care, PBB-Programme Based Budgeting, RBF- Results Based Financing,
390 NHI- National Health Insurance, NMTPAC- National Medicine and Therapeutics Policy
391 Advisory Committee, EDLIZ- Essential Medicines List and Standard Treatment Guidelines of
392 Zimbabwe, MCAZ-Medicines Control Authority of Zimbabwe, AFHOZ- Association of
393 Health Funders of Zimbabwe –,RRBVs- Resource Based Relative Value Scale , RVU- Relative
394 value unit, MRCZ- Medical Research Council of Zimbabwe.

395 **Declarations**

396 **Ethics approval and consent to participate**

397 Ethical approval to conduct the follow up interviews was granted by the Joint Research Ethics
398 Committee for University of Zimbabwe College of Health Sciences and Parirenyatwa Hospitals
399 (JREC/89/22). The study participants signed informed consent before taking part in the survey
400 and interviews. Finally, the study was carried out according to the Helsinki Declaration.

401 **Conflicts of interest:** None

402 **Consent for publication**

403 Not applicable

404 **Availability of data and materials**

405 The datasets used and/or analyzed during the current study are available from the
406 corresponding author upon request.

407

408 **Competing interests**

409 The authors declare none.

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412 the preparation of the present article. More information are available at the following
413 link: <https://htai.org/scholarships-and-participation-grants/>

414 **Authors' contributions**

415 BD, PD, CM, MvH and NM: study conception. BD, PD, PM and CM: data collection and
416 analysis. BD drafted the paper. All the authors read and reviewed the paper.

417

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426 **References**

427 1. Government of Zimbabwe. National Health Strategy 2021-2025. 2021.

- 428 2. Mathur MR, Williams DM, Reddy KS, Watt RG. Universal Health Coverage: A Unique
429 Policy Opportunity for Oral Health. *J Dent Res*. 2015 Mar;94(3_suppl):3S-5S.
- 430 3. Tangcharoensathien V, Patcharanarumol W, Suwanwela W, Supangul S,
431 Panichkriangkrai W, Kosiyaporn H, et al. Defining the Benefit Package of Thailand
432 Universal Coverage Scheme: From Pragmatism to Sophistication. *Int J Health Policy*
433 *Manag*. 2020 Apr 1;9(4):133–7.
- 434 4. Health intervention and technology assessment in support of universal health coverage
435 [Internet]. [cited 2022 Dec 21]. Available from:
436 <https://iris.who.int/handle/10665/162870>
- 437 5. Wiseman V, Mitton C, Doyle-Waters MM, Drake T, Conteh L, Newall AT, et al. Using
438 Economic Evidence to Set Healthcare Priorities in Low-Income and Lower-Middle-
439 Income Countries: A Systematic Review of Methodological Frameworks. *Health Econ*.
440 2016 Feb;25(S1):140–61.
- 441 6. Gad M, Lord J, Chalkidou K, Asare B, Lutterodt MG, Ruiz F. Supporting the
442 Development of Evidence-Informed Policy Options: An Economic Evaluation of
443 Hypertension Management in Ghana. *Value Health*. 2020 Feb;23(2):171–9.
- 444 7. Eregata GT, Hailu A, Geletu ZA, Memirie ST, Johansson KA, Stenberg K, et al.
445 Revision of the Ethiopian Essential Health Service Package: An Explication of the
446 Process and Methods Used. *Health Syst Reform*. 2020 Dec 1;6(1):e1829313.
- 447 8. O'Rourke B, Oortwijn W, Schuller T, the International Joint Task Group. The new
448 definition of health technology assessment: A milestone in international collaboration.
449 *Int J Technol Assess Health Care*. 2020 Jun;36(3):187–90.
- 450 9. World Health Organisation. Health Intervention and Technology Assessment in Support
451 of Universal Health Coverage. WHA Resolution, Sixty-seventh World Health Assembly
452 [Internet]. 2014 [cited 2022 Dec 21]. Available from:
453 <https://iris.who.int/handle/10665/162870>
- 454 10. Hollingworth S, Fenny AP, Yu SY, Ruiz F, Chalkidou K. Health technology assessment
455 in sub-Saharan Africa: a descriptive analysis and narrative synthesis. *Cost Eff Resour*
456 *Alloc*. 2021 Jul 7;19(1):39.
- 457 11. Babigumira JB, Jenny AM, Bartlein R, Stergachis A, Garrison LP. Health technology
458 assessment in low- and middle-income countries: a landscape assessment. *J Pharm*
459 *Health Serv Res*. 2016 Feb 21;7(1):37–42.
- 460 12. Surgey G, Chalkidou K, Reuben W, Suleman F, Miot J, Hofman K. Introducing health
461 technology assessment in Tanzania. *Int J Technol Assess Health Care*. 2020
462 Apr;36(2):80–6.
- 463 13. Barasa E, Kazungu J, Orangi S, Kabia E, Ogero M, Kasera K. Indirect health effects of
464 the COVID-19 pandemic in Kenya: a mixed methods assessment. *BMC Health Serv*
465 *Res*. 2021 Dec;21(1):740.
- 466 14. Ministry of Health and Child Care, Government of Zimbabwe. National Health
467 Financing Strategy. 2017.

- 468 15. Ministry of Finance and Economic Development, Government of Zimbabwe. The 2023
469 National Budget Statement. 2022.
- 470 16. Zimbabwe UNCF (UNICEF). The Zimbabwe 2021 Health Budget Brief. 2021.
- 471 17. Castro HE, Kumar R, Suharlim C, Guzman J, Gilmartin C, Amaris AM, et al. A
472 roadmap for systematic priority setting and health technology assessment (HTA). a
473 practical guide for policy action in low- and middle-income countries.
474 USAID/Management Sciences for Health. 2020.
- 475 18. Kingdon JW. Agendas, alternatives, and public policies. Little, Brown and Company;
476 1984.
- 477 19. Vlad I. Stakeholder checklist for priority-setting in low and middle-income countries.
478 2018 [cited 2023 Oct 19]; Available from: <https://f1000research.com/documents/7-1718>
- 479 20. Pinilla-Dominguez P, Taha S, McGuire H, Elagamy A, Sedrak A, Gamal M, et al.
480 Institutionalizing health technology assessment in Egypt: Situational analysis and
481 roadmap. *Front Pharmacol*. 2022 Nov 9;13:1014658.
- 482 21. Li R, Ruiz F, Culyer AJ, Chalkidou K, Hofman KJ. Evidence-informed capacity
483 building for setting health priorities in low- and middle-income countries: A framework
484 and recommendations for further research. *F1000Research*. 2017 Mar 7;6:231.
- 485 22. Mayora C, Kazibwe J, Ssempala R, Nakimuli B, Ssenyonjo A, Ekirapa E, et al. Health
486 Technology Assessment (HTA) readiness in Uganda: Stakeholder's perceptions on the
487 potential application of HTA to support National Universal Health Coverage efforts.
488 2023 May 21 [cited 2023 Oct 19]; Available from:
489 <http://medrxiv.org/lookup/doi/10.1101/2023.05.16.23290024>
- 490 23. Uzochukwu BSC, Okeke C, O'Brien N, Ruiz F, Sombie I, Hollingworth S. Health
491 technology assessment and priority setting for universal health coverage: a qualitative
492 study of stakeholders' capacity, needs, policy areas of demand and perspectives in
493 Nigeria. *Glob Health*. 2020 Dec;16(1):58.
- 494 24. Dzingirai B, Katsidzira L, Matyanga CMJ, Postma MJ, Van Hulst M, Mafirakureva N.
495 Progress on the elimination of viral hepatitis in Zimbabwe: A review of the policies,
496 strategies and challenges. *J Viral Hepat*. 2021 Jul;28(7):994–1002.
- 497 25. Maguire M, Delahunt B. *Doing a Thematic Analysis: A Practical, Step-by-Step Guide*
498 *for Learning and Teaching Scholars*. 2017;8(3).
- 499 26. Mafirakureva N, Mapako T, Khoza S, Emmanuel JC, Marowa L, Mvere D, et al. Cost
500 effectiveness of adding nucleic acid testing to hepatitis B , hepatitis C , and human
501 immunodeficiency virus screening of blood donations in Z imbabwe. *Transfusion*
502 (Paris). 2016 Dec;56(12):3101–11.
- 503 27. Kamvura TT, Dambi JM, Chiriseri E, Turner J, Verhey R, Chibanda D. Barriers to the
504 provision of non-communicable disease care in Zimbabwe: a qualitative study of
505 primary health care nurses. *BMC Nurs*. 2022 Dec;21(1):64.

- 506 28. Mhazo AT, Maponga CC, Mossialos E. Inequality and private health insurance in
507 Zimbabwe: history, politics and performance. *Int J Equity Health*. 2023 Mar
508 29;22(1):54.
- 509 29. Serumaga B, Kearl R, Ndlovu M, Chisike T. Analysis and findings from the Zimbabwe
510 supply chain human resource assessment. *J Pharm Policy Pract*. 2014 Dec;7(S1):P1,
511 2052-3211-7-S1-P1.
- 512 30. Jain B, Hiligsmann M, Mathew JL, Evers SM. Analysis of a Small Group of
513 Stakeholders Regarding Advancing Health Technology Assessment in India. *Value*
514 *Health Reg Issues*. 2014 May;3:167–71.
- 515 31. Kim T, Sharma M, Teerawattananon Y, Oh C, Ong L, Hangoma P, et al. Addressing
516 Challenges in Health Technology Assessment Institutionalization for Furtherance of
517 Universal Health Coverage Through South-South Knowledge Exchange: Lessons From
518 Bhutan, Kenya, Thailand, and Zambia. *Value Health Reg Issues*. 2021 May;24:187–92.
- 519 32. Fontrier AM, Visintin E, Kanavos P. Similarities and Differences in Health Technology
520 Assessment Systems and Implications for Coverage Decisions: Evidence from 32
521 Countries. *PharmacoEconomics - Open*. 2022 May;6(3):315–28.
- 522 33. Wale JL, Thomas S, Hamerlijck D, Hollander R. Patients and public are important
523 stakeholders in health technology assessment but the level of involvement is low – a call
524 to action. *Res Involv Engagem*. 2021 Dec;7(1):1, s40900-020-00248–9.
- 525 34. Drummond M, Torbica A, Tarricone R. Should health technology assessment be more
526 patient centric? If so, how? *Eur J Health Econ*. 2020 Nov;21(8):1117–20.
- 527 35. Carvalho VKDS, De Sousa MSA, Barreto JOM, Da Silva EN. Public engagement in
528 health technology assessment in Brazil: the case of the Trastuzumab public consultation.
529 *BMC Health Serv Res*. 2019 Dec;19(1):762.
- 530 36. Abelson J, Wagner F, DeJean D, Boesveld S, Gauvin FP, Bean S, et al. PUBLIC AND
531 PATIENT INVOLVEMENT IN HEALTH TECHNOLOGY ASSESSMENT: A
532 FRAMEWORK FOR ACTION. *Int J Technol Assess Health Care*. 2016;32(4):256–64.
- 533 37. Silva AS, Facey K, Bryan S, Galato D. A framework for action to improve patient and
534 public involvement in health technology assessment. *Int J Technol Assess Health Care*.
535 2022;38(1):e8.
- 536 38. Wilkinson M, Gray AL, Wiseman R, Kredo T, Cohen K, Miot J, et al. Health
537 Technology Assessment in Support of National Health Insurance in South Africa. *Int J*
538 *Technol Assess Health Care*. 2022;38(1):e44.
- 539 39. Hansen K, Chapman G. Setting priorities for the health care sector in Zimbabwe using
540 cost-effectiveness analysis and estimates of the burden of disease. *Cost Eff Resour*
541 *Alloc*. 2008;6(1):14.
- 542 40. Millar R, Morton A, Bufali MV, Engels S, Dabak SV, Isaranuwachai W, et al.
543 Assessing the performance of health technology assessment (HTA) agencies:
544 developing a multi-country, multi-stakeholder, and multi-dimensional framework to
545 explore mechanisms of impact. *Cost Eff Resour Alloc*. 2021 Dec;19(1):37.

- 546 41. Coyle D, Durand-Zaleski I, Farrington J, Garrison L, Graf Von Der Schulenburg JM,
547 Greiner W, et al. HTA methodology and value frameworks for evaluation and policy
548 making for cell and gene therapies. *Eur J Health Econ*. 2020 Dec;21(9):1421–37.
- 549 42. Rubinstein A, Barani M, Lopez AS. Quality first for effective universal health coverage
550 in low-income and middle-income countries. *Lancet Glob Health*. 2018
551 Nov;6(11):e1142–3.
- 552 43. About Us | iDSI [Internet]. [cited 2023 Feb 7]. Available from:
553 <https://www.idsihealth.org/who-we-are/about-us/>
- 554 44. Ghana [Internet]. iDSI. 2017 [cited 2023 Feb 7]. Available from:
555 <https://www.idsihealth.org/our-impact/ghana/>
- 556 45. South Africa | iDSI [Internet]. [cited 2023 Feb 7]. Available from:
557 <https://www.idsihealth.org/our-impact/south-africa/>
- 558 46. Jelsma J, Hansen K, De Weerd W, De Cock P, Kind P. How do Zimbabweans value
559 health states? *Popul Health Metr*. 2003 Dec;1(1):11.

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565 **Tables**

566 **Table 1: Summary of the study participants**

| Organization | Number | Percent (N=41) | Attended the workshop |
|--|---------------|-----------------------|------------------------------|
| Ministry of Health and Child Care | 3 | 7.3 | Yes |
| University of Zimbabwe | 10 | 24.5 | Yes |
| Medicines Control Authority of Zimbabwe | 2 | 4.9 | No |
| National Medicine and Therapeutics Policy Advisory Committee | 1 | 2.4 | Yes |
| Department of Pharmacy Services, Ministry of Health and Child Care | 3 | 7.3 | Yes |
| National Blood Services of Zimbabwe | 3 | 7.3 | Yes |
| Retail Pharmacies Association of Zimbabwe | 5 | 12.3 | Yes |
| Association of health Funders of Zimbabwe | 3 | 7.3 | Yes |
| CIMAS Medical Aid Society | 3 | 7.3 | Yes |
| Premier Medical Aid Service | 3 | 7.3 | Yes |
| Varichem (Private Pharmaceutical Manufacturer) | 1 | 2.4 | No |
| National Social Security Authority | 1 | 2.4 | No |
| Research Institutions | 3 | 7.3 | Yes |

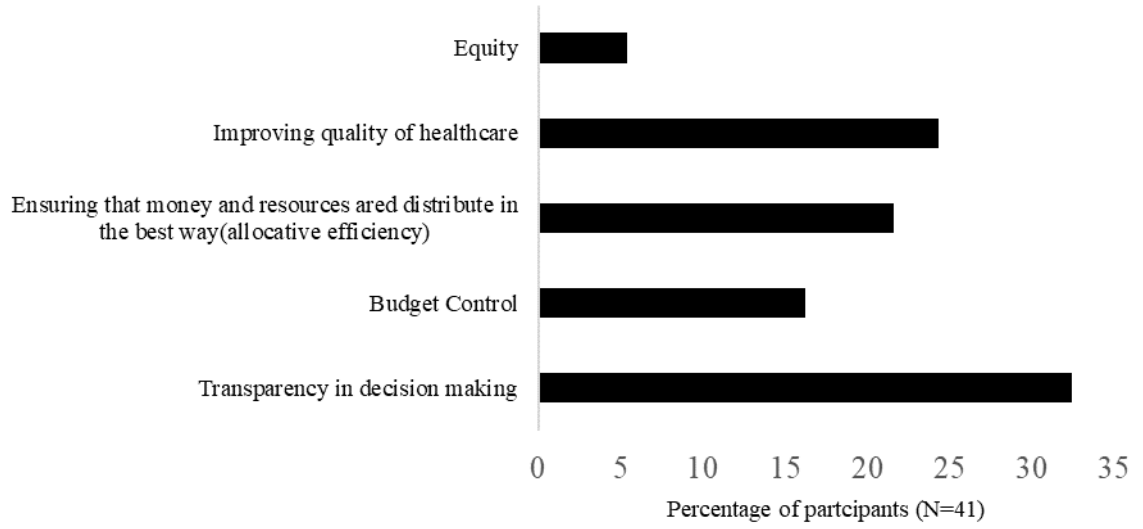
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569 **Figure legends**

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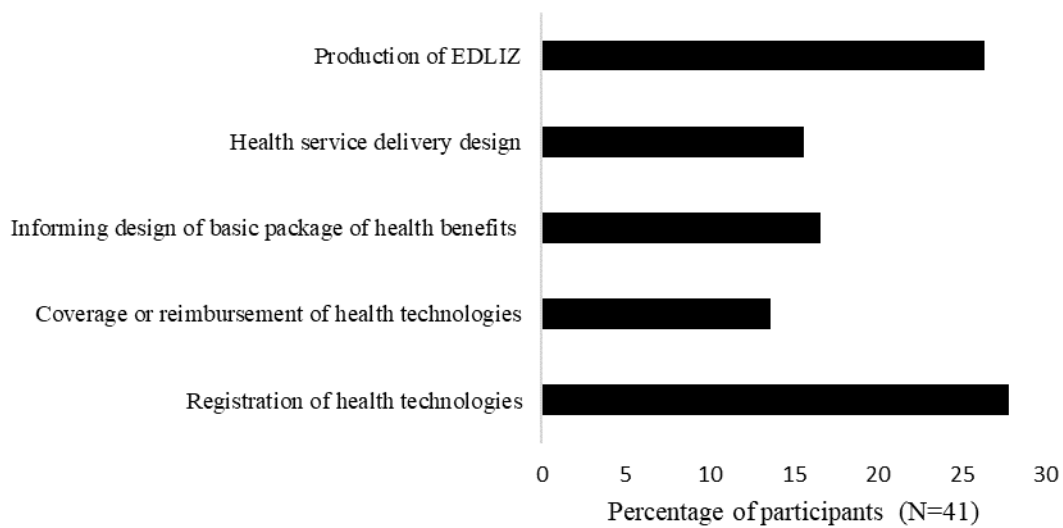
- 571 1. Figure 1: Attributes of health technology assessment that were perceived as important
572 for Zimbabwe



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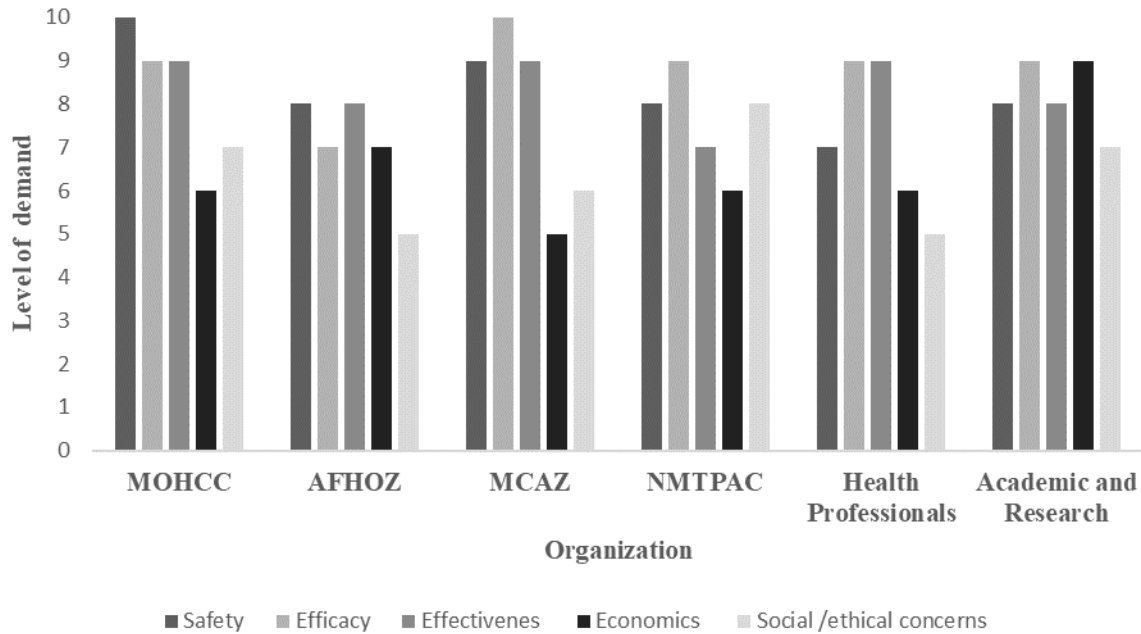
575 2. Figure 2: The policy areas where health technology assessment is needed in Zimbabwe.
576 EDLIZ-Essential Medicines List and Standard Treatment Guidelines for Zimbabwe



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579 3. Figure 3: The potential users of health technology assessment output and the perceived
 580 levels of demand for evidence. MOHCC-Ministry of Health and Child Care, AFHOZ-
 581 Association of Healthcare Funders of Zimbabwe, MCAZ-Medicines Control Authority
 582 of Zimbabwe, NMTPAC- National Medicine and Therapeutics Policy Advisory
 583 Committee.



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