

Understanding of the Readiness for HTA Implementation in Jordan as a Step Towards Universal Health Coverage

*Mira Samer Alamer^{1✉}, Zoltán Kaló², Tara Schuller³,
Emad Almomani⁴ and Raeda AlQutob⁵*

Abstract

As Jordan strives to achieve universal health coverage, the mechanism for determining which health technologies to include in the basket of reimbursed services has become increasingly important. This study sought to understand stakeholder perspectives in the Jordanian health system regarding the readiness and need to implement health technology assessment (HTA) to support decision-making quality and transparency, ensure value for money on health system spending, and support the achievement of universal health coverage. This study used a cross-sectional survey methodology, and a quantitative analysis was conducted. A questionnaire based on the HTA implementation scorecard was administered in-person to capture responses regarding fourteen dimensions. Thirty-one responses from representatives across the Ministry of Health, regulatory authority, and other stakeholders in the national health system were collected. Most respondents were familiar with HTA and there was nearly unanimous agreement on the need for HTA implementation in Jordan. While the perspectives on how the implementation would occur were varied, careful consideration may be warranted in the areas of the legal framework for HTA, the quality of available data, financial constraints, and limited human resource capacity, as Jordan progresses towards implementing HTA on the road to universal healthcare.

Keywords: Technology assessment, biomedical, Jordan, health services research

(J Med J 2023; Vol. 57 (1): 62-77)

Received

Accepted

July, 10, 2021

February, 21, 2022

INTRODUCTION

As Jordan strives to achieve universal health coverage (UHC), the mechanism for determining which health technologies and interventions to include in the basket of

reimbursed services has become increasingly important. Since decision-makers are faced with a diverse array of technologies from which to choose, there is a need to implement strategies to determine how to channel limited health resources to meet the specific health needs of the population in an effective, economical, and socially acceptable manner.

Health technology assessment (HTA) is a multidisciplinary process that uses explicit methods to determine the value of a health technology at different points in its lifecycle; the purpose is to inform decision-making to promote an equitable, efficient, and high-quality health system [1]. Jordanian

¹ Hafedh Saqer St., Amman, Jordan.

² Semmelweis university, Center for Health Technology Assessment, Budapest, Hungary, Syreon Research Institute, Budapest, Hungary.

³ International Network of Agencies of Health Technology Assessment, 1200, 10405, Jasper Avenue NW, Edmonton, Alberta, CANADA T5J 3N4.

⁴ Jordanian Royal Medical Services, Department for Health Technology Assessment, Amman, Jordan, High Health Council, Department for Health Economics and Financing, Amman, Jordan.

⁵ The University of Jordan, Faculty of Medicine, Department of Family and Community Medicine, Amman, Jordan.

✉ Corresponding author: Mira_Sam93@yahoo.com

policy-makers are seeking to improve healthcare outcomes and more effectively manage expenditure in a health system with limited resources. In this regard, HTA can support those making decisions or policy on health expenditure to reach fair and efficient outcomes. As such, HTA may be a useful policy tool for application in the Jordanian health system. Jordan started hospital-level HTA at the King Hussein Cancer Center (KHCC) [2], but no formal HTA system exists.

According to Jordan National Health Accounts (2016–2017) [3], Jordanian expenditure on healthcare is considered high for an upper middle-income country (UMIC). Health insurance coverage for the population is modest. According to the Jordanian Population and Family Health Survey (2017–2018), published by the Department of Statistics (DOS), in total, 68% of Jordanians and 55% of the total population (citizens, immigrants, and refugees) are covered by at least one type of health insurance. Added to these challenges are the high population growth rate in Jordan (3.2%) and the estimation that the population will increase by 89% in 15 years. Further pressure on the healthcare system will also be seen, as the population aged over 65 is increasing and, in turn, this will bring an increase in chronic health conditions and complex care needs.

Ensuring safety and quality of care while managing scarce resources are common challenges facing all health systems. HTA is being implemented in developed and developing countries alike to inform decision- and policy-making at different levels of the health system. For instance, the International Network of Agencies for HTA (INAHTA) is a network of 50 HTA agencies in 30 countries, demonstrating broad acceptance and

application of HTA by health systems around the globe.

HTA can help health system decision-makers achieve UHC through better resource allocation, ensuring the provision of affordable, accessible healthcare services while also ensuring the safety and effectiveness of therapies and achieving budget containment [4]. In this context, the study aims to produce a better understanding of the level of readiness for HTA implementation in Jordan.

MATERIALS AND METHODS

A quantitative approach with a cross-sectional design was followed. Study data were collected through a questionnaire answered by various decision-makers at the center of the healthcare field in Jordan. The total targeted population and sample size were 47 persons from 15 entities, identified by the High Health Council (HHC) in March 2019.

The questionnaire used in this study was based on an HTA implementation scorecard developed by Kaló et al. [5]. The dimensions considered in the questionnaire were: 1) knowledge regarding HTA; 2) HTA demand; 3) current status regarding HTA-like activities (potential competencies and current applications); 4) decision criteria; 5) areas of need; 6) HTA funding; 7) capacity building; 8) data availability; 9) institutional structure; 10) stakeholder participation; 11) obstacles facing HTA; 12) authority; 13) transparency; and, 14) international collaboration.

The first section of the questionnaire included a consent form and demographics questions on sex, age, educational level, years of experience, and the type and name of the respondent's organization. The second section contained 22 multiple-choice questions and three scale items covering the 14 dimensions above.

An expert panel of researchers evaluated the modified questionnaire using the Delphi technique, whereby each item was rated by a panel of judges [6]. Face validity was measured in terms of language, structure, the likelihood that the target audience could answer the questions, and that the measure was developed from a reasonable and relevant theoretical base. A reliability test was used to confirm that future

researchers could adopt the same questionnaire to measure the variables. The Cronbach's Alpha test was used to ensure the instrument's reliability [7–8], and the value was 0.702 for the whole questionnaire.

Table 1 shows the Cronbach's alpha values for the questions with a scale, which are questions 8, 17–18, respectively.

Table 1: Reliability of the questionnaire

| Variables as on the coded questionnaire | Cronbach's Alpha |
|---|------------------|
| Q* 8, Var.** (29–33) | 0.732 |
| Q 17, Var. (55–60) | 0.675 |
| Q18, Var. (61–67) | 0.774 |

*Q: Question **Var.: Variables

Each subject of the population was contacted by the investigator [MSA] to arrange an in-person meeting to administer the questionnaire. The researcher and respondent met, and after the researcher had provided a brief introduction on the reasons for conducting the survey and guaranteed data confidentiality, the respondent signed a consent form. They then completed a paper copy of the questionnaire, with the researcher in attendance in the same room.

The Statistical Package for Social Sciences (SPSS) software was used to analyze the data collected from the questionnaire. Most of the analyses were descriptive, using frequencies, percentages, and means. An Institutional Review Board approval of this study was obtained from the Jordanian Ministry of Health.

RESULTS

This study targeted top-level decision-makers in the health sector. The population was assigned by the High Health Council, which

produced a list of 47 decision-makers who were targeted (the sample size matching the population in this study). The reported responses were 31 in total, with a 66% response rate. Most were males (71%, n=22). Their ages ranged from 33–70; sixteen were in the age group 51–60, which is about half of the total sample. The mean for the years of experience for all respondents was 20 years. For educational level, six held a bachelor's degree (19.3%) and ten a master's degree (32.3%), but most had doctoral degrees (n=15, 48.4%). The respondents represented decision-makers from different organizations: the Ministry of Health, regulatory authorities, academic organizations, public, private, and military service providers, health insurance, UNRWA services, UNICEF, teaching hospitals, specialized service providers, teaching hospitals, the healthcare industry, and non-governmental organizations. Table 2 describes the socio-demographic characteristics of respondents.

Table 2: Frequency distribution of decision-makers' main socio-demographic characteristics

| | | Frequency | Per cent |
|---------------------------|------------------------------------|------------------|-----------------|
| Sex of respondents | Female | 9 | 29 |
| | Male | 22 | 71 |
| | Total | 31 | 100 |
| Age groups | 33–40 years | 5 | 16.1 |
| | 41–50 years | 6 | 19.4 |
| | 51–60 years | 16 | 51.6 |
| | 61–70 years | 4 | 12.9 |
| | Total | 31 | 100 |
| Education level | Bachelor's degree | 6 | 19.3 |
| | Master's degree | 10 | 32.3 |
| | Doctoral degree | 15 | 48.4 |
| | Total | 31 | 100 |
| Organization type | MOH | 8 | |
| | Regulatory authority | 7 | |
| | Health insurance (private, public) | 2 | |
| | Academic organizations/ researcher | 5 | |
| | Public sector provider | 3 | |
| | Private sector provider | 3 | |
| | RMS | 2 | |
| | UNRWA services/UNICEF | 2 | |
| | Specialized service provider | 1 | |
| | Teaching hospital | 3 | |
| | Healthcare industry | 1 | |
| | Non-governmental organization | 1 | |

The results of this study (see Table 3) showed that most decision-makers in the healthcare field were familiar with the HTA concept and had previous knowledge of it. It was also revealed that several institutions in the health sector already perform activities similar to HTA or which are considered part of the HTA assessment component. These activities were related to health technology safety, efficacy, effectiveness, and economic evaluations, while the least performed activities related to social/ethical topics such as quality and gender sensitivity, and the HTA-like activities were mostly applied to medicines.

Respondents representing the MOH, a service provider, the JFDA, teaching hospitals, and private insurance companies confirmed that there were plans to develop an HTA program in

their entities.

Furthermore, respondents to this study evaluated improving healthcare quality as the attribute of HTA which is currently most needed in Jordan, followed by transparency, and then allocative efficiency. Moreover, it was reported that the production of clinical guidelines or disease management pathways is the policy area in which outputs from an HTA process are most urgently needed in Jordan.

When it comes to selecting the type of health technology and interventions most urgently in need of the outputs of HTA in Jordan, medicines ranked first, and service delivery initiatives or incentives ranked last.

Moving to considerations about funding, the majority of respondents supported financing the assessment step of HTA through both private

and public sources. In contrast, most supported having the critical appraisal step funded through public sources only.

Three suggestions for institutional HTA structures were offered to respondents in the questionnaire: an independent HTA agency, an HTA unit within the MOH; or, an HTA unit within an existing policy-making agency other than MOH. Respondents almost equally preferred an independent HTA agency or a unit in the MOH, with a convergence of preference that the HTA function not be placed in another policy-making agency.

Regarding capacity building for HTA, all options presented to respondents were supported. These options included internal staff training sessions, introducing HTA courses in different related academic graduate and postgraduate programs, the development of higher educational (master's) programs on HTA, or external courses, seminars, and workshops abroad.

Results showed that not all the data needed for conducting HTA are readily available, while

some data are available with limitations, such as data from the activity of hospitals (e.g., how many times a particular in-patient or out-patient hospital procedure is performed per month in an individual hospital, across regions, or nationally).

It is worth noticing that the involvement and participation of stakeholders in all three stages of the HTA process (assessment, critical appraisal, and decision-making) was supported by respondents.

More than two-thirds of respondents reported that they would prefer the uptake of HTA outputs to be mandatory. They also supported having public access to HTA reports to ensure its transparency and facilitate quality appraisal of HTA reports through regular follow-up research or through a published checklist.

Nearly all respondents reported an interest in participating in international HTA courses for continuous education on HTA. Finally, the results illustrated that financing is the greatest challenge to implementing HTA in Jordan.

Table 3. Survey responses (n=31)

| SURVEY QUESTION & RESPONSE OPTIONS | RESPONSES | |
|---|-----------|----------|
| 1- Previous knowledge regarding HTA (single choice) (n=30) | | |
| | n | % |
| Heard of HTA before | 25 | 80.6 |
| Had not heard of HTA | 5 | 16.1 |
| 2- Applying HTA-like activities (single choice) (n=31) | | |
| | n | % |
| Respondents whose work involved HTA-like activities | 18 | 58.1 |
| Respondents whose work involved no HTA-like activities | 13 | 41 |
| 3- HTA-like activities practiced by respondents' institutions (multiple choice) (n=31) | | |
| | n | % |
| Safety | 17 | 54.8 |
| Efficacy | 17 | 54.8 |
| Effectiveness | 17 | 54.8 |
| Economic evaluations* | 16 | 51.6 |
| Social/ethical concerns** | 11 | 35.5 |

| SURVEY QUESTION & RESPONSE OPTIONS | RESPONSES | |
|---|-----------|----------|
| 4- Health technologies on which HTA-like activities performed (multiple choice) (n=31) | | |
| | n | % |
| Medicines | 12 | 38.7 |
| Medical devices and equipment | 10 | 32.3 |
| Public health programs*** | 10 | 32.3 |
| Diagnostic and treatment programs/procedures | 7 | 22.6 |
| Surgical interventions | 3 | 9.70 |
| 5- Planning to develop an HTA program in their entity (single choice) (n=30) | | |
| | n | % |
| Yes | 13 | 41.9 |
| No | 8 | 25.8 |
| Do not know | 9 | 29.0 |
| 6- Usage for each decision criterion (multiple choice) (n=31) | | |
| | n | % |
| Healthcare priority | 23 | 74.2 |
| Cost-effectiveness | 20 | 64.5 |
| Assessment of therapeutic value | 18 | 58.1 |
| Unmet medical needs | 16 | 51.6 |
| Budget impact | 16 | 51.6 |
| Expert-based | 15 | 48.4 |
| 7- The ranking of HTA attributes according to their need (scoring out of 10) (n=31) | | |
| Improving quality | 8.89 | |
| Transparency | 7.96 | |
| Allocative efficiency | 7.52 | |
| Equity | 7.48 | |
| Budget control | 7.37 | |
| 8- HTA financing (multiple choice) (n=31) | | |
| | n | % |
| <i>For the assessment part</i> | | |
| a. Private funding | | |
| Agree | 9 | 29.0 |
| Disagree | 20 | 64.5 |
| Do not know | 2 | 6.5 |
| b. Public funding | | |
| Agree | 15 | 48.4 |
| Disagree | 11 | 35.5 |
| Do not know | 5 | 16.1 |
| c. Mixed funding (private+ public) | | |
| Agree | 16 | 51.6 |
| Disagree | 10 | 32.3 |
| Do not know | 5 | 16.1 |
| <i>For the critical appraisal part</i> | | |

| SURVEY QUESTION & RESPONSE OPTIONS | | RESPONSES | |
|--|----------|-----------|--|
| a. Private funding | | | |
| Agree | 6 | 19.4 | |
| Disagree | 19 | 61.3 | |
| Do not know | 6 | 19.4 | |
| b. Public funding | | | |
| Agree | 23 | 74.2 | |
| Disagree | 5 | 16.1 | |
| Do not know | 3 | 9.7 | |
| 9- Institutional structure for HTA (multiple choice) (n=31) | | | |
| | n | % | |
| a. Independent agency | | | |
| Agree | 13 | 41.9 | |
| Disagree | 13 | 41.9 | |
| b. A unit within the MOH | | | |
| Agree | 14 | 45.2 | |
| Disagree | 12 | 38.7 | |
| c. A unit within another existing agency | | | |
| Agree | 6 | 19.4 | |
| Disagree | 18 | 58.1 | |
| 10- Capacity building (multiple choice) (n=31) | | | |
| | n | % | |
| Internal training | 25 | 80.6 | |
| Introduce HTA courses in graduate and postgraduate programs | 25 | 80.6 | |
| Develop higher educational programs on HTA | 25 | 80.6 | |
| External training (abroad) | 23 | 74.2 | |
| 11- Data availability (n=31) | | | |
| | n | % | |
| a. Pharmaceutical usage and pricing | | | |
| Available | 16 | 51.6 | |
| Not available | 1 | 3.2 | |
| Available with limitations | 7 | 22.6 | |
| Do not know | 7 | 22.6 | |
| b. Activity of hospitals | | | |
| Available | 13 | 41.9 | |
| Not available | 2 | 6.5 | |
| Available with limitations | 8 | 25.8 | |
| Do not know | 8 | 25.8 | |
| c. Health outcomes | | | |
| Available | 8 | 25.8 | |
| Not available | 7 | 22.6 | |
| Available with limitations | 7 | 22.6 | |
| Do not know | 9 | 29.0 | |

| SURVEY QUESTION & RESPONSE OPTIONS | RESPONSES | |
|---|-----------|----------|
| d. Service delivery | | |
| Available | 7 | 22.6 |
| Not available | 5 | 16.1 |
| Available with limitations | 10 | 32.3 |
| Do not know | 9 | 29.0 |
| 12- Demand for HTA (single choice) (n=30) | | |
| | n | % |
| Yes | 25 | 80.6 |
| No | 2 | 6.5 |
| Do not know | 3 | 9.7 |
| 13- Contribution of the respondents' institutions to HTA implementation (single choice) (n=29) | | |
| | n | % |
| Willing to contribute | 21 | 67.7 |
| Not willing to contribute | 1 | 3.2 |
| Do not know | 7 | 22.6 |
| 14- Jordan's need for HTA (single choice) (n=31) | | |
| | n | % |
| Need HTA | 30 | 96.8 |
| Do not need HTA | 1 | 3.2 |
| 15- Stakeholders' participation in the HTA process (single choice) (n=31) | | |
| | n | % |
| Assessment only | 3 | 9.7 |
| Appraisal only | 2 | 6.5 |
| Decision only | 4 | 12.9 |
| Assessment + appraisal | 2 | 6.5 |
| Assessment + decision | 2 | 6.5 |
| All levels | 17 | 54.8 |
| Do not know | 1 | 3.2 |
| 16- Policy areas for which output from an HTA process is needed (scoring out of 10) (n=31) | | |
| Production of clinical guidelines or disease management pathway | 8.90 | |
| Information design of a basic package of health benefits | 7.14 | |
| Health service delivery design | 6.97 | |
| Coverage or reimbursement of individual health technologies and interventions | 6.79 | |
| Registration of health technology | 6.38 | |
| Payments for performance scheme | 5.42 | |
| 17- Health technologies for which the output of the HTA process is needed in Jordan (scoring out of 10) (n=31) | | |
| Medicines | 9.07 | |
| Medical devices/ diagnostics | 8.38 | |
| Vaccines | 8.10 | |
| Public health programs or initiatives | 7.43 | |
| Screening and referral programs | 6.79 | |
| Other interventions (e.g., surgical procedures) | 6.72 | |

| SURVEY QUESTION & RESPONSE OPTIONS | RESPONSES | |
|---|-----------|----------|
| Service delivery initiatives or incentives | 5.61 | |
| 18- Authority of HTA (single choice) (n=31) | | |
| | n | % |
| Mandatory | 22 | 71.0 |
| Advisory | 8 | 25.8 |
| Do not know | 1 | 3.2 |
| 19- Ensuring the quality and transparency of HTA (single choice for each part) | | |
| | n | % |
| Support having method for ensuring the quality and transparency of HTA | 28 | 90.3 |
| Do not support having method for ensuring the quality and transparency of HTA | 1 | 3.2 |
| Support having public access to HTA reports | 29 | 93.5 |
| Do not support having public access to HTA reports | 2 | 6.5 |
| 20- Challenges facing HTA in Jordan (multiple choice) (n=31) | | |
| | n | % |
| Financing | 26 | 83.9 |
| Data collection | 24 | 77.4 |
| Specialized human resources availability | 20 | 64.5 |
| Political challenge | 13 | 41.9 |
| 21- International collaboration regarding HTA (single choice) (n=31) | | |
| | n | % |
| Involved | 11 | 35.5 |
| Not involved | 9 | 29.0 |
| Do not know | 11 | 35.5 |
| 22- Interest in participating at international HTA (single choice) (n=31) | | |
| | n | % |
| Interested | 27 | 87.1 |
| Not interested | 0 | 0.0 |
| Do not know | 4 | 12.9 |

DISCUSSION

This study provides a preliminary understanding of the readiness for HTA implementation in Jordan. The survey instrument captured the views of a broad cross-section of health system decision-makers and those who inform these decisions at the national level in the country. Also included in the study group were those in the larger health ecosystem who currently conduct assessments in HTA-like areas, such as safety and (cost-) effectiveness.

Most respondents reported having previous knowledge of HTA, and there was a nearly unanimous view of there being a need for HTA in Jordan. Presented below are some key areas of consideration when examining the study results within the broader context of the HTA policy literature from the Middle East and North Africa (MENA) countries and internationally. As noted by Fasseeh et al. [2], looking at international examples in designing country-specific HTA processes can provide insights into the local development of HTA.

Legal framework for HTA

In response to a question on the legal framework for HTA, the majority of respondents indicated that following HTA decisions and outcomes should be mandatory in decision-making, rather than HTA serving an advisory role only. However, to understand these results, a more nuanced investigation of respondents' views is needed since the HTA can be made mandatory in different ways. For instance, in Australia and Switzerland, decision-makers may be legally required to consider HTA findings or recommendations in their deliberations but not required to follow them [9]. Decision-makers may feel political pressure to justify their choice of action if it diverges from the HTA recommendations, but they are not legally required to do so. In another model, an appraisal body uses HTA findings to make decisions that are binding on the health system. For example, this could include technology appraisals that compel the health system to make approved technologies available to patients within three months [10]. However, most HTA agencies have a remit to provide advice that it is not mandatory for decision-makers to use, and there can be limited political feasibility in making HTA results binding on different decision-makers [9].

In the MENA region, HTA institutionalization has already been initiated in a few countries. In Saudi Arabia, mandatory HTA for high-cost drugs was initiated through the High-Cost Medication Committee under the Saudi Health Council, supported by the upcoming HTA center under the Ministry of Health [2]. In Egypt, although HTA is not mandatory for pricing or reimbursement, the recent Universal Health Insurance Law of 2018 requires the representation of health economists in the governing boards of the new Universal Health Insurance Authority

and the healthcare provider body [2]. In Tunisia, the National Authority for Assessment and Accreditation in Healthcare (INEAS), which is under the patronage of the Ministry of Health and funded by the government, has the objective of assessing the added benefit and cost-effectiveness of health technologies and providing rigorous evidence-based recommendations to decision-makers on the use and uptake of pharmaceuticals and other technologies [2].

In Romania, although the use of HTA evidence in decision-making is mandatory, the decision-making process relies predominantly on international HTA evidence because of both human resources incapacity and the lack of a legal framework. In contrast, Bulgarian stakeholders do not fully rely on HTA recommendations in their policy decisions, and the same applies in Croatia [5]. In Slovenia, limitations on human resources led to plans to set up a structured HTA network integrating existing national institutions, to overcome capacity limitations [5]. This could be appropriate in the Jordanian case.

Further implications of the legal framework for HTA should be considered before any particular legal model is implemented. For instance, the question of whether the HTA findings should be binding or not on decision-makers will carry structural implications. In cases where the decision-maker is legally bound to consider HTA recommendations, the HTA body is likely to have a more focused relationship with one or a small number of decision-makers. The connection between the HTA producer becomes a clearly defined dyad, which can help establish clear links between HTA and decision-making, and this is an essential element of effective HTA [11]. Where HTA is applied to health technologies already in use in the health system, priority setting mechanisms are needed. Such topic identification

and selection processes would be affected where there is a legal mandate between the HTA producer and user. For instance, a close link supported by legal mandate may restrict the HTA producer's ability to independently initiate assessment topics. Under these conditions, a mandated public commissioner is often responsible for topic selection. On the other hand, an HTA body that provides non-binding recommendations leaves open the potential to serve a wider range of requestors and ability to initiate topics internally [12].

The presence of a legal mandate for HTA will also have to affect the degree and type of dissemination needed for HTA reports, namely either multiple audiences or focused individual audiences. It will also carry implications for the need for impact assessment, since where the use of HTA reports in decision-making is supported by legal or procedural mandate, then the agency's measurement of the impact of the HTA may not be a priority [9, 13]. The expectation that HTA recommendations should be legally binding on decision-makers needs also to consider the reality of HTA, where the evidence base can contain significant gaps or equivocal or low-quality studies, leading to uncertainty in formulating positive recommendations [14].

Institutional structure and location of the HTA unit

Respondents were asked about their choice of three options for the location of the HTA body regarding whether it should be an independent agency, a unit within the MOH, or a unit within another agency. The most popular options for the location of the HTA unit were an independent agency or a unit located within the MOH, which were just about equally supported as the first choice by the respondents. It is notable that establishing an independent

agency is not typically the first step for countries to develop HTA institutionalization [15], and there may be pragmatic considerations for the selection of the location of the HTA unit, for example, the location of current expertise. The survey results indicate that a range of HTA-like activities is practiced already in some form (i.e., assessments of safety, effectiveness, economic evaluation, and social/ethical concerns). However, survey respondents are from different organizations in the health ecosystem and, as such, they serve different functions, and the skills may not be directly transferrable to HTA. For example, regulatory authorities typically focus on safety and efficacy and not comparative effectiveness, costs or affordability aspects, and social/ethical/legal or other aspects [16].

The majority of respondents indicated that their institutions would use HTA findings in the decision-making process, which suggests a clear demand for HTA. While the presence of multiple organizations as the users of HTA agency reports can help position the HTA unit as a central hub of expertise, trying to satisfy a broad range of decision-makers can present difficulties. Serving decision-makers at different levels and in different settings of the health system can lead to insufficient and weak links between the HTA and decision-making. Such weak links could undermine the legitimacy of decisions, expose the HTA process to excessive political and judicial influence, and limit the degree of stakeholder engagement [11].

In response to this survey question, most respondents did not want the HTA body to be located within an existing agency in Jordan. Further investigation is required to gain clearer insights regarding this question, but given the high ranking given by respondents to

transparency as a positive attribute of HTA, it may be possible to infer that, regardless of the location of the HTA unit, the institutional culture or processes of that body should facilitate transparency.

HTA and the production of clinical practice guidelines

The survey results indicate that clinical practice guidelines (CPGs) were the policy area where HTA process outputs are most needed in Jordan. While this can be a valid objective for HTA [9], the effectiveness of starting an HTA unit with a focus on CPGs may warrant closer scrutiny. Adherence to CPGs is often shown to be limited [17–18], and so the effort of starting HTA here only may be of limited impact and value. Implementing HTA in other areas, such as formulary, coverage, or reimbursement decision making, may provide opportunities for greater impact and allow an early ‘win’ or demonstration of the success of a new HTA program. Informing formulary, coverage, or reimbursement decisions is a core practice of HTA agencies [9] and aligns with the WHO recommendation for middle-income countries with low levels of health coverage, where HTA is recommended to focus on defining the guaranteed packages of care if universal health coverage is the goal [19].

Stakeholder participation

Most survey respondents indicated that they support the involvement of stakeholders in all points of the HTA process, including assessment, appraisal, and decision-making. These results should be interpreted with caution for several reasons. First, the type of stakeholder was not specified in the question. A closer look would be required to identify which stakeholders (patients, clinicians, public representatives, industry,

regulators, etc.) are to be involved in which stage(s) of the process. Increasingly, the international HTA community is recognizing the value of patient involvement in HTA at different stages in the process, such as defining the HTA question, identifying outcomes of relevance to patients, serving as members on the assessment or decision-making committees [20]. The engagement of clinicians as a stakeholder group is also recognized. They can serve as content experts or help ensure the acceptance of the HTA findings within the clinical community and downstream implementation [21]. Industry representatives can play a role in the preparation of evidence dossiers and submissions for HTA, and there are usually mechanisms for product sponsors to appeal a decision [9]. However, the industry is not usually involved in the assessment stage, which in the survey instrument was defined as ‘collation and critical review of scientific evidence’, as critical review of the evidence is typically the remit of the HTA body.

Second, to implement stakeholder involvement, time and resources are required, both of which may be of limited supply in the early stages of an HTA unit. Nevertheless, it brings added benefit if the quality and acceptance of assessments is improved [10] or where it provides an opportunity for HTA units to build consensus and legitimacy for their establishment. The enthusiasm for stakeholder involvement implied in the results may be somewhat dampened as there is a recognized need to design better approaches to involve stakeholders in HTA [16]. It is important to take into consideration that models of stakeholder involvement cannot easily be transferred from one country to another due to the importance of national administrative traditions and the characteristics of healthcare systems [21].

The role of social values

The survey results provide preliminary information on the state of HTA readiness in Jordan through the perspectives of individuals from a broad range of organizations related to decision-making processes. As such, it provides some contextualization and indication of the preferences about how the HTA process might be developed in the country; however, the survey did not directly include consideration of social values.

Health systems are social systems ‘shaped at all levels by human agency and embedded in social and political contexts’ [23], and therefore it is important to consider if and how to make social values explicit in the debates about HTA policies and processes. As observed by Clark and Weale [24] and Fasseeh et al. [2], both technical and social value judgments are needed in HTA prioritization processes, and the interplay of social values and the HTA process at the technical level has also been scrutinized [23].

Social values may be important to consider in establishing an HTA process. So-called ‘hard’ scientific elements of HTA are not immune to being coloured by social values, as these influence which discount rate to use [25], and whether a public payer or societal perspective is taken [26]. Making social values, and the trade-offs between them, explicit as part of the process of making decisions becomes particularly important in situations of uncertainty, such as where data are lacking, of low quality, or equivocal [25].

Social values are not typically explicitly taken into account at the outset of the establishment of an HTA process [27]. It may be advisable for jurisdictions to consider if understanding social values is important in their particular context, and, if so, how to bring these forward. One potential benefit of such activity

is that, where the configuration of HTA institutionalization is mutually reinforced by social values, a virtuous cycle is formed that would more firmly embed the HTA unit in the local health ecosystem.

Study Limitations

These results are encouraging for Jordan or other similar countries on the road to UHC. The results of this investigation may help guide further steps in the exploration to establish a formal HTA function in Jordan. However, the insights gained from this study are to be taken within the limitations of the study methodology, which delivered a high-level set of self-reported, quantitative data which is helpful in identifying overall trends or patterns but lacks sensitivity to contextual factors. Future studies could take a deeper dive into the key areas identified in this study for a more refined and pragmatic understanding of the Jordanian HTA context and policy environment.

CONCLUSION

Middle-income countries are increasingly using HTA to assist health policy decisions. [15] Despite the converging views shown in this study on the need to implement HTA in Jordan, there remain several dimensions that should be carefully considered. This is especially important regarding the legal framework for HTA, the quality of available data, financial constraints, and limited human resources capacity. Here, a few suggestions could be given, like establishing a database of skilled and trained people in HTA-related fields for further training in HTA-related topics and encouraging the implementation of programs like ‘Hakeem’ [28]—the national initiative to automate the public healthcare sector in Jordan—which would help overcome the

problem of data quality.

Broadly speaking, this study suggests that HTA is demanded by different parties in Jordan and for many reasons, primarily for improving quality and transparency. It is noted that there are many entities in Jordan that perform HTA-like activities without referring to them as 'HTA', and these entities could aid the process of implementation. According to the study respondents, the implementation process could be started with capacity building, and then by establishing the HTA entity as a unit within the MOH. The HTA unit could be primarily publicly funded, with private funder participation in the research component of the assessment but with public funding only of the critical appraisal, with stakeholders participating in all three levels of HTA, and with HTA outcomes as mandatory

inputs to decision-making process. The high-level results of this study provide a starting point for further investigation into HTA institutionalization in the country.

HTA can help support Jordan with the efficient allocation of scarce resources and improvement in the equity and quality of healthcare, and, over time, help to move the country towards fulfilling its commitment toward achieving universal health coverage.

Acknowledgements: None

Conflicts of Interest: The authors have no conflicts of interest to declare.

Funding Statement: This research received no specific grant from any funding agency, commercial or not-for-profit sectors.

References

- O'Rourke B, Oortwijn W, Schuller T. The New Definition of Health Technology Assessment: A Milestone in International Collaboration. *Int J Technol Assess Healthcare* 2020;36(3):187–90. doi:10.1017/S0266462320000215.
- Fasseeh A, Karam R, Jameleddine M, George M, Kristensen FB, Al-Rabayah AA, & Ismail A. Implementation of Health Technology Assessment in the Middle East and North Africa: Comparison Between the Current and Preferred Status. *Frontiers in Pharmacology*, 2020,11(15).
- Jordan National Health Accounts for 2016 – 2017 Fiscal Years, Technical Report No. 8, August 2019, Page: 3. [cited 2020 Sept 3] Available from: <https://jordankmportal.com/resources/jordan-national-health-accounts-for-2016-2017-fiscal-years>.
- Stephens JM, Handke B, & Doshi JA. International survey of methods used in health technology assessment (HTA): does practice meet the principles proposed for good research. *Comp Eff Res* 2012;29-44.
- Kaló Z, Gheorghe A, Huic M, et al. HTA implementation roadmap in Central and Eastern European countries. *Health Economics* 2016(25):179-192.
- Zaichkowsky JL. Measuring the involvement construct. *Journal of Consumer Research* 1985 (12)3:341-352.
- Green SB & Salkind NJ. Using SPSS for windows and macintosh. Upper Saddle River, NH: Pearson, 2013.
- Malhotra NK. *Marketing Research: An Applied Orientation*.(4th edn) Pearson Education. Inc: New Jersey 35 (2004).
- International Network of Agencies for Health Technology Assessment. HTA Impact Assessment Study: Part I. Practices of HTA Impact Assessment in INAHTA Member Agencies. 2020 [cited 2020 Feb 10] Available from: <http://www.inahta.org/download/part-i-htaimpact-assessment-practices-in-inahta/?wpdmdl=7993>.
- Drummond M, Sorenson C. Nasty or nice? A perspective on the use of health technology assessment in the United Kingdom. *Value Health*

- 2009;12 Suppl 2:S8-S13. doi:10.1111/j.1524-4733.2009.00552.x |
11. [TS1]Pichon-Riviere A, Augustovski F, García Martí S et al. The link between health technology assessment and decision making for the allocation of health resources in Latin America. *Int J Technol Assess Healthcare* 2020;36(2):173–78. doi:10.1017/S0266462320000033.
 12. *EUnetHTA Work Package 8. EUnetHTA Handbook on Health Technology Assessment Capacity Building*. Barcelona (Spain): Catalan Agency for Health Technology Assessment and Research. Department of Health Autonomous Government of Catalonia, 2008.
 13. Schumacher I, Zechmeister I. Assessing the impact of health technology assessment on the Austrian healthcare system. *Int J Technol Assess Healthcare* 2013;29(1):84-91. doi:10.1017/S0266462312000748
 14. Littlejohns P, Sharma T, Jeong K. Social values and health priority setting in England: "values" based decision making. *J Health Organ Manag* 2012;26(3):363-373. doi:10.1108/14777261211239007
 15. Oortwijn W, Broos P, Vondeling H, et al. Mapping of health technology assessment in selected countries. *Int J Technol Assess Healthcare* 2013;29(4):424-434. doi:10.1017/S0266462313000469
 16. O'Rourke B, Werkö SS, Merlin T, et al. The 'Top 10' Challenges for Health Technology Assessment: INAHTA Viewpoint. *Int J Technol Assess Healthcare* 2020;36(1):1-4. doi:10.1017/S0266462319000825
 17. Jiang V, Brooks EM, Tong ST, et al. Factors Influencing Uptake of Changes to Clinical Preventive Guidelines. *J Am Board Fam Med* 2020;33(2):271-278. doi:10.3122/jabfm.2020.02.190146
 18. Ho KC, Russell V, Nyanti L, et al. Adherence to the Malaysian clinical practice guideline for depression by general practitioners in private practice in Penang. *Asian J Psychiatr* 2020;48:101899. doi:10.1016/j.ajp.2019.101899
 19. World Health Organization. About HTA: A tool to inform decision makers in support of UHC, 2020. [cited 2020 April 15] Available from: <https://www.who.int/health-technology-assessment/about/en/>
 20. Facey K, Hansen HP & Single A, editors. *Patient Involvement in Health Technology Assessment*. Springer nature Singapore Pte Ltd., 2017. DOI 10.1007/978-981-10-4068-9_5
 21. Fujita-Rohwerder N, Rüter A, Sauerland S. Arthroscopic surgery for knee osteoarthritis: impact of health technology assessment in Germany. *Int J Technol Assess Healthcare*, 2017;33(4):420-423. doi:10.1017/S0266462317000861
 22. Cavazza, M, Jommi, C. Stakeholders involvement by HTA Organisations: Why is so different? *Health Policy* 2012;105(2-3), 236-245.
 23. Whyte E, Olivier J. Social values and health systems in health policy and systems research: a mixed-method systematic review and evidence map. *Health Policy Plan* 2020;35(6):735-751.
 24. Clark, S. and Weale, A. Social values in health priority setting: a conceptual framework. *J Health Organ Manag* 2012;26(3):293-316.
 25. John J, Koerber F, Schad M. Differential discounting in the economic evaluation of healthcare programs. *Cost Eff Resour Alloc* 2019;17:29.
 26. Chalkidou K, Culyer AJ, and Nemzoff C. Perspective in Economic Evaluations of Healthcare Interventions in Low- and Middle-Income Countries—One Size Does Not Fit All. *CGD Policy Paper*. Washington, DC: Center for Global Development, 2018.
 27. Oortwijn W, Klein P. Addressing Health System Values in Health Technology Assessment: The Use of Evidence-Informed Deliberative Processes. *Int J Technol Assess Healthcare* 2019;35:82–84.
 28. Hakeem program. (2009). [cited 2019 Nov 9] Available from: <https://ehs.com.jo/hakeem-program>

فهم الاستعداد لتنفيذ تقييم التكنولوجيا الصحية في الأردن كخطوة نحو التغطية الصحية الشاملة

ميرا سامر العمرو¹، زولتان كالو²، تارا شولر³، عماد المومني⁴، رائدة القطب⁵

¹ الجامعة الأردنية، عمان، الأردن

² جامعة سيميلويس، مركز تقييم التكنولوجيا الصحية، بودابست، المجر، معهد أبحاث سيريون، بودابست، المجر

³ الشبكة الدولية للوكالات لتقييم التكنولوجيا الصحية، 1200، 10405 جاسبر أفينيو إن دبليو، ادمونتون، أب، كندا T5J 3N4

⁴ الخدمات الطبية الملكية الأردنية، إدارة تقييم التكنولوجيا الصحية، عمان، الأردن؛ المجلس الصحي الأعلى، قسم اقتصاديات وتمويل الصحة،

عمان، الأردن

⁵ الجامعة الأردنية، كلية الطب، قسم طب الأسرة والمجتمع، عمان، الأردن

الملخص

خلفية الدراسة: في حين يسعى الأردن لتحقيق تغطية صحية شاملة، أصبحت هناك حاجة متزايدة لوجود آلية لتحديد التقنيات الصحية التي يجب تضمينها في قائمة الخدمات المؤمنة والمغطاة، والتي قد تكون هي "تقييم التكنولوجيا الصحية".

الأهداف: هدفت الدراسة إلى فهم وجهات نظر أصحاب القرار والمعنيين في النظام الصحي الأردني فيما يتعلق بالاستعداد والحاجة إلى تنفيذ تقييم التكنولوجيا الصحية وذلك لدعم جودة صنع القرار ورفع مستوى الشفافية، بالإضافة لضمان التحقيق الأفضل للقيمة مقابل المال في إنفاق النظام الصحي الأردني، ودعم تحقيق التغطية الصحية الشاملة.

منهجية الدراسة: الدراسة استخدمت منهجية المسح المقطعي، والتحليل الكمي. إذ تم إجراء استبيان مبني بالاعتماد على بطاقة أداء لتقييم التكنولوجيا الصحية، والتي تم توزيعها ضمن مقابلات شخصية مع المعنيين شخصياً، وتم جمع واحد وثلاثين ردًا من ممثلين من مختلف الجهات والمؤسسات المعنية.

النتائج: أظهرت نتائج الدراسة أن غالبية المستجيبين كانوا على دراية ومعرفة مسبقة بمفهوم تقييم التكنولوجيا الصحية، كما أن هناك إجماع على الحاجة إلى تطبيق تقييم التكنولوجيا الصحية في الأردن. في المقابل، تباينت وجهات النظر حول كيفية تطبيقه. هناك حاجة لدراسة متأنية للإطار القانوني لتقييم التكنولوجيا الصحية، وجودة البيانات المتاحة، والقيود المالية، وقدرة الموارد البشرية، وذلك لدعم تقدم الأردن لتحقيق الرعاية الصحية الشاملة عن طريق تطبيق تقييم التكنولوجيا الصحية.

الكلمات الدالة: تقييم التكنولوجيا والطب الحيوي؛ الأردن؛ بحوث الخدمات الصحية.