Economic Evaluation and the Jordan Rational Drug List: An Exploratory Study of National-Level Priority Setting

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ABSTRACT

Objectives: To explore the extent of and barriers to the use of economic evaluation in compiling the Jordan Rational Drug List in the health care system of Jordan. Methods: The research reported in this article involved a case study of the Jordan Rational Drug List. Data collection methods included semi-structured interviews with decision makers and analysis of secondary documentary sources. The case study was supplemented by additional interviews with a small number of Jordanian academics involved in the production of economic evaluation. Results: The research found that there was no formal requirement for cost-effectiveness information submitted as part of the decision-making process for the inclusion of new technologies on the Jordan Rational Drug List. Both decision makers and academics suggested that economic evidence was not influential in formulary decisions. This is unusual for national formulary bodies. The study identified a number of barriers that prevent substantive and routine use of economic evaluation. While some of these echo findings of previous studies, others—notably the extent to which the sectional interests of clinical groups and commercial (pharmaceutical) industry exert undue influence over decision making—more obviously result from the specific Jordanian context. Conclusions: Economic evaluation was not found to be influential in the Jordan Rational Drug List. Recommendations for improvement include enhancing capacity in relation to generating, accessing, and/or applying health economic analysis to priority setting decisions. There is a further need to incentivize the use of economic evaluation, and this requires that organizational and structural impediments be removed. Keywords: decision making, economic evaluation, Jordan, priority setting, rationing.

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Introduction

In these times of heightened fiscal constraint, the need for priority setting in health care is expected to gain more attention [1]. Expenditure on health care continues to decrease, especially in low- and middle-income countries, raising concerns over the inefficient allocation of health care resources [2]. As health care demand continues to outstrip supply, there is a growing interest in using economic evaluation to help solve the problems of resource scarcity and this can be seen as part of a wider concern to adopt “evidence-based policy” and to achieve “best value for money” [3,4]. The expected gains from such an approach are cast in terms of improved efficiency, transparency, and accountability. Practical experience, however, indicates significant implementation challenges and a limited impact on actual resource allocation [5–7]. Considering the large financial input required to conduct economic evaluation research [3], assessment of the readiness of health system institutions is important in deciding the feasibility of such investment. The study reported in this article adds to a growing body of empirical research into the use of economic evaluation in priority setting. Drawing on conceptual frameworks and research experiences developed in previous studies, a qualitative methodology is employed to explore knowledge, attitudes, and experiences in relation to economic evaluation among decision makers involved in the Jordan Rational Drug List (JRDL). In so doing, the research findings offer an assessment of the current capacity of this function to produce, access, and apply economic evidence.

Economic evaluation in health care

Economic evaluation of health care technologies comprises the comparison of costs and consequences of interventions and is mainly concerned with attaining higher efficiency through the maximization of health outcomes from available resources [8,9]. It is therefore a potentially key methodology for improving health care priority setting, which is defined here as the process for making decisions over the allocation of population health care resources. Priority setting within publicly funded health systems is consistently described as a complex process that involves difficult decisions. Setting priorities in an ad hoc, history-based, and intuitive manner is reportedly the norm in most developing countries [10]. In response, the use of economic evaluation, and the broader concept of health technology assessment, has been strongly advocated by international organizations such as the World Bank and the World Health Organization especially in settings in which health care budgets are severely constrained [11]. Experience suggests, however, that employing research evidence and following a rational approach to reach decisions are rarely evident in practice and that although economic evaluation sometimes informs decision pro-
Table 1 – Jordan rational drug list.

The JRDL is a positive listing of drugs that are deemed to be cost-effective and meet the health needs of the population, and as such the inclusion criteria for new medicines and for the removal of existing medicines from the list are based on both the cost and health needs of the population.

The selection criteria of the JRDL are based on internationally recognized criteria obtained from several World Health Organization published sources including the following: The Selection and Use of Essential Medicines, 2002; Promoting Rational Use of Medicines, 2002; and WHO Model List of Essential Medicines, 2002.

Inclusion on the JRDL is reportedly based on the following evidence:

- Relevance to disease area in question.
- Efficacy and safety based on adequate pharmacological studies.
- Quality: Drugs must meet quality control standards as set out by the JRDL.
- Cost of treatment regimen.
- Drug formulation.

The JRDL is available from the Jordan Food and Drug Administration Web site (www.jdfa.jo/RDL2/annex/Annex.htm). A selection committee comprising physicians and pharmacists provides technical support and advice on the revision and update of the JRDL.

However, a weakness of the process relates to the fact that there is no written guidance in relation to the conflict of interest of those serving on the committee. Furthermore, the selection criterion for committee members is not made publicly available [16].

The Jordan rational drug list

In Jordan, the health sector contains a mix of public and private providers. The public sector provides health insurance for 56% of the population under four schemes: the Royal Medical Services; the Ministry of Health–administered civil insurance; and two university hospitals: Jordan University Hospital and King Abdullah University Hospital. Health care expenditure accounts for 10% of the gross domestic product, yet nearly 30% of the population has no formal insurance [14]. To address this problem, in the face of growing pressures on the health care budget, a plan for a universal health care coverage is in progress and is expected to be implemented by the end of 2012 [14]. As a result, the government has introduced a number of initiatives to address the need for cost-containment and improve efficiency especially in areas of excessive expenditure. In particular, pharmaceuticals—which absorb 3% of the gross domestic product and 30% of health care expenditure—were prioritized for these measures [15].

A rational drug list—the JRDL—has been created as a vehicle for addressing these expenditure deficits in pharmaceuticals, its purpose being to help the government purchase clinical and cost-effective medicines that match the health needs of its population [15,16]. The JRDL is revised and updated annually (or whenever necessary) by the National Pharmacy and Therapeutics Committee, which is formed from chairpersons of the Jordan National Drug Formulary. Technical committees provide advice on the revision and update of the JRDL, and these committees have a representative from the four main public sector health care provider agencies, the Jordan Food and Drug Administration, and the Joint Procurement Department. The list is used to update the Jordan National Drug Formulary, which, in turn, is used to guide the procurement of pharmaceuticals in the public sector through the Joint Procurement Department [15]. There are 17 national drug formulary (Jordan National Drug Formulary) technical committees in Jordan, and these are intended to cover all relevant medical fields. The members are nominated by their respective public sector agencies and officially appointed by the minister of health [15].

Given the avowed aim of containing cost and improving efficiency, the JRDL is arguably a key vehicle for the application of the principles and methodologies of economic evaluation. In keeping with national formulary arrangements elsewhere, the process of inclusion and exclusion on the JRDL could therefore incorporate some form of cost-effectiveness “hurdle” or “threshold” [17]. The selection criteria for making decisions about what is included and/or deleted from the list are outlined in Table 1. While there is some reference made to costs, there is no formal reference to cost-effectiveness. However, concerns have been raised over the ambiguity of a number of the listed criteria and initiatives have been employed with the aim of improving the transparency and accountability of decision-making processes including economic evaluation to guide decision making [18,19]. For example, one recent pilot project sought to design an evidence-based clinical guideline for cost-effective pharmacological treatment of essential hypertension (a high-priority disease area). The project involved consultation and training provided by UK’s National Institute for Health and Clinical Excellence and was funded by the World Bank [19]. However, there has been little by way of investigation into the feasibility and appropriateness of these developments within the Jordanian context in particular, or within developing countries more widely [20]. This is despite widespread interest in equivalent national decision making in developed countries such as the United Kingdom and Israel [21,22]. This study therefore seeks to address this gap via a case study of the JRDL as an example of national-level priority setting in a developing country.
Methods

As a newly formed process, relatively little is currently known about the JRDL. Therefore, the study approach adopted was intended to be exploratory [23]. Semi-structured interviews were the main data collection method, supported by documentary analysis of secondary sources produced by governmental and nongovernmental organizations. The interviews focused on current capacity for producing and using economic evaluation, as well as exploring the decision-making environment in relation to the allocation of health care resources and the role of economic evaluation in this process. The sample of potential participants was purposively selected to cover two groups: those who produce economic evidence such as academics and those charged with carrying out priority setting decisions. This latter group included members of drug selection committees at a national level and senior managers in the public sector agencies represented. With regard to the former group, the research team sought to recruit informants who had been directly involved in recent attempts to introduce economic evaluation in resource allocation in Jordan, because they were assumed to have key perspectives and be rich sources of information. The selected sample was also intended to be as diverse as possible to reflect a broader range of perspectives. Table 2 summarizes the number of interviewees and their roles and positions. Invitations were sent to potential participants via e-mail, followed by telephone calls. All respondents were sent an advance copy of the interview schedule.

Two interview schedules were developed, one for each group of participants, drawing on those developed in a similar study by Williams et al. [6]. Schedules were modified to reflect the Jordanian research setting. Interview questions sought to investigate the knowledge, experience, and attitudes of interviewees by predominantly using open-ended questions. Research was carried out in the period between June and August 2010, with interviews conducted by telephone in Arabic and audio-recorded with the consent of interviewees after an assurance of confidentiality was given. Of the 35 selected informants, only 10 (28.6% response rate) consented to participate. The main reason given for nonparticipation was that respondents were too busy to devote time to conducting an interview. The response rate may also be indicative of the small number of people involved in economic evaluation within Jordanian health care. Although this partial coverage affects the extent of data saturation that can be achieved, as an exploratory study it constitutes sufficient data for emergent themes to be identified [24].

The duration of interviews ranged from 30 to 60 minutes. All interviews were transcribed verbatim and translated into English immediately after each interview. Thematic analysis was undertaken with the aim of “identifying, analyzing and reporting patterns (themes) within data” [24]. Given the exploratory nature of the study, themes were identified inductively and written up so as to provide a rich description of this information. These were then analyzed against the research questions and in the light of previous research on this topic.

Results

This section presents the main themes identified in the interviews.

Constraints on producing economic evaluation

Academics cited three main barriers that constrain the ability of Jordanian research bodies to produce appropriate economic evaluation data: 1) lack of skilled researchers, 2) unavailable or fragmented data, and 3) shortage in funding. These three barriers confirm those identified in other studies conducted in developing countries [7,25,26]. As is the case in many developing countries, Jordan faces shortages in trained health economics researchers and this was apparently reflected in the difficulty we experienced when seeking to recruit participants to this study. Searching university Web sites to identify specialists in health economics and pharmacoconomics resulted in only seven potential participants. Two of the seven academics approached declined to participate on the grounds that they did not consider the topic to be relevant to their research. At the time of this study, there were only three identified pharmaco-economists working in Jordanian universities. The interviewees’ cited this relatively low base of expertise as a key problem for health system research in general and for economic evaluation in particular.

Respondents also identified insufficient data as an important constraint in conducting economic evaluations. Databases for epidemiological data, clinical practice, and administration registries were considered to be incomplete and fragmented across public sector organizations.

I can speak from my own experience. In one study we conducted the research team had to go door to door to gather patients’ data because the records were incomplete or not available. (Academic Interviewee 2)

This problem has also been noted in other reports and brought to the attention of policymakers [19]. Recently, the Jordanian government has initiated a project for an electronic health network to integrate data from all public sector organizations [27], a step that is expected to help in solving the problem of availability of data. Respondents indicated international organizations as the main source of funding for health research in Jordan and the Ministry of Health has recently identified a list of top-priority topics for health research [28]. This document, however, does not provide details on the budget assigned for each topic, and respondents considered there to be a shortage of public resources for conducting health economic studies, with most studies funded by private organizations. They also reported that securing funds for research projects from international organizations has become more difficult as a result of the recent economic crisis.

Funding is a huge problem. The government’s spending on research is very low and we are having less financial support from international organizations these days because of the economic situation. (Academic Interviewee 3)

Knowledge and understanding

Consistent with previous studies [25,26], decision makers had limited knowledge and understanding of economic evaluation methodologies, applications, and limitations. Although decision makers varied in their estimation of their own knowledge, those who assumed a capability to interpret this information declared that
they did not use economic evaluations and at times appeared to confuse economic evaluation with other concepts such as cost analysis.

It’s not that difficult to understand. Everything is clear; storage costs, treatment delivery cost... I think anyone in the health care field can understand this information. (Decision Maker Interviewee 3)

In contrast, decision makers who had undertaken some training in economic evaluation or had attended workshops on this subject expressed concerns about their poor understanding and levels of expertise:

I can’t say I fully understand this information. To be frank, I don’t, and I have been to workshops and training courses. And I don’t think many people do. But we use simple terms; for example, what is the add-on of this drug that can justify the cost difference? (Decision Maker Interviewee 6)

All the decision makers interviewed expressed their interest in attending training courses or workshops on economic evaluation, although they were not able to specify the type of training they considered would be most helpful. Clearly, this may partly reflect selection bias because the majority of those decision makers approached had declined to participate in the study. Academic interviewees strongly recommended teaching health economics as part of the medical curriculum, because most senior officials and hospital managers in Jordan are clinicians. Pharmacoeconomics is currently taught in only one university as a three-credit course as part of the clinical pharmacy curriculum, and economic evaluation is not currently taught in any of the country’s medical schools. Some universities teach courses in health economics as part of other programs such as economics and health management. This dearth of educational opportunities is not unique to Jordan, and in most countries economic evaluation is not included in the medical curriculum. For example, Teerawattananon and Russell [25] reported a similar situation in Thailand.

Decision-making criteria

Respondents were asked what information they believe to be relevant to the JRDL and how these should be weighed against each other in the decision-making process. All respondents considered safety, clinical effectiveness, and cost-effectiveness as important when deciding on drug selection. The JRDL addition and deletion form offers a somewhat similar set of criteria with stipulated requirements including evidence on safety, clinical effectiveness, and cost information of the drug but not cost-effectiveness (see Table 1). In other words, there was no formal requirement that cost-effectiveness information be submitted as part of the process for deciding on the inclusion of new technologies on the JRDL. Both decision makers and academics asserted the nonsense of economic evidence in the selection of drugs for the JRDL, confirming that it is still not influential in formulary decisions. A recent review of the terms of reference required the current JRDL committee to have a pharmacoeconomist on its board [18], although respondents were not very clear on this person’s role in the decision-making process. One committee member proposed that the role of the pharmacoeconomist is to assess the quality of the economic data.

Since we don’t have enough knowledge or experience and there are, you know, concerns over bias, we send the information to the pharmacoeconomist to give us his opinion. (Decision Maker Interviewee 5)

As a result of shortages in independent economic evaluations, many of the economic evaluations available to decision makers were prepared by manufacturers of technologies and this was considered as reducing the likelihood of rigor and balance in the reporting of results.

Political influence

The process described in the instructions for drug selection implies that multiple criteria are used to reach a decision, although the importance attached to each is not clear. In reality, respondents pointed out that factors other than those explicitly mentioned often influence final decisions. For example, respondents cited professional experience and personal opinion of clinicians on the committee as primary factors in selecting drugs for the formulary. Interview responses revealed a shared frustration over this lack of clarity and consistency of decision-making criteria, which, most interviewees suggested, enabled powerful influences to shape the final decision. Priority setting in health care is consistently described as a political process. Most respondents in this study acknowledged this observation as they expressed their concerns over covert influences on the decision-making process. For example, the dominance of clinicians was a theme that persistently featured in interviews with nonmedics.

People involved in making the decisions are those who are most powerful. (Decision Maker Interviewee 2)

There has been a reevaluation of all terms of references of all committees. But I don’t expect doctors to stop using their personal judgments, as they think they know best and they will always be the majority. I think there must be legislation otherwise things will not change. (Academic Interviewee 1)

There are a number of indicators for this dominance that have been pointed out; the minister of health and most senior managers are in most cases clinicians, the perceived powerful influence of the Jordan Medical Association (JMA) over policies related to clinical audit and regulation of the medical practice, and the number of clinicians on the drug selection committee compared with other professions. The implication of this for the use of economic evaluation was considered to be that clinicians are more likely to resist its formal use for two reasons. First, clinicians often see efficiency and quality as conflicting principles. This can also be linked to the “silo mentality” of clinicians who are often concerned with best interests of their patients rather than the wider society [6]. The second suggested reason was clinicians’ fear of power shifting toward economists.

If we assume good intentions, clinicians want their patients to be comfortable and to get best results in the shortest time. They believe that can only be attained by using the latest and most expensive treatments. (Decision Maker Interviewee 6)

Clinicians feel that if the use of economic evaluation is legislated their position will be affected. (Decision Maker Interviewee 5)

The Medical Liability Law, which at the time of the study was being negotiated between the Ministry of Health and the JMA, was mentioned as an example of the influence of clinicians on policymaking. The law is part of health reforms to improve the quality of care in Jordan [29] and has been discussed for several years but so far has not been finalized. JMA’s position from the law is that it should protect both citizens and clinicians and not put clinicians at risk of legal action without solid evidence. At the same time, the JMA has consistently confirmed its commitment to improving standards of care through monitoring medical practice and ensuring adherence to international standards. Some interviewees saw this as an opportunity for economic evaluation to gain acceptance among clinicians and the JMA to prove their commitment to best practice and higher standards of care.
We have seen many legal cases against clinicians in recent years and with the new law there will be more. Now the association maintains that they are committed to international standards. So if they want to put their words into action they would accept the economic evidence as part of the evidence-based practice. (Academic Interviewee 2)

Similar concerns were expressed over the influence of pharmaceutical companies on decision making at the national policy-making level. For example, it was suggested that policymakers and senior officials take considerable account of the interests of pharmaceutical companies in decisions that might affect their interests. Respondents also mentioned lobbying by drug companies against policies that might have a negative impact on their commercial performance.

Senior officials are convinced [of the benefits of using economic evaluation], but there is lobbying from some parties who have special interests and it is mainly the drug companies and the clinicians. (Academic Interviewee 1)

We have to take that [drug companies’ interests] into consideration. These companies are a big economic force and employ a lot of people. If we want to use economic evaluation, it should not be seen as in conflict with their interests. (Decision Maker Interviewee 2)

Furthermore, there was a concern among respondents around the potential power of drug companies in influencing decisions if the use of cost-effectiveness becomes an obligatory criterion. The influence of pharmaceutical companies can currently be seen in their attempts to promote their products within the clinical community. New regulations for marketing campaigns by drug companies, however, are being established and are expected to enhance the transparency of medicine promotion [16]. Respondents suggested that the commissioning of independent studies where possible and affordable and greater assessment and scrutiny of industry-sponsored submissions by independent experts could help reduce the drug companies’ influence.

**Discussion and recommendations**

This exploratory study is the first to address the use of economic evaluation in Jordan in decisions related to national-level priority setting. It notes the low current levels of usage of economic evaluation by the JRDL and identifies a number of reasons why this might be the case. Participants consisted of a small yet diverse sample of stakeholders. Many of those solicited, however, opted not to take part in the study. As such, making wide-ranging conclusions about the research outcomes would be inappropriate. The usefulness of the research findings, however, can be seen in the helpful insights they provide into the decision-making environment in Jordan, as well as in highlighting areas for future investigation.

The JRDL is unusual among national formulary bodies in that it appears to apply little or no cost-effectiveness analysis to its decision making. In a developing country context, however, this is less unusual [20]. The study suggests that the accessibility of economic evaluation in Jordan is hindered by low levels of capacity to produce such analysis and understanding of the concepts involved. Further barriers include the scarcity of skilled researchers and analytical expertise, incomplete data, and insufficient financial resources to commission studies. Training on economic evaluation methods and required research skills is an area in clear need of development. Limited resources and consequent reliance on external sources of analysis raise concerns about how topics are selected and analyzed. Yothasamut et al. [7] found that in Thailand this distribution reflected the interests of international organizations that fund the majority of economic studies rather than focusing on major health problems. While this can be understood in light of limited resources, it should not work against, or marginalize, national health priorities.

Although the study revealed low levels of knowledge and understanding of economic evaluation, it revealed a supportive context for developing its use. This was evident in the positive attitudes indicated by decision makers and their interest in enhancing their own knowledge and expertise. This support, however, should be considered with caution because previous research suggests that the acceptability of economic evaluation is sometimes inversely correlated to the recognition of its limitations [25]. In this regard, it is interesting to note that some of the barriers repeatedly cited in previous studies have not been indicated in the interviews with Jordanian respondents. Ethical objections to economic evaluation, for example, form much of the criticism to its utilitarian approach. As many analysts contend, priority setting in health care tends to reflect other moral concerns such as equity, “rule of rescue,” and other societal values [25,30]. Similarly, implementation considerations and prohibitive upfront costs of new technologies [6,20] were not discussed during interviews. However, this may reflect the fact that the insufficient usage of economic evaluation had meant that these further barriers relating to ethics and implementation had yet to be encountered [31,32].

On the other hand, the results of this study are consistent with findings of previous studies with respect to a number of acceptability barriers including fixed budgets, lack of incentives, and ambiguity of decision-making roles and criteria [6,33]. Although these barriers may manifest themselves differently in different systems, they remain common across almost all those subjected to research of this kind. This would imply that wider system reform—including, for example, the trend toward the decentralization of national systems in both developing and developed countries—will not in itself remove impediments relating to financial structures, incentive systems, and lack of clarity over decision-making roles and responsibilities. As well as these familiar barriers, two further factors were identified in this study that could have significant implications for introducing the use of economic evaluation in Jordan. The first is the dominance of the medical profession over policy making. This situation is not unique to Jordan as clinical discretion exists in all health care systems. The extent of influence over priority setting, however, varies and in Jordan is likely to constitute a major obstacle if clinicians continue to associate the introduction of economic criteria into decision making as a threat to their autonomy and influence. On the other hand, it might offer an opportunity if doctors can be convinced of the benefits of an economic approach, and to appreciate the correlation between clinical and cost-effectiveness of health technologies [6]. Added to this is pressure on the JMA to strengthen the monitoring of quality standards.

The second striking feature of this study is the influence of pharmaceutical companies on decision making at the national level. The influence of highly organized interest groups such as medical associations and pharmaceutical manufacturers has long been reported [34], and there are well-documented accounts of such groups challenging reforms that threaten their interests or are perceived to undermine their power. For example, Kwon [35] reports on how Korean doctors succeeded in reversing significant elements of pharmaceutical policy reforms targeted toward inefficient prescribing behavior through nationwide strikes that paralyzed the health system. Reich [34] also reports the challenges faced by policymakers in developing countries from clinical and commercial interest groups when attempting to introduce cost-effectiveness criteria in drug selection for national formularies. Consequently, policy analysts argue that radical reforms are more likely to face strong opposition and counteractions by such groups. Analysts have therefore proposed an incremental approach to policy change that involves deliberation with key stakeholders to secure their support [34,36].
Drawing on the findings from this study, we offer a number of recommendations. These can be categorized according to the accessibility/acceptability framework introduced earlier in the article [9]. In relation to accessibility, the study confirms that training for researchers on economic evaluation techniques and for decision makers on the interpretation and use of economic data is required if incorporating economic evaluation is to be formalized. Furthermore, limitations of the technical analysis should be communicated to decision makers to enable them to make informed decisions on the appropriate use of economic evaluation. Finally, researcher and decision-maker exposure to other countries’ experience in this arena can facilitate learning and help avoid common pitfalls. However, prescriptions for improving technology coverage decision making should not be confined purely to considerations of accessibility. Although the emphasis on increasing skills and resources would seem to reflect the findings of this study, further barriers are likely to emerge as these aspects are addressed. For example, there is likely to be a need for greater understanding of the structures and governance of the health care system to establish the extent of compatibility with an economic evaluation–informed approach. It is unclear from the study whether cost-effectiveness analysis reflects the system characteristics of Jordan and other developing country health care systems. What is clear is that if analyses do not accurately reflect the decision-making and implementation context, they will be of limited value [9]. Similarly, with regard to ethical considerations, it is also unclear to what extent the utilitarian precepts of cost-effectiveness analysis are compatible with the wider social values of Jordanian society. To avoid repeating the oversimplistic prescriptions put forward for increasing the use of cost-effectiveness analysis in developed country systems, we recommend that these aspects of acceptability be addressed in future research initiatives. Finally, there is a need for a reevaluation of decision-making processes themselves including via the JRDL. The current process lacks transparency and appears to be disproportionately influenced by political interests, which compromises accountability and fairness in priority setting.

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