Using economic evaluations to support acupuncture reimbursement decisions: current evidence and gaps

Hongchao Li and colleagues explore the global challenges of including economic evaluations in decisions about reimbursement for acupuncture

The process of making decisions about healthcare reimbursement is inherently complex. In addition to effectiveness and safety, social, economic, political, geographical, and institutional non-medical factors often are important in decision making.

In past decades, the process of making decisions about reimbursement has evolved, increasingly incorporating economic evaluation. In China, the United Kingdom, Australia, and Canada, it has become one of the most critical factors determining whether a drug or a health technology can enter the reimbursement list.

Clinicians in over 183 countries, motivated by increasing evidence of effectiveness,¹⁻⁵ use acupuncture, a non-pharmaceutical intervention, predominantly for pain relief but also in a wide variety of other conditions.⁶ Although private health insurance often covers acupuncture, public health insurance rarely does.^{7,8} Given the high prevalence of chronic pain,^{9,10} extensive use of

acupuncture can use considerable health resources.¹¹ Thus like other interventions, decisions about reimbursement for acupuncture should ideally include economic evaluation.

We summarise the current status of evidence for the economic evaluation of acupuncture, provide examples of the extent to which evidence of its cost effectiveness is used in decision making about reimbursement, raise challenges of applying the evidence to decisions about reimbursement, and provide corresponding suggestions.

Problems with economic evaluations

Lack of contextual factors and long term outcomes

Most of the published economic evaluations of acupuncture are based on trials¹²⁻¹⁴; therefore, the trial design inevitably affects its quality. Few randomised controlled trials have measured contextual factors and long term outcomes, thus limiting the credibility of associated economic evaluations. Contextual factors, including practitioner expertise, setting, patients' previous experiences, and social position, as well as co-interventions, can affect the model for evaluation of cost effectiveness.

Because economic models for management of chronic pain often need to simulate at least 5 years or even a lifetime,¹⁵⁻¹⁷ measurement of long term outcomes is crucial. Recently, published systematic reviews show that the longest follow-up of existing randomised controlled trials of acupuncture for chronic pain is 13 months.^{18,19} The only long term simulation model (that is, the Markov model) using outcomes from three 3-12 month trials simulated five year chronic pain relief and analysed the cost effectiveness of acupuncture for chronic pain.¹⁵ In such a situation, the use of transition probabilities derived from short term clinical trials to extrapolate to long term outcomes in an economic model might overestimate or underestimate the incremental cost

effectiveness ratio. Thus the absence of long term outcome measures in acupuncture studies further undermines the credibility of associated economic analyses.¹⁶

Poor reporting quality

Poor reporting quality limits the usefulness of economic evidence in informing reimbursement decisions.¹²⁻¹⁴ Problems include poor reporting of the following: (a) intervention and comparator; (b) patients' characteristics; (c) productivity outcomes (eg, time lost from work); (d) definitions of primary outcome measure(s); (e) separate documentation of quantities of resource use and their unit costs; and (f) justification for sensitivity analysis and range of variables.

Limited applicability

To support reimbursement decision making, the National Institute for Health and Care Excellence (NICE) suggests evaluating the applicability—that is, the relevance to a specific reimbursement question—of economic evaluations. Health system, costs, clinical practice, and health preference sources—that is, in which population researchers elicit health utility scores—are the main determinants for the applicability of economic evaluations. For example, when considering the cost of acupuncture for a healthcare system, particularly if tax funded, the evaluation should consider space, equipment, practitioners' time, training, and their effect on other health provisions.

Most of the existing economic evaluations of acupuncture have been conducted in Germany,^{12-14,20} the UK,^{12-14,21-23} and the US,²⁴⁻²⁶ each of which has its unique health system, costs, clinical practice, and population health preferences. Therefore, it is difficult to generalise the results to other countries.

For example, for the health preference measures, analysis of the cost benefit of acupuncture most commonly used the EQ-5D (European quality-of-life five

KEY MESSAGES

- Economic evaluations of acupuncture rarely consider contextual factors or long term outcomes, and their reporting quality is poor
- In the UK, Germany, US, China, and Switzerland, economic evaluation has a limited role in reimbursement decisions
- Both the quantity and quality of current economic evaluations of acupuncture interventions are insufficient to meet the needs of health decision makers
- Adequate support for decision making about acupuncture will require additional high quality economic evaluations carried out in a wider variety of jurisdictions

dimension instrument) and SF-6D (Short Form 6 Dimensions).¹²⁻¹⁴ Value sets of EQ-5D and SF-6D for Germany, the UK, and the US do not necessarily reflect other countries' population health preferences. Moreover, as clinical practice and health technology costs change over time, previously published economic evaluations might not provide valuable information for current decisions about reimbursement decision.

Given the paucity of evaluations outside Germany, the UK, and the US, decision makers in other countries must rely on studies published elsewhere, thus limiting applicability to their setting. Unlike innovative drugs, the industry rarely supports economic evaluations for acupuncture. Solving this problem of evaluations specific to particular jurisdictions will probably require government funding of research.

Limited use of economic evaluations in reimbursement decisions

Health systems and their process for making decisions about reimbursement vary widely across countries. In countries in which public health insurance reimburses acupuncture treatment, the types of evidence (eg, on effectiveness, safety, and cost) considered in decision making differ. To explore the extent of the use of economic evaluation in reimbursement decision making, we will comment on the situation in five countries.

In China, the Beijing Municipal Medical Insurance Bureau, based on expert opinion and a list of interventions prohibited from being reimbursed, decided in around 2000 to reimburse acupuncture for all conditions.²⁷ This decision process did not use economic evaluation evidence. China's decision making process for access to basic medical insurance has, however, undergone immense changes in recent years. In negotiations about access to the national reimbursement drug list, China National Healthcare Security Administration requires a cost effectiveness analysis and budget impact analysis.²⁸ We expect that, in the future, economic evaluation will also inform reimbursement decisions for non-pharmaceutical interventions, including acupuncture.

In Switzerland, after a public vote in 2009, complementary medicine is now mentioned in the Swiss constitution Article 118a—"Within the scope of their responsibilities, the confederation and the cantons shall ensure that complementary medicine is comprehensively taken into

account." Given that Switzerland has little local economic evaluation evidence, the reimbursement of acupuncture in the basic health insurance system is based on evidence of effectiveness and political considerations, which covers all conditions.

The UK's NHS provides free public healthcare to all British residents. NICE, the primary role of which is to improve outcomes for people using NHS services, has a long history of using Health Technology Assessment (HTA) to support evidence based decision making. A full HTA usually assesses efficacy, safety, cost effectiveness, and ethics.

NICE has conducted an HTA of acupuncture for chronic pain, comparing the cost effectiveness of acupuncture with usual care from the NHS perspective. Using a systematic review of clinical evidence, the review group constructed a lifetime economic evaluation model. Based on the HTA results (including that acupuncture is cost effective for chronic pain), a NICE clinical practice guideline recommends acupuncture for chronic pain in a community setting.¹⁶ However, access to free acupuncture services depends on the policy of the local clinical commissioning group, and patients can get limited courses of treatment only if recommended by their general practitioner.²⁹ Only a few NHS services (eg, Royal London Hospital for Integrative Medicine) provide free acupuncture.

In Germany, public insurance covers acupuncture only for low back pain and knee pain. Two large, three arm, randomised controlled trials, carried out between 1999 and 2005, including usual care, sham acupuncture, and true acupuncture, informed these decisions.^{30 31} Although several studies showed that acupuncture was cost effective within the accepted thresholds for low back pain^{32 33} and osteoarthritis,³⁴ decisions about the reimbursement did not fully consider this evidence. Health insurance reimbursement decisions did not require economic evaluations at this time.³⁵

In the US, private health insurance and government health insurance coexist. The Centers for Medicare and Medicaid Services make decisions about reimbursement. The extent of evidence informed decisions has increased. For instance, the reimbursement decision for low back pain considered clinical trial evidence that acupuncture in comparison with no intervention improves pain and function moderately and is supported by moderate certainty evidence. Compared

with medication (non-steroidal anti-inflammatory drugs, muscle relaxants, or analgesics), acupuncture shows small but important improvement (supported by low certainty evidence). Most of the relevant trials included younger patients, and results therefore provide only indirect evidence for patients over 60.^{1 36 37} To inform decisions about reimbursement further, the National Institutes of Health therefore funded a large randomised trial in patients over 60, identifying the providers, assessing the cost effectiveness of acupuncture, and the optimal number of treatment sessions. While waiting for the trial results, hoping to avoid the harm caused by opioid misuse, in January 2020, the Centers for Medicare and Medicaid Services issued a decision memorandum covering acupuncture for chronic low back pain.³⁸ This decision considered the effectiveness and safety of acupuncture but did not use economic evaluation evidence.

The experience in these five countries shows that economic evaluation has a limited role in current decisions about reimbursement for acupuncture. Although using economic evaluation can help to optimise the allocation of health resources when making decisions about reimbursement for acupuncture, political and other factors often play more important roles than the evidence.

Suggestions

To deal with the challenges described, we have several suggestions for different stakeholders. For reimbursement decision makers in every health system, we suggest increasing use of economic evaluation. Governments and non-profit HTA agencies should provide more funding and organisational support to conduct local acupuncture economic evaluations.

Researchers conducting acupuncture economic evaluations or HTA should improve reporting quality by following commonly used quality checklists—for example, the BMJ checklist³⁹ or the Consolidated Health Economic Evaluation Reporting Standards (CHEERS).⁴⁰

Health economists and clinicians who offer acupuncture should work collaboratively to design high quality economic evaluations, consider contextual factors, including the qualifications of acupuncture practitioners; measure long term outcomes; conduct analysis; and interpret results appropriately. Such collaboration can help to provide better measurement of the efficacy of acupuncture and more credible economic evaluations.

Conclusion

Although optimal resource allocation requires reimbursement decisions about acupuncture to consider economic evaluation evidence, such evidence has little role in health decision making, including in the five countries we have particularly mentioned. The challenges of using economic evaluation evidence in reimbursement decisions for acupuncture include (a) infrequent consideration of contextual factors; (b) infrequent measurement of long term outcomes; (c) poor reporting quality; (d) limitation of economic evaluation to a small number of countries and settings; (e) limitations in decision making that rarely considers the evidence for economic evaluation; and (f) limited resources to carry out economic evaluations. To overcome these challenges, decision makers should increasingly use economic evaluation evidence and allocate funding to generate evidence for reimbursement. To increase the credibility of economic models, researchers need to measure both contextual factors and long term outcomes, improve reporting quality, and increase collaboration with clinician providers of acupuncture.

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Hongchao Li, associate professor^{1,2}

Xuejing Jin, professor³

Patricia M Herman, senior scientist⁴

Claudia M Witt, professor⁵

Yingyao Chen, professor^{6,7}

Weijuan Gang, professor^{8,9}

Xianghong Jing, professor^{8,9}

Ping Song, professor¹⁰

Longhui Yang, professor¹⁰

Dan Ollendorf, director of value measurement and global health initiatives¹¹

Yuan Zhang, assistant professor¹²

Gordon Guyatt, professor^{12,13}

Luqi Huang, professor^{9,10}

Yu-Qing Zhang, executive director^{8,12,14,15}

¹School of International Pharmaceutical Business, China Pharmaceutical University, Nanjing, China

²Centre for Pharmacoeconomics and Outcomes Research, China Pharmaceutical University, Nanjing, China

³Centre for Evidence-based Chinese Medicine, Beijing University of Chinese Medicine, Beijing, China

⁴RAND Corporation, USA

⁵Institute for Complementary and Integrative Medicine, University Hospital Zurich and University of Zurich, Zurich, Switzerland

⁶School of Public Health, Fudan University, Shanghai, China

⁷National Health Commission Key Laboratory of Health Technology Assessment, Fudan University, Shanghai, China

⁸Institute of Acupuncture and Moxibustion, China Academy of Chinese Medical Sciences, Beijing, China

⁹China Centre for Evidence Based Traditional Chinese Medicine, China Academy of Chinese Medical Sciences, Beijing, China

¹⁰China Academy of Chinese Medical Sciences, Beijing, China

¹¹Center for the Evaluation of Value and Risk in Health, Institute for Clinical Research and Health Policy Studies, Tufts Medical Center, USA

¹²Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, Ontario, Canada

¹³Department of Medicine, Faculty of Health Sciences, McMaster University, Hamilton, ON, Canada

¹⁴Centre for Evidence Based Integrative Medicine-Clarity Collaboration, Guang'anmen Hospital, China Academy of Chinese Medical Sciences, Beijing, China

¹⁵Ningbo Nottingham Grade Centre, University of Nottingham, Ningbo, China

Correspondence to: L Huang
huangluqi01@126.com

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