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## VALUE IN HEALTH ONLINE

## Consolidated Health Economic Evaluation Reporting Standards (CHEERS) Statement

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## ABSTRACT

Economic evaluations of health interventions pose a particular challenge for reporting. There is also a need to consolidate and update existing guidelines and promote their use in a user friendly manner. The Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement is an attempt to consolidate and update previous health economic evaluation guidelines efforts into one current, useful reporting guidance. The primary audiences for the CHEERS statement are researchers reporting economic evaluations and the editors and peer reviewers assessing them for publication.

The need for new reporting guidance was identified by a survey of medical editors. A list of possible items based on a systematic review was created. A two round, modified Delphi panel consisting of representatives from academia, clinical practice, industry, government, and the editorial community was conducted. Out of 44 candidate items, 24 items and accompanying recommendations were developed. The recommendations are contained in a user friendly,

24 item checklist. A copy of the statement, accompanying checklist, and this report can be found on the ISPOR Health Economic Evaluations Publication Guidelines Task Force website: ([www.ispor.org/Task-Forces/EconomicPubGuidelines.asp](http://www.ispor.org/Task-Forces/EconomicPubGuidelines.asp)).

We hope CHEERS will lead to better reporting, and ultimately, better health decisions. To facilitate dissemination and uptake, the CHEERS statement is being co-published across 10 health economics and medical journals. We encourage other journals and groups, to endorse CHEERS. The author team plans to review the checklist for an update in five years.

**Keywords:** biomedical research/methods, biomedical research/standards, costs and cost analysis, guidelines as topic/standards, humans, publishing/standards.

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Health economic evaluations are conducted to inform resource allocation decisions. Economic evaluation has been defined as “the comparative analysis of alternative courses of action in terms of both their costs and their consequences.” [1] All economic evaluations assess costs, but approaches to measuring and valuing the consequences of health interventions may differ (see Box 1).

Economic evaluations have been widely applied in health policy, including the assessment of prevention programmes (such as vaccination, screening, and health promotion), diagnostics, treatment interventions (such as drugs and surgical procedures), organisation

of care, and rehabilitation. Economic evaluations are increasingly being used for decision making and are an important component of programmes for health technology assessment internationally [2].

### Reporting Challenges and Shortcomings in Health Economic Evaluations

Compared with clinical studies, which report the consequences of an intervention only, economic evaluations require more reporting space for additional items, such as resource use, costs, preference

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**Box 1 – Forms of economic evaluation.**

Specific forms of analysis reflect different approaches to evaluating the consequences of health interventions. Health consequences may be estimated from a single analytical (experimental or non-experimental) study, a synthesis of studies, mathematical modelling, or a combination of modelling and study information.

*Cost consequences analysis* examines costs and consequences without attempting to isolate a single consequence or aggregate consequences into a single measure

*Cost minimisation analysis (CMA)*—The consequences of compared interventions are required to be equivalent, and only relative costs are compared

*Cost effectiveness analysis (CEA)* measures consequences in natural units, such as life years gained, disability days avoided, or cases detected. In a variant of CEA, often called cost utility analysis, consequences are measured in terms of preference-based measures of health, such as quality adjusted life years or disability adjusted life years.

*Cost benefit analysis*—Consequences are valued in monetary units.

Readers should be aware that an economic evaluation might be referred to as a “cost effectiveness analysis” or “cost benefit analysis” even if it does not strictly adhere to the definitions above. Multiple forms may also exist within a single evaluation. Different forms of analysis provide unique advantages or disadvantages for decision making. The Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement can be used with any form of economic evaluation.

related information, and cost effectiveness results. This creates challenges for editors, reviewers, and those who wish to scrutinise a study's findings [3]. There is evidence that the quality of reporting of economic evaluations varies widely and could potentially benefit from improved quality assurance mechanisms [4,5].

With the increasing number of publications available, and opportunity costs from decisions based on misleading study findings, transparency and clarity in reporting are important. In addition, outside of economic evaluations conducted alongside clinical trials, there are no widespread mechanisms for warehousing economic evaluation data to allow for independent interrogation, such as ethics review proceedings, regulator dossiers, or study registries. Instead, independent analysis may rely on the record keeping of individual investigators.

Even if measures to promote transparency exist, such as registries, biomedical journal editors have increasingly promoted and endorsed the use of reporting guidelines. Endorsement of guidelines by journals for randomised controlled trials has been shown to improve reporting [6]. The combination of the risk of making costly decisions due to poor reporting with the lack of mechanisms that promote accountability makes transparency in reporting economic evaluations especially important and a primary concern among journal editors and decision makers [3,7].

**Aim and Scope**

The aim of the Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement is to provide recommendations, in the form of a checklist, to optimise reporting of health economic evaluations. The need for a contemporary reporting guidance for economic evaluations was recently identified by researchers and biomedical journal editors [8]. The CHEERS statement attempts to consolidate and update previous efforts [9–20] into a single useful reporting guidance.

The primary audiences for the CHEERS statement are researchers reporting economic evaluations and the editors and peer reviewers evaluating their publication potential. We hope the statement (which consists of a 24 item checklist and accompanying recommendations on the minimum amount of information to be included when reporting economic evaluations) is a useful and practical tool for these audiences and will improve reporting and, in turn, health and healthcare decisions. To best understand and apply the recommendations contained within the statement, we encourage readers to access the Explanation and Elaboration Report [21].

**Development of the CHEERS Statement**

The statement was developed by a task force supported by the International Society for Pharmacoeconomics and Outcomes Research (ISPOR), as part of a broader initiative to facilitate and encourage the interchange of expert knowledge and develop best practices. The CHEERS Task Force members were chosen by the chair of the task force primarily based on their longstanding academic expertise and contribution to the multidisciplinary field of health economic evaluation. In addition to four members of the task force with doctorates in economics and its sub-discipline of health economics (AHB, MD, JM, SP), members included experts in health technology assessment and decision making (FA, AHB, DH, MD, JM) and in clinical epidemiology and biostatistics (AHB, EL, DM), those in active clinical practice (EL, FA), and those with previous experience in reporting guideline development (MD, DM). All members are researchers in applied health and health policy, with five members currently serving as editors for journals in the field (AHB, CC, MD, DG, EL).

The CHEERS Task Force followed current recommendations for developing reporting guidelines [22]. Briefly, the need for new guidance was first identified through a survey of members of the World Association of Medical Editors. Of the 6% (55/965) who responded, 91% (n=50) indicated they would use a standard if one were widely available [8]. Next, published checklists or guidance documents related to reporting economic evaluations were identified from a systematic review and survey of task force members [23]. Both of these activities were used to create a preliminary list of items to include when reporting economic evaluations. Recommendations of the minimum set of reporting items were then developed through a modified Delphi panel process. Forty eight individuals identified by the task force with broad geographical representation and representing academia, biomedical journal editors, the pharmaceutical industry, government decision makers, and those in clinical practice were invited to participate. Thirty seven agreed to participate. Participants were asked to score importance on a Likert scale and the average scores, weighted by each individual's confidence in ability to score, were then used to rank items. A cut-off point was applied to the ranked list to determine the minimum number of items important for reporting.

The CHEERS statement recommendations have been independently reviewed and subsequently revised by task force members. The recommendations are entirely those of the task force—the sponsors of the study had no role in study design, data analysis, data interpretation, or writing of the final recommendations. A more complete description of the methods and findings of the Delphi panel are found in the larger explanation and elaboration document [21].

**Checklist Items**

The final recommendations are subdivided into six main categories: (1) title and abstract; (2) introduction; (3) methods; (4) results;

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