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DOI: 10.1017/S0266462324004756

1 Reporting Standards for Economic Evaluations of Artificial Intelligence (AI) Interventions: A CHEERS

2 Extension

3 **Running Title:** CHEERS-AI Extension

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

11 Competing interest. M.R. is an Institute for Clinical and Economic Review (ICER) employee. The  
12 current work was unrelated to her employment, and ICER had no role in the funding, design, or  
13 oversight of the work reported.

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14 The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Health Economic  
15 Evaluation Publication Guidelines Good Reporting Practices Task Force published the first  
16 Consolidated Health Economic Evaluation Reporting Standards (CHEERS) statement(1) in 2013 to  
17 provide a set of recommendations to optimise the reporting of health economic evaluations. The  
18 statement provides examples and explanations for the recommendations in an easy to complete 24-  
19 item checklist. It has subsequently been highly cited and adopted by many international journals as  
20 a pre-requisite to article submission and, as such, is familiar to anyone conducting and submitting an  
21 economic evaluation for publication. In 2022 the reporting guidance was updated,(2) and replaced  
22 the original version with a 28-item checklist to enhance the original statement by addressing calls to  
23 recognize new developments in the field including the growth of patient and public involvement in  
24 research. An extension to the CHEERS 2022 statement has recently been published to ensure that  
25 economic evaluations of artificial intelligence (AI)-based health interventions are reported in a  
26 sufficiently transparent manner.(3)

27 The publication of CHEERS-AI is timely given the increasing focus on development and use of AI in  
28 the health care system. Syntheses of economic evaluations of AI-based interventions are common,(4-  
29 7) and have found that published economic evaluations of AI-based interventions are generally of  
30 moderate quality when it comes to following reporting guidelines,(6) including, specifically,  
31 adequately reporting the details of the AI nature of the intervention.(5) The development of this  
32 CHEERS-AI extension is prudent to ensure such studies are reported as transparently as possible. The  
33 CHEERS-AI extension is built on the existing 2022 update but provides specific guidance relevant to  
34 AI-based interventions. It was developed through several steps: 1) convening of an expert steering  
35 group; 2) creation of a long-list of possible reporting items; 3) refining the long-list to take forward to  
36 a consensus development phase; 4) a three-round consensus Delphi exercise; 5) consensus meeting;  
37 6) engagement with a patient expert group; 7) piloting of the agreed reporting items; and 8) final  
38 ratification of the CHEERS-AI checklist items. This process led to a 38-item checklist consisting of the  
39 28-items included within the 2022 update plus 10 new AI-specific reporting items. Furthermore, 8 of

40 the existing items now have additional guidance to draw out the relevance to AI more clearly. If  
41 implemented by editors, peer-reviewers and authors, the checklist is anticipated to lead to the  
42 inclusion of details about the AI technology that may not have been included in the reporting of an  
43 economic evaluation before the development of the guidance.

44 The AI extension calls for specific delineation of aspects of AI such as how the intervention effects  
45 clinical care (e.g., diagnosing, treating, or informing clinical management), describing the details of  
46 the AI component including how the effect of the AI is measured, how AI learning occurs over time,  
47 how the AI component was developed and validated, reporting the results of analyses of uncertainty,  
48 and discussing the necessary requirements for implementation.

49 We commend the authors, and the authors of the core CHEERS checklist, for continuing to promote  
50 the publication of economic evaluations that are clearly, consistently, and transparently reported. We  
51 encourage authors to consider both CHEERS and CHEERS-AI in their submissions of economic  
52 evaluations to our journal.

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