

OD43 The Growing Clinical And Economical Burden Of Chronic Kidney Disease In Brazil: An IMPACT CKD Analysis

Ricardo Moreira (ricardo.moreira@astrazeneca.com),
Cassio Regis, Beatriz Grizolli, Cinthia Montenegro,
Talita Gobbi, Naveen Rao, Stacey Priest, Stephen Brown,
Hannah Guiang, Ana Flavia Moura, Ming-Hui Zhao and
Steven Chadban

Introduction: The growing burden of chronic kidney disease (CKD) in Brazil is increasingly evident, marked by its significant contributions to mortality rates and healthcare costs. Managing CKD, especially through renal replacement therapy (RRT), demands substantial resources. To enhance healthcare decision-making, a thorough examination of the relationship between the rising prevalence of CKD and its clinical and economic impacts is crucial.

Methods: We developed a patient-level simulation model to project the natural history of CKD, defined as the IMPACT CKD. This model integrated factors such as acute kidney injury, cardiovascular events, and comorbidities, and aimed to assess CKD's clinical, humanistic, and economic impact on the healthcare system. It forecasted the burden of CKD over the next decade (2023 to 2032). This projection is pivotal to derive the burden of CKD for health technology assessment (HTA) evaluations. Validation was conducted against Brazil's demographic data and cross-validated with the Inside CKD model.

Results: The IMPACT CKD forecast a rapid increase of CKD population in Brazil, outpacing the growth of the general population. Specifically, there is an expected 6.9 percent increase in stages 3 to 5 CKD, leading to a higher demand for dialysis (projected 370,000 cases in 2032) and transplants (projected 115,000 cases in 2032). A significant increase in cardiovascular CKD-related events (+100.6%) and mortality (+67.8%) is expected. In 2032, it is projected 15 million CKD patients will be in stages 1 to 2, and 12.7 million in stages 3 to 5. CKD-related healthcare costs will represent 25.7 percent of Brazil's healthcare budget, and dialysis will reach USD2.7 billion in annual costs.

Conclusions: IMPACT CKD predicts an increasing CKD prevalence and an alarming rise in stages 3 to 5 and RRT, including thousands of premature deaths, and a substantial economic burden on the Brazilian healthcare system. This data could be informative for healthcare decision-makers when choosing strategy to reduce the impact of CKD in Brazil.

OD44 Consolidated Health Economic Evaluation Reporting Standards For Interventions That Use Artificial Intelligence (CHEERS-AI)

Tuba Saygin Avsar,
Jamie Elvidge (jamie.elvidge@nice.org.uk),
Claire Hawksworth, Saskia Knies, Antal Zempenyi,
Zsuzsanna Petykó, Pekka Siirtola, Gunjan Chandra,
Divya Srivastava, Alastair Denniston, Anastasia Chalkidou,
Julien Delaye, Petros Nousios, Manuel Gomes,
Junfeng Wang, Stavros Petrou and Dalia Dawoud

Introduction: Progress and innovation in artificial intelligence (AI)-based healthcare interventions continue to develop rapidly. However, there are limitations in the published health economic evaluations (HEEs) of AI interventions, including limited reporting on characteristics and development of algorithms. We developed an extension to the existing Consolidated Health Economic Evaluation Reporting Standards (CHEERS) to improve consistency, transparency, and reliability of the reporting of HEEs of AI interventions.

Methods: The Delphi method was used, following a prespecified study protocol. A steering group with expert oversight was formed to guide the development process. A long list of potential items was defined based on two recent systematic reviews of HEEs of AI-based interventions. The steering group identified and invited 119 experts to the three-stage survey. Participants were asked to score each item on a nine-point Likert scale, and they were also able to provide free-text comments. The final checklist was piloted on a random sample of nine HEEs of AI-based interventions.

Results: Three stages of the Delphi survey were completed by 58, 42, and 31 multidisciplinary respondents, respectively, including HTA specialists, health economists, AI experts, and patient representatives. The CHEERS-AI extension includes 18 AI-specific reporting items. Ten are entirely new items, including considerations about user autonomy, validation of the AI component, and AI-specific uncertainty. In addition, elaborations on eight existing CHEERS items were added to emphasize important AI-specific nuances. Some participants highlighted that CHEERS-AI can provide key benefits; for example, it could clarify the misconception that the predictive algorithms supporting AI-driven healthcare interventions are available for use without cost.

Conclusions: CHEERS-AI can aid in improved reporting quality for researchers, editors, and reviewers conducting or assessing HEEs of AI interventions.