CLAIM: Checklist for Artificial Intelligence in Medical Imaging

Section / Topic	No.	Item	
TITLE / ABSTRACT			
	1	Identification as a study of AI methodology, specifying the category of technology used (e.g., deep learning)	**√**
	2	Structured summary of study design, methods, results, and conclusions	**√**
INTRODUCTION			
	3	Scientific and clinical background, including the intended use and clinical role of the AI approach	**√**
	4	Study objectives and hypotheses	**√**
METHODS			
Study Design	**5**	Prospective or retrospective study	**√**
	6	Study goal, such as model creation, exploratory study, feasibility study, non-inferiority trial	**√**
Data	**7**	Data sources	**√**
	8	Eligibility criteria: how, where, and when potentially eligible participants or studies were identified (e.g., symptoms, results from previous tests, inclusion in registry, patient-care setting, location, dates)	**√**
	9	Data pre-processing steps	**√**
	10	Selection of data subsets, if applicable	**√**
	11	Definitions of data elements, with references to Common Data Elements	**√**
	12	De-identification methods	**N/A**
	13	How missing data were handled	**N/A**
Ground Truth	**14**	Definition of ground truth reference standard, in sufficient detail to allow replication	**√**
	15	Rationale for choosing the reference standard (if alternatives exist)	**√**
	16	Source of ground-truth annotations; qualifications and preparation of annotators	**√**
	17	Annotation tools	**√**
	18	Measurement of inter- and intrarater variability; methods to mitigate variability and/or resolve discrepancies	**√**
Data Partitions	**19**	Intended sample size and how it was determined	**√**
	20	How data were assigned to partitions; specify proportions	**√**
	21	Level at which partitions are disjoint (e.g., image, study, patient, institution)	**N/A**

Model	**22**	Detailed description of model, including inputs, outputs, all intermediate layers and connections	√
	23	Software libraries, frameworks, and packages	√
	24	Initialization of model parameters (e.g., randomization, transfer learning)	√
Training	**25**	Details of training approach, including data augmentation, hyperparameters, number of models trained	√
	26	Method of selecting the final model	√
	27	Ensembling techniques, if applicable	√
Evaluation	**28**	Metrics of model performance	√
	29	Statistical measures of significance and uncertainty (e.g., confidence intervals)	√
	30	Robustness or sensitivity analysis	√
	31	Methods for explainability or interpretability (e.g., saliency maps), and how they were validated	√
	32	Validation or testing on external data	√
RESULTS			
Data	**33**	Flow of participants or cases, using a diagram to indicate inclusion and exclusion	√
	34	Demographic and clinical characteristics of cases in each partition	√
Model performance	**35**	Performance metrics for optimal model(s) on all data partitions	√
	36	Estimates of diagnostic accuracy and their precision (such as 95% confidence intervals)	√
	37	Failure analysis of incorrectly classified cases	√
DISCUSSION			
	38	Study limitations, including potential bias, statistical uncertainty, and generalizability	√
	39	Implications for practice, including the intended use and/or clinical role	√
OTHER INFORMATION			
	40	Registration number and name of registry	√
	41	Where the full study protocol can be accessed	√
	42	Sources of funding and other support; role of funders	√

Mongan J, Moy L, Kahn CE Jr. Checklist for Artificial Intelligence in Medical Imaging (CLAIM): a guide for authors and reviewers. Radiol Artif Intell 2020; 2(2):e200029. https://doi.org/10.1148/ryai.2020200029