

## CLAIM: Checklist for Artificial Intelligence in Medical Imaging

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

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

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