

# CLEAR Checklist v1.0

**Note:** Use the checklist in conjunction with the main text for clarification of all items.

Yes, details provided; No, details not provided; n/e, not essential; n/a, not applicable; Page, page number

Section	No.	Item	Yes	No	n/a	Page
<b>Title</b>						
	1	Relevant title, specifying the radiomic methodology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1
<b>Abstract</b>						
	2	Structured summary with relevant information	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2
<b>Keywords</b>						
	3	Relevant keywords for radiomics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3
<b>Introduction</b>						
	4	Scientific or clinical background	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4
	5	Rationale for using a radiomic approach	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
	6	Study objective(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5
<b>Method</b>						
<i>Study Design</i>	7	Adherence to guidelines or checklists (e.g., CLEAR checklist)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
	8	Ethical details (e.g., approval, consent, data protection)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
	9	Sample size calculation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
	10	Study nature (e.g., retrospective, prospective)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6
	11	Eligibility criteria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6-7
	12	Flowchart for technical pipeline	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10
<i>Data</i>	13	Data source (e.g., private, public)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
	14	Data overlap	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	15	Data split methodology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
	16	Imaging protocol (i.e., image acquisition and processing)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7-8
	17	Definition of non-radiomic predictor variables	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7-8
	18	Definition of the reference standard (i.e., outcome variable)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7-8
<i>Segmentation</i>	19	Segmentation strategy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
	20	Details of operators performing segmentation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
<i>Pre-processing</i>	21	Image pre-processing details	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	22	Resampling method and its parameters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	23	Discretization method and its parameters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9

Section	No.	Item	Yes	No	n/a	Page
	24	Image types (e.g., original, filtered, transformed)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
<i>Feature extraction</i>	25	Feature extraction method	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	26	Feature classes	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	27	Number of features	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	28	Default configuration statement for remaining parameters	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
<i>Data preparation</i>	29	Handling of missing data	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	30	Details of class imbalance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	31	Details of segmentation reliability analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9
	32	Feature scaling details (e.g., normalization, standardization)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	33	Dimension reduction details	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
<i>Modeling</i>	34	Algorithm details	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	35	Training and tuning details	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	36	Handling of confounders	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
	37	Model selection strategy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
<i>Evaluation</i>	38	Testing technique (e.g., internal, external)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
	39	Performance metrics and rationale for choosing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
	40	Uncertainty evaluation and measures (e.g., confidence intervals)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9-10
	41	Statistical performance comparison (e.g., DeLong's test)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
	42	Comparison with non-radiomic and combined methods	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
	43	Interpretability and explainability methods	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11
<b>Results</b>						
	44	Baseline demographic and clinical characteristics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12
	45	Flowchart for eligibility criteria	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7
	46	Feature statistics (e.g., reproducibility, feature selection)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10
	47	Model performance evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13
	48	Comparison with non-radiomic and combined approaches	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	14
<b>Discussion</b>						
	49	Overview of important findings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	17
	50	Previous works with differences from the current study	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	19
	51	Practical implications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	18
	52	Strengths and limitations (e.g., bias and generalizability issues)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20

Section	No.	Item	Yes	No	n/a	Page
<b>Open Science</b>						
<i>Data availability</i>	53	Sharing images along with segmentation data [n/e]	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text"/>
	54	Sharing radiomic feature data	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="21"/>
<i>Code availability</i>	55	Sharing pre-processing scripts or settings	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="21"/>
	56	Sharing source code for modeling	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="21"/>
<i>Model availability</i>	57	Sharing final model files	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="21"/>
	58	Sharing a ready-to-use system [n/e]	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text"/>

Kocak B, Baessler B, Bakas S, Cuocolo R, Fedorov A, Maier-Hein L, Mercaldo N, Müller H, Orhac F, Pinto Dos Santos D, Stanzione A, Ugga L, Zwanenburg A. CheckList for EvaluAtion of Radiomics research (CLEAR): a step-by-step reporting guideline for authors and reviewers endorsed by ESR and EuSoMII. *Insights Imaging*. 2023 May 4;14(1):75. doi: 10.1186/s13244-023-01415-8