

CONSORT 2025 Checklist

Proactive Push versus Reactive Response Artificial Intelligence for Thyroid Cancer Guideline Learning Among Resident Physicians: A Nationwide Online Randomized Controlled Trial

Manuscript version: clean pre-review revision

Author completion required before submission: the exact trial registration number and date were not present in the supplied manuscript or ethics approval. CONSORT item 27 also requires verified safety-event counts in the Results.

Section/topic	Item	CONSORT 2025 checklist item	Where reported / completion status
Title and abstract	1a	Identification as a randomized trial in the title.	REPORTED - Title, p. 1.
Title and abstract	1b	Structured summary of trial design, methods, results, and conclusions.	REPORTED - Abstract, p. 2.
Open science	2	Trial registry name, registration number, URL, and registration date.	PARTIAL - Abstract p. 2 and Methods p. 4. Registry name is reported, but the exact registration number and date require author completion. Add "Retrospectively registered" if registration occurred after 1 March 2026.
Open science	3	Where the trial protocol and statistical analysis plan can be accessed.	REPORTED - Availability of data and materials, p. 18 (available from the corresponding author on reasonable request).
Open science	4	Data-sharing statement, including access to deidentified participant data, data dictionary, and analysis code.	REPORTED - Availability of data and materials, p. 18.
Open science	5a	Sources of financial and other support and the role of funders.	REPORTED - Funding, p. 18 ("None").
Open science	5b	Conflicts of interest of trial authors.	REPORTED - Competing interests, p. 18.
Introduction	6	Scientific background and rationale.	REPORTED - Introduction, pp. 3-4.
Introduction	7	Specific objectives or hypotheses, including benefits and harms where applicable.	REPORTED - Introduction, p. 3; safety outcomes in Methods, p. 6.
Introduction	8	Patient and public involvement in the design, conduct, reporting, or dissemination plans.	NOT REPORTED / VERIFY - This is an educational trial of resident physicians. Add a brief statement if no patients or members of the public were involved.
Methods	9	Description of trial design, including allocation ratio and framework.	REPORTED - Study Design and Oversight and Randomization and Blinding, pp. 4-5.
Methods	10	Important changes to methods after trial commencement, with reasons.	NOT REPORTED / VERIFY - Confirm whether any important post-commencement changes occurred; state "none" if applicable.
Methods	11	Trial setting and locations.	REPORTED - Study Design and Oversight, p. 4.
Methods	12a	Eligibility criteria for participants.	REPORTED - Participants, pp. 4-5.
Methods	12b	Eligibility criteria for sites and for individuals delivering the interventions, where applicable.	NOT APPLICABLE / PARTIAL - Online nationwide trial; intervention delivery was automated. Platform and study team oversight are described in Methods, pp. 4-5.
Methods	13	Intervention and comparator details sufficient for replication, including how and when administered and where materials can be accessed.	REPORTED - Interventions, p. 5; data/materials access, p. 18.
Methods	14	Prespecified primary and secondary outcomes, including measurement variables, metrics, aggregation,	REPORTED - Outcomes and Data Collection, pp. 5-6.

Section/topic	Item	CONSORT 2025 checklist item	Where reported / completion status
		and time points.	
Methods	15	Definition and assessment of harms or unintended effects.	REPORTED - Outcomes/Safety events, p. 6.
Methods	16a	How sample size was determined, including assumptions.	REPORTED - Statistical Analysis, pp. 6-7.
Methods	16b	Interim analyses and stopping guidelines, if applicable.	REPORTED - Statistical Analysis, p. 6 (no interim efficacy analysis or adaptive sample-size adjustment planned).
Methods	17a	Who generated the random allocation sequence and the method used.	REPORTED - Randomization and Blinding, pp. 4-5.
Methods	17b	Type of randomization and details of restrictions.	REPORTED - Randomization and Blinding, pp. 4-5 (stratification and varied blocks of 4 or 6).
Methods	18	Mechanism used to implement allocation concealment until assignment.	REPORTED - Randomization and Blinding, pp. 4-5 (central electronic system and encrypted server inaccessible to recruitment personnel).
Methods	19	Whether individuals enrolling or assigning participants had access to the allocation sequence.	REPORTED - Randomization and Blinding, pp. 4-5.
Methods	20a	Who was blinded after assignment.	REPORTED - Randomization and Blinding, pp. 4-5.
Methods	20b	How blinding was achieved and, if relevant, similarity of interventions.	REPORTED - Randomization and Blinding and Interventions, p. 5.
Methods	21a	Statistical methods for primary, secondary, and harm outcomes.	REPORTED - Statistical Analysis, pp. 6-7.
Methods	21b	Definition of analysis populations and assignment groups used in analyses.	REPORTED - Statistical Analysis, pp. 6-7 (intention-to-treat, per-protocol, and as-treated sets).
Methods	21c	How missing data were handled.	REPORTED - Statistical Analysis, p. 6 (20 multiple-imputation datasets).
Methods	21d	Methods for additional analyses, distinguishing prespecified from post hoc analyses.	REPORTED - Statistical Analysis, p. 7.
Results	22a	For each group, numbers randomly assigned, receiving intended intervention, and analyzed.	REPORTED - Participant flow, p. 7; CONSORT flow diagram, p. 14.
Results	22b	Losses and exclusions after randomization, with reasons.	REPORTED - Participant flow, p. 7; CONSORT flow diagram, p. 14.
Results	23a	Dates defining recruitment and follow-up periods.	REPORTED - Abstract p. 2, Methods p. 4, and Results p. 7.
Results	23b	Why the trial ended or was stopped, when applicable.	NOT APPLICABLE / VERIFY - The manuscript reports completion of the planned study period and does not indicate early termination.
Results	24a	Actual delivery of the interventions and adherence/fidelity.	REPORTED - Interventions p. 5; engagement and behavioral mechanism results pp. 8-9; Table 3 p. 13.
Results	24b	Concomitant care received during the trial.	NOT APPLICABLE - Educational intervention; no clinical concomitant-care restrictions were relevant.
Results	25	Baseline demographic and clinical characteristics by group.	REPORTED - Table 1, p. 11.
Results	26	For each outcome, numbers analyzed and available, group results, effect estimates, and precision.	REPORTED - Results pp. 7-9; Tables 2-3, pp. 12-13.
Results	27	All harms and unintended effects in each group.	PARTIAL / AUTHOR ACTION REQUIRED - Methods define technical and use-related events (p. 6), but Results do not provide verified event counts. Insert actual counts, including an explicit zero statement if no events occurred.
Results	28	Results of other analyses, distinguishing prespecified from post hoc analyses.	REPORTED - Subgroup, mediation, and sensitivity analyses, p. 9.
Discussion	29	Interpretation consistent with results, balancing benefits and harms and considering other evidence.	REPORTED - Discussion, pp. 9-11.

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Discussion	30	Trial limitations, including potential bias, imprecision, generalizability, and multiplicity.	REPORTED - Limitations, pp. 10-11.

Notes: Page numbers refer to the rendered clean manuscript supplied with this checklist. “Verify” items should be confirmed against the locked protocol, trial registry record, and study safety log before upload.

Reporting guideline: Hopewell S, et al. CONSORT 2025 statement. BMJ. 2025;389:e081123. The AI-specific reporting statement in the manuscript additionally cites the CONSORT-AI extension.