

The TARGET (TrAnsparent ReportinG of observational studies Emulating a Target trial) Checklist



Item no.	Checklist item		Location reported	
Abstract				
1	a	Identify that the study attempts to emulate a target trial using observational data. State the study objectives and briefly summarize the specified target trial.	2	
	b	Report the data sources used for emulation.	2	
	c	Summarize key assumptions, statistical methods, findings and conclusions.	2-3	
Introduction				
2	Background	Describe the scientific background of the study and the gap in knowledge.	4-5	
3	Causal question	Summarize the causal question.	5	
4	Rationale	Describe the rationale for emulating a target trial with the available data. Cite randomized trials informing the design of the target trial if applicable.	4-5	
Methods				
5	Data sources	Cite the data sources contributing to the analyses and for each one describe the following: original purpose, type, the geographic locations, setting and time-period. If relevant, describe how the data were linked or pooled.	5-7	
6	Target trial specification		Location item 6 (specification) reported	Location item 7 (emulation) reported
	Target trial emulation			
	Specify the components of the target trial protocol that would answer the causal question.	7 Describe how the components of the target trial protocol were emulated with the observational data, including how all variables were measured or ascertained.		
	Eligibility criteria			
	a	Describe the eligibility criteria.	Table S1	Table S1 + 7
	a	Describe how the eligibility criteria were operationalized with the data.		
	Treatment strategies		Table S1	Table S1 + 7
	b	Describe the treatment strategies that would be compared.		
	b	Describe how the treatment strategies were operationalized with the data.		

Assignment procedures		Assignment procedures		Table S1	Table S1 + 7
c	Report that eligible individuals would be randomly assigned to treatment strategies and may be aware of their treatment allocation.	c	Describe how assignment to treatment strategies was operationalized with the data.		
Follow-up		Follow-up		Table S1	Table S1 + 7-8
d	Clarify that follow-up would start at time of assignment to the treatment strategies. Specify when follow-up would end.	d	Clarify that follow-up starts at the time individuals were assigned to the treatment strategies. Describe how the end of follow-up was operationalized with the data.		
Outcomes		Outcomes		Table S1	Table S1 + 8
e	Describe the outcomes.	e	Describe how the outcomes were operationalized with the data.		
Causal contrasts		Causal contrasts		Table S1	Table S1 + 9-10
f	Describe the causal contrasts of interest, including effect measures.	f	Describe how the causal contrasts were operationalized with the data, including effect measures.		
Identifying assumptions		Identifying assumptions		Table S1	Table S1, Figure S1, Table S4 + 9-10
g	Describe assumptions that would be made to identify each causal estimand. Describe the variables, if any, related to these assumptions.	g.i	For each causal estimand, describe assumptions made to identify it, including assumptions regarding baseline confounding due to lack of randomization.		
		g.ii	Describe how the variables related to these assumptions were operationalized with the data		Table S1, Figure S1, Table S4 + 9-10
Data analysis plan		Data analysis plan		Figure S1, Table S4 + 9-10	Figure S1, Table S4 + 9-10
h	For each causal estimand, describe the data analysis procedures and any associated	h.i	For each causal estimand, describe the data analysis procedures and any associated statistical		

	statistical modelling assumptions, including approaches for handling missing data.	modelling assumptions, including approaches for handling missing data.		
		h.ii For each causal estimand, describe any additional analyses conducted to assess the sensitivity of the results to the choice of operationalizations, assumptions and analysis.		Figure S1, Table S4 + 9-11
Results				
8	Participant selection	Report numbers of individuals assessed for eligibility, eligible, and assigned to each treatment strategy. A flow diagram is strongly recommended.	12 + Figure 1	
9	Baseline data	Describe the distribution of characteristics of individuals at baseline, by treatment strategy.	12 + Table 1	
10	Follow-up	Summarize length of follow-up and describe reasons for end of follow-up for each treatment strategy and causal contrast.	12-13	
11	Missing data	Describe the frequency of missing data in all variables, by treatment strategy when applicable.	12-13	
12	Outcomes	Describe the frequency or distribution of each outcome, by treatment strategy.	12-13	
13	Effect estimates	Report the effect estimates for each causal contrast with corresponding measures of precision, including both absolute and relative measures of effect, when applicable.	12-13	
14	Additional analyses	Report results of all analyses to assess the sensitivity of the estimates to choices in operationalizations, assumptions and analysis.	13	
Discussion				
15	Interpretation	Provide an interpretation of the key findings.	14-17	
16	Limitations	Discuss the limitations of the study considering differences between the target trial and its emulation and the plausibility of assumptions, including assumptions regarding baseline confounding due to lack of randomization.	17-18	
Other information				
17	Ethics	Provide the institutional research board or ethics committee that approved the study and approval numbers, if relevant.	11 + 19	
18	Registration	State whether, when and where the study protocol was registered.	11	

19	Sharing of study materials	Provide information on whether data, analytic code and/or other materials are accessible, and where and how they can be accessed.	19
20	Funding sources	Provide the sources of funding and detail the role of the funders in the design, conduct and reporting of the study.	11+ 19
21	Conflicts of interest	State any conflicts of interest and financial disclosures for all authors.	11 + 19

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