STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Page No.	Relevant text from manuscript
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1	a mixed-methods study
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	3-4	In the abstract, we provided relevant information on the study background, methods, main findings and conclusion.
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	6	The scientific background and rationale for the study was described in "Introduction section"
Objectives	3	State specific objectives, including any prespecified hypotheses	7	*It aims to comprehensively review and analyse the RASR strategies that are currently used in Lao PDR with specific objectives, 1) assess the awareness and acceptability of current RASR activities by malaria programme stakeholders, malaria service providers, and mobile and migrant populations (MMPs); 2) investigate the implementation and performance of RASR activities in Lao PDR; 3) explore the feasibility of RASR implementation by identifying enablers and barriers; and 4) explore how current RASR strategies can be optimised to overcome existing barriers and improve their effectiveness to achieve malaria elimination.*
Methods				

Study design	4	Present key elements of study design early in the paper	7	The overview and key elements of the study design was described in the first part of Methods section. *Briefly, secondary analysis of an aggregated subset of the routinely collected malaria surveillance data from provinces in malaria elimination phase; quantitative surveys of malaria programme stakeholders (disease control unit leaders, and Vector Borne Disease Control Unit staff from Provincial and District Health Offices) and malaria service providers (health centre and primary healthcare facility staff, and village malaria workers (VMWs)); and qualitative consultations such as focus group discussions (FGDs) with malaria programme stakeholders, malaria service providers, and MMPs, and semi-structured interviews with malaria programme stakeholders were conducted.*
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	7-9	Methods section, Figure 1, Supplemental materials 1 and 4
Participants	6	(*a*) *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	7-9	Methods section (Study design and participants, Study setting, Data collection, management and analyses) and Supplemental material 1
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	8-9	Methods section and Supplemental materials 1

Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	8-9	Methods section and Supplemental materials 1 and 4. *For the purpose of secondary data analysis, the Laos Centre of Malariology Parasitology and Entomology provided secondary datasets containing aggregated data of malaria testing, treatment and surveillance collected through routine malaria surveillance system and performed by staff from health centres as well as district and provincial disease control teams in all 17 provinces in malaria elimination phase between 01 Jan 2018 and 31 Dec 2022.* *Quantitative questionnaires in Lao language were administered to 28 malaria programme stakeholders (Questionnaire 1 in Supplemental material 4) and 37 malaria service providers (Questionnaire 2 in Supplemental material 4) …* *A subset of surveyed malaria programme stakeholders, malaria service providers, and MMPs were recruited purposively for qualitative consultations. Four semi-structured interviews with malaria programme stakeholders (male: 3; female: 1), five FGDs with 14 malaria programme stakeholders (male: 11; female: 3) (in groups of 2-4), six FGDs with 24 malaria service providers (male: 11; female: 13) (in groups of*

				3-5), and four FGDs with 20 MMPs (male: 14; female: 6) (in groups of 3-6) were conducted.
Bias	9	Describe any efforts to address potential sources of bias	23-24	Strengths and limitations of the study
Study size	10	Explain how the study size was arrived at		Supplemental material 1 *The sample size was estimated based on the availability of stakeholders in Lao PDR, with consideration of likely logistical and accessibility challenges during the COVID-19 pandemic*

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Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why		Supplemental material 1 (Sections 1 and 3)
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	8-9	Methods section (Data collection, management and analyses) and Supplemental material 1
		(*b*) Describe any methods used to examine subgroups and interactions		Not relevant.
		(*c*) Explain how missing data were addressed		There is no description on how missing data were addressed.
		(*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy		Not relevant.
		(*e*) Describe any sensitivity analyses		Sensitivity analyses were not included.
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	8-9	*Quantitative questionnaires in Lao language were administered to 28 malaria programme stakeholders (Questionnaire 1 in Supplemental material 4) and 37 malaria service providers (Questionnaire 2 in Supplemental material 4) …* *A subset of surveyed malaria programme stakeholders, malaria service providers, and MMPs were recruited purposively for qualitative consultations. Four semi-structured interviews with malaria programme stakeholders (male: 3; female: 1), five FGDs*

				with 14 malaria programme stakeholders (male: 11; female: 3) (in groups of 2-4), six FGDs with 24 malaria service providers (male: 11; female: 13) (in groups of 3-5), and four FGDs with 20 MMPs (male: 14; female: 6) (in groups of 3-6) were conducted.
		(b) Give reasons for non-participation at each stage		Not relevant
		(c) Consider use of a flow diagram		There is no diagram for participants.
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	8-9	Supplementary material 5: Additional tables 1 and 2
		(b) Indicate number of participants with missing data for each variable of interest		There is no description on number of participants with missing data
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)		Not relevant.
Outcome data	15*			
		Cross-sectional study—Report numbers of outcome events or summary measures	10	*All (100%, 28/28) surveyed malaria programme stakeholders reported that the 1-3-7 strategy was the time-bound RASR strategy adopted by the Laos Centre of Malariology Parasitology and Entomology.*
			10	*Interviewees and FGD participants reported that the 1-3-7 strategy was well accepted by malaria programme stakeholders and service providers.*

				At the grass roots level, MMPs were not aware of RASR activities such as malaria case notification, case investigation, focus investigation and response …
			12-13	Table 1
			15	Figure 2 Supplemental material 5, Additional table 6
			15	Enablers of RASR activities in Lao PDR
			16-19	Barriers for RASR activities in Lao PDR
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included		Not relevant
		(*b*) Report category boundaries when continuous variables were categorized		Not relevant
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		Not relevant

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Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses		Not relevant
Discussion				
Key results	18	Summarise key results with reference to study objectives	19	*Overall, the 1-3-7 strategy is the policy-endorsed RASR strategy in Lao PDR and is well accepted by malaria programme stakeholders and malaria service providers. The implementation of RASR strategy in Lao PDR was satisfactory after 2020 in terms of timeliness of case notification and investigation. However, this study also highlighted some key issues and ways for improving the effectiveness of RASR strategy and accelerating Lao PDR's progress towards malaria elimination.*
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	23-24	*Completeness and effectiveness, essential parameters for measuring success of RASR strategy could not be assessed due to limitations in the secondary dataset which provided no more than the provincial level aggregated data with limited number of variables (Supplemental material 3). Due to this limitation, completeness of each step of RASR strategy and effectiveness of RACD could not be calculated (Supplemental material 1: Section 3).*

				Supplemental material 1
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	19-23	Discussion
Generalisability	21	Discuss the generalisability (external validity) of the study results	23	*This was the first mixed-method study to comprehensively evaluate the performance and operational feasibility of RASR strategies and activities in Lao PDR. The study has used diverse data collection methods and included participants from different levels ranging from MMPs, frontline malaria service providers to higher level malaria programme stakeholders. Moreover, findings from different methods were triangulated to increase the breadth and depth of understanding of the study findings.*
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	27	*This study was funded by an international funding organisation (Grant Number: QSE-M-UNOPS-BI-20864-007-61) to all authors and the National Health and Medical Research Council of Australia (Leadership Fellowship (2017485) and Centre for Research Excellence (1134989)) awarded to FJIF. The Burnet Institute is funded by a Victorian State Government Operational Infrastructure Support*

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*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.