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 cohort study
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	1	We aimed to assess revision rates of salvage-THA after IF of hip fracture compared with acute fracture-related THA. Revision rates after salvage THA following IF were comparable to those after acute THA for fracture. Hence, previous internal fixation does not seem disadvantageous.
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	1	
Objectives	3	State specific objectives, including any prespecified hypotheses	1	Primary aim of our study was to assess the risk of revision of salvage THA after failed IF compared with acute fracture-related THA
Methods				

Study design	4	Present key elements of study design early in the paper	3	nationwide population-based observational registry study
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	3	All primary THA for acute proximal femoral fracture (acute THA), and all salvage THA after previous IF (salvage THA) on the ipsilateral hip between 2007 and 2023 were retrieved from the register
Participants	6	(*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	3	Data from the Dutch Arthroplasty Register (LROI) Exclusion criteria for the salvage THA group were: (i) metal-on-metal (MoM) articulation and (ii) diagnosis other than late posttraumatic, osteonecrosis, osteoarthritis, or fracture.
		(*b*) *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	NA	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	3	Risk

				of first revision after the primary THA was defined as primary outcome variable. Secondary outcomes were second revision rate, as well as reason for revision, and patient and proce- dure characteristics ge, sex, American Society of Anesthesiologists Physical Status classification (ASA) and body mass index (BMI), fixation, surgical approach (first revision only), and femoral head size (first revision only) were entered as confounders.
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	*3*	All primary THA for acute proximal femoral fracture (acute THA), and all salvage THA after previous IF (salvage THA) on the ipsilateral hip between 2007 and 2023 were retrieved from the register

Bias	9	Describe any efforts to address potential sources of bias	3	Exclusion criteria for the salvage THA group were: (i) metal-on-metal (MoM) articulation and (ii) diagnosis other than late posttraumatic, osteonecrosis, osteoarthritis, or fracture.
Study size	10	Explain how the study size was arrived at	3	All primary THA for acute proximal femoral fracture (acute THA), and all salvage THA after previous IF (salvage THA) on the ipsilateral hip between 2007 and 2023 were retrieved from the register

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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	3	Patient and procedure characteristics were summarized. Survival time was defined as the time from primary THA to first revision procedure, death of the patient or end of the follow-up period (January 1, 2024). Cumulative crude incidence of revision was calculated using competing risk analysis; death was considered as competing risk. Competing risk analysis provides more insight in the risk of surgical revision by taking both implant failure and mortality into account, as opposed to Kaplan–Meier analysis [9,10]. The crude cumulative incidence of revision was determined at 1, 3, 5, 10, and 15 years after primary THA. For second revisions, this was calculated

				at 1, 3, 5, and 8 years. Multivariable Cox regression analysis was performed to account for differences in case-mix;
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	3	Confound-ers were selected based on available variables and statistically significant crude hazard ratios and expert clinical judgment regarding relevance in context
		(*b*) Describe any methods used to examine subgroups and interactions	3	risk factors for revision according to reason (infection, dislocation, aseptic loosening, and periprosthetic fracture) were assessed using multivariable Cox regression analyses.
		(*c*) Explain how missing data were addressed6		Due to missing data, several cases had to be excluded.
		(*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		NA
		(*e*) Describe any sensitivity analyses	3	Given the exploratory nature of this registry-based study and

				the variation in findings, we performed the following post-hoc analyses to uncover patterns or other influential factors. Additional analyses were performed to examine the associa- tion of period of primary THA (as a proxy for time trends in techniques and prosthesis components) and risk of revision. Period of primary THA was categorized (2007–2013, 2014– 2018, 2019–2023) and included in a uni- and multivariable Cox-regression analysis. Furthermore,
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	4	Fig. 1
		(b) Give reasons for non-participation at each stage	4	Fig. 1
		(c) Consider use of a flow diagram	4	Fig. 1
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	3	
		(b) Indicate number of participants with missing data for each variable of interest		Suppl table

		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	3	12,486 salvage THAs after previous IF were identified with a mean survival of 6.1 years (SD 4.2),
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	*4*	*Fig 1*
		Case-control study—Report numbers in each exposure category, or summary measures of exposure		
		Cross-sectional study—Report numbers of outcome events or summary measures		
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	4/5	Crude incidence of revision until the end of results.
		(*b*) Report category boundaries when continuous variables were categorized	4/5	Crude incidence of revision until the end of results.
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period		

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Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	5	Text under table 3.
Discussion				
Key results	18	Summarise key results with reference to study objectives	6	First Alinea discussion
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	6	Under the header 'Limitations'
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	6	Throughout discussion.
Generalisability	21	Discuss the generalisability (external validity) of the study results	6	As observational data was used no conclusions on causal- ity can be drawn.
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	3	This study was funded by a grant from the Dutch Arthroplasty Register (grant number: LROI RG 2024-001).

*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.