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

	Item No	Recommendation	
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	Survivorship and risk factors for revision after total hip arthroplasty in patients 30 years and younger: a cohort study from the German arthroplasty register
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	Uncemented THA in young patients demonstrated a revision rate of 4.6% which we believe is a satisfactory mid-term survival. Patients with pediatric hip disease present the highest risk for revision.
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	The advantage of the German Arthroplasty Registry (EPRD) database, one of the largest in Europe [15], is that the substantial size of the age-defined cohort undergoing a comparatively uniform procedure within a single decade, minimizes the impact of surgical trends seen to vary over decades.
Objectives	3	State specific objectives, including any prespecified hypotheses	The aim of our study was to analyze the EPRD database to determine implant survivorship and risk factors for revision in patients aged 30 years or less after THA.
Methods			
Study design	4	Present key elements of study design early in the paper	Registry based cohort study
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	
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	
		(*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	N/A
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	patient age at index operation, sex, BMI, ASA, Elixhauser Score, primary diagnosis as coded in the OPS system, calendar year of surgery, documented prior "relevant" surgery on the hip, type of fixation, implants, grade of acetabular component complexity, articulations, femoral head size, cause of any revision, and month of death were collected. The primary endpoint was time to first revision. Revision was defined as any removal or exchange of any component including liner exchange. Data on reason for revision was categorized as dislocation, infection, loosening acetabular/acetabular and femoral/femoral, malalignment, missing, osteolysis, periprosthetic fracture and other.

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	*The diagnoses for primary THA were grouped into 6 categories: secondary OA, osteonecrosis, hip dysplasia, inflammatory arthropathy, trauma and other. Categorical variables were summarized as frequencies and percentages.*
Bias	9	Describe any efforts to address potential sources of bias	Misclassification bias
Study size	10	Explain how the study size was arrived at	Flow diagram 1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	*Continuous data were described using means and standard deviation (SD). For the purposes of analysis, continuous data (age at operation, BMI, era of surgery) were binarized and treated as categorical. Age at time of surgery was binarized into those less than 20 at the time of surgery, and those 20 years and older. Data on BMI was binarized as less than 30 and 30 or greater. Era of operation was binarized as surgery conducted between 2012 and 2020, and from 2020 to the end of the study period.*
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	Statistical analysis was performed using R statistical software (Version R-4.4.0., Vienna, Austria). A P value threshold of 0.05 was considered indicative of statistical significance. The Kaplan–Meier method was used to calculate unadjusted survival functions. Univariate Cox regressions were used to calculate the hazard ratio (HR) and accompanying 95% confidence interval (CI) for each covariate.
		(*b*) Describe any methods used to examine subgroups and interactions	
		(*c*) Explain how missing data were addressed	Tabulated
		(*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
	(*e*) Describe any sensitivity analyses

Continued on next page

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	
		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Done
		(c) *Cohort study*—Summarise follow-up time (eg, average and total amount)	Done
Outcome data	15*	*Cohort study*—Report numbers of outcome events or summary measures over time	*47 revisions*
		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	K-M Cox
		(*b*) Report category boundaries when continuous variables were categorized	
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	Done
Discussion			
Key results	18	Summarise key results with reference to study objectives	
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	Misclassification No Proms No approach

Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the study results	
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	Paid for attendance at ISAR

*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.