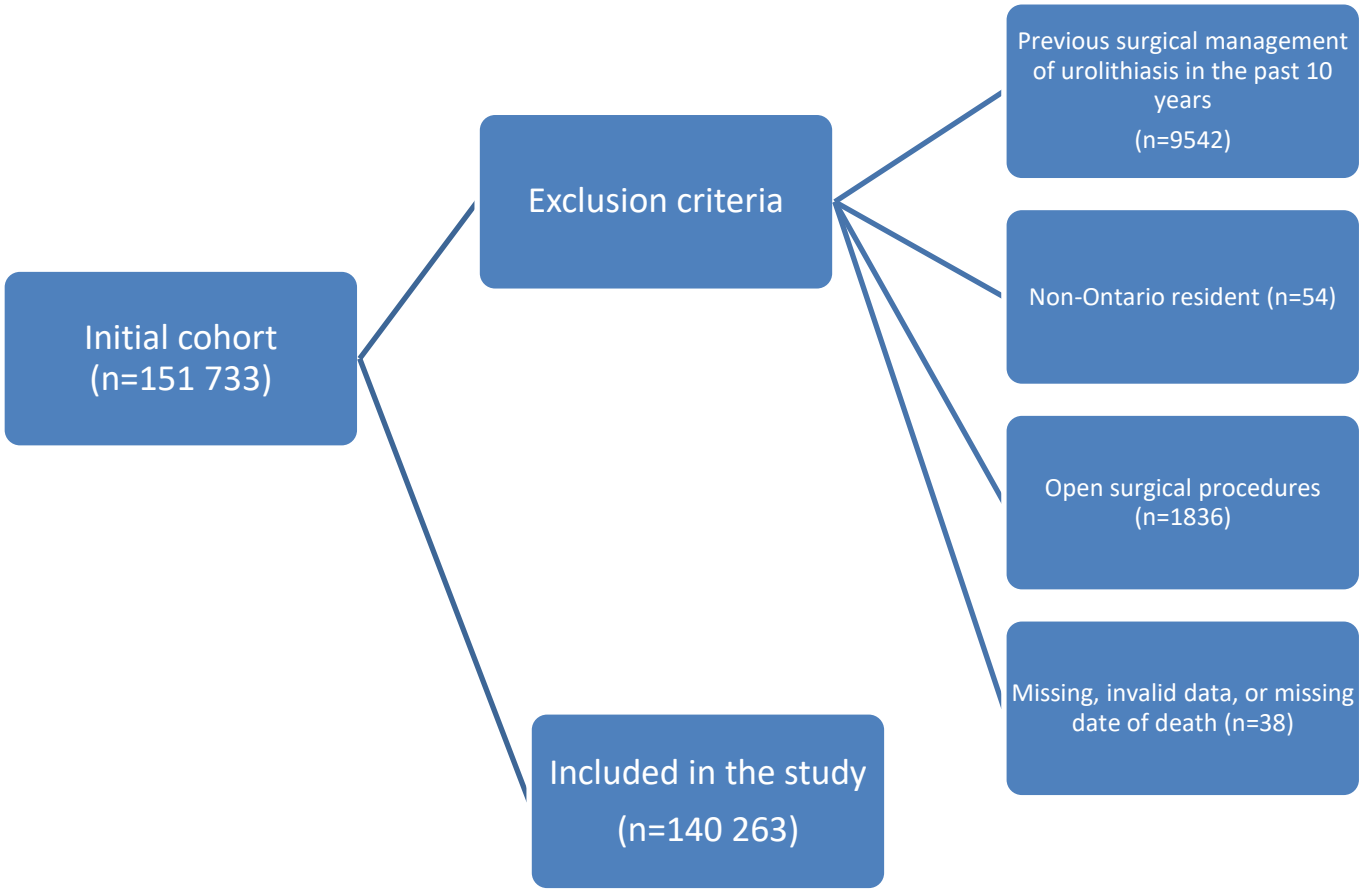
Golomb D, et al. A population-based retrospective cohort study analyzing contemporary trends in the surgical management of urinary stone disease in adults

APPENDIX

Supplementary Fig. 1. Flow diagram depicting inclusion and exclusion of patients following identification from the CIHI and OHIP databases for surgical management of stone disease from 2002–2019.



Supplementary Table 1. Study code list		
Description	**Code type**	**Codes**
Surgical modality: Percutaneous	CCI	1PE57DTAG, 1PE57DTAM, 1PE57DTAS, 1PE57DTAZ, 1PE57DTBD, 1PE57DTGX, 1PE59DAAG, 1PE59DAAS, 1PE59DAAT, 1PE59DAAZ, 1PE59DAGX, 1PG57DAGX, 1PG59DAAG, 1PG59DAAS, 1PG59DAAT, 1PG59DAAZ, 1PG59DAGX
	Feecode	S430 +Z627
Surgical modality: Open	CCI	1PE57LAAM, 1PE57LAGX, 1PE57QWGX, 1PE59LAAG, 1PE59LAGX, 1PG57LAAM, 1PG57LAGX, 1PG59LAAG, 1PG59LAGX, 1PM57LAGX
	Feecode	S405, S408, S445, S446
Surgical modality: Ureteroscopy	CCI	1PE57BAAM, 1PE57BAGX, 1PE59BAAG, 1PE59BAAS, 1PE59BAAT, 1PE59BAAZ, 1PE59BAGX, 1PE59BAX7, 1PG57BAAM, 1PG57BAGX, 1PG59BAAG, 1PG59BAAS, 1PG59BAAT, 1PG59BAAZ, 1PG59BAGX, 1PG59BAX7
	Feecode	S470
Surgical Modality: SWL	CCI	1PE59KQAP, 1PE59KQAQ, 1PE59KQAR, 1PG59KQAP, 1PG59KQAQ, 1PG59KQAR, 1PM59KQAP, 1PM59KQAQ, 1PM59KQAR
	Feecode	Z630
Calculi location: Bladder	CCI	1PM57LAGX, 1PM59KQAP, 1PM59KQAQ, 1PM59KQAR
Calculi location: Ureter	CCI	1PG57BAAM, 1PG57BAGX, 1PG57DAGX, 1PG57LAAM, 1PG57LAGX, 1PG59BAAG, 1PG59BAAS, 1PG59BAAT, 1PG59BAAZ, 1PG59BAGX, 1PG59BAX7, 1PG59DAAG, 1PG59DAAS, 1PG59DAAT, 1PG59DAAZ, 1PG59DAGX, 1PG59KQAP, 1PG59KQAQ, 1PG59KQAR, 1PG59LAAG, 1PG59LAGX
Calculi location: Kidney	CCI	1PE57BAAM, 1PE57BAGX, 1PE57DTAG, 1PE57DTAM, 1PE57DTAS, 1PE57DTAZ, 1PE57DTBD, 1PE57DTGX, 1PE57LAAM, 1PE57LAGX, 1PE57QWGX, 1PE59BAAG, 1PE59BAAS, 1PE59BAAT, 1PE59BAAZ, 1PE59BAGX, 1PE59BAX7, 1PE59DAAG, 1PE59DAAS, 1PE59DAAT, 1PE59DAAZ, 1PE59DAGX, 1PE59KQAP, 1PE59KQAQ, 1PE59KQAR, 1PE59LAAG, 1PE59LAGX
Previous surgical urolithiasis	CCI	See CCI codes for each surgical modality
	Feecode	S405, S408, S430, S445, S446, S447, S448, S470, Z630

management	CCP	6703, 6704, 6783, 6784, 6785, 6786, 6787, 6789, 6793, 6794, 6895, 7196
Ultrasound	Feecode	J128, J135
CT scan	Feecode	X126, X231, X232, X233, X409, X410

CCI/CCP codes were used to identify stone procedures in the CIHI DAD database. Fee codes were used to identify stone procedures in the OHIP database. CCI: Canadian Classification of Health Interventions; CCP: Canadian Classification of Procedures; CT: computed tomography; ICD: International Classification of Diseases (9^{th} and 10^{th} editions); SWL: shockwave lithotripsy.

Supplementary Table 2. RECORD statement checklist		
Item	**Description**	**Location reported**
Title and abstract	a) Indicate the study's design with a commonly used term in the title or the abstract b) Provide in the abstract an informative and balanced summary of what was done and what was found c) The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included* d) If applicable, the geographic region and timeframe within which the study took place should be reported in the title or abstract* e) If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract*	Page 2 Page 2 Page 2 Page 2 Page 2
Background rationale	Explain the scientific background and rationale for the investigation being reported	Page 3
Objectives	State specific objectives, including any prespecified hypotheses	Page 3
Study design	Present key elements of study design early in the paper	Pages 3–4
Setting	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	Pages 3–4
Participants	a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up b) The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided* c) Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided* d) If the study involved linkage of databases, consider use of a flow diagram or other graphical display to demonstrate the data linkage process, including the number of individuals with linked data at each stage*	Pages 3-4 Pages 4, 22–23
Variables	a) Clearly define all outcomes, exposures, predictors,	Page 4

Supplementary Table 2. RECORD statement checklist		
Item	**Description**	**Location reported**
	potential confounders, and effect modifiers. Give diagnostic criteria, if applicable. b) A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be reported, an explanation should be provided*	
Data sources/ measurement	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	Page 4
Bias	Describe any efforts to address potential sources of bias	n/a
Study size	Explain how the study size was arrived at	n/a
Quantitative variables	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why	Pages 4
Statistical methods	a) Describe all statistical methods, including those used to control for confounding b) Describe any methods used to examine subgroups and interactions c) Explain how missing data were addressed d) If applicable, explain how loss to follow-up was addressed e) Describe any sensitivity analyses	Page 4 Page 4 Page 4 n/a Page 4
Data access and cleaning methods	a) Authors should describe the extent to which the investigators had access to the database population used to create the study population* b) Authors should provide information on the data cleaning methods used in the study*	
Linkage	State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided*	-
Participants	a) Report the numbers of individuals at each stage of the study b) Give reasons for non-participation at each stage. c) Consider use of a flow diagram d) Describe in detail the selection of the persons included in the study (i.e., study population selection) including filtering based on data quality, data availability and linkage. The	Pages 4–5 Page 23 Pages 3–4,22

Supplementary Table 2. RECORD statement checklist		
Item	**Description**	**Location reported**
	selection of included persons can be described in the text and/or by means of the study flow diagram*	
Descriptive data	a) Give characteristics of study participants and information on exposures and potential confounders b) Indicate the number of participants with missing data for each variable of interest c) Summarise follow-up time	Pages 4-5 Page 22
Outcome data	Report numbers of outcome events or summary measures over time	Pages 4-5
Main results	a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included 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	Pages 4-5 Pages 4-5 n/a
Other analyses	Report other analyses done—e.g., analyses of subgroups and interactions, and sensitivity analyses	Pages 4-5
Key results	Summarise key results with reference to study objectives	Pages 5-9
Limitations	a) Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias b) Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they pertain to the study being reported*	Page 8-9 Page 9
Interpretation	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	Page 9
Generalizability	Discuss the generalizability (external validity) of the study results	Page 9
Funding	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	Page 10

Supplementary Table 2. RECORD statement checklist		
Item	**Description**	**Location reported**
Accessibility of protocol, raw data, and programming code	Authors should provide information on how to access any supplemental information such as the study protocol, raw data, or programming code*	

*RECORD statement addition to the STROBE statement. n/a: not applicable.