Supplementary Table 1. PRISMA Checklist

Section and Topic	Item #	Checklist item	Location where the item is reported
TITLE			
Title	1	Identify the report as a systematic review.	1
ABSTRACT			
Abstract	2	See the PRISMA 2020 for the Abstracts checklist.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	3
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	3
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	4
Information sources	6	Specify all databases, registers, websites, organizations, reference lists, and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	4
Search strategy	7	Present the full search strategies for all databases, registers, and websites, including any filters and limits used.	Supplementary Table 3
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	4
Data collection	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for	4-5

Section and Topic	Item #	Checklist item	Location where the item is reported
process		obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g., for all measures, time points, analyses), and if not, the methods used to decide which results to collect	4-5
	10b	List and define all other variables for which data were sought (e.g., participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	4-5
Study risk of bias assessment	11	Specify the methods used to assess the risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	5
Effect measures	12	Specify for each outcome the effect measure(s) (e.g., risk ratio, mean difference) used in the synthesis or presentation of results.	4-5
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g., tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	4
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	5-6
	13c	Describe any methods used to tabulate or visually display the results of individual studies and syntheses.	5-6
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	5-6

Section and Topic	Item #	Checklist item	Location where the item is reported
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g., subgroup analysis, meta-regression).	5-6
	13f	Describe any sensitivity analyses conducted to assess the robustness of the synthesized results.	5-6
Reporting bias assessment	14	Describe any methods used to assess the risk of bias due to missing results in a synthesis (arising from reporting biases).	5-6
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	4-6
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	6, Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	6, Figure 1
Study characteristics	17	Cite each included study and present its characteristics.	6-7, Supplementary Tables 4-5
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	7
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g., confidence/credible interval), ideally using structured tables or plots.	7-14
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	7-14

Section and Topic	Item #	Checklist item	Location where the item is reported
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g., confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	7-14
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	7-14
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	7-14
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	7-14
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	7-14
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	14
	23b	Discuss any limitations of the evidence included in the review.	16
	23c	Discuss any limitations of the review processes used.	16
	23d	Discuss the implications of the results for practice, policy, and future research.	14-16
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including the register name and registration number, or state that the review was not registered.	4
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	4
	24c	Describe and explain any amendments to the information provided at registration or in	—

Section and Topic	Item #	Checklist item	Location where the item is reported
		the protocol.	
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	17
Competing interests	26	Declare any competing interests of review authors.	17
Availability of data, code, and other materials	27	The report which of the following are publicly available and where they can be found template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	17

Abbreviations: PRISMA, Preferred Reporting Items for Systematic Reviews, and Meta-Analyses

Supplementary Table 2. MOOSE Checklist for Meta-Analyses of Observational Studies

Item No	Recommendation	Reported (Yes/No)	Reported on Page
Reporting of background should include			
1	Problem definition	Yes	3
2	Hypothesis statement	Yes	3
3	Description of study outcome(s)	Yes	3-5
4	Type of exposure or intervention used	Yes	3-5
5	Type of study designs used	Yes	3-5
6	Study population	Yes	3-5
Reporting of search strategy should include			
7	Qualifications of searchers (e.g., librarians and investigators)	Yes	4
8	Search strategy, including the period included in the synthesis keywords	Yes	Supplementary Table 3
9	Efforts to include all available studies, including contact with authors	Yes	4-5
10	Databases and registries searched	Yes	4-5
11	The search software used, name and version, including special features used (e.g., explosion)	Yes	4-5
12	Use of hand searching (e.g., reference lists of obtained articles)	Yes	4-5
13	List of citations located and those excluded, including justification	Yes	6, Figure 1
14	Method of addressing articles published in languages other than English	Yes	7
15	Method of handling abstracts and unpublished studies	No	—
16	Description of any contact with authors	Yes	4
Reporting of methods should include			
17	Description of relevance or appropriateness of studies assembled for assessing the hypothesis to be tested	Yes	7-8
18	The rationale for the selection and coding of data (e.g., sound clinical principles or	Yes	7-8

	convenience)		
19	Documentation of how data were classified and coded (e.g., multiple raters, blinding and interrater reliability)	No	—
20	Assessment of confounding (e.g., comparability of cases and controls in studies where appropriate)	Yes	Supplementary Table 4
21	Assessment of study quality, including blinding of quality assessors, stratification, or regression on possible predictors of study results	Yes	7
22	Assessment of heterogeneity	Yes	7-14
23	Description of statistical methods (e.g., a complete description of fixed or random effects models, justification of whether the chosen models account for predictors of study results, dose-response models, or cumulative meta-analysis) in sufficient detail to be replicated	Yes	5-6
24	Provision of appropriate tables and graphics	Yes	Figure 1-5
Reporting of results should include			
25	Graphic summarizing individual study estimates and overall estimates	Yes	Figure 2-5
26	A table giving descriptive information for each study included	Yes	Supplementary Table 4
27	Results of sensitivity testing (e.g., subgroup analysis)	Yes	Supplementary Tables 8, 9, 11, 13-18, 19-20
28	Indication of statistical uncertainty of findings	Yes	7-14
29	Quantitative assessment of bias (e.g., publication bias)	Yes	7
30	Justification for exclusion (e.g., exclusion of non-English language citations)	Yes	Figure 1
31	Assessment of quality of included studies	Yes	Supplementary Table 10
Reporting of conclusions should include			
32	Consideration of alternative explanations for observed results	Yes	14-16
33	Generalization of the conclusions (i.e., appropriate for the data presented and within the	Yes	16

	domain of the literature review)		
34	Guidelines for future research	Yes	16
35	Disclosure of funding source	Yes	16

Abbreviations: MOOSE, Meta-Analysis of Observational Studies in Epidemiology

Supplementary Table 3. Search Terms and Search Strategy

#	Searches
PubMed	
1	cancer [Title/Abstract]
2	neoplasm [Title/Abstract]
3	carcinoma [Title/Abstract]
4	tumor [Title/Abstract]
5	OR/ #1 - #4
6	pregnancy [Title/Abstract]
7	pregnant [Title/Abstract]
8	conception [Title/Abstract]
9	OR/ #6 - #9
10	#5 AND #9
Cochrane	
1	(cancer): ti,ab,kw
2	(neoplasm): ti,ab,kw
3	(carcinoma): ti,ab,kw
4	(tumor): ti,ab,kw
5	OR/ #1 - #4
6	(pregnancy): ti,ab,kw
7	(pregnant): ti,ab,kw
8	(conception): ti,ab,kw
9	OR/ #6 - #9
10	#5 AND #9
Web of Science	
1	TS=(cancer)
2	TS=(neoplasm)
3	TS=(carcinoma)
4	TS=(tumor)
5	OR/ #1 - #4
6	TS=(pregnancy)
7	TS=(pregnant)
8	TS=(conception)
9	OR/ #6 - #9
10	#5 AND #9

Supplementary Table 4. Characteristics of the Studies Included in the Meta-Analysis.

Author, Year	Country	Study Design	Matched/Adjusted Factors
Green et al., 2002	USA	Retrospective cohort study	Nearest-age siblings.
Byrne et al., 2004	USA	Retrospective cohort study	Sibling (If more than one sibling was eligible, the person closest in blood relationship, sex, and date of birth, in that order, was selected).
Winther et al., 2008	Denmark	Retrospective cohort study	Sisters, age of mother at pregnancy and calendar time.
Langagergaard et al., 2008 17	Denmark	Retrospective cohort study	Month and year of birth, county of mother's residence, maternal age, and parity.
Winther et al., 2009	Denmark	Retrospective cohort study	Sisters, age of mother at pregnancy and calendar time.
Mueller et al., 2009	USA	Retrospective cohort study	State, maternal age, year of delivery, race/ethnicity, parity, and gestational length.
Fong et al., 2010	Netherlands	Retrospective cohort study	Parity, year of birth, month and year of delivery.
Harjuoja et al., 2010	Finland	Retrospective cohort study	Siblings.
Stensheim et al., 2011	Norway	Prospective cohort study	Age, sex, the number of children before diagnosis, diagnostic period, and educational level at diagnosis.
Baxter et al., 2013	Canada	Retrospective cohort study	Calendar year of birth, geographic location, socioeconomic status, and age.
Hartman et al., 2013	Singapore	Prospective cohort Study	Age and year of birth.
Haggar et al., 2014	Australia	Respective cohort study	Maternal age (one year either way), delivery year (within 1 year), parity, and aboriginal status.
Anderson et al., 2017	USA	Case-control cohort study	Year of delivery, maternal age, race/ethnicity, mother's education, previous live birth, marital status, and maternal smoking during pregnancy.

Armuand et al., 2017	Sweden	Prospective cohort study	Age of the mothers of participants at birth, the educational level of participants, the marital status of participants, and birth characteristics.
Hartnett et al.,2017	USA	Retrospective cohort study	Maternal age, race/ethnicity, parity, and education.
Sabeti Rad et al., 2017	Sweden	Retrospective cohort study	Year of delivery, maternal age, parity, smoking, and body mass index.
Anderson et al.,2018	UK	Retrospective cohort study	Age, deprivation quintile, year of diagnosis, age group at diagnosis, and cancer type as appropriate.
Ji et al., 2018	Sweden	Retrospective cohort study	Infant's date of birth, infant's sex, maternal and paternal age at pregnancy, maternal age at diagnosis of cancer, and maternal comorbidities during or before the pregnancy.
Weibull et al., 2018	Sweden	Prospective cohort study	Age, calendar year, since diagnosis et al., (time scale), year of diagnosis, and age at diagnosis, included an interaction between HL patient status (yes/no) and the variable at hand.
Armuand et al., 2019	Sweden	Prospective cohort study	Maternal age, nicotine uses, and comorbidity.
Huang et al.,2020	Sweden	Retrospective cohort study	Year of childbirth, age of father at birth, and age of mother at birth. 32850432
Garg et al.,2021	USA	Retrospective cohort study	Healthy, age, birth year, whether born in or out of Utah, ethnicity, and the number of live births before cancer diagnosis.
Licht et al.,2021	Denmark	Prospective cohort study	Age, country or county or municipality of residence, and maternal birth year.
Melin et al.,2021	Finland	Prospective cohort study	Age, year of first pregnancy, and municipality of residence.
Nolan et al., 2021	Canada	Retrospective cohort study	Age, race, income quartile, insurance type, hospital type, and maternal characteristics.
Roshandel et al.,2021	USA	Retrospective cohort study	Sisters, age at time of study, educational level, marital status, age at birth of first child

Rossi et al., 2021	Belgium	Retrospective cohort study	Age, province, level of urbanization, and sex.
Farland et al., 2021	USA	Retrospective cohort study	Age, race, ethnicity, gravidity, parity, and education.
Anderson et al., 2022	UK	Prospective cohort study	Deprivation score, age at live birth, family size, and the period between diagnosis and last pregnancy as an index of fertile lifespan.
Yu et al., 2023	China	Retrospective cohort study	Year of delivery, maternal age, maternal education level, multiple births, parity, and infant sex. In the subgroup analysis of maternal cancer diagnosed in different time periods
Auger et al., 2024	Canada	Retrospective cohort study	Maternal age at delivery, comorbidity including preexisting diabetes, obesity, essential hypertension, preeclampsia, substance use disorders and maternal anomaly, parity, multiple birth, infant sex, socioeconomic deprivation ,place of residence, and time period.
Bentsen et al., 2024	Danish	Prospective cohort study	Cancer diagnosis or inclusion
Sunguc et al., 2024	UK	Retrospective cohort study	Maternal age, Hospital Episode Statistics year, parity (one, two, or three or more births), and social deprivation index
Landtblom et al., 2024	Swedish	Prospective cohort study	Age at diagnosis/matching date, and calendar year of diagnosis/matching date
Choi et al., 2025	Korean	Retrospective cohort study	NA
Nichols et al., 2025	USA	Retrospective cohort study	Age at the pregnancy, race and ethnicity, smoking status during pregnancy and pre-pregnancy body mass index.
Esposito et al., 2025	USA	Prospective cohort study	Age at diagnosis

Abbreviations: USA, United States of America; UK, United Kingdom; NR, Not report.

Supplementary Table 5. Pregnancy Outcomes Compared Between Patients with HM and General People.

Author, Year	Sex	HM	Exposed Group (Events/Total)	Control Group (Events/Total)	Pregnancy Outcomes	OR/RR/HR (95%CI)
Green et al., 2002	Female	Leukemia	575/922	1,349/1,903	Live birth	0.63 (0.52-0.76)
			11/922	13/1,903	Stillbirth	1.65 (0.61-4.46)
			143/922	279/1,903	Spontaneous abortion	1.23 (0.96-1.58)
			166/922	220/1,903	Induced abortion	1.73 (1.34-2.23)
		HL	718/1,082	1349/1,903	Live birth	0.79 (0.66-0.95)
			11/1,082	13/1,903	Stillbirth	1.60 (0.64-4.03)
			160/1,082	279/1,903	Spontaneous abortion	1.10 (0.87-1.40)
			164/1,082	220/1,903	Induced abortion	1.32 (1.02-1.71)
		NHL	200/300	1,349/1,903	Live birth	0.80 (0.59-1.10)
			4/300	13/1,903	Stillbirth	1.96 (0.64-6.07)
			49/300	279/1,903	Spontaneous abortion	1.16 (0.78-1.72)
			44/300	220/1,903	Induced abortion	1.21 (0.78-1.87)
Byrne et al., 2004	Female	ALL	27/449.2	43/432.6	Pregnancy	0.60 (0.37-0.98)
			30/247.1	36/351.6	Pregnancy	1.18 (0.72-1.92)
Winther et al., 2008	Female	Leukemia	10/72	304/5,092	Spontaneous abortion	1.20 (0.70-2.00)
		Lymphoma	15/93	304/5,092	Spontaneous abortion	1.20 (0.80-2.00)
Langagergaard et al., 2008	Female	HL	12/191	479/9,162	Preterm birth	1.10 (0.60-2.00)
			2/177	145/8,649	LBW	0.60 (0.20-2.60)
			1/192	35/9,247	Stillbirth	2.00 (0.30-15.40)
			11/181	323/8,673	Birth defect	1.70 (0.90-3.10)
Winther et al., 2009	Female	Leukemia	31/158	961/5,092	Induced abortion	1.00 (0.80-1.40)
		Lymphoma	45/205	961/5,092	Induced abortion	1.20 (0.90-1.50)
Mueller et al., 2009	Female	Leukemia	NR/87	NR	Cesarean section	0.97 (0.59-1.60)
			NR/87	NR	GDM	1.47 (0.37-5.83)

			NR/87	NR	Preterm birth	2.55 (1.78-3.64)
			NR/87	NR	LBW	1.47 (1.04-2.10)
		Lymphoma	NR/202	NR	Cesarean section	1.04 (0.75-1.43)
			NR/202	NR	GDM	0.41 (0.06-2.95)
			NR/202	NR	Preterm birth	1.78 (1.27-2.49)
			NR/202	NR	LBW	1.01 (0.69-1.48)
Fong et al., 2010	Female	ALL/NHL	45705	1,296/9,301	Cesarean section	0.82 (0.22-3.02)
Harjuoja et al., 2010	Female	Leukemia	9/119	NR	Preterm birth	1.47 (0.73-2.96)
		Lymphoma	16/214	NR	Preterm birth	1.38 (0.80-2.36)
Stensheim et al., 2011	Male	NHL	109/729	NR	Pregnancy	0.61 (0.49-0.76)
		HL	264/727	NR	Pregnancy	0.79 (0.69-0.92)
		Acute leukemia	42/362	NR	Pregnancy	0.57 (0.40-0.80)
	Female	NHL	75/468	NR	Pregnancy	0.67 (0.51-0.88)
		HL	162/507	NR	Pregnancy	0.61 (0.51-0.73)
		Acute leukemia	23/273	NR	Pregnancy	0.35 (0.22-0.56)
Baxter et al., 2013	Female	HL	82/358	NR	Childbirth	0.90 (0.76-1.07)
		NHL	46/204	NR	Childbirth	0.88 (0.68-1.15)
Hartman et al., 2013	Female	HM	268/2,566	NR	Live birth	0.68 (0.63-0.73)
Haggar et al., 2014	Female	Leukemia	NR/57	NR	GDM	1.23 (0.19-9.44)
			NR/57	NR	Cesarean section	2.01 (1.26-12.4)
			NR/57	NR	Preterm birth	1.71 (1.18-2.41)
			NR/57	NR	LBW	1.79 (1.43-2.56)
		Lymphoma	NR/152	NR	GDM	1.52 (0.78-2.83)
			NR/152	NR	Cesarean section	1.45 (0.95-2.18)
			NR/152	NR	Preterm birth	0.94 (0.38-2.34)
			NR/152	NR	LBW	0.87 (0.26-2.36)
Anderson et al., 2017	Female	HL	26/179	NR	Preterm birth	1.59 (1.06-2.37)
			18/179	NR	LBW	1.44 (0.89-2.33)

			21/179	NR	SGA	1.08 (0.71-1.64)
			54/179	NR	Cesarean section	1.08 (0.88-1.34)
		NHL	22/110	NR	Preterm birth	2.11 (1.42-3.13)
			21/110	NR	LBW	2.41 (1.58-3.67)
			13/110	NR	SGA	1.09 (0.66-1.81)
Armuand et al., 2017	Female	Leukemia	NR/118	NR	Live birth	0.69 (0.49-0.96)
		HL	NR/40	NR	Live birth	1.24 (0.77-1.99)
	Male	Leukemia	NR/124	NR	Live birth	0.60 (0.42-0.86)
		HL	NR/53	NR	Live birth	0.75 (0.45-1.23)
		NHL	NR/45	NR	Live birth	0.60 (0.35-1.03)
Hartnett et al., 2017	Female	HL	29/293	NR	Preterm birth	1.10 (0.70-1.50)
			19/293	NR	LBW	1.00 (0.60-1.50)
			27/293	NR	SGA	1.00 (0.70-1.40)
			108/293	NR	Cesarean section	1.10 (1.00-1.30)
		Leukemia	14/63	NR	Preterm birth	2.10 (1.30-3.50)
			10/63	NR	SGA	1.50 (0.80-2.70)
			10/63	NR	LBW	2.20 (1.20-4.10)
			28/63	NR	Cesarean section	1.40 (1.10-1.90)
		NHL, nodal	10/95	NR	Preterm birth	1.10 (0.60-2.10)
			35/95	NR	Cesarean section	1.10 (0.80-1.40)
		NHL, extra nodal	11/63	NR	LBW	2.00 (1.10-3.50)
			16/63	NR	SGA	2.30 (1.50-3.60)
			28/63	NR	Cesarean section	1.40 (1.00-1.80)
Sabeti Rad et al., 2017	Female	HM	22/1,276	46,870/1,766,486	Birth defect	0.64 (0.42-0.98)
Anderson et al., 2018	Female	HL	585/962	870/NR	Pregnancy	0.67 (0.62-0.73)
		NHL	217/673	323/NR	Pregnancy	0.67 (0.58-0.77)
		Leukemia	235/1,077	494/NR	Pregnancy	0.48 (0.42-0.54)
Ji et al., 2018	Female	HM	NR	NR	Birth defect	1.12 (0.93-1.34)

Weibull et al., 2018	Female	HL	101/449	638/2,210	Childbirth	0.78 (0.63-0.97)
Armuand et al., 2019	Female	HM	8/77	NR	Pre-eclampsia	4.66 (1.34-16.21)
Huang et al., 2020	Female	HM	143/1,982	NR	Preterm birth	1.50 (1.27-1.78)
	Male		118/2,438	NR	Preterm birth	0.97 (0.81-1.17)
Garg et al., 2021	Female	HL	129/399	NR	Live birth	0.68 (0.60-0.76)
		NHL	62/393	NR	Live birth	0.75 (0.65-0.87)
		Leukemia	31/322	NR	Live birth	0.25 (0.20-0.33)
Licht et al., 2021	Female	Leukemia	NR	NR	Live birth	0.76 (0.68-0.85)
			NR	NR	Live birth	0.80 (0.76-0.85)
			NR	NR	Live birth	0.83 (0.79-0.86)
			NR	NR	Live birth	0.84 (0.80-0.87)
			NR	NR	Live birth	0.84 (0.80-0.87)
		HL	NR	NR	Live birth	0.93 (0.80-1.08)
			NR	NR	Live birth	0.90 (0.82-1.00)
			NR	NR	Live birth	0.91 (0.84-0.98)
			NR	NR	Live birth	0.90 (0.83-0.97)
			NR	NR	Live birth	0.92 (0.85-0.99)
		NHL	NR	NR	Live birth	0.96 (0.77-1.22)
			NR	NR	Live birth	0.85 (0.74-0.98)
			NR	NR	Live birth	0.88 (0.79-0.98)
			NR	NR	Live birth	0.88 (0.79-0.97)
			NR	NR	Live birth	0.87 (0.79-0.97)
Melin et al., 2021	Female	Leukemia	150/449	2,508/6,658	Pregnancy	0.82 (0.68-0.99)
			35/150	576/2,508	Induced abortion	0.92 (0.59-1.42)
		Lymphoma	46/146	2,508/6,658	Pregnancy	0.65 (0.47-0.91)
			11/46	576/2,508	Induced abortion	1.09 (0.50-2.36)
Nolan et al., 2021	Female	Leukemia	36/1,269	452,784/14,512,318	Gestational hypertension	0.87 (0.63-1.22)
			82/1,269	748,835/14,512,318	GDM	1.36 (1.08-1.70)

			61/1,269	570,334/14,512,318	Pre-eclampsia	1.13 (0.87-1.47)
			2/1,269	14,512/14,512,318	Eclampsia	1.52 (0.38-6.08)
			103/1,269	947,654/14,512,318	Preterm birth	1.25 (1.02-1.54)
			7/1,269	84,171/14,512,318	Stillbirth	0.98 (0.47-2.06)
			15/1,269	171,245/14,512,318	Birth defect	2.32 (1.39-3.86)
			35/1,269	272,831/14,512,318	SGA	1.34 (0.96-1.88)
			401/1,269	3,983,631/14,512,318	Cesarean section	1.35 (1.17-1.54)
Roshandel et al., 2021	Female	ALL	139/164	417/455	Pregnancy	0.70 (0.40-1.30)
			85/125	290/391	Live birth	0.90 (0.50-1.50)
			26/125	55/391	Spontaneous abortion	1.60 (0.90-2.90)
			14/125	43/391	Induced abortion	0.90 (0.40-2.00)
			10/125	40/391	Preterm birth	0.80 (0.40-1.60)
Rossi et al., 2021	Female	ALL	70/94	46/72	One child	1.65 (0.85-3.22)
			1/85	2/61	Birth defect	0.17 (0.02-1.75)
			16/85	10/61	Spontaneous abortion	0.68 (0.34-1.35)
			3/85	6/61	Induced abortion	0.19 (0.05-0.71)
Farland et al., 2021	Female	Leukemia、Lymphoma	31/333	38,898/659,647	GDM	1.58 (1.13-2.21)
			27/333	49,020/659,647	Hypertensive disorders	1.10 (0.74-1.63)
			133/333	213,535/659,647	Cesarean section	1.39 (1.12-1.73)
			341/342	672,260/675,307	Live birth	1.55 (0.22-11.01)
			16/342	50,667/675,307	SGA	0.61 (0.37-1.00)
			26/342	53,281/675,307	LBW	0.96 (0.64-1.43)
			32/342	56,302/675,307	Preterm birth	1.13 (0.79-1.63)
Anderson et al., 2022	Female	Leukemia	127/843	761/2,169	Live birth	0.32 (0.26-0.38)
		NHL	67/359	350/963	Live birth	0.43 (0.33-0.56)
		HL	255/615	996/1,771	Live birth	0.56 (0.49-0.64)
Auger et al., 2023	Female	HM	106/1758	NR	Birth defect	1.01 (0.84-1.22)
Yu et al., 2023	Female	Lymphoma、HM	NR	NR	Preterm birth	1.26 (0.96-1.65)

			NR	NR	LBW	1.29 (0.90-1.84)
			NR	NR	SGA	1.04 (0.77-1.40)
			NR	NR	Birth defect	1.19 (0.89-1.58)
Bentsen et al., 2024	Female	Leukemia	NR	NR	Live birth	0.33 (0.25–0.42)
		Lymphoma	NR	NR	Live birth	0.54 (0.45–0.64)
Sunguc et al., 2024	Female	Leukemia	527/1,790	NR	Childbirth	0.53 (0.49-0.58)
		NHL	910/3,013	NR	Childbirth	0.72 (0.68-0.77)
		HL	2,852/6,260	NR	Childbirth	0.79 (0.76-0.82)
		Leukemia	NR	NR	Gestational hypertension	1.54 (0.98-2.42)
		NHL	NR	NR	Gestational hypertension	1.20 (0.81-1.78)
		HL	NR	NR	Gestational hypertension	1.01 (0.80-1.29)
		Leukemia	NR	NR	Pre-eclampsia	1.54 (0.94-2.51)
		NHL	NR	NR	Pre-eclampsia	0.85 (0.51-1.41)
		HL	NR	NR	Pre-eclampsia	1.24 (0.98-1.58)
		Leukemia	NR	NR	Preterm birth	1.50 (1.11-2.02)
		NHL	NR	NR	Preterm birth	1.32 (1.04-1.69)
		HL	NR	NR	Preterm birth	1.07 (0.92-1.25)
Choi et al., 2025	Female	NHL	NR	NR	Birth defect	1.18 (0.93-1.48)
Nichols et al., 2025	Female	Lymphoma	NR	NR	Pregnancy	1.05 (0.88, 1.24)
		HL	NR	NR	Pregnancy	1.23 (0.99, 1.53)
		NHL	NR	NR	Pregnancy	0.81 (0.61, 1.09)
Esposito et al., 2025	Female	Lymphoma	133/929	779/4556	Childbirth	0.84 (0.70-1.01)
Landtblom et al., 2024	Female	MPN	—	—	Spontaneous abortion	1.06 (0.72–1.55)
			N/953	N/4022	Live birth	0.72 (0.61–0.89)

Abbreviations: ALL, Acute lymphocytic leukemia; HL, Hodgkin lymphoma; HM, Hematologic malignancy; NHL, Non-Hodgkin lymphoma; LBW, Low birth weight; SGA, Small for gestational age; GDM, Gestational diabetes mellitus; OR, Odds ratio; RR, Relative risk; HR, Hazard ratio; CI, Confidence intervals; NR, Not report.

Supplementary Table 6. Quality Assessment of the Included Cohort Studies by NOS.

Author, Year	Selection				Comparability	Outcome			score	Risk of bias [d]
	Representativeness of the exposed cohort	Selection of the unexposed cohort	Ascertainment of exposure	Outcome of interest was not present at start of study	Control for important factor or additional factor [a]	Assessment of outcomes	Follow-up long enough for outcomes to occur [b]	Adequacy of follow-up of cohorts [c]		
Green DM, 2002	☆	☆	☆	☆	☆☆	—	☆	☆	8	High
Byrne J, 2004	☆	☆	☆	☆	☆☆	—	☆	☆	8	High
Winther JF, 2008	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Langagergaard V, 2008	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Winther JF, 2009	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Mueller BA, 2009	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Fong S, 2010	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Harjuoja LM, 2010	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Stensheim H, 2011	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Baxter NN, 2013	☆	—	☆	☆	☆	☆	☆	☆	7	High
Hartman M, 2013	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Haggar FA, 2014	☆	—	☆	☆	☆	☆	☆	☆	7	High

Anderson C, 2017	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Armuand G, 2017	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Hartnett KP,2017	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Sabeti RZ, 2017	☆	—	☆	—	☆☆	☆	☆	☆	7	High
Anderson RA,2018	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Ji JG, 2018	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Weibull CE, 2018	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Armuand G, 2019	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Huang W,2020	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Garg D,2021	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Licht SF,2021	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Melin JM,2021	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Nolan S, 2021	☆	—	☆	☆	☆☆	☆	☆	☆	9	High
Roshandel R,2021	☆	☆	☆	☆	☆	—	☆	—	6	Low
Rossi G,2021	☆	☆	☆	☆	☆	—	☆	—	6	Low
Farland LV, 2021	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Anderson RA, 2022	☆	☆	☆	☆	☆	☆	☆	☆	8	High

Yu H, 2023	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Auger N, 2024	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Bentsen L, 2024	☆	☆	☆	☆	☆	☆	☆	☆	8	High
Sunguc C, 2024	☆	—	☆	☆	—	☆	☆	☆	6	Low
Landtblom AR, 2024	☆	☆	☆	☆	☆☆	☆	☆	☆	9	High
Choi K, 2025	☆	—	☆	☆	☆	☆	☆	☆	7	High
Nichols HB, 2025	☆	—	☆	☆	☆	☆	☆	☆	7	High
Esposito G, 2025	☆	☆	☆	☆	☆	☆	☆	☆	8	High

Abbreviations: NOS, Newcastle-Ottawa Score.

[a] If the variable of maternal age was adjusted or matched, then the study could get one star. If additionally adjusted or matched the variable of sex, calendar time, parity and smoking, the study could get another one star.

[b] If the follow-up time was more than five years, the study could get one star.

[c] If the portion of people who completed the follow-up was more than 80%, the study could get one star.

[d] full marks in at least two categories of selection, comparability, or outcome assessment, and were considered at low risk of bias, while others were at high risk of bias.

Supplementary Table 7. Subgroup analyses for pregnancy and live birth.

Subgroup	No. of Studies	RR (95%CI)	I^2 (%)
Pregnancy			
Type of HM			
Leukemia	5	0.50 (0.25, 1.03)	96
Lymphoma	3	0.65 (0.36, 1.19)	94
Type of Lymphoma			
HL	3	0.70 (0.41, 1.19)	96
NHL	3	0.57 (0.32, 0.99)	93
Age at HM onset			
Childhood/adolescent-onset	4	0.77 (0.68, 0.87)	0
Adolescent/adult or mixed-age onset	3	0.62 (0.37, 1.03)	92
Treatment era			
Early Era	2	0.78 (0.67, 0.92)	0
Middle/Mixed Era	4	0.60 (0.45, 0.79)	72
Live birth			
Type of HM			
Leukemia	8	0.52 (0.37, 0.75)	97
Lymphoma	6	0.70 (0.58, 0.84)	92
Type of Lymphoma			
HL	5	0.75 (0.60, 0.94)	94
NHL	5	0.69 (0.55, 0.87)	87
Age at HM onset			
Childhood/adolescent-onset	5	0.85 (0.79, 0.90)	8
Adolescent/adult or mixed-age onset	7	0.64 (0.57, 0.73)	52

Abbreviations: RR, Relative risk; CI, Confidence intervals.

Supplementary Table 8. Leave-one-out sensitivity analysis for pregnancy.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Anderson, 2017	0.77 (0.60, 0.99)	69	0.04
Byrne et al., 2004	0.65 (0.46, 0.92)	85	0.01
Melin JM, 2021	0.65 (0.42, 1.00)	85	0.05
Nichols et al., 2025	0.60 (0.44, 0.81)	67	0.001
Roshandel, 2021	0.67 (0.47, 0.95)	85	0.02
Stensheim et al., 2011	0.70 (0.49, 1.00)	81	0.05

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 9. Leave-one-out sensitivity analysis for live birth.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Anderson et al., 2022	0.72 (0.63, 0.83)	77	< 0.001
Armuand et al., 2017	0.68 (0.58, 0.79)	82	< 0.001
Bentsen et al., 2024	0.71 (0.62, 0.82)	79	< 0.001
Farland et al., 2021	0.68 (0.59, 0.79)	82	< 0.001
Garg et al., 2021	0.70 (0.60, 0.81)	81	< 0.001
Green et al., 2002	0.68 (0.57, 0.80)	82	< 0.001
Hartman et al., 2013	0.68 (0.57, 0.82)	74	< 0.001
Landtblom et al., 2024	0.68 (0.57, 0.80)	82	< 0.001
Licht et al., 2021	0.66 (0.58, 0.75)	45	< 0.001
Roshandel et al., 2021	0.68 (0.58, 0.79)	82	< 0.001

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 10. Subgroup analyses for mode of delivery.

Subgroup	No. of Studies	RR (95%CI)	I^2 (%)
Type of HM			
Leukemia	4	1.34 (1.19-1.51)	0
Lymphoma	4	1.14 (1.04-1.25)	0

Abbreviations: RR, Relative risk; CI, Confidence intervals.

Supplementary Table 11. Leave-one-out sensitivity analysis for mode of delivery.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Mueller BA, 2009	1.26 (1.16-1.36)	11	0.35
Fong S, 2010	1.24 (1.13-1.36)	32	0.20
Haggar FA, 2014	1.22 (1.12-1.34)	25	0.25
Anderson C, 2017	1.27 (1.15-1.39)	15	0.32
Hartnett KP, 2017	1.25 (1.11-1.40)	32	0.19
Nolan S, 2021	1.20 (1.09-1.31)	8	0.36
Farland LV, 2021	1.21 (1.10-1.33)	22	0.27

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 12. Subgroup analyses for adverse pregnancy outcomes.

Subgroup	No. of Studies	RR (95%CI)	I^2 (%)
Spontaneous abortion			
Type of HM			
Leukemia	4	1.25 (0.92, 1.70)	24
Lymphoma	2	1.19 (1.04, 1.37)	0
Induced abortion			
Type of HM			
Leukemia	5	1.09 (0.85, 1.39)	42
Lymphoma	3	1.19 (1.04, 1.36)	0
Stillbirth			
Type of HM			
Leukemia	2	1.18 (0.65, 2.13)	0
Lymphoma	2	1.77 (0.91, 3.44)	0
Birth defects			
Type of HM			
Leukemia	2	0.80 (0.06, 10.14)	79
Lymphoma	3	1.22 (1.02, 1.45)	0
Preterm birth			
Type of HM			
Leukemia	7	1.36 (1.11, 1.66)	49
Lymphoma	7	1.59 (1.24, 2.03)	65
Low birth weight			
Type of HM			
Leukemia	3	1.73 (1.44, 2.07)	0
Lymphoma	4	1.14 (0.72, 1.82)	47

Abbreviations: RR, Relative risk; CI, Confidence intervals.

Supplementary Table 13. Leave-one-out sensitivity analysis for spontaneous abortion.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Winther JF, 2008	1.07 (0.73, 1.56)	65	0.73
Rossi G, 2021	1.17 (1.03, 1.34)	0	0.02
Roshandel R, 2021	1.06 (0.79, 1.41)	59	0.7
Landtblom, 2024	1.12 (0.79, 1.60)	65	0.53
Green DM, 2002	1.05 (0.67, 1.64)	65	0.84

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 14. Leave-one-out sensitivity analysis for induced abortion.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Green DM, 2002	1.04 (0.89, 1.22)	0	0.63
Melin JM, 2021	1.14 (0.88, 1.48)	57	0.32
Roshandel R, 2021	1.12 (0.88, 1.43)	61	0.36
Rossi G, 2021	1.17 (0.95, 1.44)	46	0.13
Winther JF, 2009	1.06 (0.74, 1.51)	59	0.77

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 15. Leave-one-out sensitivity analysis for stillbirth.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Green DM, 2002	1.08 (0.54, 2.13)	0	0.83
Langagergaard, 2008	1.36 (0.79, 2.32)	26	0.26
Nolan, 2021	1.73 (0.99, 3.01)	0	0.05

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 16. Leave-one-out sensitivity analysis for birth defects.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Auger N, 2024	1.18 (0.91, 1.51)	68	0.21
Choi K, 2025	1.14 (0.89, 1.45)	70	0.31
Ji J, 2018	1.15 (0.89, 1.49)	70	0.29
Langagergaard, 2008	1.11 (0.90, 1.36)	68	0.34
Nolan, 2021	1.07 (0.90, 1.26)	50	0.45
Rossi G, 2021	1.15 (0.95, 1.40)	66	0.15
Sabeti RZ, 2017	1.21 (1.01, 1.45)	55	0.04
Yu, 2023	1.13 (0.90, 1.43)	70	0.3

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 17. Leave-one-out sensitivity analysis for preterm birth .

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Anderson, 2017	1.35 (1.21, 1.50)	23	< 0.001
Farland, 2021	1.41 (1.25, 1.58)	36	< 0.001
Haggar, 2014	1.38 (1.23, 1.56)	41	< 0.001
Harjuoja, 2010	1.38 (1.23, 1.56)	41	< 0.001
Hartnett, 2017	1.39 (1.23, 1.57)	41	< 0.001
Huang, 2020	1.37 (1.20, 1.56)	38	< 0.001
Langagergaard, 2008	1.40 (1.24, 1.57)	39	< 0.001
Mueller, 2009	1.35 (1.23, 1.48)	11	< 0.001
Nolan, 2021	1.41 (1.24, 1.60)	37	< 0.001
Roshandel, 2021	1.40 (1.26, 1.57)	32	< 0.001
Sunguc, 2024	1.41 (1.24, 1.60)	37	< 0.001
Yu, 2023	1.40 (1.24, 1.59)	40	< 0.001

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 18. Leave-one-out sensitivity analysis for LBW.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Anderson, 2017	1.22 (1.01, 1.47)	0%	0.03
Farland, 2021	1.38 (1.14, 1.67)	0%	0.01
Haggar, 2014	1.27 (1.02, 1.58)	26%	0.03
Hartnett, 2017	1.26 (1.01, 1.56)	22%	0.04
Langagergaard, 2008	1.32 (1.10, 1.58)	4%	0.003
Mueller, 2009	1.32 (1.03, 1.68)	29%	0.03
Yu, 2023	1.30 (1.01, 1.67)	30%	0.04

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 19. Leave-one-out sensitivity analysis for SGA .

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Anderson C, 2017	1.07(0.77-1.49)	63	0.05
Hartnett KP, 2017	1.03 (0.79-1.33)	55	0.08
Nolan S, 2021	1.01(0.76-1.34)	51	0.11
Farland LV, 2021	1.17(0.98 -1.39)	0	0.53
Yu H, 2023	1.09(0.78 -1.51)	62	0.05

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 20. Leave-one-out sensitivity analysis for GDM.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Mueller BA, 2009	1.28 (1.00-1.63)	54	0.09
Haggar FA, 2014	1.24 (0.96-1.61)	54	0.61
Nolan S, 2021	1.23 (0.88-1.72)	51	0.71
Farland LV, 2021	1.18 (0.92-1.51)	36	0.20
Sunguc C, 2024	1.41 (1.19-1.69)	0	0.80

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity

Supplementary Table 21. Leave-one-out sensitivity analysis for hypertensive disorders of pregnancy.

Excluding study	RR (95%CI)	I^2 (%)	*P*-value [a]
Mueller BA, 2009	1.28 (1.00-1.63)	54	0.09
Haggar FA, 2014	1.24 (0.96-1.61)	54	0.61
Nolan S, 2021	1.23 (0.88-1.72)	51	0.71
Farland LV, 2021	1.18 (0.92-1.51)	36	0.20
Sunguc C, 2024	1.41 (1.19-1.69)	0	0.80

Abbreviations: RR, Relative risk; CI, Confidence intervals.

[a] *P*-value for the heterogeneity。

Supplementary Table 22. AMSTAR 2 for Appraisal of the Methodological Quality.

Items	Appraisal Result	Overall Confidence
1. Did the research questions and inclusion criteria for the review include the components of PICO?	Yes	High
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?	Partial Yes	
3. Did the review authors explain their selection of the study designs for inclusion in the review?	Yes	
4. Did the review authors use a comprehensive literature search strategy?	Yes	
5. Did the review authors perform study selection in duplicate?	Yes	
6. Did the review authors perform data extraction in duplicate	Yes	
7. Did the review authors provide a list of excluded studies and justify the exclusions?	Yes	
8. Did the review authors describe the included studies in adequate detail?	Yes	
9. Did the review authors use a satisfactory technique for assessing the risk of bias in individual studies that were included in the review?	Yes	
10. Did the review authors report on the sources of funding for the studies included in the review?	No	
11. If meta-analysis was justified did the review authors use appropriate methods for the statistical combination of results?	Yes	
12. If meta-analysis was performed did the review authors assess the potential impact of risk of bias in individual studies on the results of the meta-analysis or other evidence synthesis?	Yes	
13. Did the review authors account for risk of bias in individual studies when interpreting/discussing the results of the review?	Yes	
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?	Yes	
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?	Yes	
16. Did the review authors report any potential sources of conflict of interest, including any	Yes	

	funding they received for conducting the review?		

Abbreviations: AMSTAR, A Measure Tool to Assess Systematic Reviews.

Critical domains: item2; item4; item7; item9; item11; item13; item15.