

Supplementary Methods and Numerical Details

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The supplementary materials provide the search strategies, study-level analytical inputs, effect-estimate derivations, statistical formulas, sensitivity analyses, and supporting RoB 2/GRADE documentation used in this study. The numerical analyses can be reproduced from the supplied aggregate inputs and analysis code. Final RoB 2 and GRADE assessments were reviewed by the authors.

Adjuvant Chemoradiotherapy Versus Chemotherapy After R0 D2 Gastrectomy for Gastric Cancer: Systematic Review and Meta-analysis of Randomized Trials

S1. Search strategies

Searches were conducted through August 19, 2026, without language restrictions. The search strategies used for PubMed/MEDLINE, Europe PMC, ClinicalTrials.gov, targeted ChiCTR verification, and citation checking are provided below.

PubMed/MEDLINE — reported 127 records

```
((("Stomach Neoplasms"[Mesh] OR gastric cancer*[tiab] OR stomach cancer*[tiab] OR gastric adenocarcinoma*[tiab]) AND (chemoradiotherap*[tiab] OR chemoradiation[tiab] OR radiochemotherap*[tiab] OR radiotherap*[tiab]) AND chemotherap*[tiab] AND (gastrectom*[tiab] OR "Gastrectomy"[Mesh] OR D2[tiab]) AND (randomized controlled trial[pt] OR controlled clinical trial[pt] OR random*[tiab])) AND ("1900/01/01"[Date - Publication] : "2026/08/19"[Date - Publication]))
```

Europe PMC — reported 75 records

```
((TITLE_ABS:"gastric cancer" OR TITLE_ABS:"stomach cancer" OR TITLE_ABS:"gastric adenocarcinoma") AND (TITLE_ABS:chemoradiotherapy OR TITLE_ABS:chemoradiation OR TITLE_ABS:radiochemotherapy) AND TITLE_ABS:chemotherapy AND (TITLE_ABS:D2 OR TITLE_ABS:gastrectomy) AND (PUB_TYPE:"randomized controlled trial" OR TITLE_ABS:random*))
```

ClinicalTrials.gov — reported 24 records

```
(gastric OR stomach) AND (chemoradiotherapy OR chemoradiation OR chemo-radiotherapy) AND D2 AND (randomized OR randomised)
```

ChiCTR and other search methods

ChiCTR-TRC-12002919 was specifically checked because it was linked to the Wang 2026 trial. Backward and forward citation searching was also performed for included trials, relevant systematic reviews, guidelines, and conference reports. Screening and eligibility information for identifiable reports is provided in the accompanying audit workbook.

S2. Input hierarchy, reconstruction and direction

Primary reported HRs and CIs were preferred. ARTIST 2 directly reported HR 0.971, 95%CI 0.663-1.421, P = 0.879 (Park et al., Ann Oncol 2021;32:368-374; DOI: 10.1016/j.annonc.2020.11.017). These published limits were used in the primary analyses instead of the earlier P-value-based approximation.

For Kwon and Kim, the input log-HRs and standard errors were taken from the reconstructed estimates reported in Zhou et al. (World J Surg Oncol 2016;14:209; DOI: 10.1186/s12957-016-0957-7), Figure 3A/3B. These estimates are therefore identified as secondary reconstructions. The original Kaplan-Meier reconstruction data underlying these

estimates were not available; their published $\ln(\text{HR})$ and SE values were used directly and examined in sensitivity analyses.

Supplementary Table S1. Legacy reconstructed survival inputs

Trial	Outcome	$\ln(\text{HR})$	SE	Source
Kwon 2010	DFS/RFS	-0.56	0.46	Zhou 2016, Fig 3A
Kim 2012	DFS/RFS	-0.36	0.31	Zhou 2016, Fig 3A
Kwon 2010	OS	-0.11	0.43	Zhou 2016, Fig 3B
Kim 2012	OS	-0.14	0.33	Zhou 2016, Fig 3B

Effect direction is CRT versus CT. Zhu's primary abstract reports the reverse comparison; transformation used $\text{HR}^* = 1/\text{HR}$ and $(L^*, U^*) = (1/U, 1/L)$. Thus the RFS input 1.35 (1.03–1.78) becomes 0.740741 (0.561798–0.970874); the OS input 1.24 (0.94–1.65) becomes 0.806452 (0.606061–1.063830). Source: Zhu et al., *Radiother Oncol* 2012;104:361–366; DOI: 10.1016/j.radonc.2012.08.024; PMID: 22985776.

For primary published CIs, $\text{SE} = [\ln(U) - \ln(L)] / (2 \times \Phi^{-1}(0.975))$. For secondary published $\ln(\text{HR})/\text{SE}$ pairs, no additional back-calculation from a rounded CI was used. Exact input values, source URLs and source-position notes are supplied in the two survival-input workbook sheets and `survival_inputs.csv`.

S3. ARTIST 2 historical approximation and rounding

The previous ARTIST 2 approximation was derived from the reported HR and two-sided P value using a normal approximation: $z = \Phi^{-1}(1 - P/2)$, $\text{SE} = |\ln(\text{HR})|/z$, and $\text{CI} = \exp[\ln(\text{HR}) \pm \Phi^{-1}(0.975) \times \text{SE}]$. At $\text{HR} = 0.971$ and $P = 0.879$, the approximate 95%CI was 0.664774–1.418288. Because the directly reported CI is available, the published interval was used in all primary analyses.

A small rounding sensitivity grid is provided in the audit workbook. Across plausible rounding of the published HR and P value, the differences were negligible and did not alter any headline result. The directly reported CI remains the preferred input.

S4. Statistical formulas and execution

Analyses were reproduced using Python 3.13.5, NumPy 2.3.5 and SciPy 1.17.0. The supplied `analysis.py` reads source-tagged aggregate CSV files and fits the REML variance by numerical minimization of the restricted profile likelihood, explicitly comparing the fitted solution with $\tau^2 = 0$.

For log effects y_i and sampling variances v_i , $w_i = 1/(v_i + \tau^2)$, $\mu = \sum w_i y_i / \sum w_i$, $q = \sum w_i (y_i - \mu)^2 / (k - 1)$, and $q^* = \max(1, q)$. The modified Knapp–Hartung interval is $\exp[\mu \pm t(0.975, k - 1) \times \sqrt{(q^* / \sum w_i)}]$. The conventional interval replaces the t quantile with $\Phi^{-1}(0.975)$ and uses variance $1/\sum w_i$. Cochran's Q and I^2 use fixed-effect inverse-variance weights. Reference: Röver et al., *BMC Med Res Methodol* 2015;15:99; DOI: 10.1186/s12874-015-0091-1.

Recurrence odds ratios use cells a = CRT events, b = CRT nonevents, c = CT events and d = CT nonevents: $\text{OR} = ad/(bc)$, with $\text{SE}[\ln(\text{OR})] = \sqrt{(1/a + 1/b + 1/c + 1/d)}$. No available table contains a zero cell. Counts come from Zhou 2016, PDF page 6, Figure 4A/4B, and are not treated as common-time recurrence risks. Source definitions and primary-record checks remain documented limitations.

```
python analysis.py --output-dir computed
```

The workbook reproduces the study-level transformations, weights and pooled estimates, while REML τ^2 estimates are generated by the accompanying analysis script. If analytical inputs are changed, the script should be rerun before interpreting the updated results. The current dataset gives $\tau^2 = 0$ in all 15 analyses.

Supplementary Table S2. Recomputed analyses and provenance exclusions

Analysis	k	N	HR/OR	Modified KH 95%CI	Q
DFS/RFS: all trials	7	2,256	0.821	0.687–0.981	3.859
DFS: oral fluoropyrimidine–platinum doublets	4	1,754	0.882	0.661–1.176	1.793
DFS: oxaliplatin-based subgroup	3	1,296	0.936	0.596–1.470	0.508
DFS: exclude Kwon	6	2,195	0.829	0.686–1.002	3.221
DFS: exclude Kim	6	2,166	0.829	0.684–1.005	3.567
DFS: exclude ARTIST 2	6	1,892	0.799	0.653–0.978	2.996
DFS: exclude Kwon + Kim	5	2,105	0.838	0.678–1.034	2.893
DFS: exclude Kwon + Kim + ARTIST 2	4	1,741	0.816	0.627–1.060	2.211
DFS: old ARTIST 2 P approximation	7	2,256	0.821	0.687–0.982	3.868
OS: all trials	5	1,580	0.893	0.693–1.151	2.051
OS: exclude Kwon	4	1,519	0.893	0.664–1.203	2.051
OS: exclude Kim	4	1,490	0.896	0.662–1.212	2.044
OS: exclude Kwon + Kim	3	1,429	0.895	0.586–1.368	2.044
Locoregional recurrence (OR)	4	960	0.498	0.265–0.938	2.593
Distant recurrence (OR)	4	960	0.807	0.505–1.289	0.850

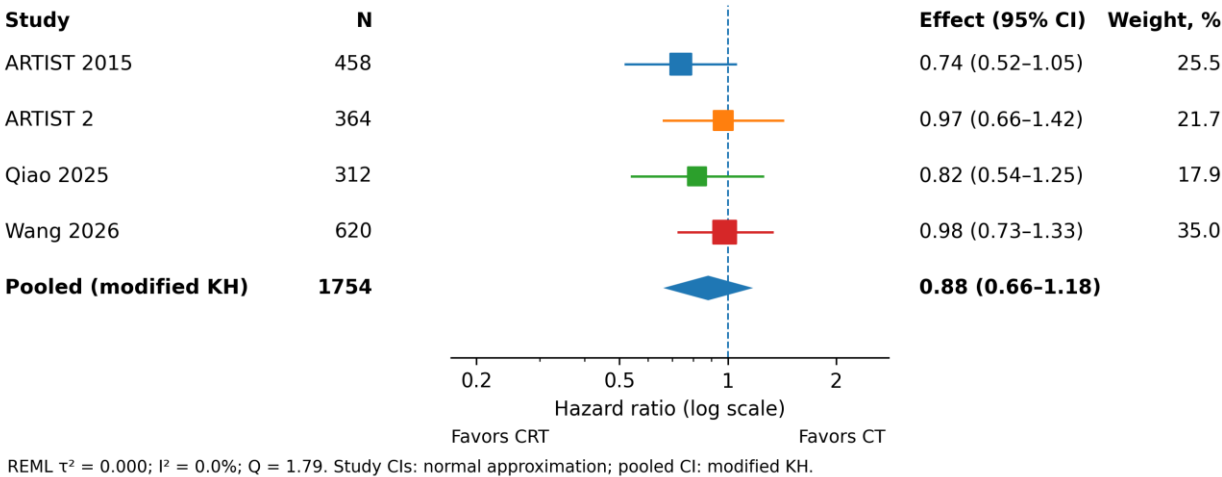
Three decimal places are retained to avoid rounding the upper limits for the single Kwon/Kim exclusions down to an apparently exact 1.00. All analyses have $I^2 = 0\%$ and $\tau^2 = 0$. Sensitivity subsets overlap and are not independent subgroup comparisons. No interaction test or prospective equivalence margin is inferred from different significance levels. N is the sum represented by the selected outcome estimates, including Zhu's 351 analyzed participants.

S5. Source documentation and reproducibility

The supplementary files provide the complete search strategies, reported screening counts, study-level source information, effect-estimate derivations, analytical inputs, RoB 2 signalling-question assessments, and author-reviewed GRADE judgments. Some original database export files and historical full-text screening records were no longer available. The available screening and eligibility information for identifiable reports is therefore documented in the accompanying audit workbook. These limitations do not affect reproducibility of the statistical analyses, which can be reproduced from the supplied aggregate inputs and code.

Supplementary Figure S1

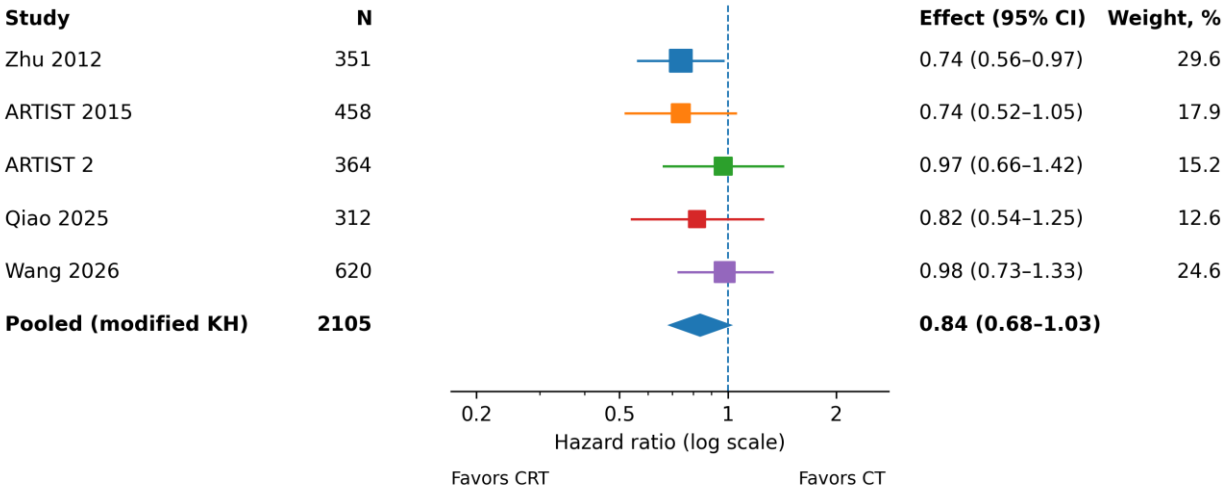
Oral fluoropyrimidine-platinum doublet subgroup



DFS/RFS in the oral fluoropyrimidine-platinum doublet subgroup (ARTIST, ARTIST 2, Qiao, and Wang). This exploratory analysis reflects a shared treatment backbone; a separate oxaliplatin-based analysis is also reported.

Supplementary Figure S2

DFS/RFS excluding Kwon and Kim secondary reconstructions

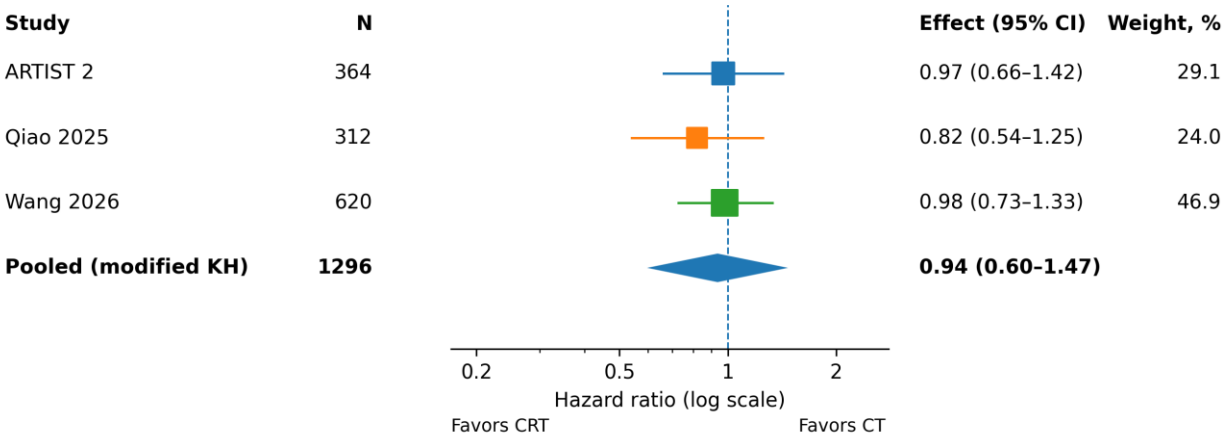


REML $\tau^2 = 0.000$; $I^2 = 0.0\%$; $Q = 2.89$. Study CIs: normal approximation; pooled CI: modified KH.

DFS/RFS after excluding the Kwon and Kim secondary reconstructed estimates. ARTIST 2 uses its directly reported CI.

Supplementary Figure S3

Exploratory oxaliplatin-based subgroup



Exploratory DFS/RFS synthesis restricted to ARTIST 2, Qiao, and Wang. The wider confidence interval reflects the limited precision of the three-study subset.