

Maternal Morbidity with Cephalad-Caudad or Transverse uterine incision expansion in Cesarean Birth

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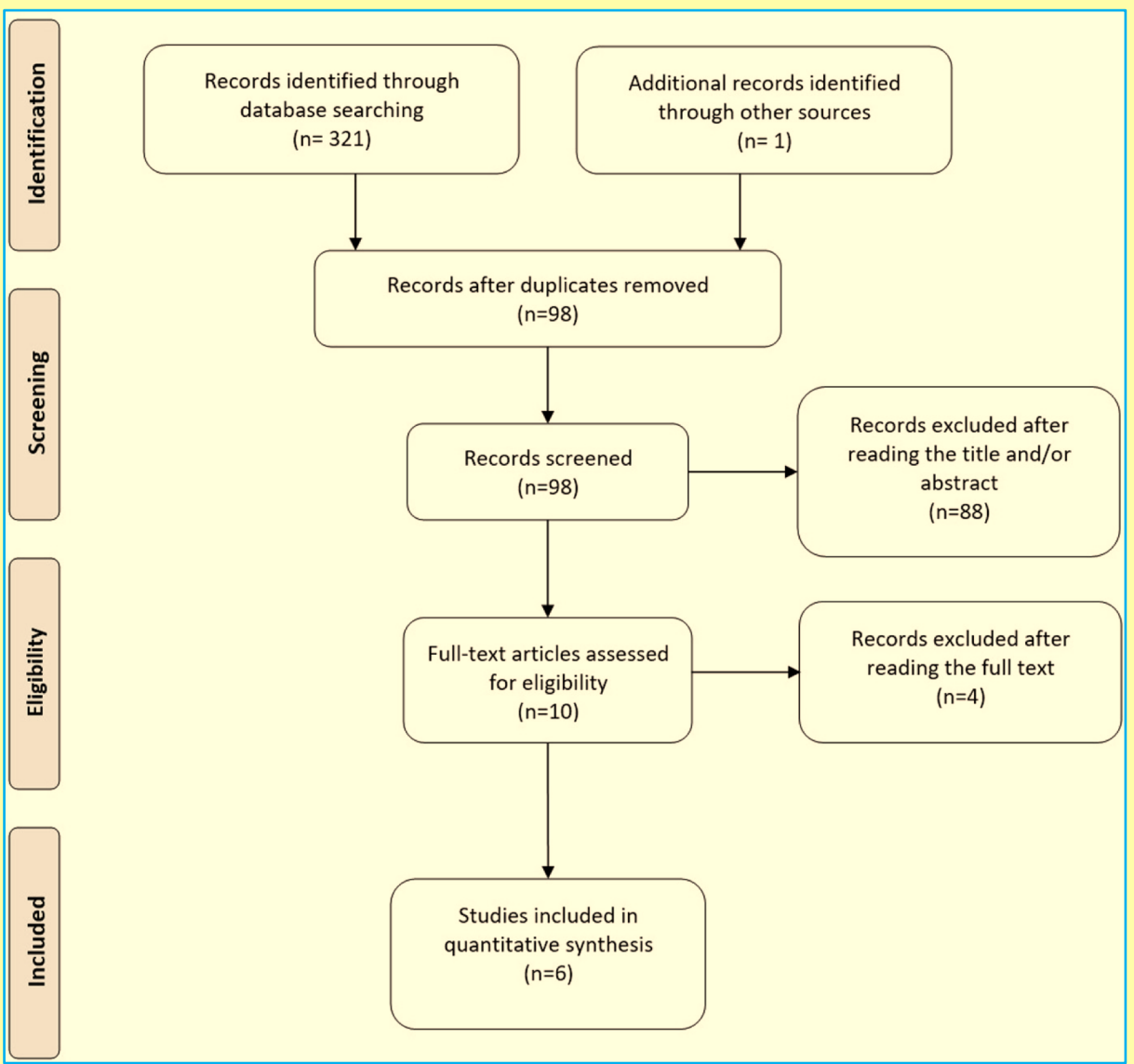
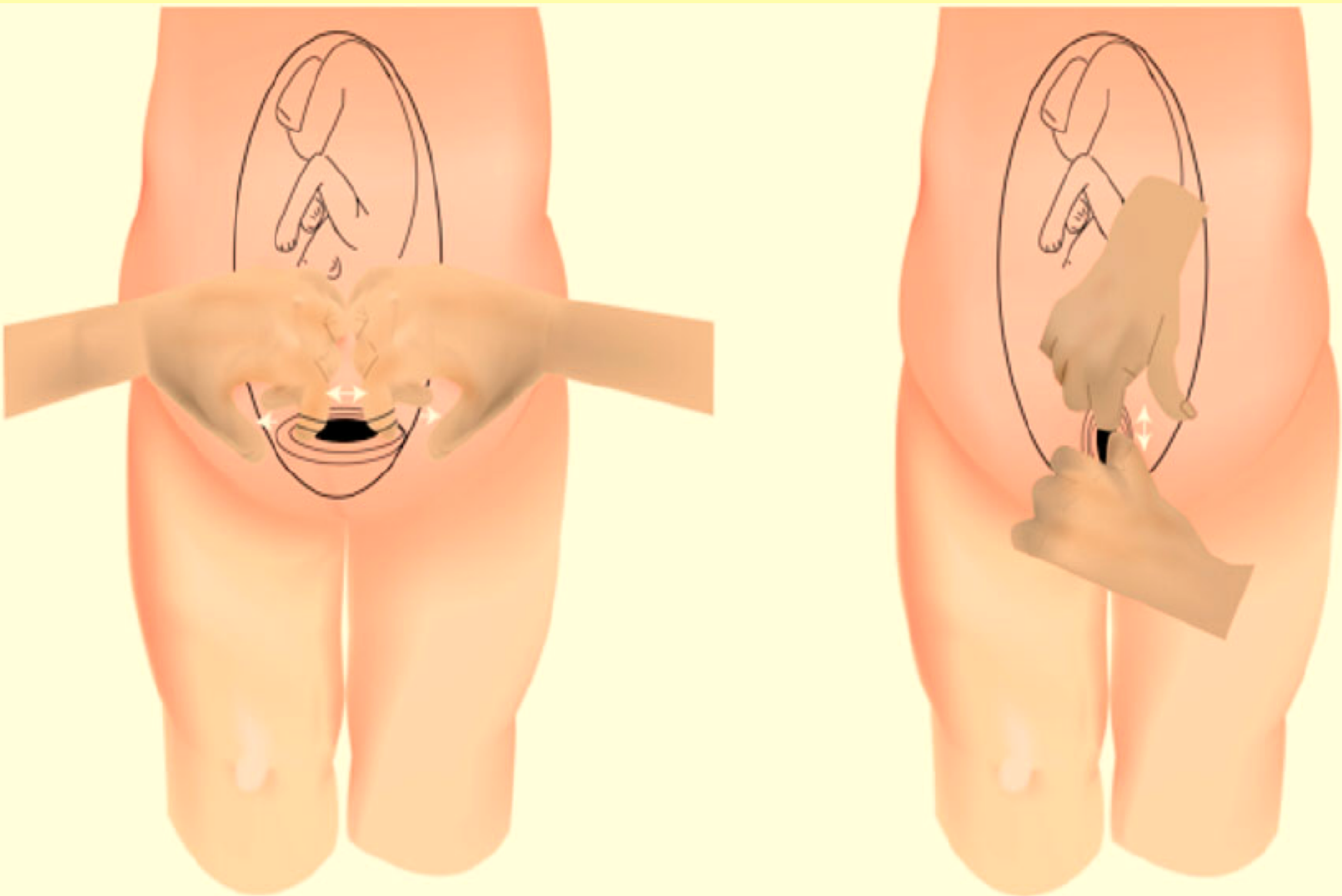


Background

- Cesarean delivery is the most prevalent surgical procedure worldwide, reaching approximately 29.7 million cases in 2015.
- It is directly associated with an increased risk of maternal and neonatal morbidity rates in the absence of malpresentation. Several techniques have been investigated, and
- there is evidence that cephalad-caudad expansion of the uterine incision might be associated with improved maternal outcomes compared with traditional transverse blunt expansion.
- The purpose of this meta-analysis was to evaluate the impact of cephalad-caudad expansion on adverse maternal outcomes, including intraoperative blood loss, risk of uterine vessel injury, and tearing of the lower uterine segment.

Methods & Data Sources

- DATA SOURCES:** We searched Medline, Scopus, the Cochrane Central Register of Controlled Trials, Google Scholar, and Clinical trials.gov. databases from inception to January 2021.See flow chart below.
- STUDY ELIGIBILITY CRITERIA:** Randomized controlled trials that assessed the impact of the cephalad-caudad blunt expansion of the low transverse uterine incision during cesarean delivery rather than those of transverse blunt expansion were selected for inclusion.
- METHODS:** Effect sizes were calculated with the Hartung-Knapp-Sidik-Jonkman random-effects model in R. Trial sequential analysis was performed to evaluate the adequacy of sample sizes.

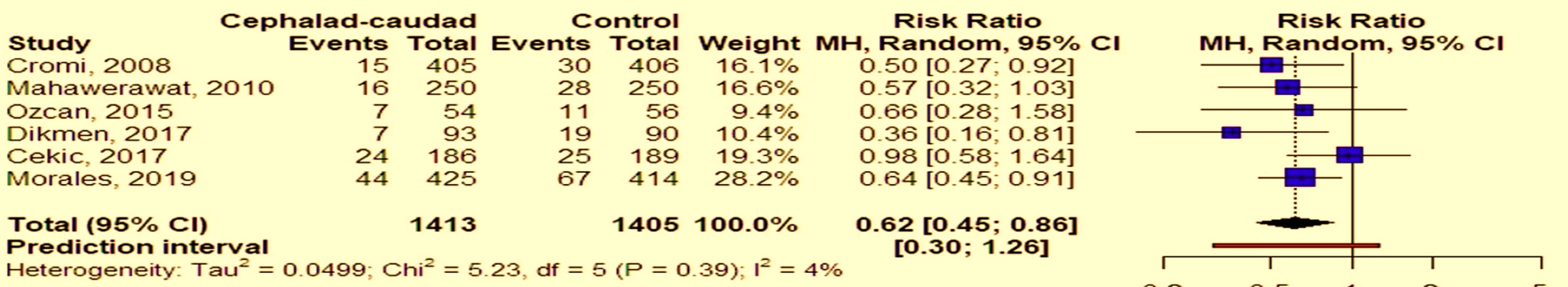


Results

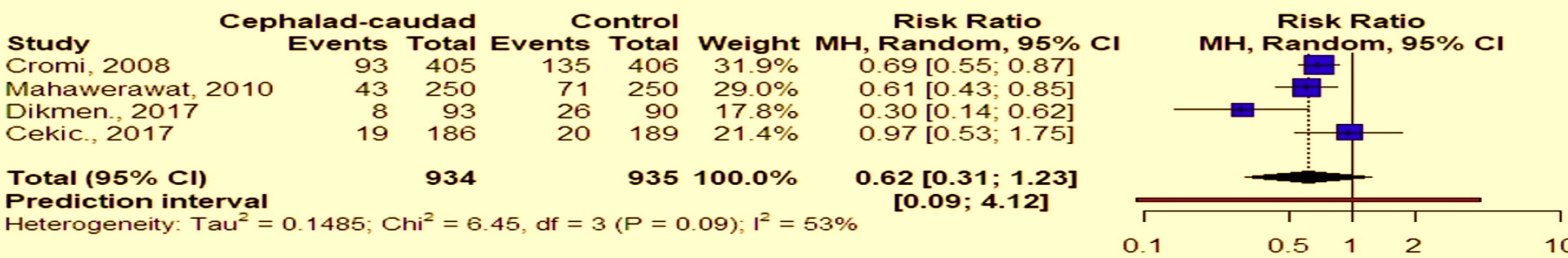
- Cephalad-caudad blunt expansion of the uterine incision was associated with a lower prevalence of unintended incision extension (relative risk, 0.62; 95% confidence interval, 0.45-0.86) and uterine vessel injury (relative risk, 0.55; 95% confidence interval 0.41- 0.73).
- The complications were not accompanied by the increased need for additional suture placement (relative risk, 0.62; 95% confidence interval, 0.31- 4.12) or transfusion rates (relative risk, 0.75; 95% confidence interval, 0.28-2.03).
- Similarly, the intraoperative duration was comparable with cases treated with transverse blunt expansion (mean difference = -0.45minutes; 95%)Intraoperative duration was comparable with cephad-caudad ,95%confidence interval -2.12 to 1.21) and the risk of intentional incision extension in the form of an inverted T (relative risk, 0.38; 95% confidence interval, 0.09-1.52).

Author, year	Age (y), mean–SD	BMI (kg/m2), mean–SD	Gestational age (wk), mean–SD	Previous cesarean delivery, n/N (%)	Nulliparity, n (%)	Gravida, mean–SD	Parity, mean–SD	Pre-op Hb (g/dL), mean–SD	Pre-op Hct, mean–SD	Blood pressure mm Hg, Mean+/-SD Systolic. Diastolic	Hyperten sion, n (%)
Cromi et al,22 2008	32.604.90 vs 32.704.80	26.704.00 vs 27.304.20	38.302.40 vs 38.502.60	104/405 (25.70) vs 90/406 (22.20)	344/405 (84.90) vs 351/406 (86.40)	NR	NR	NR	NR	NR	NR
Mahaweraw at and Jeerasap,23 2010	26.306.20 vs 26.406.00	28.003.70 vs 27.603.50	38.501.50 vs 38.201.70	87/250 (34.80) vs 95/250 (38.00)	NR	NR	NR	NR	NR	NR	NR
Ozcan et al,18 2015	30.404.60 vs 29.705.60	28.132.31 vs 28.701.83	38.501.10 vs 38.701.10	NR	NR	2.801.40 vs 2.401.20	1.301.400 vs 1.201.00	NR	36.403.03 vs 35.306.44	NR	NR
Ozcan et al,18 2015	30.404.60 vs 29.705.60	28.132.31 vs 28.701.83	38.501.10 vs 38.701.10	NR	NR	2.801.40 vs 2.401.20	1.301.400 vs 1.201.00	NR	36.403.03 vs 35.306.44	NR	NR
Dikmen et al,15 2017	29.465.69 vs 30.015.76	30.174.62 vs 30.705.30	38.591.45 vs 38.481.87	40/93 (43.01) vs 33/90 (36.66)	NR	3.101.23 vs 3.001.08	1.720.89 vs 1.620.82	11.851.44 vs 12.161.33	36.103.55 vs 37.033.52	126.00+/- 15.92 vs 78.2312.61 vs 78.5111.04	NR
C, ekic, et al,16 2017	26.880.45 vs 27.830.43	30.28 0.38 vs 31.070.48	38.040.17 vs 38.610.17	NR	NR	2.010.11 vs 2.040.10	0.700.09 vs 0.710.09	11.900.10 vs 11.980.11	36.290.26 vs 36.240.28	NR	20 (10.75) vs 29 (15.34)
Morales et al,17 2019	25.946.02 vs 26.227.84	NR	38.523.48 vs 38.673.77	NR	NR	NR	1.00 e2.001.8 vs 1.00 e2.001.80	12.000.90 vs 12.101.00	NR	NR	NR

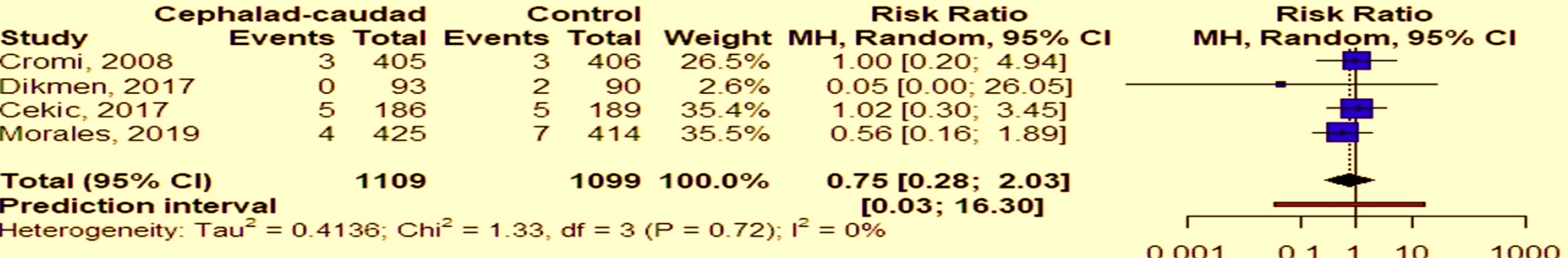
Incision extension



Additional sutures



Transfusion



Conclusion

The findings of our study suggested that cephalad-caudad blunt expansion of the uterine incision is superior to transverse expansion in terms of reducing unintended incision extension and uterine vessel injury

References

Figure courtesy of [Pinar Ozcan Cenksoy](#)