

Fibrin Sealants Do Not Reduce the Rate of Seroma Formation in Post-Mastectomy Breast Reconstruction: A Systematic Review and Meta-Analysis



Karen E. M Massada, MD²; Meagan Wu, MA⁴; Theresa K. Webster, BS³; Juliet Panichella, BS³; Michael C. Coronado, BS³; Lindsay Talemal, BS³; Nicholas Elmer, BS⁴; Sthefano Araya, MD³; Rohan Brebion, BS³; Pablo A. Baltodano, MD¹; Sameer Patel, MD¹



¹ Fox Chase Cancer Center, ² Mercy Catholic Medical Center, ³ Temple University, Lewis Katz School of Medicine, ⁴ Sidney Kimmel Medical College at Thomas Jefferson University; Philadelphia, PA

BACKGROUND

Breast reconstruction using Deep Inferior Epigastric Perforator (DIEP) and Latissimus dorsi (LD) flaps following mastectomy are associated with seroma formation. While systematic reviews examining the use of fibrin glue to prevent seroma formation during breast reconstruction exist, there have not been any consensus studies on the use of fibrin glue with DIEP flaps.

OBJECTIVE

We sought to perform an updated systematic review and meta-analysis on the effects of fibrin sealant on donor site complications following DIEP and LD flap breast reconstruction.

METHODS

A comprehensive literature search was conducted in the following databases (March 2021): PubMed, OVID, and Cochrane. Articles analyzing the efficacy of fibrin glue in reducing donor site morbidity in DIEP and LD breast reconstruction were included.

RESULTS

Figure 2: Forest Plot of Rate of seroma formation in fibrin glue and quilting versus quilting alone (Pooled RR 0.51, 95% CI 0.12, 2.25)

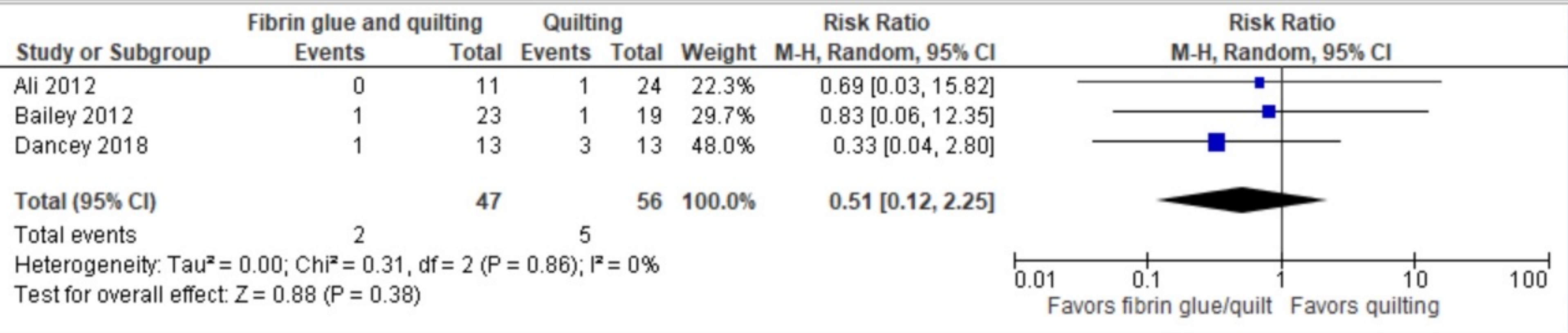


Figure 3: Forest Plot of Rate of seroma formation in fibrin glue versus no fibrin glue (Pooled RR 1.03, 95% CI 0.66, 1.61)

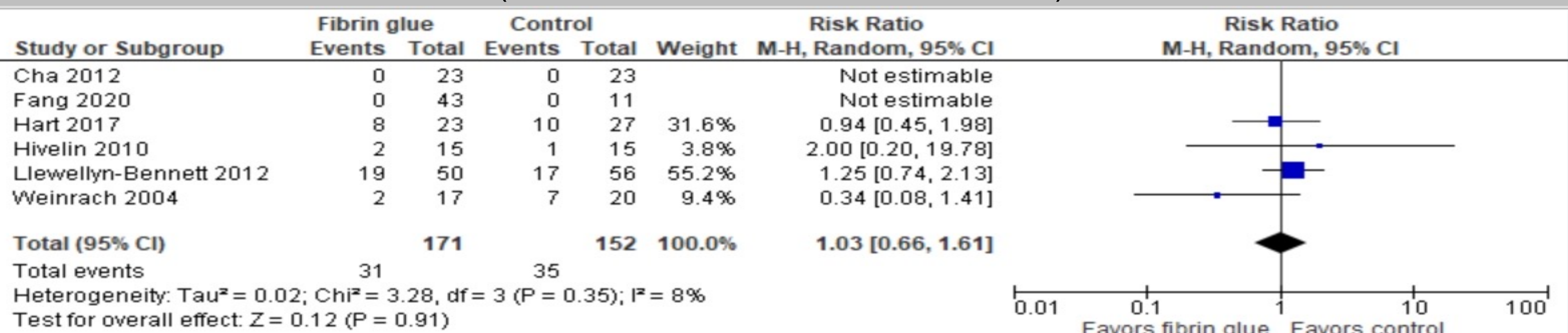


Figure 4: Forest Plot of Duration of drainage in fibrin glue versus no fibrin glue (Pooled RR -0.85, 95% CI -4.09, 2.40)

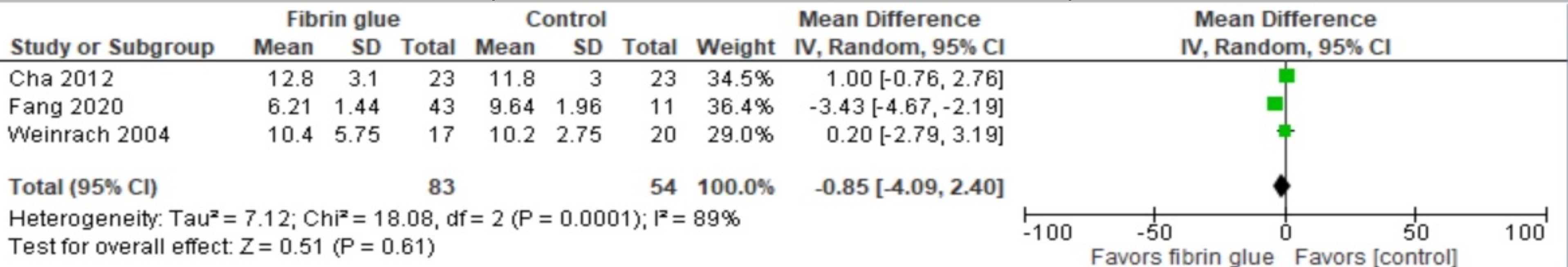


Figure 5: Forest Plot of Duration of drainage in fibrin glue and quilting versus quilting alone (Pooled RR -2.13, 95% CI -3.27, -0.99)

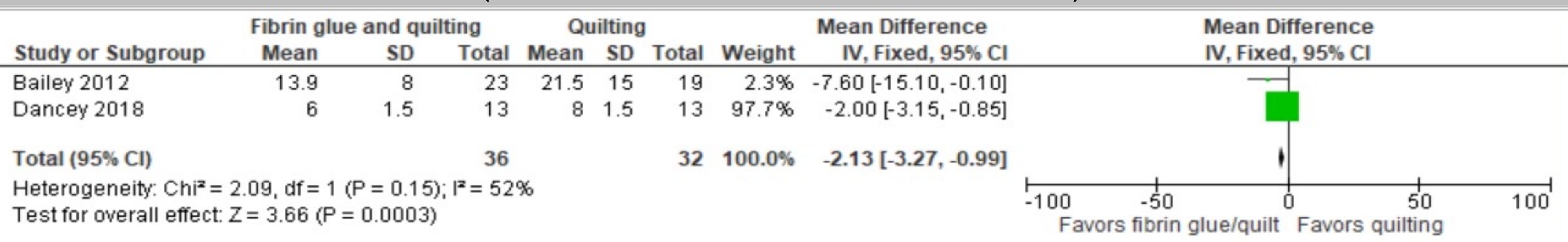
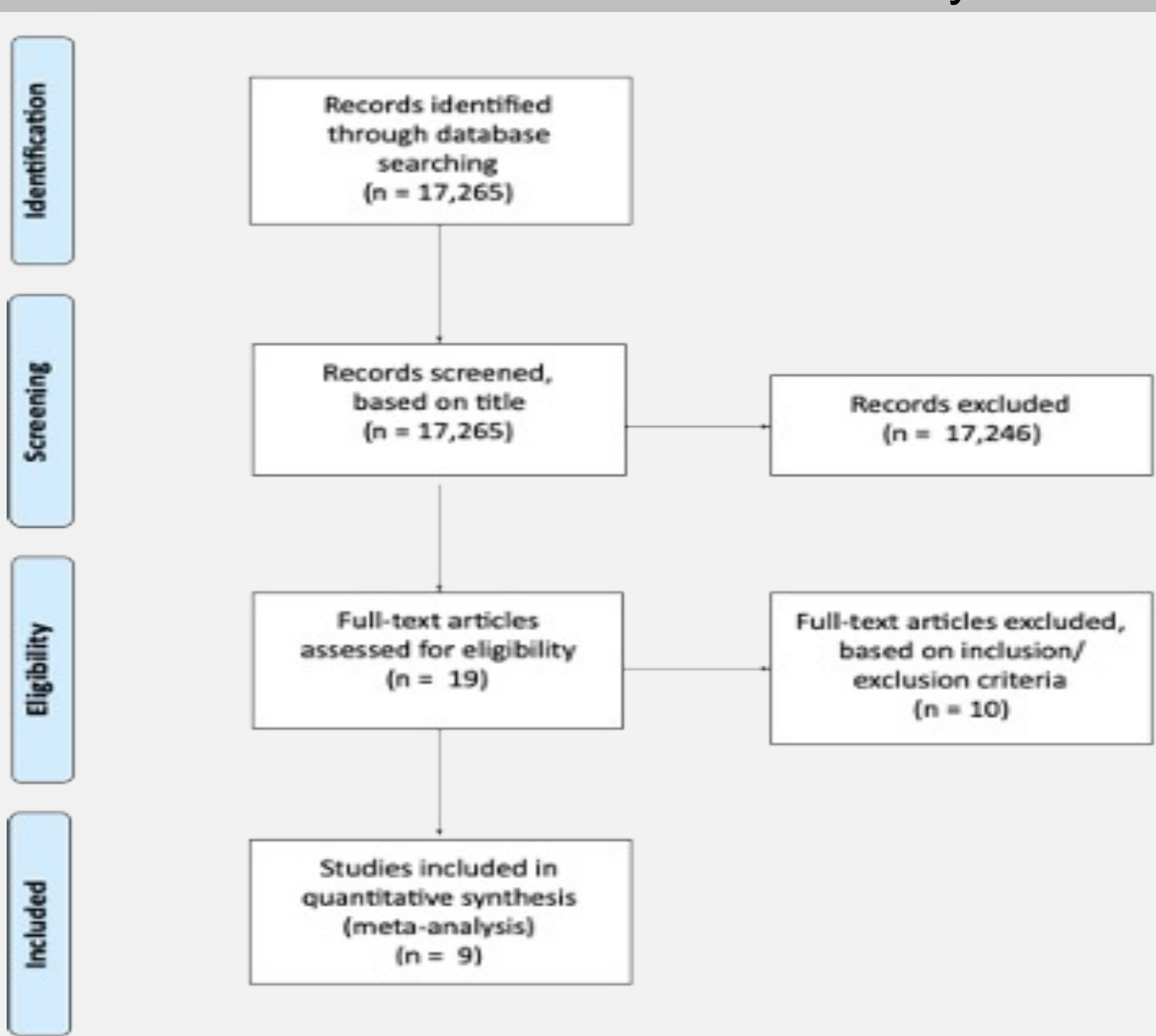


Figure 1: PRISMA flow diagram of articles screened and selected for meta-analysis



CONCLUSION

The existing literature supports that the use of fibrin glue is not associated with a decrease in seroma rate formation in DIEP and LD flaps and is weakly associated with the reduction in the drainage duration only if used in conjunction with quilting.

ARTICLES SELECTED

- Weinrach JC, Cronin ED, Smith BK, Collins DR, Cohen BE. Preventing Seroma in the Latissimus Dorsi Flap Donor Site With Fibrin Sealant. *Annals of plastic surgery*. 2004;53(1):12-16.
- Al SN, Gill P, Oikonomou D, Sterne GD. The Combination of Fibrin Glue and Quilting Reduces Drainage in the Extended Latissimus Dorsi Flap Donor Site. *Plastic and reconstructive surgery* (1963). 2010;125(6):1615-1619.
- Hivelin M, Housse JL, Matar N, Lepage C, Lantieri L. Fibrin sealant decreases postoperative drainage in immediate breast reconstruction by deep inferior epigastric perforator flap after mastectomy with axillary dissection. *Microsurgery*. 2011;31(1):18-25.
- Dancey AL, Cheema M, Thomas SS. A prospective randomized trial of the efficacy of marginal quilting sutures and fibrin sealant in reducing the incidence of seromas in the extended latissimus dorsi donor site. *Plastic and reconstructive surgery* (1963). 2010;125(5):1309-1317.
- Fang C-L, Changchien C-H, Chen M-S, et al. The Effects of Combining Progressive Tension Sutures, Closed Drain, and Fibrin Sealant in Abdominoplasty Wound After Deep Inferior Epigastric Perforator Flap Harvesting. *Annals of plastic surgery*. 2020;84(1S Suppl 1):S89-S93.
- Bailey SH, Oni G, Guevara R, Wong C, Saint-Cyr M. Latissimus dorsi donor-site morbidity: the combination of quilting and fibrin sealant reduce length of drain placement and seroma rate. *Annals of plastic surgery*. 2012;68(6):555-558.
- Cha HG, Kang SG, Shin HS, Kang MS, Nam SM. Does Fibrin Sealant Reduce Seroma after Immediate Breast Reconstruction Utilizing a Latissimus Dorsi Myocutaneous Flap? *Archives of plastic surgery*. 2012;39(5):504-508.
- Hart AM, Duggal C, Pinell-White X, Losken A. A Prospective Randomized Trial of the Efficacy of Fibrin Glue, Triamcinolone Acetonide, and Quilting Sutures in Seroma Prevention after Latissimus Dorsi Breast Reconstruction. *Plastic and reconstructive surgery* (1963). 2017;139(4):854e-863e.
- Llewellyn-Bennett R, Greenwood R, Benson JR, et al. Randomized clinical trial on the effect of fibrin sealant on latissimus dorsi donor-site seroma formation after breast reconstruction. *British journal of surgery*. 2012;99(10):1381-1388.