

Evidence Based Updates in Post-Debridement Wound Care: The Power of Antimicrobial Dressing VS Silver Sulfadiazine

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Background: Silver sulfadiazine (SSD) has long been the standard topical antimicrobial for post-debridement partial thickness burn wounds, yet its cytotoxicity, pseudo-eschar formation, and need for daily reapplication limit healing efficiency and increase resource burden. Modern antimicrobial dressings, delivering silver combined with atraumatic soft-silicone technology, offer a fundamentally different treatment paradigm.

Objective: To synthesize randomized controlled trial, meta-analytic, and economic evidence comparing modern antimicrobial dressings against SSD across efficacy, safety, cost, labour, and paediatric outcomes.

Methods: A narrative evidence synthesis of head-to-head RCTs, paediatric meta-analyses, and cost-effectiveness studies published 2006–2026, evaluating silver foam, nanocrystalline, and hydrofibre dressings against SSD in partial-thickness burn management.

Results: Modern antimicrobial dressings required substantially fewer dressing changes (2–4 vs. 10–22 per patient) and produced lower pain scores (12–22 vs. 24–44 on a 100mm visual analogue scale) than SSD. Healing outcomes were comparable or superior (71–87% vs. 61–85% healed), with shorter hospital stays. Total cost of care favored modern dressings (\$309 vs. \$514/patient), driven chiefly by labor savings (21% vs. 63% of total cost) rather than product price. Pediatric pooled data showed markedly lower grafting rates (3.3% vs. 21.5%), though infection rate remained the one outcome where SSD was not clearly outperformed.

Conclusion: Modern antimicrobial dressings offer comparable-to-superior healing, meaningfully reduced pain and staffing burden, and favorable cost-effectiveness relative to SSD, supporting their role as first-line post-debridement wound care in both adult and pediatric burns, with dressing format selected according to exudate level, wound contour, and required wear time.