

# Vital pulp therapy in vital permanent teeth with cariously exposed pulp: a systematic review

Panuroot Aguilar<sup>1</sup>, Pairoj Linsuwanont

Affiliations + expand

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## Abstract

**Introduction:** This systematic review aims to illustrate the outcome of vital pulp therapy, namely direct pulp capping, partial pulpotomy, and full pulpotomy, in vital permanent teeth with cariously exposed pulp.

**Methods:** Electronic database MEDLINE via Ovid, PubMed, and Cochrane databases were searched. Hand searching was performed through reference lists of endodontic textbooks, endodontic-related journals, and relevant articles from electronic searching. The random effect method of weighted pooled success rate of each treatment and the 95% confidence interval were calculated by the DerSimonian-Laird method. The weighted pooled success rate of each treatment was estimated in 4 groups: >6 months-1 year, >1-2 years, >2-3 years, and >3 years. All statistics were performed by STATA version 10. The indirect comparison of success rates for 4 follow-up periods and the indirect comparison of clinical factors influencing the success rate of each treatment were performed by z test for proportion ( $P < .05$ ).

**Results:** Overall, the success rate was in the range of 72.9%-99.4%. The fluctuation of the success rate of direct pulp capping was observed (>6 months-1 year, 87.5%; >1-2 years, 95.4%; >2-3 years, 87.7%; and >3 years, 72.9%). Partial pulpotomy and full pulpotomy sustained a high success rate up to more than 3 years (partial pulpotomy: >6 months-1 year, 97.6%; >1-2 years, 97.5%; >2-3 years, 97.6%; and >3 years, 99.4%; full pulpotomy: >6 months-1 year, 94%; >1-2 years, 94.9%; >2-3 years, 96.9%; and >3 years, 99.3%).

**Conclusions:** Vital permanent teeth with cariously exposed pulp can be treated successfully with vital pulp therapy. Current best evidence provides inconclusive information regarding factors influencing treatment outcome, and this emphasizes the need for further observational studies of high quality.