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Restoration of Endodontically Treated Teeth: A Cost-Effectiveness Analysis of Endocrown Versus Complete Crown

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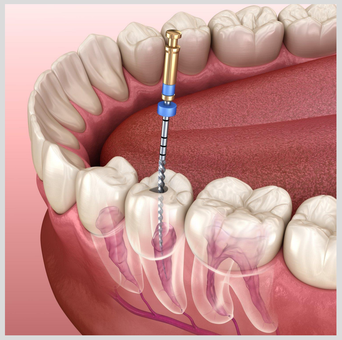
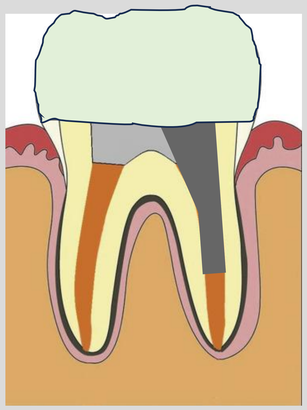
Poster Code: EE386

Introduction

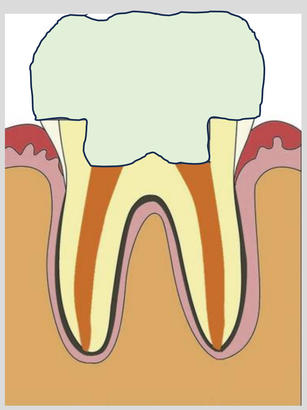


Complete coverage crown

Restoration of structurally compromised endodontically treated permanent teeth



Complete coverage crown with post placed inside the canal



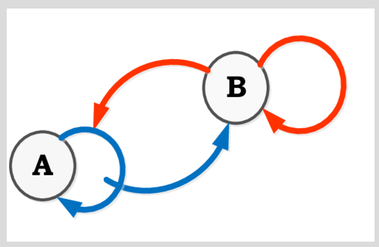
Endocrown with dowel-type extension in the pulp chamber

Cost-effectiveness analysis (CEA)

- It compares the ***incremental cost*** with the ***added health benefit*** attributed to an intervention in the context of a specific healthcare setting

Outcome: Incremental Cost-Effectiveness Ratio (ICER) = Δ Cost / Δ Effect

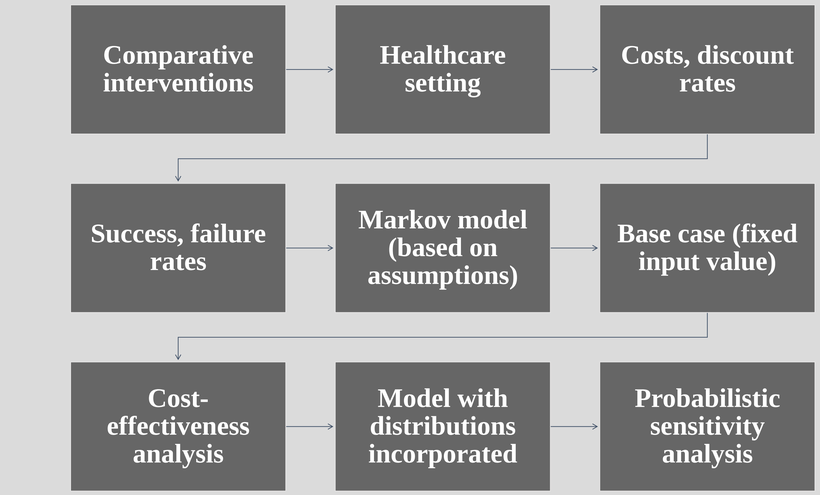
Model-based CEA



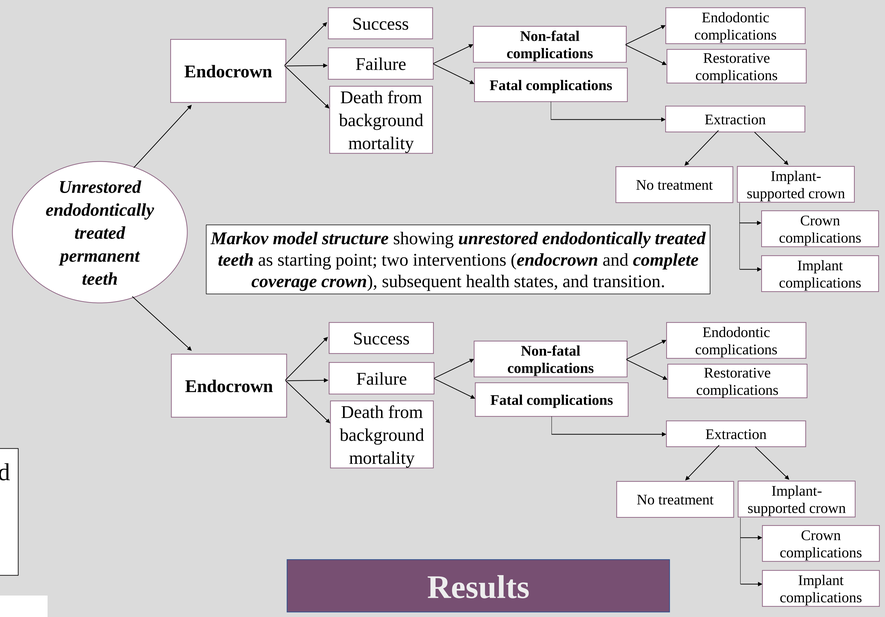
Markov model

Materials & Methods

Workflow of model-based CEAs



Clinical pathway of the model



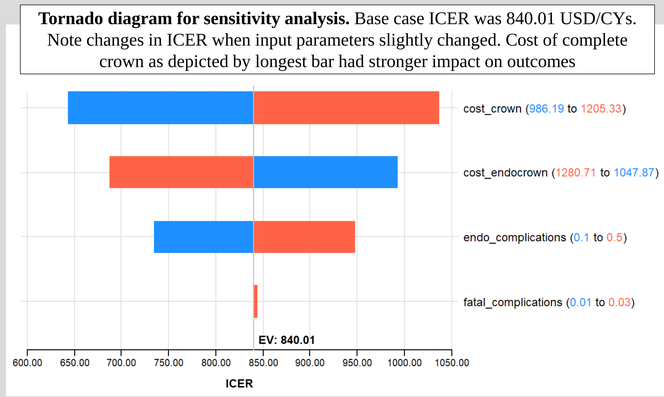
Markov model structure showing ***unrestored endodontically treated teeth*** as starting point; two interventions (***endocrown*** and ***complete coverage crown***), subsequent health states, and transition.

Results

Definitive Restoration	Cost (USD)	Incremental Cost (USD)	Retained Crown-Years (CYs)	Incremental Retained CYs	ICER (Incr. Cost/Incr. CYs), USD/CYs
Endocrown	29,973	-	***25.67***	-	-
Complete coverage crown	31,508	1535	***26.57***	0.90	***1701.06***

Table 1 Base case scenario: Cost-effectiveness ranking report; endocrown versus complete coverage crown for lifetime

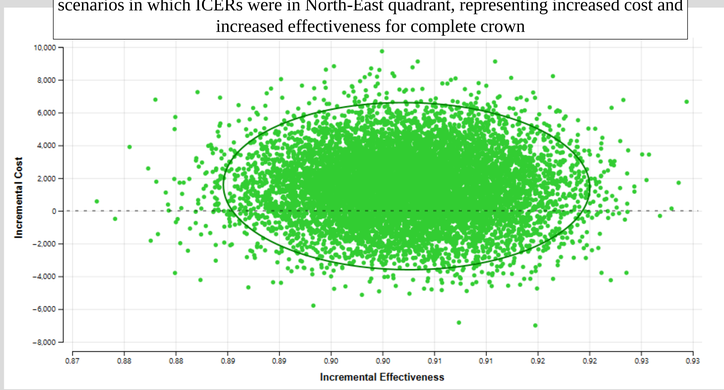
Tornado diagram for sensitivity analysis. Base case ICER was 840.01 USD/CYs. Note changes in ICER when input parameters slightly changed. Cost of complete crown as depicted by longest bar had stronger impact on outcomes



Probabilistic Sensitivity Analysis

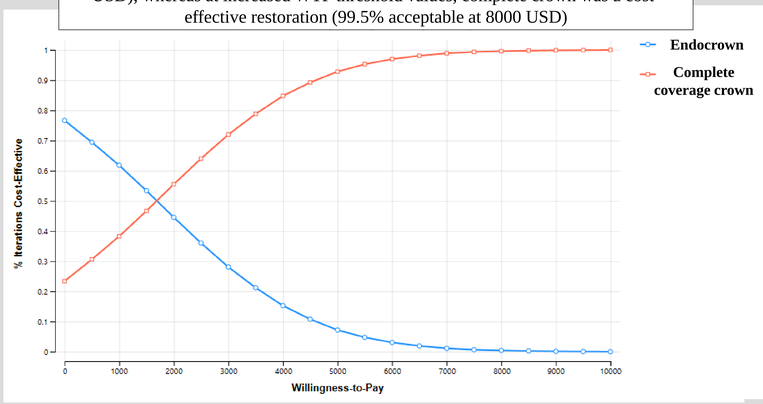
ICER scatterplot, restoration with complete coverage crown versus endocrown

ICERs within 95% Credible Intervals. Horizontal and vertical axes show effectiveness and cost differences between complete crown and endocrown. Green dots represent scenarios in which ICERs were in North-East quadrant, representing increased cost and increased effectiveness for complete crown



Cost-effectiveness acceptability curve

Endocrown was cost-effective at lower WTP threshold values (73% acceptable at 250 USD), whereas at increased WTP threshold values, complete crown was a cost-effective restoration (99.5% acceptable at 8000 USD)



Conclusion

In the context of US healthcare system, endocrown was a cost-effective restorative option at lower WTP values for structurally compromised endodontically treated permanent teeth. At an increased WTP threshold, the post-retained complete crown became a more cost-effective restoration throughout an individual's lifetime