Article title: Designing Value-Based Dental Benefit Packages: A Multicriteria Decision Analysis in the Netherlands

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Supplementary file 3. Evidence Synthesis

Supplementary file 3: Evidence synthesis

Table S4: Scale of performance levels

Performance level	Decision criteria							
		Clinical efficacy						
	Disease burden (QoL score)	Prevention (percentage improvement pocket depth/bleeding/plaque/ CAL)	Screening/ diagnostics (accuracy)	Restoration/ prosthodontics (annual failure rate)	Endodontics (success rate)	Periodontal therapy (CAL)	Impact on quality of life (percentage improvement OHRQoL)	Patient safety (percentage complications)
Very low	0.91-1	≤0%	≤0.60	16-20%	0-20%	<-0.1 mm	0-20%	41-50%
Low	0.81-0.90	0-10%	0.61-0.7	12-15%	21-40%	-0.1--0.5 mm	21-40%	31-40%
Moderate	0.71-0.80	11-20%	0.71-0.8	8-11%	41-60%	-0.05-0.0 mm	41-60%	21-30%
High	0.61-0.70	21-30%	0.81-0.9	4-7%	61-80%	0.0-0.5 mm	61-80%	11-20%
Very high	0.50-0.60	>30%	0.91-1.0	0-3%	81-100%	0.5-1.0 mm	81-100%	0-10%

Note: Quality of life scores were calculated by mapping OHIP scores onto EQ-5D using the model of Brennan and Spencer (Brennan DS, Spencer AJ. Mapping oral health-related quality of life to generic health state values. BMC Health Serv Res. 2006;6:96. doi:10.1186/1472-6963-6-96). Diagnostic accuracy was calculated using $accuracy = sensitivity \times prevalence + specificity \times (1 - prevalence)$. *Annual failure rates were derived from reported failure rates x and follow-up time z using annual* $failure\ rate = 1 - (1 - x)^{1/z}$, *as described by Opdam et al. (Opdam NJ, van de Sande FH, Bronkhorst E, et al. Longevity of posterior composite restorations: a systematic review and meta-analysis. J Dent Res. 2014;93(10):943-949. doi:10.1177/0022034514544217).*

Table S5: Performance levels color coded based on extracted results from literature and expert elicitation

	Disease burden	Clinical efficacy	Impact on quality of life	Patient safety	Insurability
Direct restoration/filling (caries)	•0.87 points[22] •1.34-3.96 OHIP-14[69]	•0.2-11.9% annual failure rate (5 years)[1] •1.2-1.8% annual failure rate (4-12 years)[5] •0.8-1.6% annual failure rate (4-10 years)[19] •1.1-2.2% annual failure rate (7 years)[68]	•27.1% improvement (2 weeks)[71]	•Fillings do not impose clinically important harms on patients (5-7 years)[68]	
Direct restoration/filling (tooth wear)	•0.4-2.0 OHIP-46[60]	•0.2-11.9% annual failure rate (5 years)[1] •1.2-1.8% annual failure rate (4-12 years)[5] •0.8-1.6% annual failure rate (4-10 years)[19]	•30.6-35% improvement (1-5 years)[60]		
Indirect restoration/crown (caries)	•0.87 points[22] •1.34-3.96 OHIP-14[69]	•2.5% annual failure rate (5 years)[1]			
Indirect restoration/crown (tooth wear)	•0.4-2.0 OHIP-46[60]	•2.5% annual failure rate (5 years)[1]	•30.6-35% improvement (1-5 years)[60]	•6% complications (3 years)[18]	
Occlusal splint (tooth wear)	•0.4-2.0 OHIP-46[60]	•No significant effects (3-12 months)[44]	•No significant effects (3-12 months)[44]		
Oral hygiene instruction (caries)	•0.87 points[22] •1.34-3.96 OHIP-14[69]				
Oral hygiene instruction (gingivitis)	•3.74-9.53 OHIP-14[14] •No effect[22]	•No significant effects (3 months - 3 years)[7] •Oral hygiene instruction with and without professional cleaning reduces plaque and bleeding (2 weeks - 4 years)[40] •Limited effects on behavioral and clinical outcomes, psychological interventions add little to no significant effects (3 weeks - 1 year)[64,65]	•No significant effects (1 year)[65]		
Oral hygiene instruction (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]	•No significant effects (3 months - 3 years)[7] •4-36% reduced plaque, 21% - 22.7% reduced bleeding, 2 mm reduced probing depth (1-6 months)[23] •Oral hygiene instruction with and without professional cleaning reduces plaque and bleeding (2 weeks - 4 years)[40] •Limited effects on behavioral and clinical outcomes, psychological interventions add little to no significant effects (3 weeks - 1 year)[64,65]	•No significant effects (1 year)[65]		
Oral hygiene instruction (tooth wear)	•0.4-2.0 OHIP-46[60]		•No significant effects (1 year)[60]		
Partial denture (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]	•16.3-16.7% annual failure rate (5-10 years)[61]	•69.0% improvement (1 month - 14 years)[15] •35.7-46.3% improvement (2-10 years)[16]		

Partial denture (pulpitis)	•27.82-29.73 OHIP-14[11] •18.17 OHIP-14[37] •24.8 OHIP-17[54]	•16.3-16.7% annual failure rate (5-10 years)[61]	•69.6% improvement (1 month - 14 years)[15] •35.7-46.3% improvement (2-10 years)[16]		
Partial denture (tooth wear)	•0.4-2.0 OHIP-46[60]	•16.3-16.7% annual failure rate (5-10 years)[61]	•69.6% improvement (1 month - 14 years)[15] •35.7-46.3% improvement (2-10 years)[16]		
Periodontal therapy (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]	•0-0.14 mm CAL gain (6 months - 13 years)[46] •0.5 mm CAL gain and 0.2 - 0.6 mm in addition due to adjunctive therapies (6 months)[50] •0.1-0.71 mm CAL gain (6 months)[58] •0.74 mm CAL gain (3-15 months)[59]	•47.9% improvement (1-12 weeks)[6] •12.3-68.2% improvement (1 week - 1 year)[26]	•13.17% complications (10-28 years)[47] •31% - 46% complications - inconclusive root sensitivity evidence (1-2 months)[62]	
Root canal treatment (pulpitis)	•27.82-29.73 OHIP-14[11] •18.17 OHIP-14[37] •24.8 OHIP-17[54]	•85.4% radiographic success rate (1-5 years)[33] •79.90% clinical/radiographic success rate (6 months - 5 years)[53] •75.3% clinical/radiographic success rate (5 years)[56]	•34.9-41.4% improvement (1 year)[11] •88.5% improvement (1 month)[37] •64.1% improvement (1 year)[54]	•10.9% - 37.9% pain rate after treatment, 28.6% complications (immediate - 1 month)[33] •14.77% - 37.31% pain rate (immediate - 10 days)[53] •11.08% pain rate (7 days)[56]	
Routine dental checkup (caries)	•0.87 points[22] •1.34-3.96 OHIP-14[69]	•0.85 accuracy[32]	•No significant effects (2-4 years)[13]	•0% complications[8]	
Routine dental checkup (gingivitis)	•3.74-9.53 OHIP-14[14] •No effect[22]	•0.88 accuracy[32]	•No significant effects (2-4 years)[13]	•0% complications[8]	
Routine dental checkup (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]	•0.78 accuracy[32]	•No significant effects (2-4 years)[13]	•0% complications[8]	
Routine dental checkup (tooth wear)	•0.4-2.0 OHIP-46[60]	•0.70-0.87 accuracy[45]	•No significant effects (1 year)[60]		
Scaling and polishing (gingivitis)	•3.74-9.53 OHIP-14[14] •No effect[22]	•No significant effects, small reduction in calculus (2-3 years)[28] •No added effect of professional cleaning to oral hygiene instruction, similar effect as hygiene instruction (2 weeks - 4 years)[40]	•No significant effects (2-3 years)[28]		

Scaling and polishing (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]	•No significant effects, small reduction in calculus (2-3 years)[28] •No added effect of professional cleaning to oral hygiene instruction, similar effect as hygiene instruction (2 weeks - 4 years)[40]	•No significant effects (2-3 years)[28]		
Tooth extraction (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]			•5% complications (2 years)[35]	
Tooth extraction (pulpitis)	•27.82-29.73 OHIP-14[11] •18.17 OHIP-14[37] •24.8 OHIP-17[54]		•No significant effects (1 month)[66]	•5% complications (2 years)[35]	
Tooth extraction (tooth wear)	•0.4-2.0 OHIP-46[60]			•5% complications (2 years)[35]	
Tooth replacement (periodontitis)	•5.14 OHIP-14[2] •4.90-15.57 OHIP-14[14] •4.2 OHIP-14[42] •18.2-24.1 OHIP-14[69]	•0.0-3.6% annual failure rate (10-15 years)[31] •0.0-2.1% annual failure rate (4-11 years)[41] •0.0-0.5% annual failure rate (5-10 years)[47] •0.0-1.7% annual failure rate (5 years)[48] •0.0-0.7% annual failure rate (3 years)[55] •0.8% annual failure rate (10 years)[71]	•69.0% improvement (1 month - 14 years)[15]		
Tooth replacement (pulpitis)	•27.82-29.73 OHIP-14[11] •18.17 OHIP-14[37] •24.8 OHIP-17[54]	•0.0-0.8% annual failure rate (4-14 years)[41] •0.4-0.6% annual failure rate (5 years)[48] •0.0% annual failure rate (3 years)[55]	•69.6% improvement (1 month - 14 years)[15]		
Tooth replacement (tooth wear)	•0.4-2.0 OHIP-46[60]	•0.0-0.8% annual failure rate (4-14 years)[41] •0.4-0.6% annual failure rate (5 years)[48] •0.0% annual failure rate (3 years)[55]	•69.6% improvement (1 month - 14 years)[15]		

Note: Most performance levels were determined based on a combination of literature along with expert validation. Performance levels without references were determined based on expert elicitation as no evidence could be found in the literature. Insurability is based on the costs and sensitive utilization data of treatments not shown in the table. Follow-up time is shown in parentheses where applicable.

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