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Supplementary Material

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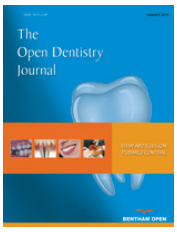

Multi-Centre Clinical Evaluation of Photothermal Radiometry and Luminescence Correlated with International Benchmarks for Caries Detection

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SUPPLEMENTARY TABLES AND FIGURES

Supplemental Table 1. Participating Study Sites.

Study Site #	Investigator Name	Office Address	Number of Patients Scanned
1	Dr. Stephen Abrams & Dr. Warren Hellen	Cliffcrest Dental Office 2995 Kingston Road, Scarborough, Ontario M1M 1P1, Canada	63
2	Dr. Gary Elman	Downsview Plaza Dental Office 1078 Wilson Avenue, Toronto, Ontario, M3K 1G6, Canada	8
3	Dr. Richard Ehrlich	Elm Tree Dental 17201 Highway 50 Palgrave, Ontario, L7E 3S9, Canada	5
4	Dr. Raffy Chouljian	Scarborough North Dental Group 404 Finch Avenue East Suite 204 Toronto, Ontario, M1S 4V5, Canada	16

Supplemental Table 2. Mean raw Canary Numbers (rCN) and normalized Canary Numbers (CNs) derived from patients scans.

ICDAS II Grouping	Raw Canary Number (rCN)		Normalized Canary Number (CN)		# of Scanned Surfaces
	Mean	SD	Mean	SD	
0	108.88	110.58	21	11	315
1-2	387.63	413.45	40	11	276
3-4	435.48	616.77	42	13	78
5-6	919.77	1006.34	53	10	29

Supplemental Table 3. Summary of parameters and corresponding values used for equations to convert raw Canary Numbers (rCN) into normalized Canary Numbers (CN).

Parameter	Value
$CN(1)_{min}$	0
$CN(1)_{max}$	20
$CN(2)_{min}$	20
$CN(2)_{max}$	70
$CN(3)_{min}$	70
$CN(3)_{max}$	100
$rCN(1)_{min}$	1
$rCN(1)_{max} = rCN(2)_{min}$	100
$rCN(2)_{max} = rCN(3)_{min}$	3,000
$rCN(3)_{max}$	10,000

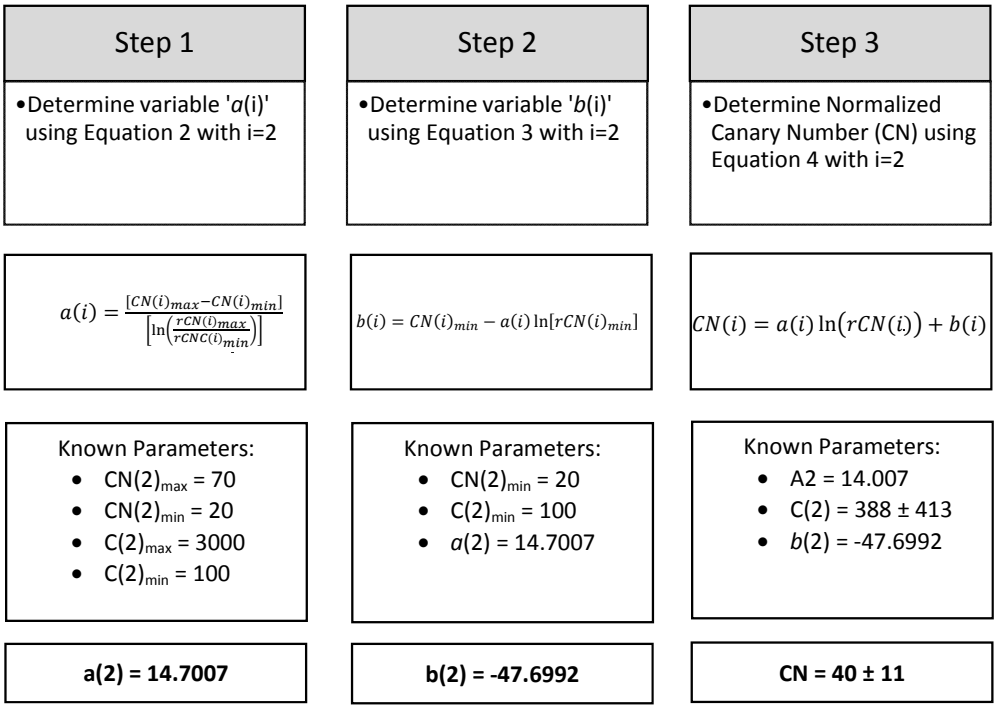
$$CanaryNumber(raw) = rCN = C\left(\frac{PTR_{Amp} \bullet PTR_{Phase}}{LUM_{Amp} \bullet LUM_{Phase}}\right) \quad \text{(Equation 1)}$$

Where PTR_{Amp} = PTR Amplitude; PTR_{Phase} = PTR_{Phase}; LUM_{Amp} = Luminescence Amplitude; LUM_{Phase} = Luminescence Phase; and C: Instrumental Normalization Constant

PTR_{Amp} = 341.79 ± 4.3602 (uv)
PTR_{Phase} = 163.89 ± 0.77821 (degree)
LUM_{Amp} = 49.687 ± 1.1090 (uv)
LUM_{Phase} = 179 ± 0.037417 (degree)
C=1000

Using equation 1,
rCN = 6300

Supplemental Figure 1. Calculation of rCN for glassy carbon reference material.



Supplemental Figure 2. Example of three-step process for converting a raw Canary Number (rCN) into a normalized Canary Number.