

Restorative materials for severely affected primary molars

Aida Mulic

Senior Scientist DDS, PhD



Håkon Valen

Senior Scientist DDS, PhD



Reduced follow-ups and increased cost effectiveness were best obtained using preformed metal crowns (PMCs) in children with severely affected primary molars at high caries risk. This is the conclusion of a collaboration study between the City of Helsinki and NIOM. The group investigated the survival of restorative materials used in the treatment of severely affected primary molars.

In Finland less than one tenth of five year olds have more than three quarters of the total of untreated caries. This corresponds with the rest of the western world where caries decline is accompanied by strong polarization among children. Children and adolescents with high caries risk need preventive and restorative strategies. Collaboration was established between researchers of the City of Helsinki and NIOM to investigate survival of restorative materials used for treatment of severely affected primary molars. The study was based on health records from 2002 to 2016 including children less than 18 years of age in the Helsinki area.



Illustrasjonsfoto: Colourbox.

Caries decline in the western world is accompanied by strong polarization among children.

PMCs have longer survival time and lower annual failure rate compared to other restorative materials used for treatment of extensive lesions based on 15-year practice of public services.

Key findings

- Almost half (40%) of severely affected primary molars were restored with preformed metal crowns (PMCs).
- General practitioners working with patients in general anesthesia service placed most of the PMCs.
- PMCs have longer survival time and lower annual failure rate compared to other restorative materials used for treatment of extensive lesions.

Why is this important for the paediatric professional community?

- Choosing PMCs reduces the number of follow-ups, thus, increases cost-effectiveness of oral health services.

NIOM

Nordic Institute of
Dental Materials
Sognsveien 70A,

NO-0855 Oslo, Norway.
phone: (+47) 67 51 22 00
e-mail: niom@niom.no
www.niom.no

Full text available here:

In: B Tseveenjav, J Furuholm, A Mulic, H Valen, T Maisala, S Turunen, S Varsio, M Auero, L Tjäderhane: Survival of extensive restorations in primary molars: 15-year practice-based study. *Int J Pediatr Dent* 2018;28:249-256.

Read more: <http://onlinelibrary.wiley.com/doi/10.1111/ipd.12348/full>

NIOM adds Shore hardness and bond strength characterization to its test repertoire

Hilde M. Kopperud
Head of Laboratory, dr. scient.



Methods from ISO 10139-1:2018 and ISO 10139-2:2016 (Soft lining materials for removable dentures – Part 1: Materials for short-term use, and Part 2: Materials for long-term use) have been added to the NIOM test repertoire. The new test methods are the Shore hardness test for lining material, and the bond strength test for lining on denture base materials. For materials for short-term use the described method is Shore A0 hardness, while for long-term materials the method is Shore A.

NIOM also performs other tests by methods given in ISO 10139 parts 1 and 2 where these originate from other standards already performed by our laboratory: the water sorption & solubility for lining materials used long-term is the same method as in ISO 20795-1 Denture base polymers; the consistency test is adopted from ISO 4823 Elastomeric impression materials; and the test method for reproduction of detail is the same as in ISO 4823.

Independent testing according to an appropriate ISO standard is a means to ascertain compliance with statutory requirements. NIOM's test reports are recognized by regulatory agencies worldwide, in particular as evidence for compliance with the EU Medical Device Directive and US FDA regulatory requirements.

The institute is accredited generally for quality testing of dental materials according to ISO 17025 General requirements for the competence of testing and calibration laboratories by Norwegian Accreditation. NIOM holds specific accreditation for a broad range of physical, mechanical and chemical test methods. Together, these accreditations ensure independent, reliable and high-quality test results.



Specimens for water sorption and solubility



Shore hardness tester

Read more:

For more information on NIOM test methods please visit www.niom.no/materials-testing or contact us for a quotation for the testing of your material.

Shore hardness testing of soft lining materials

Bond strength characterization for lining on denture base