For more information please contact the Executive Officer
Meaghan Quinn
Ph: +61 (0)3 8825 4603 or **Email: ask@evident.net.au**
Visit: www.evident.net.au

Molar Incisor Hypomineralisation/ Molar Hypomineralisation

Project No:	003	**Commencement Date:**	September 2010
Chief Investigator A:	Emeritus Prof Louise Brearley Messer	**Completion Date:**	September 2012
Chief Investigator B:	Prof David Manton	**Status:**	Active
Associate Investigators:	Dr Narisha Chawla, Dr Karen Kan, Dr Fiona Ng, Dr Kelly Oliver, Clinical A/Prof Christopher Olsen, Dr John Sheahan, Dr Margarita Silva		
Support:	Australian and New Zealand Society for Paediatric Dentistry (Victorian Branch), eviDent Foundation		

Introduction

Molar-Incisor Hypomineralisation (MIH) and Molar Hypomineralisation (MH) are two related conditions affecting first permanent molars. The exact causal factors are still unknown, so primary prevention is difficult. Many of these teeth provide great clinical challenges as they are sensitive, difficult to anaesthetise and restorations fail readily.

Aims

- To investigate the distribution and severity of MIH/ MH in dental practices in Melbourne;
- To implement the use of the newly developed MHSI in these practices to assist in the early detection, diagnosis and treatment of MIH/ MH; and
- To propose and pilot new clinical management protocols for affected dentitions in order to maximise oral health and improve clinical outcomes.

Rationale

Treatment planning for hypomineralised molars in the child is complicated, difficult and often has long term consequences. This eviDent project seeks to trial a MH Severity Index (MHSI) to help predict the clinical course of affected molars and assist clinicians to determine the most appropriate treatment.

Methodology

A common MIH data collection form is used by participating practices. A total of 225 children with MIH were identified by five paediatric dentists trained in MIH diagnosis. Erupted teeth (895 FPMs; 1,357 PIs) were described in standardized format. At entry severity variables were measured; treatment undertaken was recorded at review. MHSI was computed for affected dentitions/teeth by the primary investigator scoring descriptors (defect colour, surface location, PEB, atypical restorations, restorations); possible MHSI range for affected dentitions = 5-52, for affected FPMs = 3-13.

What are the expected outcomes?

It is anticipated this project will:

- provide information that would lead to evidence based clinical management protocols for affected dentitions in order to maximise oral health and improve clinical outcomes; and
- improve the diagnosis and management of MIH/ MH with particular reference to the first permanent molars of children and adolescents in order to maximize oral health and improve clinical outcomes.

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Initial Findings

- MIH occurred in 724/895 first permanent molars (FPMs) (81%); 360/1,357 permanent incisors (PIs) (26%).
- Descriptors for 724 FPMs were: defect: white: 100 (14%), yellow: 209 (29%), brown: 321 (44%); location: smooth: 85 (12%), occlusal: 85 (12%), cuspal: 461 (63%); post-eruptive breakdown (PEB): 297 (41%); atypical restoration: 191 (26%); restoration: 274 (38%).
- Mean (±SD) MHSI for dentitions: 26.3 (9.9); range: 5-12: 24 (11%), 13-20: 45 (20%), 21-28: 60 (27%), 29-36: 61 (27%), 37-44: 29 (13%), 45-52: 6 (3%).
- Mean MHSI for FPMs: 6.6 (3-5); range: 3-4: 65 (9%), 5-6: 140 (19%), 7-8: 212 (29%), 9-10: 218 (30%), 11-13: 89 (12%).
- Of 44 dentitions reviewed, 176 affected FPMs received: remineralisation (F tray/varnish, ToothMousse™): 149 (85%), interim GIC: 45 (26%), sealants: 98 (56%); adhesive restorations: 38 (22%), amalgam: 1 (0.6%); extractions: 12 (7%).
- With increasing MHSI, treatment of FPMs increased for: remineralisation (mean procedures/dentition, 1.3-3.0), interim GIC (0.3-4.0), adhesive restorations (0.4–2.0), extraction (0-0.4); therapy peaked in MHSI range 21-28 for sealants (2.4-2.9-1.2).
- Comparison of MHSI with treatment received by FPMs showed treatment frequency/invasiveness increased with MHSI score.

NOTES