THE D3 GROUP

ISSUE #4 DECEMBER

D3G DISPATCH

News about Developmental Dental Defects (D3s), The D3 Group, and the Chalky Teeth Campaign.

COMMENT FROM THE CUSP

Hi there. I'm delighted to report that D3G attracted a great response at **IAPD's world congress for paediatric dentistry** – it was an exciting meeting in a spectacular city. A meeting report appears below, and of course attention now turns to capitalising on exciting opportunities for international consolidation before us.

Today we have a comprehensively multinational **'D3 family'** comprising 73 **international friends** from 25 countries plus several hundred email contacts across Australia and New Zealand. Consequently, a prime focus is to increase uptake of the **individual subscription** package we introduced in October – pleasingly, 60 heroes have **"joined up"** already *(see **world map**)*. Having a large paid membership will strengthen D3G's advocacy power and financial sustainability. Hence, in this season of giving, we kindly ask you to **help us by recruiting friends and colleagues** to become paid-up members of D3G.

Given a highly positive reception to the extra **"academic"** content in ***October's D3G Dispatch***, we continue in that vein with this the last edition for 2017. As always, suggestions for improvement are welcomed.

All the best to you for the festive season and 2018.

Mike Hubbard | *D3G Founder*

REPORT: IAPD-Santiago congress a success

Held during October in Santiago, Chile, the **world congress on paediatric dentistry** was a wonderful event, both in itself and for exposure of D3G. **Molar Hypomin** received unprecedented attention in the lecture halls – that is, two 2-hour sessions back to back and both jam-packed with about **600 delegates**.

Vidal Perez and **Mike Hubbard** each presented scientifically-flavoured talks, and translational research was the focus of another talk given by Mike. **International D3G members** **Susan Parekh** and **Mike Harrison** also gave well-received talks about D3 issues. Subsequent discussions led to many pleasing advances including pledges for further collaboration with IAPD's exec, **new members from across the globe**, support for the ***"Spanish Sam"*** storybook translation initiative *(see flyer **here**)*, and many other offers of help.

Our new ***"I love D3G"*** membership badges were snapped up, and the promotions team *(below)* were kept busy providing information, signing up members and selling ***Sam's storybook***. Some photos from this event are available **here**.

"The promo team" *– Elissa McElroy, Vidal Perez, Mike Hubbard*

UPDATE: Friends in high places

If attracting a large paid-membership base is to be the answer for D3G's sustainability, how good is our recent endorsement from the ***International Federation of Dental Hygienists***? The wonderful story of how this came about awaits another day, but for now we salute a fantastic opportunity to engage with **IFDH's 82,000-strong membership** – many of whom serve at the **"front line"** for detecting D3s in children.

This is our second endorsement at world-peak level, the first being that of the ***International Association of Paediatric Dentistry*** *(15,000 members)* bestowed in 2013 and recently invigorated at IAPD-Santiago. And at local level, now having three organisations support the **Chalky Teeth Campaign** is also thrilling in multiple ways – so our thanks to the ***Australian and NZ Society of Paediatric Dentistry***, the ***Dental Hygienists Association of Australia***, and the ***Australasian Academy of Paediatric Dentistry*** for their financial backing and much more. Once again we thank our foundational financial supporters (***Dentsply, GC, Colgate, A-dec, Wrigley***) and 10 endorsing organisations from across the profession – the latter boosted recently by the local dental student associations (***NZDSA, ADSA***).

INTRODUCING: Rami Farah, international ambassador for D3G

Hot on the heels of naming **Vidal Perez** as D3G ambassador for Latin America *(see October's D3G Dispatch)*, we're pleased to introduce **Rami Farah** as our ambassador in the Middle East. Rami is well versed in all things D3G, having obtained both his paediatric dentistry specialisation and PhD in New Zealand and contributed variously to D3G meetings and activities over many years.

His postgrad research focussed on biochemical and biomechanic aspects of Molar Hypomin, leading to several papers and a book chapter. Rami's recent clinical experience as a paediatric dentist in **Saudi Arabia** *(Johns Hopkins Aramco Healthcare)* has not only heightened his awareness of how badly Molar Hypomin can affect children and their families, but also exposed patchy awareness of this problem amongst some international peers. Accordingly, he now intends to recruit other **'D3 cognoscenti'** to help him foster D3-family growth across the Middle East – so those interested in this new frontier, please **contact Rami**.

HIGH FIVE: Another milestone for D3G's websites

December has seen D3G's **online-education resource** pass the **'4 million hits'** milestone, reflecting over 250,000 visits and 800,000 page reads since launch in August 2013. Traffic also continues to build at our public-facing site, the **Chalky Teeth Campaign**, with a noticeable increase evident since the ***'We Fight Chalky Teeth' practice initiative*** was launched.

By these measures at least, D3G is achieving a significant level of social impact around the world. Yet obviously a huge amount of upside remains in terms of broader recognition and other languages, and so funding for website development sits high on our wish-list.

PS: *We hear from many practitioners that D3G's websites benefit them and their patients. So please encourage your colleagues to **join the D3 family** and help us continue this service.*

AN ASK: Volunteer vacancies

Are there any **Wikipedians** out there willing to help us create a Wikipedia presence for D3G's **'translational take'** on **Molar Hypomin**, **chalky teeth** and the like? Any experience will be a step ahead of our current resource base!

Also, we're increasingly in need of **"journalistic articles"** for a variety of public and professional settings. So any keen writers, be it hobbyist or pro and interested in adapting **CTC** and **D3G** content for print media, please **let us know.**

QUICK QUIZ: Delving into D3s

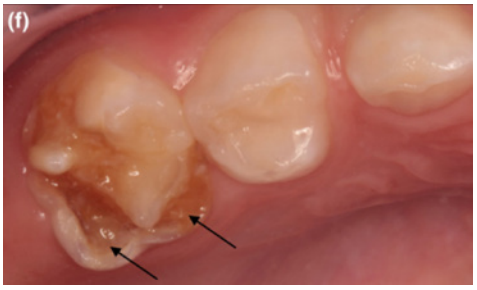
QUESTION 1 *(easy)*
Besides 6-year molars, Molar Hypomin commonly affects which other teeth?

QUESTION 2 *(harder)*
Demarcated opacities are a type of enamel hypoplasia – true or false?

Answers: *see Suggestions Box on pg 4.*

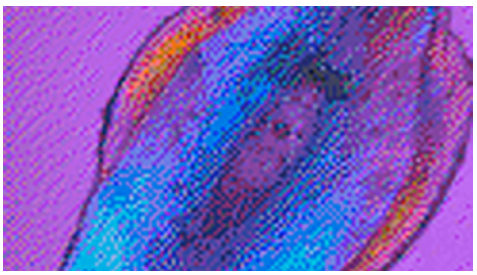
D3 LITERATURE: Keeping you current!

Clinical Feature: Hypomin and caries in 2-year molars



Disentangling enamel defects from childhood caries is a **"clinical snake pit"**, yet postgrad student **Marilyn Owen** and colleagues jumped right in with a well-designed study of Melbourne preschoolers. In their high-socioeconomic population, 1-in-7 children had hypomineralised 2-year molars *(HM-Es)*, a third of which were affected severely *(i.e. bore restorative need)*. Akin to reports for hypomineralised 6-year molars, severe HM-E cases generally had multiple teeth affected by relatively large, yellow-brown opacities. Although statistics were hampered by low caries prevalence *(only 13% of children had dentinal cavities)*, a significant association was found between opacity size and caries severity in HM-Es. The surprising finding that HM-Es had little impact on overall caries prevalence matches recent reports for 6-year molars in low-caries populations. Collectively, it seems reasonable to infer that the substantial public health burden of Molar Hypomin-associated caries can be reduced through timely preventive interventions (*read more **here***).

Lab Feature: Resin bonding & MH



Failure of resin bonding to hypomineralised enamel remains a common clinical complaint. Previous studies have shown that hypomin enamel contains more protein than normal and that chemical pretreatment with hypochlorite bleach improves its resin-bond strength. Realising potential safety benefits over hypochlorite, **Mani Ekambaram** and colleagues tested a natural protein-degrading enzyme gel using a custom-made rig to measure micro-shear bond strengths. The enzyme gel was found to be equally effective as hypochlorite on hypomin enamel, increasing bond strengths to about 90% of the normal-enamel level. Efficacy was better on white/cream than yellow/brown opacities with both deproteination treatments, yet scanning electron microscopy revealed some differences in the respective bond-failure patterns. Given that the enzyme gel has previously been recommended for removal of carious dentine, further investigation of its utility for hypomin teeth appears worthwhile (*read more **here***).

Other New Reports: *Spotlighting MH and AI*

Objective and subjective aesthetic performance of ICON(®) treatment for enamel hypomineralization lesions in young adolescents: a retrospective single center study. Mazur M, Westland S, Guerra F, Corridore D, Vichi M, Maruotti A, Nardi GM, Ottolenghi L. *J Dent.* 2017; [Epub ahead of print] PMID: **29104142**

Effects of environmental tobacco smoke on the oral health of preschool children. B Hasmun NN, Drummond BK, Milne T, Cullinan MP, Meldrum AM, Coates D. *Eur Arch Paediatr Dent.* 2017; [Epub ahead of print] PMID: **29090450**

Association of Pre- Peri- and Postnatal Factors with Developmental Defects of Enamel in Schoolchildren. Vargas-Ferreira F, Peres MA, Dumith SC, Thomson WM, Demarco FF. *J Clin Pediatr Dent.* 2017; [Epub ahead of print] PMID: **29087789**

Tooth mineral density of different types of hypomineralised molars: a micro-CT analysis. Neboda C, Anthonappa RP, King NM. *Eur Arch Paediatr Dent.* 2017; [Epub ahead of print] PMID: **29081019**

Developmental defects of enamel and caries in primary teeth. Foulds H. *Evid Based Dent.* 2017;18(3):72-73. PMID: **29075030**

Risk factors associated with new caries lesions in permanent first molars in children: a 5-year historical cohort follow-up study. Llena C, Calabuig E. *Clin Oral Investig.* 2017; [Epub ahead of print] PMID: **29063383**

Comparison of deproteinization agents on bonding to developmentally hypomineralized enamel. Ekambaram M, Anthonappa RP, Govindool SR, Yiu CKY. *J Dent.* 2017; 67:94-101. PMID: **29031995**

Molar-incisor hypomineralization seems to be associated with caries experience, but the magnitude of this association is yet to be reliably determined. Brignardello-Petersen R. *J Am Dent Assoc.* 2017;148(12):e197. PMID: **29029751**

Molar incisor hypomineralization treatment with casein phosphopeptide and amorphous calcium phosphate in children. Pasini M, Giuca MR, Scatena M, Gatto R, Caruso S. *Minerva Stomatol.* 2017; [Epub ahead of print] PMID: **28975773**

The Würzburg MIH concept: the MIH treatment need index (MIH TNI) : A new index to assess and plan treatment in patients with molar incisior hypomineralisation (MIH). Steffen R, Krämer N, Bekes K. *Eur Arch Paediatr Dent.* 2017;18(5):355-361. PMID: **28913739**

Dental enamel defect diagnosis through different technology-based devices. Kobayashi TY, Vitor LLR, Carrara CFC, Silva TC, Rios D, Machado MAAM, Oliveira TM. *Int Dent J.* 2017; [Epub ahead of print] PubMed PMID: **29168574**

For more reports go here >

Conservative anterior treatment with CAD-CAM technology and polymer-infiltrated ceramic for a child with amelogenesis imperfecta: A 2-year follow-up. Halal R, Nohra J, Akel H. *J Prosthet Dent.* 2017; [Epub ahead of print] PMID: **28967409**

The Unfolded Protein Response in Amelogenesis and Enamel Pathologies. Brookes SJ, Barron MJ, Dixon MJ, Kirkham J. *Front Physiol.* 2017; 8:653. PMID: **28951722**

Association of Amelogenesis Imperfecta and Bartter's Syndrome. Kumar ACV, Alekya V, Krishna MSVV, Alekya K, Aruna M, Reddy MHK, Sangeetha B, Ram R, Kumar VS. *Indian J Nephrol.* 2017; 27(5):399-401. PMID: **28904439**

Amelogenesis Imperfecta: Case Study. Leevailoj C, Lawanrattanakul S, Mahatumarat K. *Oper Dent.* 2017; 42(5):457-469. PMID: **28829932**

The crystal structure of human Rogdi provides insight into the causes of Kohlschutter-Tönz Syndrome. Lee H, Jeong H, Choe J, Jun Y, Lim C, Lee C. *Sci Rep.* 2017; 7(1):3972. PMID: **28638151**

A Fourth KLK4 Mutation Is Associated with Enamel Hypomineralisation and Structural Abnormalities. Smith CEL, Kirkham J, Day PF, Soldani F, McDerra EJ, Poulter JA, Inglehearn CF, Mighell AJ, Brookes SJ. *Front Physiol.* 2017; 8:333. PMID: **28611678**

Amelogenesis Imperfecta with Distal Renal Tubular Acidosis: A Novel Syndrome? Misgar RA, Hassan Z, Wani AI, Bashir MI. *Indian J Nephrol.* 2017; 27(3):225-227. PMID: **28553046**

Functional and esthetic rehabilitation of a child with amelogenesis imperfecta: a case report. Moura CDVS, Pontes AS, Lopes TSP, Moura LFAD, Lima MDM. *Gen Dent.* 2017; 65(3):e18-e20. PMID: **28475095**

Analyses of MMP20 Missense Mutations in Two Families with Hypomaturation Amelogenesis Imperfecta. Kim YJ, Kang J, Seymen F, Koruyucu M, Gencay K, Shin TJ, Hyun HK, Lee ZH, Hu JC, Simmer JP, Kim JW. *Front Physiol.* 2017; 8:229. PMID: **28473773**

Enamel-renal syndrome in 2 patients with a mutation in FAM20 A and atypical hypertrichosis and hearing loss phenotypes. Pêgo SPB, Coletta RD, Dumitriu S, Iancu D, Albanyan S, Kleta R, Auricchio MT, Santos LA, Rocha B, Martelli-Júnior H. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 2017; 123(2):229-234.e2. PMID: **28086997**

Enamel Renal Syndrome: A Case History Report. Costa DC, Dourado MR, Figueiredo de Carvalho MF, Santos CR, da Cruz Batista MA, Mesquita AT. *Int J Prosthodont.* 2017; 30(1):22-24. PMID: **28085972**

SUGGESTIONS BOX

In D3 family spirit, please **contact us** to share your thoughts on how we might improve this newsletter and other communications.

Answers to quiz:

Q1: The 2-year & 12-year molars, and adult incisors too (see **here**)

Q2: False. Read all about it **here** and **here**

Towards better understanding and care of people with D3s.