

D3G DISPATCH

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

COMMENT FROM THE CUSP



Hola - welcome to our special edition for the [International Association of Paediatric Dentistry's world congress](#) being held this week in Santiago, Chile.

Pleasingly, D3G has had a steadily increasing presence at these biannual meetings, prompting much of the interest behind [International Friends of D3G](#). This time several of the invited talks are to be given by D3G members, me included. So we hope this fabulous exposure combined with supportive networking by other D3G-savvy attendees will trigger a big step forward in the internationalisation of our mission and support base.

To mark the Latin-flavoured Congress, we're welcoming **Vidal Perez** as our first international ambassador and starting a D3-family effort to produce [Sam's Story in Spanish](#). And at last, individual subscription to D3G, incorporating unique educational offerings about D3s, is [now available](#) – see pg2.

Meanwhile this newsletter continues our effort to catch you up on what's been happening behind the scenes at D3G headquarters – we think lots by any measure and moreso knowing how few hands have been involved. Pleasingly, as [Sharon](#) improves our operations, we're now starting to create opportunities for volunteer help. So those of you keen to pitch in and help grow D3G, please don't hesitate to [contact us](#).

Mike Hubbard | D3G Founder

UPDATE: Sam's storybook's a hit!

Our **"Kid's guide to Molar Hypomin"** (aka **"Sam's story"**) is proving a real hit since it became available in glossy print. Besides having their own waiting-room copies, many practices are ordering extra **"give-away"** copies for families affected by Molar Hypomin. And finally, Sam's story can be [ordered online](#), making things much easier for you folk and us too.

The storybook has spurred some amazing acts of generosity, including distribution to delegates at the Australian Dental Congress (sponsored by **GC**) and all members of ADOHTA (sponsored by **ANZSPD**) in 2015. Similarly, senior dental students in Australia and NZ each received a personal copy of the storybook (thanks to a grant from **Wrigley**), 500 copies went across the Waikato-Bay of Plenty region in New Zealand (thanks to a grant from the **local branch of NZDA**), and **Colgate** handed out 100 copies at this year's Australian Dental Congress.

After distributing **more than 14,000 copies** across many countries and having received umpteen compliments from all walks of life, we're confident that Sam's story is helping



affected families cope with Molar Hypomin (*more on this [here](#) and [here](#)*) – so long as they understand English that is!!

Excitingly, pressure mounts for availability in other languages and so the question turns to resourcing and where best to start? – **Spanish**, say many!! So those interested in helping make Sam's story available, either in Spanish or their own language, are encouraged to rally local support and [contact us](#).

INTRODUCING: Vidal Perez, international ambassador for D3G

As part of our [International Friends](#) initiative, we're proud to introduce D3G's first international ambassador – **Vidal Perez** (*University of Talca, Chile*). Deeply aware of the Molar Hypomin problem in South America from his experiences as a paediatric dentist, Vidal came to Melbourne to do a translationally-crafted PhD with Mike Hubbard's group. His work spanned from [lab bench through to public outreach](#), leading to a [research award](#), co-authorship on a breakthrough [publication about D3G](#), and several more papers to follow. Having planted seeds during his PhD travels, Vidal now intends to foster D3 family growth across Latin America – so those interested in this new frontier, please [contact Vidal](#).



NEW: Individual member subscription

We're pleased to launch an individual subscription to D3G which provides globally-unique educational and scientific information about D3s. For just **A\$50 yearly (about US\$40)**, members will get: **(1)** our regular D3G DISPATCH e-newsletter and interim email alerts **(2)** access to one hour of "D3-Continuing Ed"; **(3)** discounted entry to D3G events; and **(4)** a membership pin on our "D3 family" map (*test site [here](#)*). This offering fits between the existing basic email membership and our recently introduced [co-branding opportunity](#) for specialist practices Down Under. **Please go [here](#) to Join D3G.**



AN ASK: Help D3G stand on its own feet

Today's D3 family arose from [massive generosity](#) – a major benefaction initially, then heaps of in-kind and financial inputs since. To secure the gains made from this dream start, it only seems fair that we pull together as a family to sustain and grow D3G, financially and otherwise.

How can D3G remain freely open to everyone yet still pay its bills? Thanks to our new e-commerce facility, D3G no longer is restricted to charitable income (*i.e. donations*). Initially aiming for self-sustainability, we're adding **"user-pays"** elements and hope that, by spreading running costs across a large userbase, everyone will share in rock-bottom prices. Should this **"not-for-profit"** step prosper, D3G might sensibly become some form of social-impact venture (*e.g. social enterprise*) whose profits are applied to D3 research and education.

For starters, Sam's storybook and our ever-popular website referral cards can now be [purchased online](#) and [membership offerings](#) are underway as noted above.

We request your strong support for these initiatives so that D3G can survive the **"chicken-and-egg challenge"** (*i.e. spending before earning*) faced by all start-ups.



Naturally this move towards user-pays requires a changed mindset for long-term users of D3G resources, which have magically appeared **"for free"** over several years. To foster this change, we're promoting the idea of ["giving back to D3G"](#) and trying to make this both fun and socially impactful – for example by having **"Toothy"** demonstrate the **"pay-it-forward"** concept for helping those less-fortunate.

If you know of potential funding sources for D3G (*e.g. benefactors, donors, grants, self*), whether they be Down Under or elsewhere on this planet, please contact the [Director](#).

HIGH FIVE: A much-loved brand

We're really happy that the "D3 brand" draws numerous compliments from many directions and so we're keen to continue developing it – as always, your tips and suggestions are welcomed. Most obviously, [Sharon](#) has designed a chalky-molar logo for the [Chalky Teeth Campaign](#) and extended this through to the [We Fight Chalky Teeth](#) practices network where "Toothy" was employed to flagwave the **Champions in the fight against chalky teeth** tagline. The "love D3G" concept was also picked up for [D3G membership](#) and "Toothy" was used to inspire people to gift memberships ("pay it forward") to others in less-fortunate circumstances. And eagle-eyes may have noticed that Sharon recently spruced up the [D3G logo](#), aiming to increase its appeal to the public.



QUICK QUIZ: Delving into D3s

QUESTION 1 (easy)

Molar Hypomin is defined by a certain type of enamel opacity – what is its proper name?

Answers: see Suggestions Box on pg 4.

QUESTION 2 (harder)

The DDE index remains a cornerstone for dental epidemiology worldwide – which New Zealander's research was it based on?

D3 LITERATURE: Keeping you current!

Clinical Feature: Restoring hypomin molar

Now back practising in Chile, Melbourne PhD graduate **Vidal Perez** reports a novel approach to improving the robustness of [GIC restorations](#) in severely hypomineralised molars. After filling the tooth with GIC, an orthodontic band was fitted as a strong metallic casing. Orthodontic bands are thought to be less harmful on gums when compared with stainless steel crowns (*a commonly used approach*). After 18 months observation, the gums were in good condition and the restoration remained essentially intact – something that would normally be unexpected for a GIC filling of that size. It will be interesting to see if these findings hold up beyond the single case reported ([read more here](#)).



Lab Feature: Resin infiltration & MH

Delving deeper into the attractive but (*so-far*) vexed proposition of using low viscosity resin to harden hypomineralised enamel, Melbourne postgraduate student **Harleen Kumar** asked whether reliability of resin infiltration could be improved by removal of the surface enamel layer. Using [polarised light microscopy](#), the surface layer was found to vary widely in thickness and its removal by acid etching was also variable. With subsequent resin penetration remaining unreliable (*i.e. some success in about half of lesions studied*) and adding little if any hardness, it was concluded that this approach cannot be recommended as a clinical procedure currently ([read more here](#)).



Other New Reports: Spotlighting MH and AI

Hypomineralised second primary molars: prevalence, defect characteristics and relationship with dental caries in Melbourne preschool children. Owen ML, Ghanim A, Elsby D, Manton DJ. *Aust Dent J.* 2017; [Epub ahead of print] PMID: [28881480](#)

A Clinical Evaluation of Deproteinization and Different Cavity Designs on Resin Restoration Performance in MIH-Affected Molars: Two-Year Results. Sönmez H, Saat S. *J Clin Pediatr Dent.* 2017; 41(5):336-342. PMID: [28872993](#)

Structural, mechanical and chemical evaluation of molar-incisor hypomineralization-affected enamel: A systematic review. Elhennawy K, Manton DJ, Crombie F, Zaslansky P, Radlanski RJ, Jost-Brinkmann PG, Schwendicke F. *Arch Oral Biol.* 2017; 83:272-281. PMID: [28843745](#)

Exploring the association between genetic and environmental factors and molar incisor hypomineralization: evidence from a twin study. Teixeira RJPB, Andrade NS, Queiroz LCC, Mendes FM, Moura MS, Moura LFAD, Lima MDM. *Int J Paediatr Dent.* 2017; [Epub ahead of print] PMID: [28833715](#)

Molar Hypomineralisation: A Call to Arms for Enamel Researchers. Hubbard MJ, Mangum JE, Perez VA, Nervo GJ, Hall RK. *Front Physiol.* 2017; 8:546. PMID: [28824445](#)

More on molar incisor hypomineralisation (MIH) and linear enamel hypoplasia (LEH) in archaeological human remains. Gualdi-Russo E, Zedda N, Esposito V, Masotti S. *Clin Oral Investig.* 2017; [Epub ahead of print] PMID: [28741173](#)

The prevalence of molar incisor hypomineralization: evidence from 70 studies. Zhao D, Dong B, Yu D, Ren Q, Sun Y. *Int J Paediatr Dent.* 2017; [Epub ahead of print] PMID: [28732120](#)

Molar incisor hypomineralisation (MIH) training manual for clinical field surveys and practice. Ghanim A, Silva MJ, Elfrink MEC, Lygidakis NA, Mariño RJ, Weerheijm KL, Manton DJ. *Eur Arch Paediatr Dent.* 2017; [Epub ahead of print] PMID: [28721667](#)

Molar incisor hypomineralization: proportion and severity in primary public school children in Graz, Austria. Buchgraber B, Kqiku L, Ebeleseder KA. *Clin Oral Investig.* 2017; [Epub ahead of print] PMID: [28631087](#)

Caries Experience in Children with and without Molar-Incisor Hypomineralisation: A Case-Control Study. Grossi JA, Cabral RN, Leal SC. *Caries Res.* 2017; 51(4):419-424. PMID: [28658675](#)

For more reports go [here](#) >

Amelogenesis Imperfecta: A Non-Invasive Approach to Improve Esthetics in Young Patients. Report of Two Cases. Cagetti MG, Cattaneo S, Hu YQ, Campus G. *J Clin Pediatr Dent.* 2017; 41(5):332-335. PMID: [28872982](#)

Mineral features of connective dental hard tissues in hypoplastic amelogenesis imperfecta. Kammoun R, Behets C, Mansour L, Ghoul-Mazgar S. *Oral Dis.* 2017; [Epub ahead of print] PMID: [28771955](#)

Novel FAM83H mutations in patients with amelogenesis imperfecta. Xin W, Wenjun W, Man Q, Yuming Z. *Sci Rep.* 2017; 7(1):6075. PMID: [28729668](#)

Amelogenesis Imperfecta; Genes, Proteins, and Pathways. Smith CEL, Poulter JA, Antanaviciute A, Kirkham J, Brookes SJ, Inglehearn CF, Mighell AJ. *Front Physiol.* 2017; 8:435. PMID: [28694781](#)

Evolutionary Analysis Predicts Sensitive Positions of MMP20 and Validates Newly- and Previously-Identified MMP20 Mutations Causing Amelogenesis Imperfecta. Gasse B, Prasad M, Delgado S, Huckert M, Kawczynski M, Garret-Bernardin A, Lopez-Cazaux S, Bailleul-Forestier I, Manière MC, Stoetzel C, Bloch-Zupan A, Sire JY. *Front Physiol.* 2017; 8:398. PMID: [28659819](#)

Alternative prosthodontic-based treatment of a patient with hypocalcified type Amelogenesis Imperfecta. Jivanescu A, Miglionico A, Barua S, Hategan SI. *Clin Case Rep.* 2017; 5(7):1093-1097. PMID: [28680602](#)

Effect of etching on bonding of a self-etch adhesive to dentine affected by amelogenesis imperfecta. Epasinghe DJ, Yiu CKY. *J Invest Clin Dent.* 2017; [Epub ahead of print] PMID: [28608463](#)

Defects in the acid phosphatase ACPT cause recessive hypoplastic amelogenesis imperfecta. Smith CE, Whitehouse LL, Poulter JA, Brookes SJ, Day PF, Soldani F, Kirkham J, Inglehearn CF, Mighell AJ. *Eur J Hum Genet.* 2017; 25(8):1015-1019. PMID: [28513613](#)

Amelogenesis imperfecta caused by N-terminal enamelin point mutations in mice and men is driven by endoplasmic reticulum stress. Brookes SJ, Barron MJ, Smith CEL, Poulter JA, Mighell AJ, Inglehearn CF, Brown CJ, Rodd H, Kirkham J, Dixon MJ. *Hum Mol Genet.* 2017; 26(10):1863-1876. PMID: [28334996](#)

Defective enamel and bone development in sodium-dependent citrate transporter (NaCT) Slc13a5 deficient mice. Irizarry AR, Yan G, Zeng Q, Lucchesi J, Hamang MJ, Ma YL, Rong JX. *PLoS One.* 2017; 12(4):e0175465. PMID: [28406943](#)

A novel AMELX mutation causes hypoplastic amelogenesis imperfecta. Kim YJ, Kim YJ, Kang J, Shin TJ, Hyun HK, Lee SH, Lee ZH, Kim JW. *Arch Oral Biol.* 2017; 76:61-65. PMID: [28130977](#)

Towards better understanding of and care of people with D3s.

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: demarcated opacity (read more [here](#) and [here](#));

Q2: Grace Suckling ([read more](#))