The D3 Group for Developmental Dental Defects,
in partnership with **Université Paris Cité**
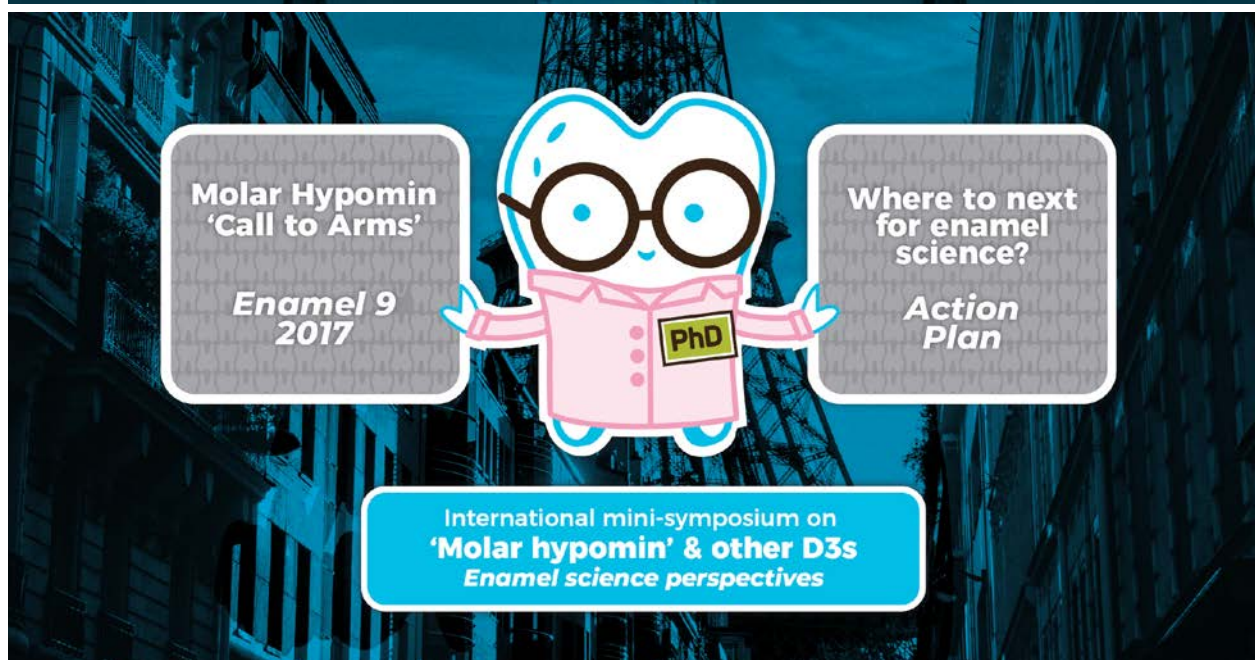
'D3 SATELLITE At Enamel 11'

INTERNATIONAL MINI-SYMPOSIUM ON 'MOLAR HYPOMIN' & OTHER D3s

ENAMEL SCIENCE PERSPECTIVES

OCT 17, 2025

PARIS, FRANCE

thed3group.org/d3satellite-enamel-11

Translational science in action

Molar Hypomin 'Call to Arms'

Enamel 9 2017

Where to next for enamel science?

Action Plan

International mini-symposium on 'Molar hypomin' & other D3s
Enamel science perspectives

EVENT DETAILS

WHERE:
Domaine St Paul, Saint-Remy-les-Chevreuse
(with Enamel 11)

WHEN:
Friday October 17, 2pm - 5pm

THEME:
**Updating Enamel 9's 'Call to Arms' –
Enamel science perspectives & action plans***

* Hubbard et al, 2017 (**PMID 28824445**),
Kirkham et al, 2017 (**PMID 28775693**)

IDEA INCUBATORS:
Format – D3G's "rapid fire" idea-incubator
format (presenters, panellists, audience)

Focus – 'Targeted Enamel Science: building consensus'

TOPICS:
(1) **Molar Hypomin** – Strengthening science
behind **the new paradigm**

(2) **DDE Index** – Developing a "new-gen" tool for
the digital era (to include AI & other missing D3s)

(3) **AI and other D3s** – Teaming up with Molar
Hypomin in the **"D3-chalky teeth" movement**

SCIENCE-CENTRIC BUT ALL WELCOME!!

Why should I attend the 'D3 Satellite at Enamel 11?

SCIENTISTS
- Clinical problems always benefit from good science
- Scientists should know about the problems with MH
- Want to help set the approach to problem-solving?
- Then attend and share your scientific experience!

CLINICIANS
- Good science often starts with clinical problems
- Clinicians know the problems with MH
- Want to help set the direction of problem-solving?
- Then attend and share your clinical experience!

EDUCATORS
- Educators often need educating in new topics
- Scientists & clinicians know their stuff not yours
- Want to help shape our cross-sector education?
- Then attend and share your educational experience!

END-TRANSLATORS
- Good science gets better once effectively translated
- End-translators should engage "the MH problem"
- Want to help set the approach to problem-solving?
- Then attend and share your translational experience!

· While primarily targeted at **enamel scientists**, this event holds relevance for everyone from **clinicians** (dental & medical) through **science professionals** (including **research publishers** & **funders**), **educators** and so-called "**end-translators**" (**industry**, **policymakers**, **government** & **media**).

· Naturally, **scientists** and other **researchers** will find this a great opportunity to learn about an under-recognised yet potentially preventable global health problem, and to share their ideas on how it might be attacked across the research spectrum.

· It is also a unique opportunity for **clinicians** exposed to Molar Hypomin (e.g. therapists, hygienists & dentists, paediatric & orthodontic specialists, paediatricians) to help shape the research field by voicing their concerns about the day-to-day problems they face and sharing ideas for investigation.

· The same goes for **public health practitioners**, **educators** and others battling to increase awareness of the **striking link between Molar Hypomin and childhood decay**.

· Likewise, **end-translators** will have an unprecedented opportunity to share their perspectives on what's needed to collaboratively **strengthen research** and formulate **better practice**, **products** and **policy**, leading to **prevention** and **social good**.
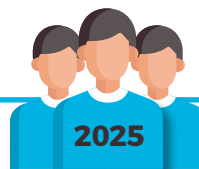
WHY HAVE INTERNATIONAL D3 SYMPOSIA?

Workshop Discussion Document → **'Toronto D3 framework' Symposia** (2020 2021) → (2022-2024) → **'D3 at E-11'** (2025) → **D3G Action Plans & Manifesto** → **Social Good**

PATHS TO TRANSLATION

If the D3 research community is to perform strongly as a "global choir", it follows we must all **"sing from the same song sheet"** and have a translational repertoire ranging from **basic science** through **end-translation** into better **practice**, **policy, products and prevention** – all with a view towards **social good**.

Addressing '*Paths To Translation*', our world-first **Toronto D3 Symposium** in 2022 leveraged a powerful lineup of stakeholders – comprising clinical and public health practitioners, students, industry directors, scientists, research publishers, government reps and funders – to formulate a socially impactful repertoire and advance our "collaborative songwriting" process.

MEDICAL-DENTAL INTEGRATION

In 2024, our **'D3 Day at IADR'** tackled a key translational aspect of the '**Chalky Teeth Problem**', being the **need to merge** what traditionally are **separate medical and dental research paths**. And so, at the world's music capital New Orleans, we were uniquely positioned to extend D3G's **"ideas incubator"** concept across our theme of **"medical-dental harmony"**, leading to a symphony for **social good**.

To help with consensus building, registrants were invited to critique various **discussion framework documents** and the **Green Paper** draft developed during the Toronto D3 events. Read on to learn more about these exciting new steps in our **D3-Chalky Teeth Movement**.

D3G'S BUILDING BLOCKS

A BETTER WORLD

HEALTHIER BABIES
STRONGER TEETH
HAPPIER SOCIETIES

Preventing chalky teeth through improved child and maternal health

Lack of CT research

Ignorance about CT

Chalky Teeth (CT)

'THE CHALKY TEETH PROBLEM'

HEALTHIER BABIES
STRONGER TEETH

Check out our translational "science to social good" **mission**, public messaging around '**The Chalky Teeth Problem**' (as **introduced academically in 2017**), and the exciting yet widely overlooked **medical-prevention** opportunity (cf. **2021 research breakthrough**).

TORONTO D3 FRAMEWORK PROJECTS

TOPICS:	Clinical & Homecare	Clinico-scientific standards	Public health & Education	Medical prevention
PROJECTS:	Imaging D3s & decay	Universal Index D3s & decay	Universal D3 Curriculum	Albuminology & mechanism
	Silver fluorides & pain control	D3 Reviewing Academy	Sam Storybook Internationalisation	Causation & intervention

VOICES:
- **Pan-dental** - therapists & hygienists, GDPs, paediatric & orthodontic, public health
- **Scientific, medical, public health, industry, education, government**
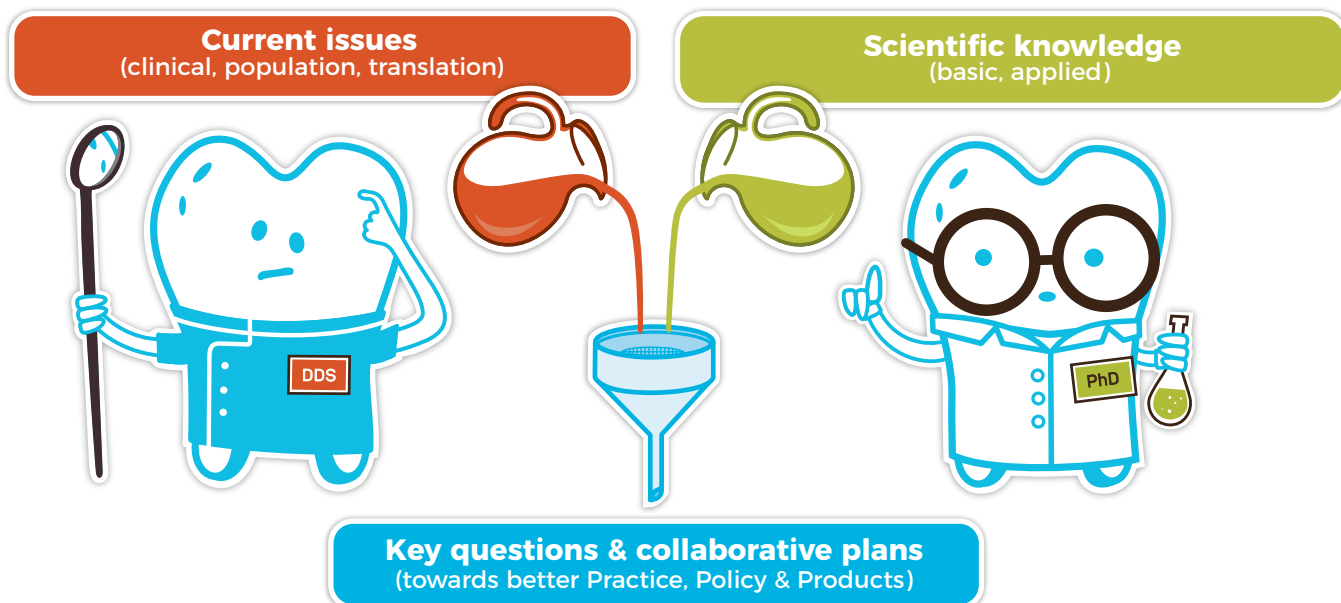
A remarkable 8 field-shaping projects were developed as discussion frameworks during the Toronto D3 Symposia series– we now refer to them as the **Toronto D3 Framework Projects**. The interlinked projects span four core topics identified as priorities for the MH field, and so range from clinical & homecare aspects through public health & education to biomedical science addressing causation and medical prevention.

Notably, several projects hold broader significance across dentistry, public health and social good (e.g. *Imaging D3s & decay, Silver fluorides & dental pain control, Universal Index for D3s & decay*). Expressions of interest are welcomed; contact us **here**.

WHAT'S OUR 'IDEA INCUBATOR' CONCEPT?

Current issues
(clinical, population, translation)

Scientific knowledge
(basic, applied)

DDS

PhD

Key questions & collaborative plans
(towards better Practice, Policy & Products)

Simply put, practitioners (clinicians, public health) have great awareness of major problems that hinder the field whereas researchers (particularly career scientists) excel at finding useful answers. So, given D3G's translational aim to foster **top-quality investigations into key knowledge gaps**, we think it's important that practitioners and scientists understand each other's perspectives better, and also think ahead collectively towards eventual end-translation of research outcomes into "**the 4 Ps**" (practice, policy, products, prevention).

To facilitate such **cross-learning**, this first stage of our incubator concept involves: **(1)** practitioners illustrating current issues they face; **(2)** scientists outlining latest research capabilities and understanding; then **(3)** these and other relevant parties (particularly "end-translators" comprising industry, publishers, funders & policymakers) collaboratively "filtering" this **status quo (1+2)** to arrive at **key researchable questions** and **actionable plans**. We anticipate this novel, cross-sector approach will provide a valuably holistic perspective on **what research should be prioritised** to benefit society, and **how it might be tackled best** at global scale.

OFFICIAL D3 LINGO

To enable **effective intercommunication** among diverse stakeholders, we will again be using (and refining) D3G's translational "**chalky teeth lingo**" – as pioneered at the Toronto D3 Symposia since 2020.

MIH-free zone

For those not yet in the know, D3G has evolved D3 terminology beyond chaos of the "**MIH era**" (i.e. **MIH**, **HSPM**, **DMH**, **HOPT**, **HPC**, **MIHO** and **20 other terms** describing **kids with demarcated opacities**). Yes, that's **26 overlapping terms** in recent academic literature – **can you believe your eye sight?** There are multiple reasons why D3G **grabbed this crazy bull by the horns**, with our interests in **scientific rigour** (cf. "MIH tunnel vision" on early adult teeth only) and compatibility with **medical** and **dental prevention** being paramount – learn more **here** and **here**. This field-reshaping advance followed widespread consultation, both across the sector and around the world.

Extending from great success at the **Toronto D3 Symposium** in 2022, our **D3 Satellite at E-11** will feature a fun approach to helping "**MIHers**" catch up with the times.

SPEAK CHALKY TEETH
Science is on your side

MIH
HSPM, DMH
HOPT, HPC, MIHO
and 20 more terms!
THE **D3** GROUP

D3G's solution with MH, HM and DODs

For a scientifically-robust **academic definition of MH**, we recommend that published in 2023 by the **US National Library of Medicine & D3G** – read it **here** and **here**. This is a truncation of D3G's "professional-level" definition of MH, as presented in our Green Paper *(Translationally robust characterisation of Molar Hypomineralisation as a Demarcated Opacity Disorder)* – which will be provided to registrants ahead of the **D3 Satellite at Enamel 11**.

Moreover, instead of loosely using "MIH" across cases and affected teeth (most current literature), we recommend separating **case level** (**MH**) from tooth level (**HM**, standing for hypomin) and **lesion level** (**demarcated opacity**). By **starting at lesion level** with **dental enamel opacities** – and then specifying **demarcated opacity disorders** (**DODs**) before progressing to **HM** and **MH** – everything falls into place. For example, demarcated HM is distinguished from diffuse HM, and MH refers to cases with HM enamel that is both demarcated and idiopathic. Read about it **here** and **here**. And our provisional classification of MH as a Demarcated Opacity Disorder (DOD) was published **here**.

> ## D3G-NLM DEFINITION OF
> ## MOLAR HYPOMINERALISATION
>
> A developmental disturbance of tooth enamel formation involving molars of any type (obligatory) plus other teeth sometimes. It is characterised by sporadic presentation of demarcated enamel opacities with unknown systemic causation (idiopathic).

If you're new to "D3 land" or would like a refresher, take a quick and easy tour
using the **'D3 Click & Learn'** links below (just click on each graphic).
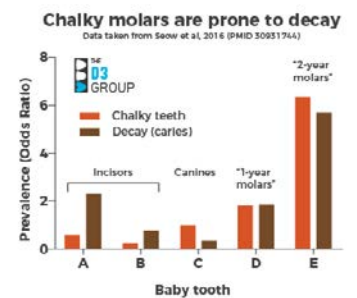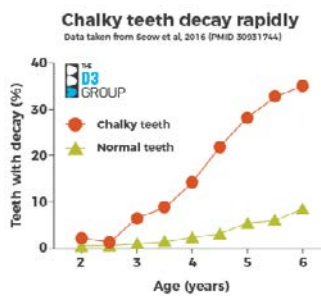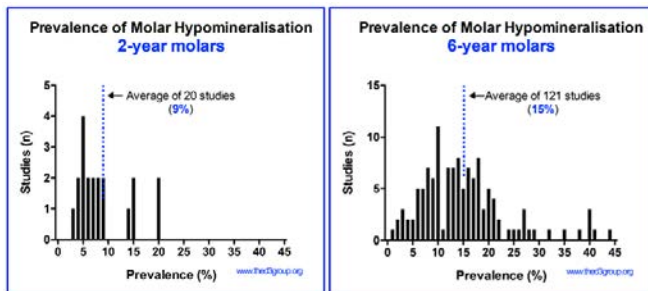
WHAT'S THE PROBLEM?

Lack of research

Ignorance about CT

Chalky Teeth (CT)

'THE CHALKY TEETH PROBLEM'

THE CHALKY TEETH PROBLEM

1-in-5 schoolchildren HAVE **CHALKY TEETH**

14 million **new cases** EACH YEAR

10-fold higher **risk of decay** FOR **CHALKY TEETH KIDS**

Prevalence of Molar Hypomineralisation
2-year molars
Average of 20 studies (9%)

Prevalence of Molar Hypomineralisation
6-year molars
Average of 121 studies (15%)

Chalky teeth decay rapidly
Data taken from Seow et al, 2016 (PMID 30931744)
- Chalky teeth
- Normal teeth

Chalky molars are prone to decay
Data taken from Seow et al, 2016 (PMID 30931744)
- Chalky teeth
- Decay (caries)

WHAT ARE WE DOING ABOUT IT?

D3G

SPEAK CHALKY TEETH

Science is on your side

SCIENCE BREAKTHROUGH

100
1920 - 2020
CHALKY TEETH CENTENARY

Paid-up D3 family members

www.thed3group.org

Colgate
Oral Health Network
for Professional Education and Development

1 CE CREDIT

MOLAR HYPOMINERALIZATION

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