

INTERNATIONAL SYMPOSIUM ON MOLAR HYPOMINERALISATION & CHALKY TEETH

Hosted by the University of Toronto & SickKids

Toronto D3 Symposium (hybrid)

OCTOBER 12th - 14th, 2022
University of Toronto, Canada

www.thed3group.org/toronto2020

WHY HAVE AN INTERNATIONAL D3 SYMPOSIUM?



**Workshop
Discussion
Document**



**Online
Workshop**



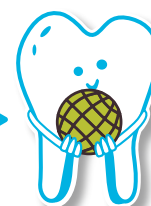
**Online
Incubator**



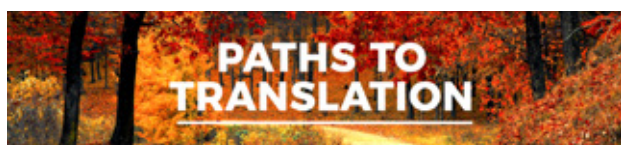
**Live
Symposium**



**D3G
Action Plan
& Manifesto**



**Social
Good**



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 D3 Symposium** will leverage a powerful lineup of stakeholders – comprising clinical and public health practitioners, students, industry directors, scientists, research publishers and funders – to formulate a socially impactful repertoire and advance our “collaborative songwriting” process.

Notably, this “third gig” builds on 2020’s inaugural **online Workshop** – an introductory “cocktail party” showcasing the global strengths and diversity of our D3 family – and the follow-up **D3 Research Incubator** in 2021. In 2022, we’re uniquely positioned to extend the **“ideas incubator”** concept across all our endeavours (research, education, policy, products, prevention), leading to a symphony for **social good**.

Before the show starts in October, registrants will be invited to critique various **discussion framework documents** and a **Green Paper** draft being developed by the **pre-symposium Task Forces**. Read on to learn more about these exciting new steps in our **D3 Movement**.

As always, we welcome questions and tips for improvement.

SOMETHING FOR EVERYONE

Why should I attend the D3 Symposium?

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!

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!

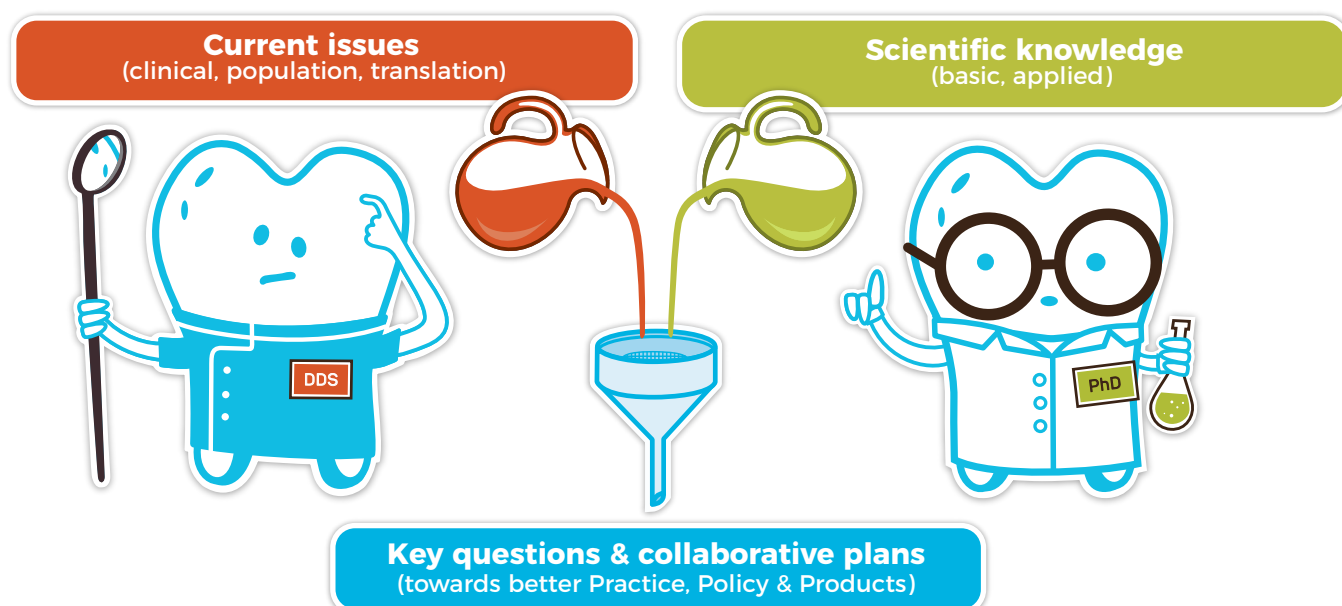
END-TRANSLATORS

- 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!

This “**cross-learning**” event is relevant to everyone from clinicians through to industry, research publishers and funders, and policymakers (so-called “**end-translators**”).

- Here for the first time is an opportunity for **clinicians** exposed to Molar Hypomin (e.g. therapists, hygienists & dentists, paediatric & orthodontic specialists, paediatricians) to voice their concerns about the day-to-day problems they face and ensuing needs for research.
- The same goes for **public health practitioners** and others battling to increase awareness of the **striking link between Molar Hypomin and childhood decay**.
- **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.
- 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**.

WHAT IS OUR 'IDEA INCUBATOR' CONCEPT?



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**. And to enable **effective intercommunication** among diverse stakeholders, we will again be using (and refining) D3G's translational “**chalky teeth lingo**” as pioneered in the 2020+21 webinars. 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.

DISCUSSION FRAMEWORK & MASTER PLAN



Given the translational nature of this event (diverse viewpoints and content, lofty goals and limited time), it's important to have a customised framework available to guide discussion – before, during and after the event. The ultimate goal is a holistic **D3 Research & Education Master Plan** for global consumption. Better still, wouldn't it be great to **grow our community** and **narrow consensus** before the official kick off?

Building from two earlier **discussion framework documents** (2020+21 webinars, available [here](#)), **D3 Task Forces** are currently refining our cross-sector, consensus thinking about **D3 Research Standards and Guidelines**, an all-encompassing **D3 Research Agenda**, and much more (see **Pre-Symposium Projects**, below).

A primary goal is to marry scientific, clinical and public health perspectives, leading to (dynamically) publishable outputs that can help advance the field.

Key outputs will be green papers (e.g. Alphabet Soup problem, below) and other consensus statements about what our community sees as the **top clinico-scientific questions** and **translational needs** (eg. **education, products, policy**) for a raft of topics spanning clinical practice, homecare, public health and medical prevention.

So register now and submit your “**pet peeves**” or “dream product” ideas to our **D3 brain trust** – who may in turn invite you to present them at the Symposium (if you wish).

FIXING OUR “ALPHABET SOUP PROBLEM”

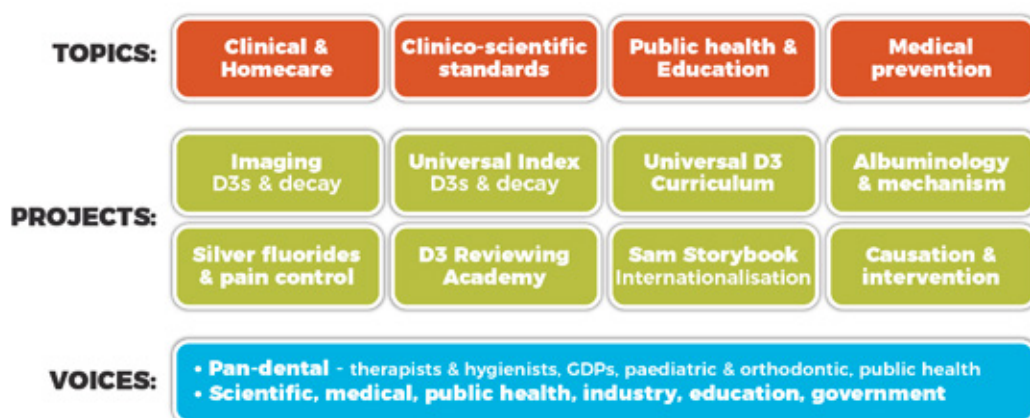
The 2020 D3 Workshop identified **lack of research standards and guidelines** as the “numero uno” problem facing our field. Indeed, since “**MIH**” was defined 20 years ago, the academic literature has accumulated at least **21 other terms** referencing “demarcated opacities” – **HSPM, DMH** and **IH** being the most famous. Yet key gaps remain (e.g. hypomineralised 12-year molars). Is this [shemozzle](#) of terms and acronyms good for science, clinical practice and communication? Or should we gather all involved parties (researchers, reviewers, publishers, funders, educators, industry) and fix this “**alphabet soup problem**”? Arguing for the latter, we drafted a [Green Paper](#) embracing translationally robust classification, definitions, and terminology for Molar Hypomineralisation (**MH**) and critiqued it at the 2021 Incubator. Now updated, it's ready for another “going over” at the Symposium prior to broader circulation in search of cross-sector consensus.



D3G Green Paper:

Translationally robust characterisation of **Molar Hypomineralisation as a Demarcated Opacity Disorder**

PRE-SYMPOSIUM PROJECTS



Consolidating remarkable gains from our [2020+21 D3 webinars](#), 8 translational projects are now being developed as a discussion framework for this Symposium.

The interlinked projects span four core topics identified during 2020-21 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*). Cross-sector Task Forces – embracing influential voices spanning dental & other healthcare practitioners, scientists, industry, educators & government – are currently meeting online to develop these projects. Expressions of interest are welcomed; contact us [here](#).

LOOK WHO'S COMING

Our translationally unique **D3 family** comes from across the sector and around the world. Below are some of the diverse “**D3ers**” you can meet and learn from at **D3-Toronto-2022**.

So why not come and **share your questions and interests** at this amazing cross-learning opportunity? – everyone is welcome, from **D3 beginners** to **D3 old-timers** (we hesitate to say “experts” as they should keep learning too!).

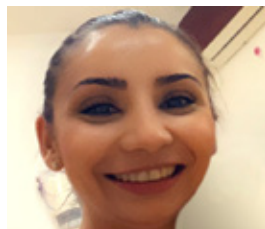
PAEDIATRIC DENTISTS & ACADEMICS



Azza Tagelsir,
[Uni Illinois](#), USA



Ingvild Brusevold,
[Uni Oslo](#), Norway



Alexandra Cazan,
[private practice](#), Romania



Tricia Percival,
[Uni West Indies](#), Trinidad



Fabricio Carvalho,
[Uni SP](#), Brazil

PUBLIC & COMMUNITY HEALTH



Sonica Singhal,
[PHO](#), Canada



Bob Schroth,
[Uni Manitoba](#), Canada



Tim Mackay, [Southern DHB](#),
New Zealand



Young Kuah,
[Uni British Columbia](#), Canada



Cathy Boyce, [ARM-ER](#),
Australia

ORTHODONTIST

SILVER FLUORIDE

IMAGING SCIENCE & INDUSTRY



Derk Joester,
[Northwestern Uni](#), USA



Laurent Bozec,
[Uni Toronto](#), Canada



Stephen Abrams,
[Quantum Tech](#), Canada



Felicitas Bidlack,
[Forsyth](#), USA



Francisco de Paula-Silva,
[Uni Sao Paulo](#), Brazil

BIOLOGISTS

MH BREAKTHRU

THERAPIST

RESEARCH FUNDER

CHIEF EDITOR

INDUSTRY



Vidal Perez,
[Uni Talca](#), Chile



Julie Barker,
[OHS Tasmania](#), Australia



Jason Wan,
[NIDCR-NIH](#), USA



Noel Childers,
[Pediatric Dentistry](#), USA



Gaurav Joshi
[GC America](#), USA

KEYNOTES & TRANSLATIONAL ASSIMILATION

Realising **Molar Hypomin is the dental outcome of medical problems** during early childhood, how great would it be to start each day with inspiration from an expert on **medical-dental integration** and **translation to social good**?



JANET SOUTHERLAND - TRANSDISCIPLINARY EDUCATION & COMMUNITY OUTREACH

Well, for starters, we're thrilled to say **Janet Southerland** – an absolute star of our 2020+21 webinars – has kindly agreed to reprise her **2021 Keynote Cameo** that triggered so many questions and asks for more.

Janet (BA, DDS, MPH, PhD) rose from dental hygienist to senior leadership of two US dental schools. Today she leverages her influential roles at the **University of Texas Medical Branch** (Vice President of Interprofessional Education, Institutional Effectiveness, Director of the Health Education Center, President-elect Texas Dental Assocn 9th District) to meld a holistic approach to interprofessional health education with social-good philosophy for serving under-privileged communities. Read more about Janet [here](#).



TIINA URV - USING TRANSLATIONAL NETWORKS TO EMPOWER NEGLECTED ISSUES

And for our second course of translational wisdom, we're honoured to welcome **Tiina Urv** as Director's ambassador from the world authority on science translation, USA's **National Center for Advancing Translational Sciences (NCATS)**.

Tiina (MA, PhD) trained as a developmental disabilities specialist and researched her way into a prestigious directorship at the **National Institute of Child Health & Human Development**. Now at the **Rare Diseases** branch of NCATS, she directs a massive network managing 200 rare diseases across 17 countries. Tiina's interests in early screening and awareness-raising exemplify several exciting touchpoints linking her expertise to our [chalky teeth problem](#) (which we hereby dub a "**Rarely Recognised Disorder**" in her honour). Read more about Tiina [here](#).



TRANSLATIONAL ASSIMILATION

Both planning to be available throughout the Symposium, **Janet** and **Tiina** are keen to not only share their experiences and ideas for betterment, but also to learn about **yours**. They're wonderfully positioned to collect, filter and incubate ideas from across the sector and around the globe – that is, **translational assimilation** – before we all plug them into D3G's pathway to social good.

'D3 PAY IT FORWARD'

We thank **Janet** and **Tiina** for their generous gifts of precious time. A big thanks also to Joni Rutter (Director, NCATS) for making this possible, and to Jason Wan (NIDCR) and Eric Sid (NCATS) for facilitation.

See how you too can "**share D3 love**" via our '**D3 Pay It Forward**' initiative (sponsor a needy individual to [Join D3G](#) or [participate in this Symposium](#), and [other giving-back opportunities](#)).

HOSTS & INTERNATIONAL ADVISORY



HOSTS:

Ben Ganss

[University of Toronto](#)

Symposium co-chair

Michael Casas

[SickKidsToronto](#)

Clinical advisor

Mike Hubbard

[D3G@University of Melbourne](#)

Symposium co-chair

Sharon Dunn

[D3G Secretary & Project Manager](#)



PRACTITIONER LEADS:

OH therapists: **Cathy Boyce** (Australia), **Julie Barker** (Australia)

Paediatric dentists: **Michael Casas** (Canada), **Azza Tagelsir** (USA), **Vidal Perez** (Chile), **Arun Natarajan** (New Zealand), **Kevin Donly** (USA), **Marlies Elfrink** (Netherlands)

Public health: **Morenike Folayan** (Nigeria), **Sonica Singhal** (Canada), **Robert Schroth** (Canada)

Other specialists: **Paul Schneider** (Orthodontist, Australia), **Garry Nervo** (Endodontist, Australia)

SCIENTIST LEADS:

Mike Hubbard (translational biochemist, Australia), **Ben Ganss** (biochemist, Canada), **Felicita Bidlack** (biologist, USA), **Derk Joester** (chemist/structural biologist, USA), **Laurent Bozec** (biophysicist, Canada)

END-TRANSLATION LEADS:

Sharon Dunn (science communicator, Australia), **Janet Southerland** (translational educator, USA), **Tiina Urv** (director of translation, USA), **Barbara Shearer** (global director@Colgate, USA), **Stephen Haynes** (Head@GC-Asia Pacific, Australia), **Noel Childers** (journal editor, USA)

D3G FAMILY GATHERING - TRANSLATIONAL THEMES

Our **2020+21 international D3 webinars** were a wonderful learning experience – not just about “**work**” stuff, but “**D3 family**” matters too. So, in asking what we’d like this Symposium to achieve, we came up with 3 simple goals:

‘D3 Meet & Greet’

Network with D3ers from across the sector and around the globe.

‘Listen & Be Heard’

We’re as keen to learn from you as the other way round.

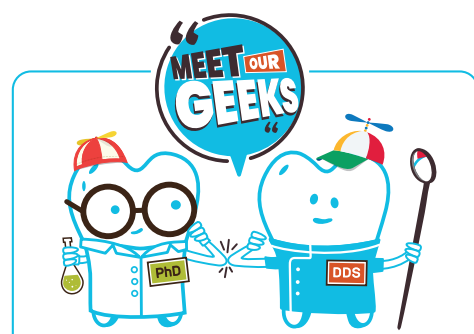
‘Translate Ideas to Action’

Participants actively contribute to future-defining green papers etc.

To help translate these goals into reality – and add a little fun – the program includes two distinctive learning opportunities:

‘Meet Our Geeks’ – while many view **scientists** as brainy **geeks**, the reverse holds true when it comes to the geekish (or is that **nerdish**?) elements of clinical practice, population health, industry etc. So, we’re inviting a variety of D3ers to showcase their inner-geek on stage, and invite everyone else to do their own “workplace videos” (see page 10)

‘Ask the D3 Experts’ – taking Q&A to the extreme, we’ll supplement extensive face-to-face networking opportunities with a daily open-house discussion involving diverse panellists and handy polyglots should your English need support



D3 SYMPOSIUM - TORONTO 2022

Be there or be square! thed3group.org/toronto2020

LATEST INFO FOR D3 SYMPOSIUM

EVENT DETAILS

What: 3-day hybrid meeting

When: October 12th – 14th, 2022

On-site Symposium

Times: 8am brekky, sessions 9am – 5pm & optional evening activities.

Visa support letter: available now.

CE option: Up to 21 CE hours, quiz-tested CE certificate available.

Cost:

- includes sustenance (breakfast, lunch, breaks) & Gala dinner
- **AU\$700** for D3G members (≈ US\$490, CA\$630, EU\$480)
- Extra AU\$50 for new members
- Half price for needy individuals in lower-income countries
- Possible sponsorship for low-income individuals.

Online Symposium

Times online: 9am – 1pm and 4pm – 5pm, USA-EST
(Find your times [here](#))

CE option: 15 CE hours online

Cost:

- **AU\$350** for D3G members (≈ US\$245, CA\$315, EU\$240)
- Extra AU\$50 for new members
- Discounts and sponsorship as above



VENUE

- [The Faculty Club](#), University of Toronto ([map](#), [streetcar](#), [parking](#))
- Handy to downtown Toronto and many tourist hotspots ([map](#))

COVID SAFETY

- Canada has strict travel regulations regards COVID safety ([here](#))
- University of Toronto applies stringent COVID safety rules & monitoring ([here](#)) – currently just minimal requirements apply (social distancing, masks not mandatory), reflecting low risk in Toronto

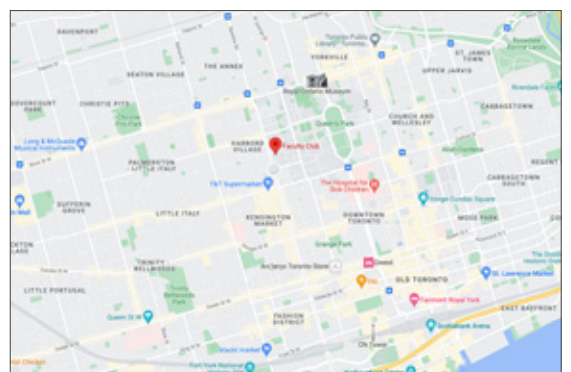
GALA DINNER

- A “D3 family [nosh up](#)” in the [historic Distillery District](#) on Thursday evening
- Spectacular surroundings at the [Cluny Private Dining Room](#)
- Cash bar



ACCOMMODATION

- Participants are responsible for their own accommodation
- Some **homestays** (billets) may be available for those on low budgets ([contact us](#))
- If interested in **sharing an apartment** to save costs, [contact us](#) for connections



PROGRAM

6 RESEARCH AREAS OVER 3 DAYS



1. CLINICAL

DIAGNOSIS, PREVENTION & TREATMENT

What makes Molar Hypomin (MH) such a pain in the.....clinic?
What unknowns would you like evidence-based answers for?

2. HOMECARE

PAIN CONTROL, CLEANING & NUTRITION

Wouldn't it be great to have research-based recommendations for self-management of MH issues at home? Best toothbrush, toothpaste, diet.....??

3. CLINICO-SCIENTIFIC STANDARDS

STANDARDISED TERMS, DEFINITIONS & CLASSIFICATIONS

How can scientific rigour be married with clinical practicalities and still make sense to non-experts? Answer: further development of D3G's translational standards & lingo!

4. PUBLIC HEALTH & EDUCATION

SOCIAL & ECONOMIC COSTS, EARLY SCREENING

The socioeconomic burdens of MH appear huge, but better quantification is needed to make the case for early intervention and more research.

5. MEDICAL PREVENTION

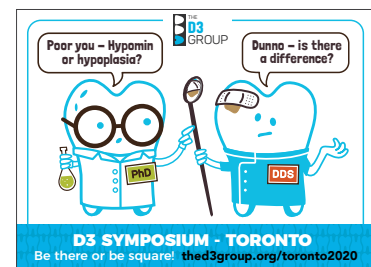
CAUSATION, PATHOGENESIS, MEDICAL ALLEVIATION

It appears that, being an acquired condition, MH has potential to be medically preventable. So what are the key aetiological questions needing to be answered?

6. CO-LAB EFFORT & NETWORK

FUNDING COMPETITIVENESS, RESEARCH EFFICIENCY & GLOBAL UNITY

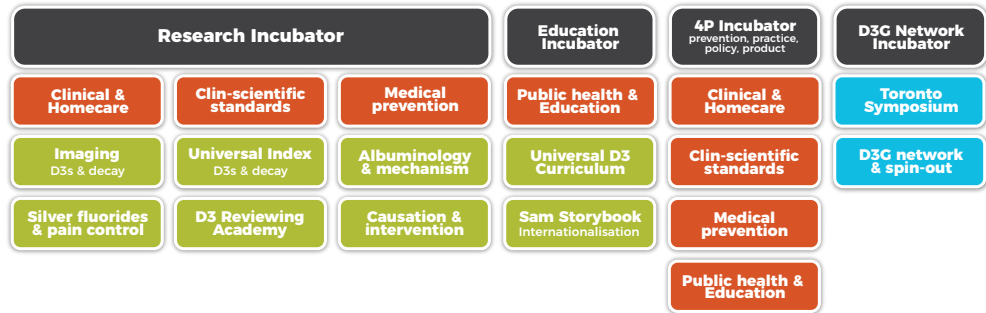
How can practitioners and researchers best team up to make a "global research army" that's both comprehensive and well-resourced?



D3 'IDEA INCUBATORS'

Task Forces - refine questions
(cross-sector)

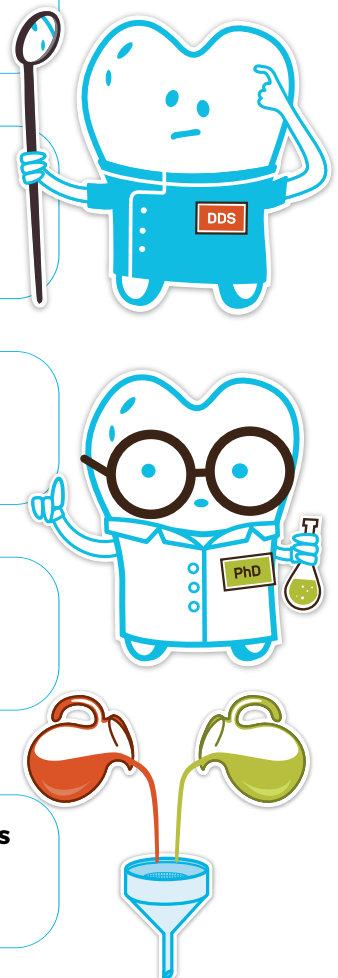
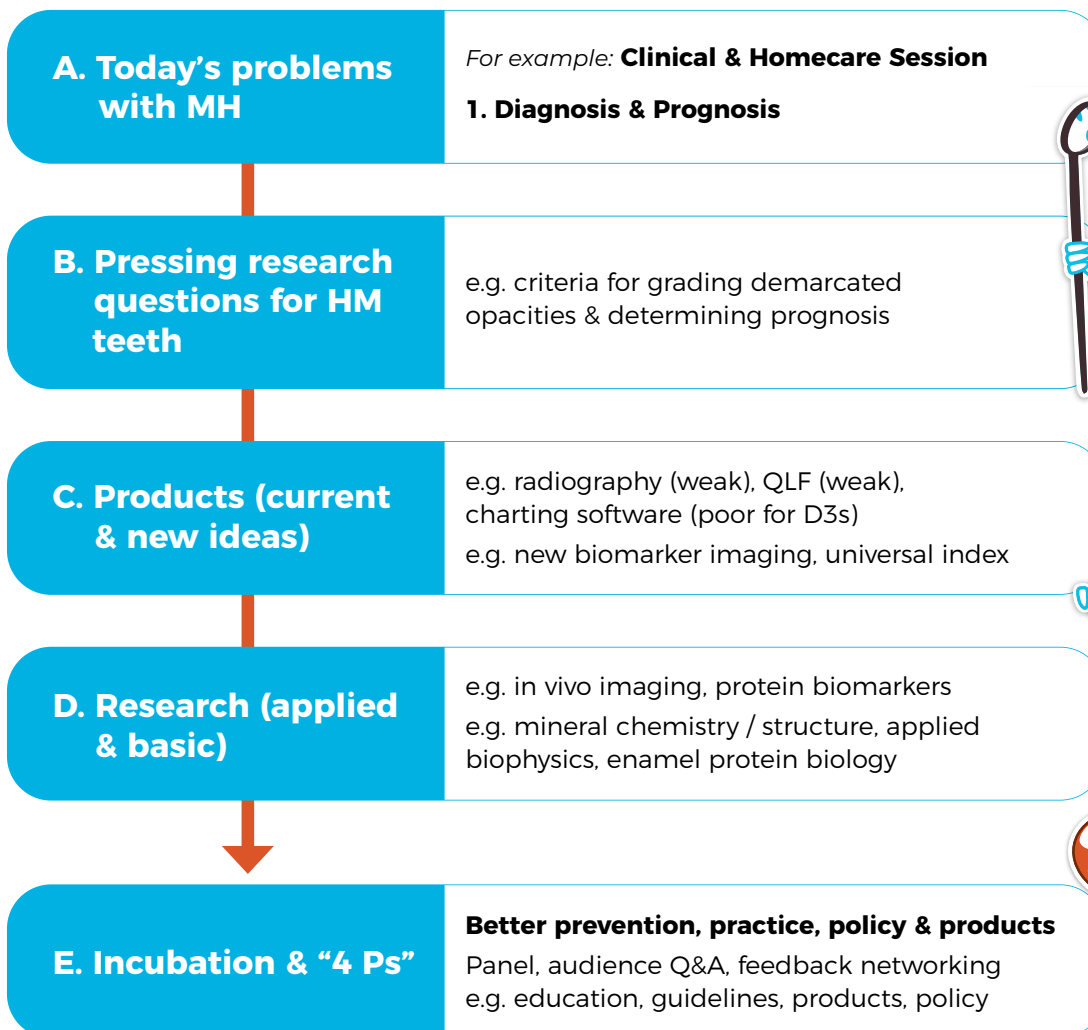
Pre-projects - solve problems
(translational)



4 interconnected 'Idea Incubators', each with clinical, scientific & translational aspects



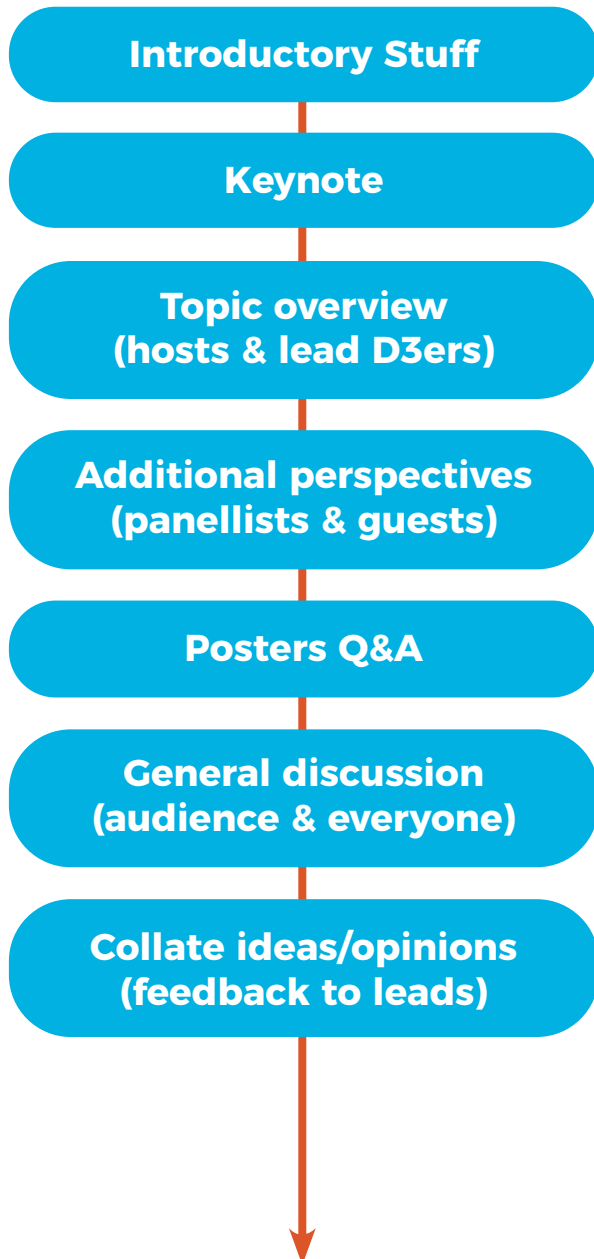
Example topic, flowing from clinical problem, to research, to education & "4 Ps"



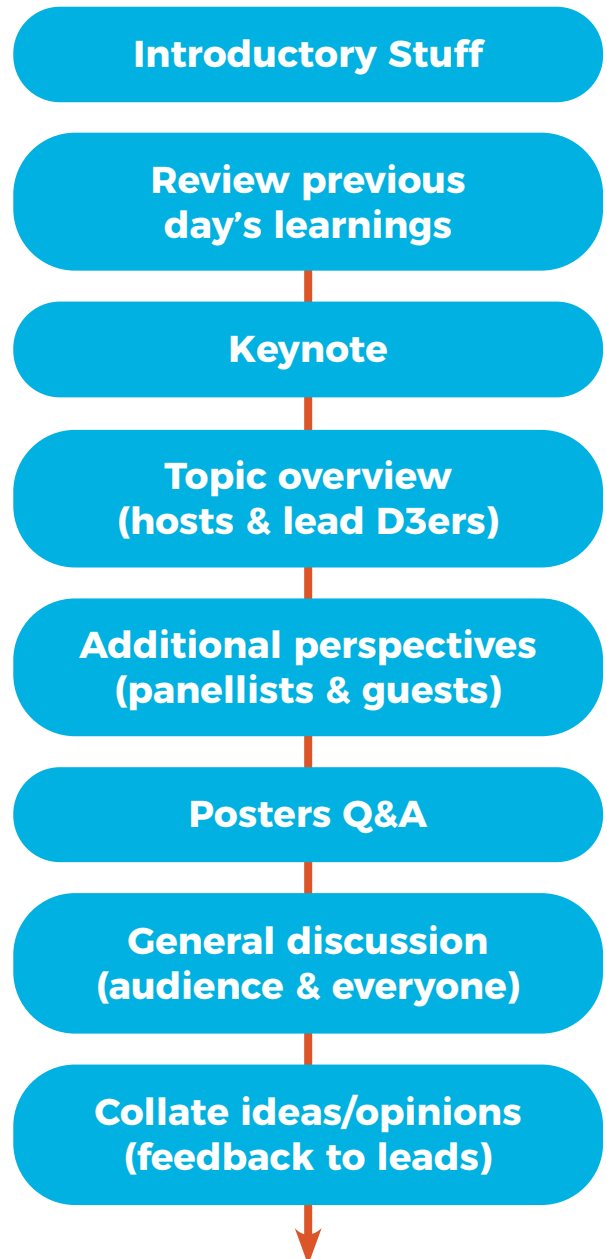
DAY SHEETS

Each day progresses from sit-down sessions in the morning (available online) to mobile learning and networking contexts in the afternoons, finishing with another sit-down session (online) to collate and feed ideas back to the session leads. At the last session, learnings from all 3 days will be combined for cross-evaluation and allocation to Symposium outputs.

Day 1



Days 2 & 3



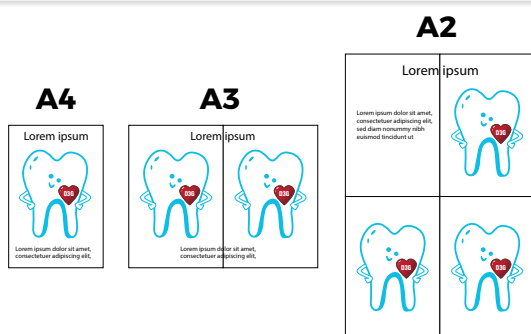
Days 1-3 Combined Incubation & Outputs

D3 TRANSLATIONAL MEDIA SHOW



Extending the all-embracing spirit of a ‘**D3 family gathering**’ and ‘**Idea Incubators**’, our unique **Translational Media Show** gives **everyone** the opportunity to illustrate something close to their **D3 heart** – be it an **interesting case**, an **anecdote** you’re tempted to believe, some **half-cooked research** you’d love expert (yet gentle) guidance with, or a videoed insight to **your daily grind**.

RESEARCH-RELATED POSTERS



We welcome posters from **all participants**. These can range from a small **A4 printout** showing a “**D3 something or other**” that’s relatively simple (e.g. a weird tooth or tricky diagnosis or mini-survey result), through to bigger sizes (**A3** and **A2**) covering research, education, public health and industry-related topics. Please contact us if you think **A2** is too small.

And of course, for the **research experts**, showing off your **fully-cooked** science is fine too – so long as you share it in predominantly **pictorial** fashion and with **simple language** understandable by **non-scientists**.

Besides helping everyone comprehend your amazing work, we think this will also benefit your “expert” communication skills, leading to better grant writing and publications.

If you’d like us to **print your poster at the venue** (A4 – A2 sizes) instead of lugging it from afar, [email us](#) the PDF file well before you arrive.

WORKPLACE VIDEOS

Extending the ‘**Meet Our Geeks**’ theme, why not get a colleague to video you doing what you know so well, whether it be in the clinic or office, lab or classroom, out on the beat or.... you’ll get the picture. Alternatively, you may wish to show “optional extra” information to supplement your bare-bones (i.e. easy to understand) poster.

As elaborated below, we encourage **everyone** to consider showing a **poster of some sort..... AND** to have a short **Workplace Video** on their smartphone to enhance [comms](#) with other “**D3 Geeks**” (or “**cross-sector dialogue**”, technically speaking).

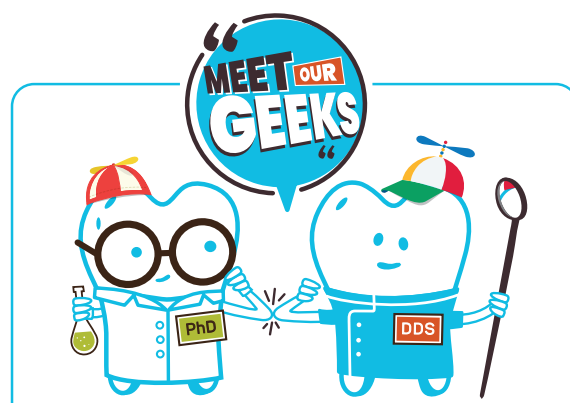
The thinking behind this ‘**Listen and Be Heard**’ element is that some of **D3G’s best advances** have been triggered by **people who didn’t regard themselves as D3 experts**. Contrary to common academic wisdom, we’ve learned that **anecdote** can actually be a great source of **research hypotheses**. And we have in our midst many scientists keen to find **new ideas**, refine the **scientific thinking**, and then test ensuing **novel hypotheses**. So such team efforts could pave the way to great discoveries and social good.

POSTER & VIDEO RULES



Noting our **D3 movement** is science-driven and translationally focussed:

- **Chalky Teeth & Hypomin lingo** is mandatory for all posters and presenters – learn it [here](#), [here](#) and in the “**Alphabet Soup**” **Green Paper** draft (available to registrants, see above)
- So, enjoy selecting from our clinico-scientifically nutritious D3 menu (“**MH cases**”, “**HM teeth**”, “**chalky enamel**”, “**demarcated opacities**”....)
- Off the menu, of course, is **old Alphabet Soup** (MIH, HSPM, DMH, MIH-lesions....)
- Clinical pictures must be deidentified and have appropriate permissions (presenter responsibility)
- This is a semi-public event and so presenters are responsible for their own IP management



D3 ESSENTIALS - CLICK & LEARN

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

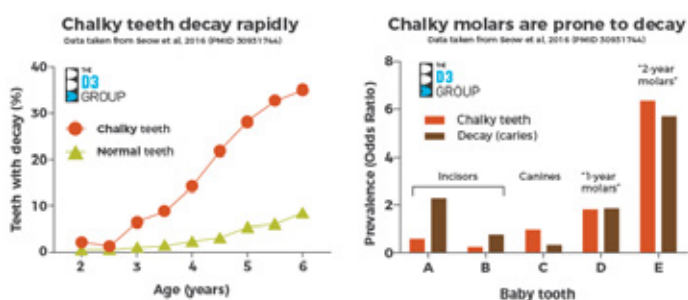
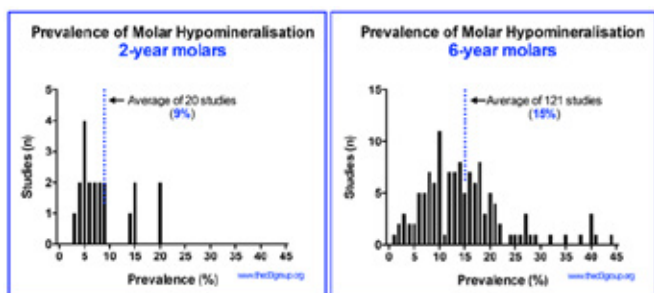
Ignorance about CT

Chalky Teeth (CT)

'THE CHALKY TEETH PROBLEM'

THE CHALKY TEETH PROBLEM

1-in-5 **14 million** **10-fold higher**
schoolchildren **new cases** **risk of decay**
HAVE CHALKY TEETH **EACH YEAR** **FOR CHALKY TEETH KIDS**



WHAT ARE WE DOING ABOUT IT?



Science is on your side

SCIENCE
BREAKTHROUGH

100
 1920 - 2020
**CHALKY TEETH
CENTENARY**



Colgate
 Oral Health Network
 for Professional Education
 and Development



MOLAR HYPOMINERALIZATION

Erin Mahoney BDS, MSc, PhD, FRACD, MRACD, Mike Hubbard BDS, PhD

WHAT ELSE CAN I DO ON MY TRIP?

While attractive throughout the year, Toronto garners worldwide acclaim for exceptional beauty during autumn – i.e. “in the fall” – when its numerous trees put on a wonderfully colourful display before donating their leaves to winter.

Here are some helpful websites for planning what to do before and after the Symposium:



Toronto in the fall



As the leaves turn [Instagram-worthy colours](#), Toronto becomes an even more vibrant hub of activity.

[Read More >](#)

Toronto harbour & islands



Discover the other side of Toronto while cruising through the scenic Harbour and islands.

[Read More >](#)

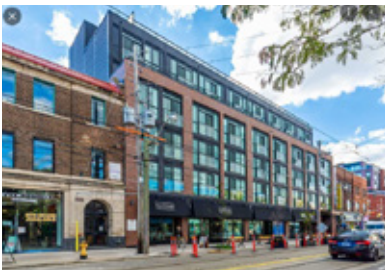
Niagara Falls



Niagara Falls' grandeur needs little explanation, renowned as one of the most incredible waterfalls...

[Read More >](#)

Historic Queens East



You will discover a fascinating part of the City that is well known for its many historic sites such as the...

[Read More >](#)

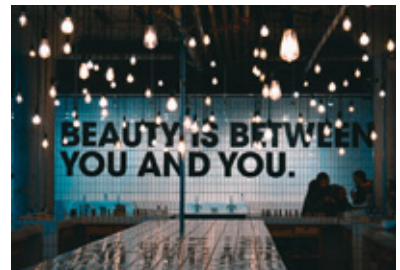
St Lawrence Market



One of the oldest markets in Canada, this Toronto treasure is a must-visit with roots that date...

[Read More >](#)

Distillery District



The Distillery Historic District, commonly known as the Distillery District, astounds the eyes with...

[Read More >](#)

Cheer your favourite teams



[Toronto's epic sports scene](#) is back in full swing this fall. Whether you're watching from home or lucky...

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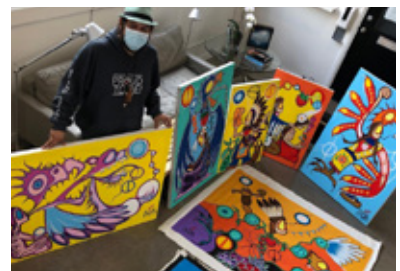
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