Pre-Conference Workshop

The Shape of the Future of Dental Education for Dental Caries (and how to get there)

An Update
Session Aims

To understand the important role of an up to date curriculum on dental caries for all dental (and other) professionals, with a focus shift towards more awareness of the caries process, the caries balance and preventive as well as surgical methods of caries care / treatment.

The scope of today is truly global, even though today we will concentrate on the European and US contexts. It is around IMPLEMENTATION OF WHAT WE HAVE – as opposed to endlessly seeking to re-invent the wheel.

Past
What has happened so far in the journey towards an international cariology curriculum?

Present
What does the cariology teaching and wider landscape look like today?

Future
What SHOULD the future of caries education look like & how do we get there?
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<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
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<tr>
<td>10:05-10:25</td>
<td>How did we get here? ADEE/ORCA Process &amp; ICDAS/ICCMS™ Development</td>
<td>Nigel Pitts</td>
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<td>10:25-10:45</td>
<td>Past: Implementation progress in Europe</td>
<td>Paulo Melo</td>
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<td>10:45-11:05</td>
<td>Past: Implementation in Colombia and towards the USA</td>
<td>Stefania Martignon</td>
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<td>11:05-11:25</td>
<td>Past: Implementation across the USA</td>
<td>Margherita Fontana</td>
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<td>11:45-12:00</td>
<td>Present-Future: <em>Electronic Health Records</em> – enabling caries education and research</td>
<td>Mark Genuis &amp; Lynn Johnson</td>
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<td>12.00-12:15</td>
<td>Present-Future: ACFF Collaborative Council Change Management Workshop: Amsterdam - what did we learn?</td>
<td>Nigel Pitts &amp; Cat Mayne</td>
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<td>12:15-1:00</td>
<td>LUNCH</td>
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<td>1:00-1:20</td>
<td>Present-Future: Current Education experience- Hygienist Perspective</td>
<td>Yvonne Nyblom</td>
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<td>1:20-1:40</td>
<td>Present-Future: Current Education experience- Student Perspective</td>
<td>Luka Banjsak</td>
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<td>1:40-1:55</td>
<td>Future: What will caries education look like?</td>
<td>Avi Banerjee</td>
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<td>1:55-2:40</td>
<td>Breakout Workgroups</td>
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<td>COFFEE BREAK</td>
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<td>2:55-3:15</td>
<td>Reports from the four Groups</td>
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<td>3:15-3:45</td>
<td>Debate and Discussion</td>
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<td>3:45-4:00</td>
<td>Conclusions and Next Steps</td>
<td>Nigel Pitts</td>
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Joining up the pieces for a Cavity-Free Future
In July 2013 the Pan-European Chapter of the ACFF was launched.

Bringing together representatives from major European Health and Dentistry organisations, the panel is working to ensure that the Global ACFF goals are met, as well as their own goals, which are to:

• Ensure that appropriate caries prevention and management can be implemented across Europe.
• Work collaboratively to achieve a reduction in caries inequality within and across European States in the context of both oral and general health

Have so far overseen the startup of 8 Local Chapters (Greece, Central and Eastern Europe, Poland, Czech Republic, France, Slovakia, Italy, Nordic)
The Caries Balance- 2017

**Pathological factors**
- Frequent consumption of dietary sugars
- Inadequate fluoride
- Poor oral hygiene
- Salivary dysfunction

**Protective factors**
- Healthy diet
- Brushing with fluoride toothpaste twice daily
- Professional topical fluoride
- Preventive and therapeutic sealants
- Normal salivary function

**Demineralization**
- Disease
  - Lesion progression
- High caries risk

**Remineralization**
- Health
  - Lesion arrest or regression
- Low caries risk

**Moderate caries risk**

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Is restorative intervention the best way to manage a preventable disease process?
ICDAS codes and histological extent of caries

Images provided courtesy of Dr Andrea Ferreira Zandona

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<th>ICDAS score</th>
<th>0</th>
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<th>2</th>
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ICDAS codes stage the continuum of caries
ICCMS™ Guide for Practitioners and Educators

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On behalf of the Participating Authors of the International Caries Classification and Management System (ICCMS™) Implementation Workshop, held June 2013

December 2014

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The International Caries Classification and Management System is a health outcomes focused system that aims to maintain health and preserve tooth structure. It uses a simple form of the ICDAS Caries Classification model to stage caries severity and assess lesion activity in order to derive an appropriate, personalised, preventively based, risk-adjusted, tooth preserving Management Plan.

**Detect & Assess**

Caries Staging & Activity

**Determine**

Patient-level Caries Risk

**Decide**

Personalised Care Plan: Patient & Tooth Levels

**Do**

Appropriate Tooth-Preserving & Patient-Level Caries Prevention & Control Interventions

**ICCMS™ 4D Caries Management**

(HISTORY)

(CLASSIFICATION & INTRA-ORAL RISK)

(DECISION MAKING)

(RISK-BASED RECALL INTERVAL)

(MANAGEMENT)
1. **DETERMINE** Patient Level Caries Risk

- **Patient-level Risk Factors**
  - Head and Neck Radiation
  - Dry mouth
  - Inadequate OH practices
  - Deficient exposure to topical Fluoride
  - High frequency/amount of sugar consumed
  - Symptomatic-driven attendance
  - Socioeconomic Status/Access barriers
  - Mothers high DMF (caries experience)

Risk factors in red will always classify an individual as high caries risk.

The International Caries Classification and Management System is a health outcomes focused system that aims to maintain health and preserve tooth structure. It uses a simple form of the ICDAS Caries Classification model to stage caries severity and assess lesion activity in order to derive an appropriate, personalised, preventively based, risk-adjusted, tooth preserving Management Plan.

2. **DETECT & ASSESS** Caries Staging & Activity Status

- **ICCMS™ Caries Categories**
  - Sound
  - Initial Active
  - Initial Inactive
  - Moderate Active
  - Moderate Inactive
  - Extensive Active
  - Extensive Inactive

- **Caries Staging & Activity Status**
  - No evidence of visible caries after 5-second air-drying (ICDAS 0)
  - Distinct cavity with visible dentine (ICDAS 3 & 4)

Note: Where available combine with radiographs.

2.2 **ASSESS** Intra-Oral Risk Factors

- Hypo-salivation/Dry mouth
- PUFA- Dental Sepsis
- Caries experience
- Thick plaque
- > biofilm retention
- Exposed root surfaces

Risk factors in red will always classify an individual as high caries risk.

3. **DETERMINE** Patient Level Caries Risk

- **ICCMS™ Caries Diagnosis**
  - ICCMS™ Sound
  - ICCMS™ Initial Active/Inactive
  - ICCMS™ Moderate Active/Inactive
  - ICCMS™ Extensive Active/Inactive

4. **DO** Appropriate Prevention & Preservation Interventions

- **Homecare**
  - 2-day toothbrushing \([\geq 1,000 \text{ ppm F}]\)
  - Improve oral-health behaviour
  - F: mouthrinse

- **Clinical Interventions/Approaches**
  - Motivational engagement: improve oral hygiene & reduce free sugars
  - Professional cleaning
  - Sealing
  - 2-4/year-F varnish/gel/solution
  - Modifying hyposalivation
  - Interval recalls: 1-3 m in high-, 3-6 m in moderate-, 6-12 m in low likelihood

Risk-based Recall Interval

Management at the patient level

4. **DO** Appropriate Tooth-Preserving Patient-Level Caries Prevention & Control Interventions

- **Non-Operative Care - Control**
  - Fluoride varnish, gel, toothpaste (+ Oral Hygiene)
  - Sealing (resin-based, GI, infiltrants)
  - Mechanical biofilm removal

- **Tooth-Preserving Operative Care**
  - Step-wise excavation / Pulp Preserving restorations
  - Sealing / Hall Technique / ART

Management of individual active lesions

4. **DO** Appropriate Tooth-Preserving Patient-Level Caries Prevention & Control Interventions

**Patient level**

- ICCMS™ Likelihood for progression of existing or new caries lesions
  - Low Likelihood
  - Moderate Likelihood
  - High Likelihood

Management at the patient level
What is the ECCC?

The European Core Curriculum in Cariology was produced as a collaborative effort between ADEE and ORCA (European Organisation for Caries Research), which began in 2010.

Published in special edition of JDE in November 2011
The Five Domains of the ECCC

- **Domain I**
  - The Knowledge Base

- **Domain II**
  - Risk Assessment, Diagnosis and Synthesis

- **Domain III**
  - Caries Management
    - Decision Making & Preventive Non-Surgical Therapy

- **Domain IV**
  - Caries Management
    - Decision Making & Surgical Therapy

- **Domain V**
  - Evidence-based Cariology in Clinical & Public Health Practice

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2016- Barcelona Meeting

Discussion on what might be appropriate next steps to take with the ECCC.

• The overwhelming consensus was that there needed to be action taken to ensure that implementation of the ECCC is a more focused priority.

  Suggestion was that this could take the form of focus groups, or a SIG, but that multiple educational stakeholders needed to be on board in order to make a positive impact.

• Following this meeting, we agreed that we should work to enable this change to happen as a collaborative action.

  All stakeholder groups (dentists, educators, students, other dental health professionals) need to be equipped to impact change if we are to hope for a wide acceptance and meaningful change.
2017- Amsterdam Meeting

Change Management
- Identification of the mental and emotional processes involved in creating change
- Identification of barriers to change faced by our organisations
- Exploration of our own areas of resistance
- Pledges to move forward and encourage change within our organisations.

Barriers
- Personal resistance (Status, Certainty, Autonomy, Relatedness, Fairness)
- ‘History’ (if it has always been done a certain way, why change it?)
- Lack of understanding of the importance of the issues raised
- Fear of the unknown
- Ineffectiveness of change implementation procedures

Pledges

Decide on a direction - Understand the landscape - Make focused, measurable goals

Get on with it!
Presentations- Key Takeaways

Europe : Portugal
Pr Melo

- Portugal : considerable **interest** in expansion of caries education for undergraduates

- **Barriers** : Identification of political, scientific/public health, university and professional level to adoption of ECCC.

- **Comprehensive document : benefit** of full adoption for both education and public health.

- **Translations of curriculum documentation** : Would help as would identifying key persons to assist with introduction at national and faculty levels.
Presentations- Key Takeaways

Colombia
Pr Martignon

- 90% of dental schools and associations will have adopted and promoted the current caries paradigm.

- **Local adjustments** made to a European framework to make it workable within Colombian academic and health systems

- ICCMS™ translated and used broadly alongside curriculum documents

- Wide-reaching surveys: **COM-B behaviour model** (Capability- opportunity- Motivation) with relation to caries risk & detection and Caries management to ascertain good overview of the countries dental opinion.
Presentations- Key Takeaways

USA
Pr Fontana


- Recommended rewriting of the core competencies for graduates to include ‘caries management’

- Formation of the ‘AAC- American Academy of Cariology’, bringing together experts committed to the study of caries
Presentations- Key Takeaways

Political View
Dr. Julian Fisher

• Updates in the way cariology is approached will be needed now more than ever due to Minimata Convention progress.

• When people think about dentistry, they think of restorative or invasive treatment- the shift should be that dentistry is more about the workforce.

• Understanding the context of the world you are trying to influence in key.

• Be realistic in expectations.

• Universal indicators and data is a key way of ensuring wider understanding.

• Change can happen- it just needs to be influenced in the right way- become the norm.
Presentations- Key Takeaways

Hygienists
Yvonne Nyblom

• National competency requirements differ hugely within Europe.

• Since 2015 have been working on a harmonizing of Hygienist education across Europe- has been approved by many governmental bodies.

• Looking for the creation of a ‘Common Educational Framework’ (CEF) for caries.

• Redefinition of the role of the dental Hygienist.
• ‘We need well educated dental hygienists for preventive oral health care, including treatment of caries and periodontitis’
Students

- EDSA Training: Not many were taught in ICCMS / ICDAS but Students very interested by prevention, minimally invasive dentistry. Good comprehension of paradigm shift.

- A unified European (or global) system would be welcomed as there is still a lack of harmonization.

- Outdated literature, and lack of translations is a huge barrier to many schools, especially in countries with lower English language usage.

- Prevention and preventive strategies should be taught throughout, with specific, detailed, early integration for all students.
New Technology

An EHR that Supports Research through Collaboration

- Software is now available that offers a more holistic approach to oral health record keeping.
- ICDAS scaling has been integrated, offering the chance to classify lesions from 0-6 rather than just ‘yes’ or ‘no’.
- More user friendly software is the key- people will not use something unless it suits their needs for both record keeping and ease of use.
- If we can create a universal health record system it would be beneficial for all healthcare practices and offer holistic patient care.

www.icehealthsystems.com
The Future

(Taken from KCL Advanced Minimum Intervention Dentistry (AMID) course breakdown)

- A **paradigm shift** in ethical team-delivered oral healthcare (care vs. procedure driven)
- Use latest **cutting-edge diagnostic, preventive & surgical skill-sets**
- Develops integration throughout your team
- **Sustainable & profitable** business/workforce models
- Enjoy an **improved work-life balance**
Inter-Professional Education

- Has to start from the first day of everyone’s training—perhaps on the first day, students should go into an environment in which they would be working so that they actually understand what they are doing!

- Has to be ‘for’ something— for ‘collaborative practice.’

- It’s better to look at the questions that the other professions have. We need to give the professionals what they want/need to know.

- Should we pool the basic sciences together to reduce duplication? Cross professional lectures.

- Curriculum development—what role does the community have in this? Should the patients have a say in how their health workers are trained?

**Barriers**
- Time
- Money
- Things are in boxes, and this doesn’t fit into a box.
Global Networking

- Moving forward, we need to identify the most effective ways to use electronic fields to guide implementation of global networking of ECCC. (shared platforms etc.)

- We can collect and highlighting good examples of how this has worked (electronic platforms)- finding easy tools for communication are very useful for this

- We need to make sure we are talking about ALL pieces of the puzzle. Nutrition/public heath/ clinicians etc.

- We must endeavour to identify key players from early on.

- Always try to use plain messaging for global comprehension- simple language.

- Include academia, government, NGO’s patient advocacy, companies on the contact lists.
New Technology

• We need **systems that communicate across professions** (schools, health teams etc) and we all need to speak the same language. If you speak the same language, pooling data is much easier!

• For development of technology to do with education – students are much more savvy with how they would want to use technology. Younger generations should be very useful in the development of this.

• The patient domain- **interest from non dental groups** to use data to expand into the healthcare field.

• What could larger initiatives like Google offer?- **linking companies for cross-purposes**.

• There is a desire to teach evidence based dentistry, however technology has in some ways overtaken the evidence we currently can offer.

• We need to equip students to know when and how to ask the right questions.
Assessment in a Global Context

• Approaching assessment from multiple dental areas - There is a need for a common base to work internationally- need to speak the same language

• Competency of new dentists needs to have a global rating. Clinical decision making should be assessed Assessing additional skills acquired to be able to work in practice.

• Assessment should be continuous and longitudinal rather than cross sectorial. Not done in a specific ‘order’ but a whole monitoring process should be assessed, offering assessment over the years and being able to see development.

• Working as an inter-professional collective to develop a holistic approach to assessment- using a network of specialists.

• Separate ‘entity assessors could be brought in- Would allow standard, subjective evaluation

• Two key requirements would be:
  calibration of assessors
  logistics
Summary

• We need to be aware of the breadth and diversity of the issues.
• Oral health and caries DOES link to general health.
• We need to see it in the context of wider health.
• How does it work in ‘the real world’ for graduates?

Feedback from the 4 groups will be collated and developed into a publication ‘Caries as a Case Study’ which will be included in a Special Issue of the European Journal of Dental Education.
Summary

The caries world has made progress towards a ‘futuristic’ curriculum through development of ICDAS / ICCMS™ and the creation creating harmonised standards which can be used globally

1) for Technology and Electronic Health Records
2) as part of Global Networks
3) to help with Inter-Professional education and communication
4) as tools for assessment

The challenge is now that these need to be widely accepted and adopted.
For information on the activities of any specific Chapter, or the Global ACFF please contact Cat Mayne in the Global Admin office at admin@acffglobal.org or at +44 207 848 8481.