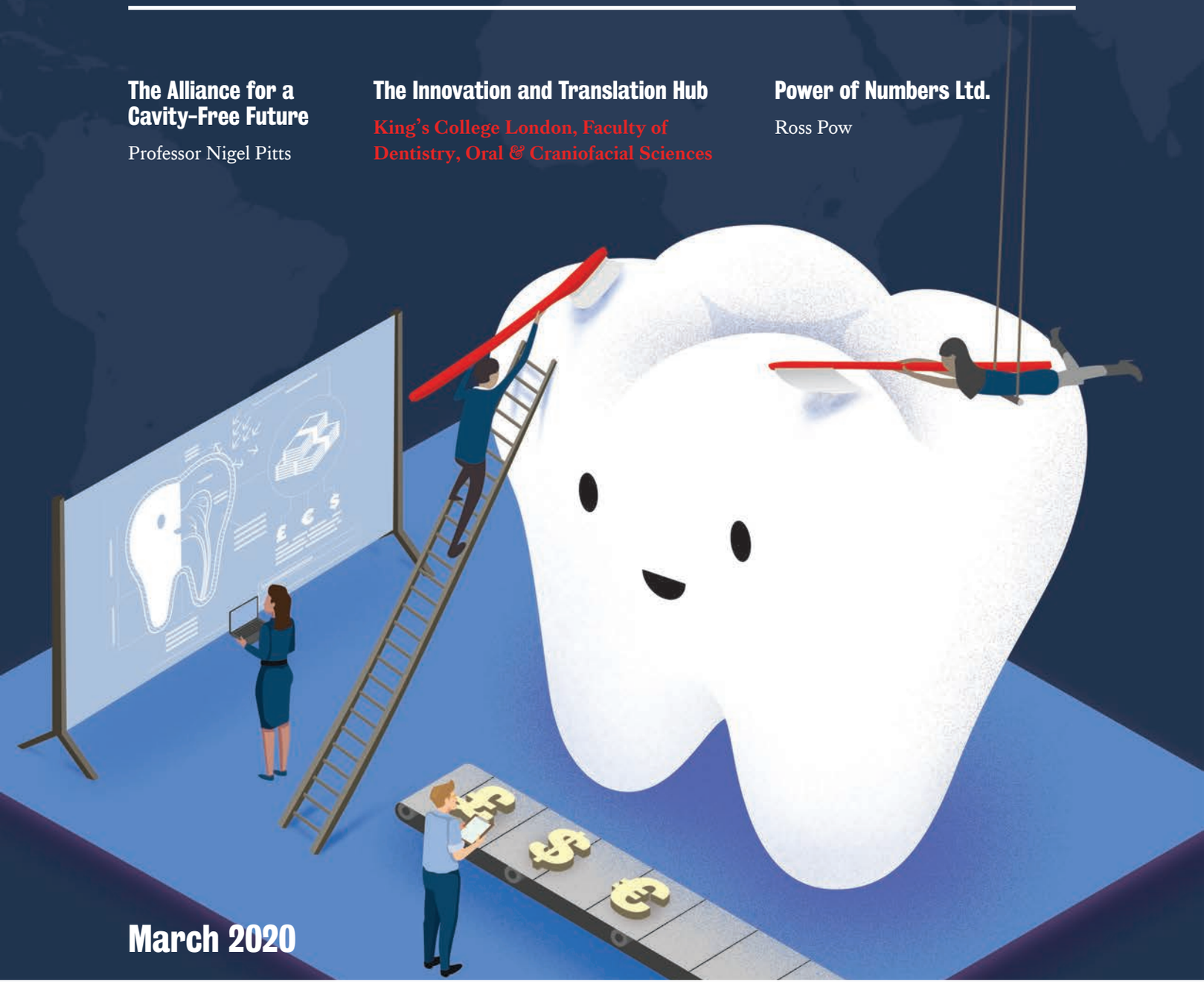
Towards Oral and Dental Health through Partnership

How can the oral health and dental industries benefit from enabling positive behaviour in caries prevention and control amongst patients and the public?

The Alliance for a Cavity-Free Future
Professor Nigel Pitts

The Innovation and Translation Hub
King's College London, Faculty of Dentistry, Oral & Craniofacial Sciences

Power of Numbers Ltd.
Ross Pow



March 2020

Alliance for a Cavity-Free Future ACFF
Stop Caries NOW for a Cavity-Free Future

The Policy Institute at King's

The Alliance for a Cavity-Free Future (ACFF)

The ACFF is a global not-for-profit organisation which seeks to promote integrated clinical and public health action to confront the burden of tooth decay, fight dental caries initiation and progression, and, along with a global community of supporters, progress towards a Cavity-Free Future for all age groups. The ACFF was established in collaboration with a worldwide panel of experts in dentistry and public health who share a fervent belief in joining together across professional, geographic, and stakeholder lines, to create a unified global movement committed to combating caries in communities around the world.

For more information, please visit www.acffglobal.org

Dental Innovation and Translation Hub, King's College London, Faculty of Dentistry, Oral & Craniofacial Sciences

The Dental Innovation and Translation Hub hosts the global office of the ACFF. The Hub is part of the Faculty of Dentistry, Oral & Craniofacial Sciences at King's College London. Their aim is to collaborate to secure viable innovation and sustainable impacts for the future. The King's Strategic Vision 2029 guides the focus in collaborating to 'make the world a better place'.

For more information, please visit: www.kcl.ac.uk/dentistry/research/impact

Power of Numbers Ltd

Power of Numbers facilitates complex, multi-stakeholder workshops that help make a breakthrough on big strategy and policy challenges. In designing and running such events, we identify the critical questions that need to be answered and deliver reliable ways of arriving at answers to these by blending well-proven facilitation methods with fresh and creative approaches that are unique to each situation.

For more information, please visit www.powerofnumbers.co.uk

Publication Details

Pitts, N. & Pow, R. (2020). Towards Oral and Dental Health through Partnership: How can the Oral Health and Dental Industries benefit from enabling positive behaviour in caries prevention and control amongst patients and the public? DOI: 10.18742/pub01-024

A Word of Thanks

As will become evident through reading this report, the participants involved in our third Dental Policy Lab contributed with a breadth of knowledge, expertise and international insight. We would like to thank every participant for joining this important event, without whom the significant outcomes detailed in this report would not have been achieved.

A special thank you goes to the following participants who delivered presentations on key issues to inform and further the Lab's deliberations, namely Dr. Marko Vujicic for presenting trends and uncertainties facing the dental and oral health industries, Professor Tim Newton for providing Behaviour Science expertise and who also had great input into the planning of this successful event, Dr. Marsha Butler for providing corporate insight from an international, leading oral health company, Dr. Guy Goffin for highlighting opportunities for industry around the delivery of the CariesCare International "4Ds" and Professor Rebecca Harris who presented the findings of 'The RETURN Project: A psychological intervention reducing inequalities in dental visiting'. Thank you also to Dr. Marco Mazevet for providing continuity, leading on the 'French Experiment' and for his work with CariesCare International, and Kathryn Simmonds for managing the logistics and administration of this event.

Foreword

Stop Caries NOW for a Cavity-Free Future

This 'Dental Policy Lab' is the third in a series on tooth decay (caries) run by King's College London and the *Alliance for a Cavity-Free Future*. The 'Policy Lab' methodology has been developed by the Policy Institute at King's as a way of bringing together a mix of stakeholders who often don't get the chance to interact in a "safe" environment over an intensive 24 hour period to co-create solutions to complex problems. The approach has worked extremely well with overlapping groups of stakeholders in all three 'Dental Labs'. Having first looked at "accelerating a policy shift towards increased resource allocation for caries prevention and control" and then considered how to "create and implement acceptable prevention-based dental payment systems to achieve and maintain health outcomes", this third Lab looked at the policy question "How can the oral heath and dental industries benefit from enabling positive behaviour in caries prevention and control amongst patients and the public?"

Once again, the enthusiasm, energy and collaborative working of the very mixed group of participants was inspiring. Together, representatives from Industry, governments, Public Health and academia, co-created new ways to: drive behaviour change, operationalise and pay for the "4Ds" caries management approach, influence regulation and public policy and get oral health onto Corporate and Social Responsibility agendas.

The *Alliance for a Cavity-Free Future* and the wider King's-led Collaboratory for Caries Management will be working to keep the Network of attendees in touch to help share progress and implement these new initiatives as a Network.

Professor Nigel Pitts
Global Chairman, Alliance for a Cavity-Free Future
Director of Innovation and Impact, FoDOCS, King's College London

"The Policy Lab and the ACFF are really important because there has to be a forum where the various different aspects of the dental industry can come together and look at these wide and varied different drivers and motivations to push towards that single goal of being cavity-free by 2026."

— Dr Bruce Vernon, Chief Technical Officer, Calcivis Limited, UK

"Getting together the large range of people that are in this Lab, from the people at the top of public health through to the people that are at the top of the companies through to the people like me that invent things, and bringing them all in the same room at the same time and hearing different people's perspectives, this is a huge benefit."

— Professor John Girkin, Centre for Advanced Instrumentation, Durham University & NirVisio Ltd, UK

"I like the idea to put "everyone in one boat" actually, so the industry, dedicated people, people from all different parts who can contribute to oral health, work on having better oral health worldwide."

— Professor Dr Anahita Momeni, Dental School, Philipps-University, Marburg

How Can I Use This Document?

The thoughts and actions outlined here are intended to help all those who are interested in bringing about a Cavity-Free world. It will be of particular use to those working in the dental and oral health industries seeking to drive prevention-focused change in clinical practices and patient and public behaviours and also those responsible for the creating policies and practicalities of operationalising and paying for the 4D model.

In practical terms, this document can be used in a number of ways, of which we highlight three here:

Inform

While the evidence and information needed to address a complex policy issue often already exists, we rarely have all the relevant data synthesised in a way which helps us to make sense of the problem. The infographic (found on the back of this document) and additional data provided within this report is intended to be a resource for advocates to inform both themselves and other stakeholders.

Share and connect

This report contains details of the concepts developed by our broad range of expert participants, and invites readers to contribute their time, expertise and advocacy skills to share and connect with the existing initiatives worldwide.

Work together and act

Finally, the document is intended to act as a springboard as we invite you as readers of this report to get involved with the existing and proposed projects and join with likeminded professionals collaborating around the world. Following completion of the three Labs, the intention now is to develop a 'King's College London/ACFF Dental Policy Lab Network' for the implementation and delivery of the outputs.

Contents

1 - Introduction

1.1 - Tooth decay remains an unacceptable global burden despite the knowledge existing of how to prevent it

A third of the world's population, almost 2.5 billion people, have untreated dental caries or 'tooth decay'. This means that untreated caries is the most prevalent chronic disease on the planet.[1]

Children in particular suffer. It affects over 600 million children worldwide and, depending on the country, between 60% and 90% have this chronic disease. Numerous studies show that untreated dental caries and associated oral problems substantially decrease the quality of life for a child and their caregivers and have a negative impact on learning and social interaction.

While problems usually start in childhood, tooth decay is a lifelong disease. It often gets worse in later life, particularly when general health fails and oral self-care becomes more difficult. It is also a strong marker of social disadvantage and provides an early indication of population ill health linked to deprivation, often a reflection of social and economic inequalities within a given population. Moreover, the risk factors associated with caries are linked to obesity and associated non-communicable diseases (NCDs) such as diabetes and cardiovascular disease.

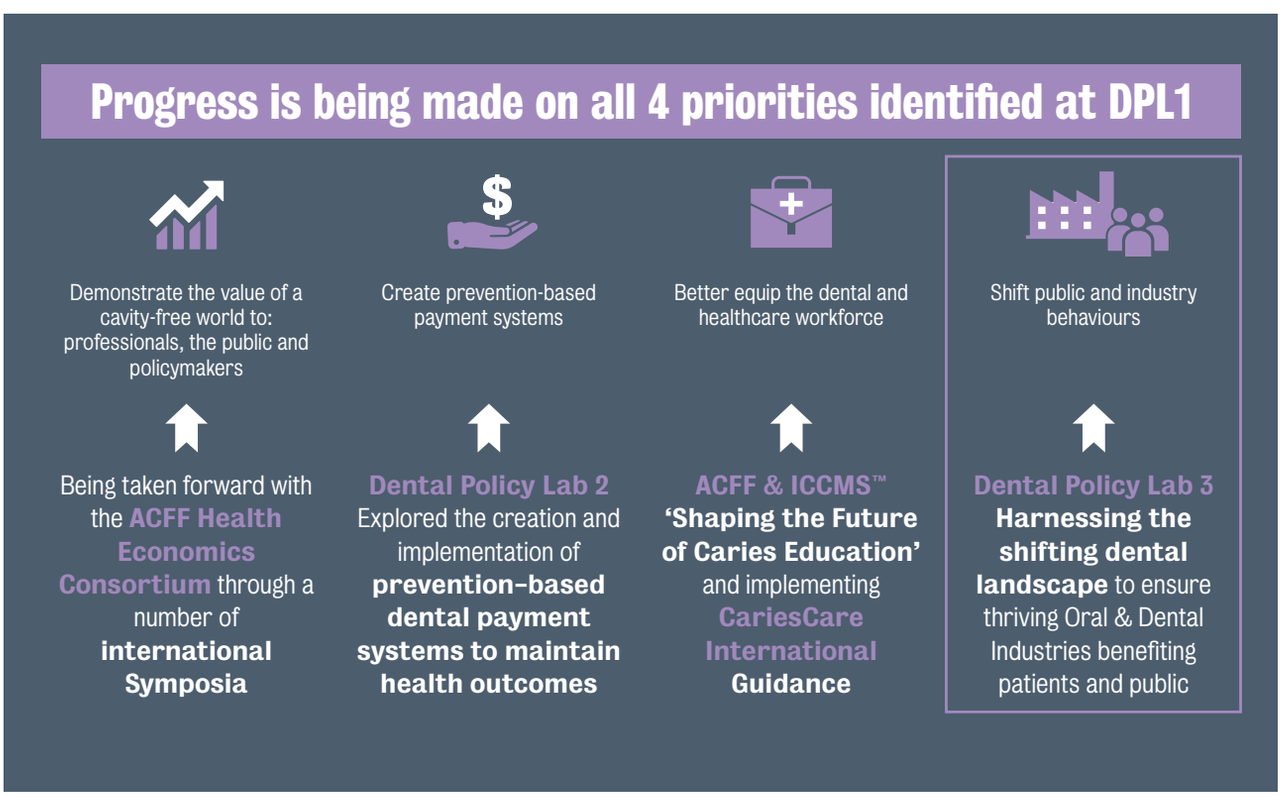
The tragedy is that suffering the pain and harmful impacts of caries is entirely preventable. But while we

1 Marcenes, W., Kassebaum N.J., Bernabé, E. *et al.* (2013). Global burden of oral conditions in 1990-2010: a systematic analysis. *J Dent Res*, 92(7) 592-7.

have long known how to tackle this silent epidemic, the scale of the problem has barely improved over the last 30 years.[2] We do not need more evidence to show that preventing caries is possible, we need to align existing knowledge about the dynamic nature and potential reversibility of dental caries[3] and how it can be prevented and controlled[4] and translate this into action. In doing so, we will not only decrease the prevalence of caries and its associated common risk factors, we can also move towards improving general as well as oral health across the life course.

1.2 – Two previous Policy Labs have led to big strides being made shifting to a greater emphasis on the prevention of caries

The first Policy Lab in 2017 identified four priorities enabling the dental and oral health system shift to a more preventative approach focused on achieving positive health outcomes across the life course. Since then, progress has been made in advancing all of these as shown below, including a second Policy Lab which created a 'blueprint' for implementing a prevention-based payment system that could be tailored to individual system settings.



The wide range of thinking and policy development work that has taken place over the last two years has already begun to bear fruits, generating significant impacts both in terms of global initiatives and also country-level implementation.

2 Peres, M.A., Macpherson, L.M.D., Weyant, R.J. *et al.* (2019). Oral diseases: a global public health challenge. *The Lancet*, 394(10194) 249-260, (doi: 10.1016/S0140-6736(19)31146-8).

3 Kidd, E.A.M. and Fejerskov, O. (2004) What Constitutes Dental Caries? Histopathology of Carious Enamel and Dentin Related to the Action of Cariogenic Biofilms. *J Dent Res*, 83(1) 35-8.

4 Pitts, N.B., Zero, D.T., Marsh, P.D. *et al.* (2017). Dental caries. *Nature Reviews Disease Primers* 3(17030), (doi: 10.1038/nrdp.2017.30).

FDI Chief Dental Officers/Dental Public Health Section

A Policy Lab sub-group worked with Welsh CDO & the **Welsh Government**

The **Japan Chapter** of ACFF is working on local implementation strategies

Discussions with **Office of the Chief Dental Officer England** regarding advancing their "Prototypes"

Outcomes helping to guide post-Minamata Treaty planning with **WHO and UNEP**

CariesCare International are building their dental practice programmes around the recommendations

French Experiment: a local adaptation of the blueprint was proposed by French Dental Surgeons (Les CDF) to the French National Health Insurance and "accepted"

1.3 – The third Policy Lab focused on how the dental and oral health industries could benefit from enabling positive behaviour changes in patients and the public

A world where caries prevention works for everyone, regardless of geography, demographic or socio-economic factors, requires all the stakeholders who play a part in the dental and oral health system to come together and collaborate.

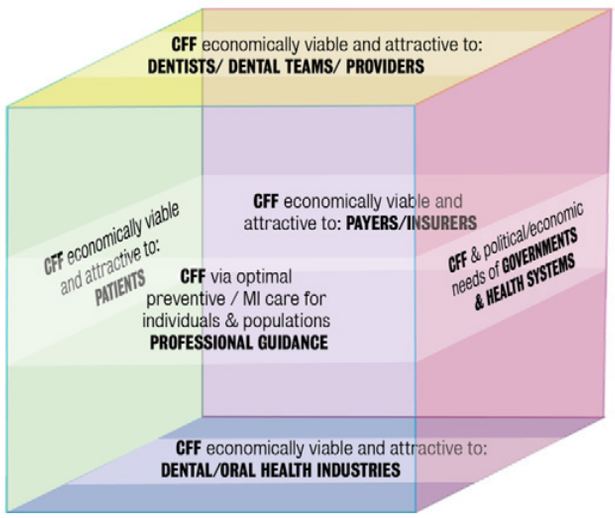
The 'Win6 cube' illustrated emphasises that successfully implementing the necessary changes to bring about such a "cavity-free future" will require the buy-in of stakeholders to come up with solutions which successfully take into account their respective interests.

While the first two policy labs primarily focused on the actions needed at a public policy and payment system level, Policy Lab 3 brought together the dental and oral health industries, as well as government and dental public health stakeholders, to explore the vital role that they have to play in driving the necessary behaviour change amongst patients and the public.[5]

The overarching question for the Policy Lab was:

How can the Oral Health and Dental Industries Benefit from Enabling Positive Behaviour in Caries Prevention and Control Amongst Patients and the Public?

5 The participant list can be found at the end of the document.



Lasting 24-hours spread over two days, the participants – including representatives of companies ranging from global multiple-nationals to start-ups – heard from leading figures in dental psychology, behaviour change and policy, before working together in an innovative interactive process to formulate ideas and proposals for action that can be used as catalysts for change within their sectors.

1.4 – A number of external trends are likely to have profound effects on the dental and oral health industries over the next 10 years

In understanding how the dental and oral health industries can contribute to achieving a cavity-free future, it's critical to understand the powerful trends that are likely to shape the next 10 years.

Demographics

The next 10 years will deliver a population where typically the average age is rising and where rates of comorbidity will increase, with more and more people suffering from multiple acute or chronic health conditions. There is also likely to be a rise in the number of people affected by mental health issues.

At the same time, generational divides are emerging in the beliefs and attitudes across different age groups. There are marked differences between the generations – Millennials, Generation X, Baby Boomers and the like – in terms of what is important to them. This can be seen in the expectation of the 'perfect smile', where attitudes between younger and older can vary substantially. This then drives not only growing demand for dental aesthetics but also variations in behaviour around basic dental care. For example, a higher proportion of young people will make at least one visit to the dentist in the year compared with those who are older, especially in lower income groups.

A similar shift can be seen in what might be termed 'increased consumerism', where individuals expect to have far greater choice than in previous decades and to be involved in all the decisions that affect their lives, including those related to health and well-being. This is accompanied by generally less trust of authority figures and the rise of non-expert 'influencers' who increasingly shape opinions and beliefs and whose recommendations can dictate decision-making by large cohorts of followers.

Environment and sustainability

Heightened awareness of environmental issues will lead to more interest in the sustainability of products and services and the stance that companies take on Corporate Social Responsibility is very likely to play a part in how successful they can be in future. This translates into questions from patients and the public about the use of potentially harmful materials (e.g. mercury in amalgam) and the use of renewable sourcing and/or recycling (e.g. plastics in toothbrushes and recently toothpaste tubes themselves). The scrutiny of sustainable practices will be influenced by social media and 'patient pull', especially in what is demanded by younger age groups.

Technology

The 'personalisation of health' is already much more apparent than 10 years ago and will become an increasingly dominant force in shaping care, fuelled by the use of digital technology and the data it generates. This is not just something for the young as older generations are adopting the range of tools being brought to market. Toothbrushes that send data to insurers to help reduce the cost of premiums and bitewing radiograph systems that automatically "detect" caries are already here.

New and more powerful apps, the 'Internet of Things', developments in 3D diagnostics and new therapeutics, are all set to transform further how diagnosis, monitoring and treatment work. Connectivity-driven technologies for communicating

and interacting with health care professionals will change not only what occurs in the clinical setting but also what people do in the vast bulk of time that they are not in the presence of the professionals that advise and care for them. There will also be competition for data and fears to do with trust and transparency that the dental and health care industries will inevitably be part of.

Other technology advances also have the potential to have big impacts on how the dental and oral health markets might evolve. New diagnostic methods and alternatives to fluoride as active caries preventive agents are examples of areas where work is being done. Add to this the potential for stem cell treatments, managing the microbiome, alternatives to sweeteners and the army of microrobots that can wipe out dental plaque and the future world of preventative care could be unrecognisable to today.

Workforce

More dentists, aging practice owners, shifting practice configurations, shifts in the gender balance within the workforce and changes to models of employment are all things that are having an effect on the structure and operating of the dental care market in many countries, especially in larger western economies.[6] The growth in corporate dentistry is already one of the fastest growing areas in the wealthiest markets.
These changes and other changes driven by consumer demand are likely to have an impact on who delivers services in the future with the potential to see less decision making by dentists and a shift to them taking on more advanced care, with detection and prevention by hygienists and other healthcare professionals in those locations where such flexibility is legally available.

Economics and markets

As payment systems are under budget pressure and come under ever greater scrutiny, policy makers will look to prevention and minimising invasive treatments as a way of keeping care affordable. This will be made more acute by the aging population and the increase in the types of demand for care associated with that.

Against this backdrop, the economic case for some innovations that might not have been profitable before may now become more positive. Time is money and so technologies that could help improve efficiency in practice will gain more traction. For this to happen, radically different payment models, incentives and revenue streams will be considered, with experiments and trials already underway in a number of countries.

1.5 – There is a changing understanding of 'what is Oral Health' and the role of prevention in delivering that

The opportunities and challenges afforded by a broader understanding of individual wellbeing and the shifts in patient and public expectations has been reflected in the definition of oral health adopted by the World Dental Federation (FDI):

> **"Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex."**

Accompanying this is a shift to prevention in Dental Association Policies. In September 2019, the FDI World Dental Parliament voted overwhelmingly to move to Preventive Dental Medicine for caries control and specifically recommends the concepts of ICCMS™ [7] [8]

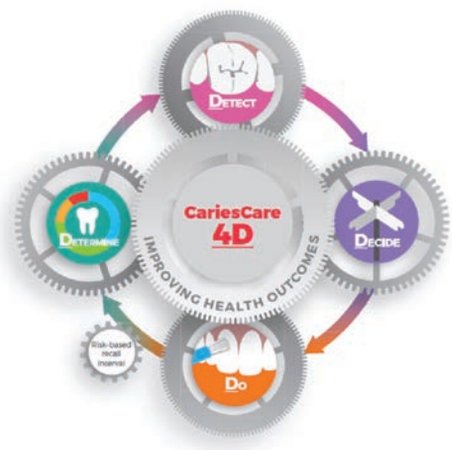
> **"FDI World Dental Federation supports a shift in caries management from restorative treatment to measures that arrest and prevent caries development including monitoring, following the concepts of International Caries Classification and Management system (ICCMS™)."**

6 Health Policy Institute (2019), Annual Dental Industry Report 2019.
7 FDI World Dental Federation (2019). FDI Policy Statement – Carious Lesions and First Restorative Treatment, September 2019, San Francisco. Available at: https://www.fdiworlddental.org/resources/policy-statements/carious-lesions-and-first-restorative-treatment [Accessed 4 March 2020].
8 Pitts, N.B., Ismail, A.I., Martignon, S. et al. (2014). ICCMS™ Guide for Practitioners and Educators. Zenodo. Available at: https://zenodo.org/record/853106#.Xl-YUaj7SUl [Accessed 4 March 2020] (doi: 10.5281/zenodo.853106).

> **"All initial caries lesions should be treated by the use of topical fluoride and monitored for progression."**

As well as recent calls for radical 'upstream' public health changes in the way oral health is achieved, the need to integrate these effectively with 'midstream' and 'downstream' activities is recognised as being critical if practice is to change to pursue a prevention-based agenda. [10 11 12]

To underpin this, the ICCMS™ 4D approach from CariesCare International (a new part of the ICDAS Foundation) provides a structured, evidence-based approach to caries management. There is international consensus on what needs to be implemented to use ICCMS™ in dental practice and it is being rolled out worldwide[11 12] (please see figure on the CariesCare 4D model).



Determine	Determine patient level risk
Detect	Detect and Assess caries staging and activity
Decide	Decide on a personalised care plan
Do	Do appropriate tooth and patient preserving caries prevention and control interventions

1.6 – The dental and oral health industries have different structures and dynamics

The dental and oral health industries are populated by two very different groupings, heterogenous in their size, structures and characteristics and generally with limited collaborative working between the two.

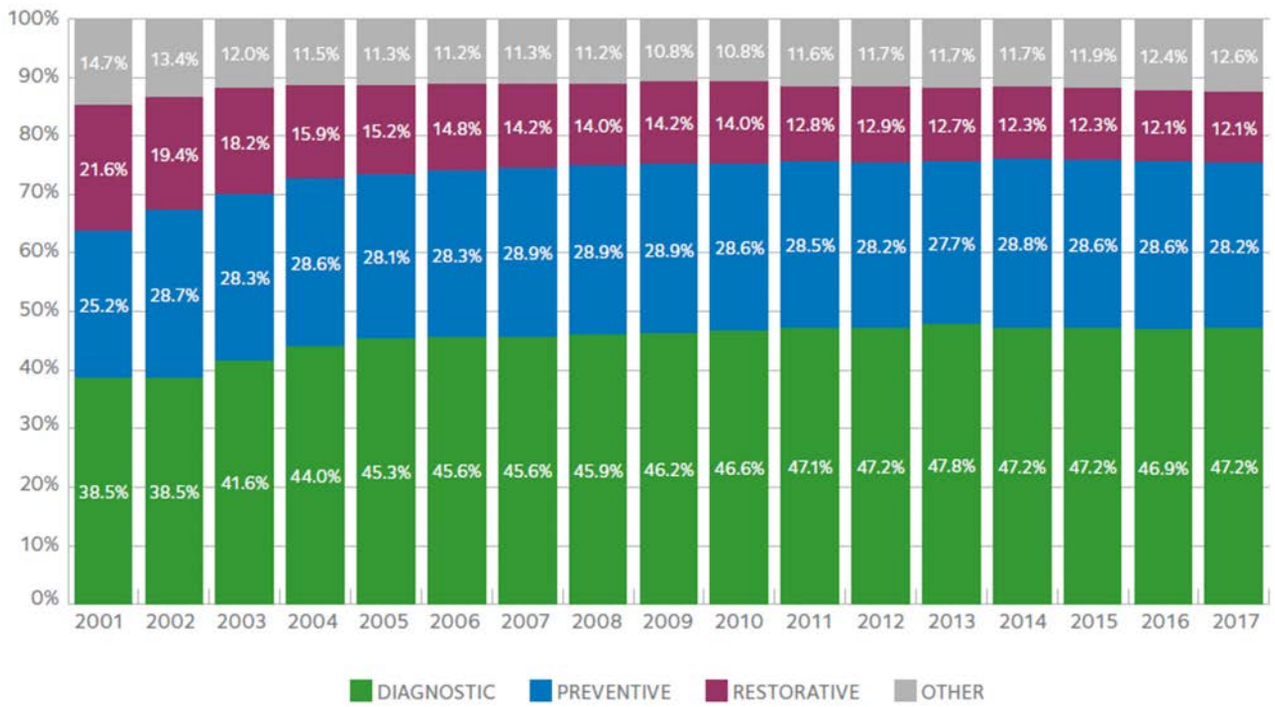
The oral health industry is dominated by large multinationals. These companies are very competitive, often aligned to the prevention agenda and are able to influence the market through their marketing and promotional spend. In contrast, the dental industry is more fragmented, with companies of very varying sizes and relatively few start-ups.

The 'clinical' market which both these industries serve is, in turn, quite 'conservative' and very heavily influenced by the payment systems in place. This can mean that companies feel relatively impotent in driving innovation and need Key opinion Leaders, universities and policymakers to overcome barriers that prevent change in the current market.

A powerful example of this is the difficulty in introducing new products and approaches that are dependent on changes to long-established workflows in individual dental practices which are, in turn, underpinned by payment system remuneration tied largely to the volume of particular interventions. It can be hard, especially for smaller companies, to gain traction in this space (though the opportunities are significant and can be arranged around the 4Ds). As Figure 4 shows, this has resulted in a very slow to change overall procedure mix which remains virtually unchanged over the last 10 years.

9 Watt, R.G., Daly, B., Allison, P. et al. (2019) Ending the neglect of global oral health: time for radical action. The Lancet, 394(10194), pp. 261-272, (doi:10.1016/S0140-6736(19)31133-X) (PMID:31327370).
10 Hancocks OBE, S. (2019) Global oral health; eggs and stones. Br Dent J 227(3), 173. (doi: 10.1038/s41415-019-0619-6).
11 Martignon, S., Pitts, N.B., Goffin, G. et al. (2019) CariesCare practice guide: consensus on evidence into practice. Br Dent J 227(5), 353–362. (doi: 10.1038/s41415-019-0678-8).
12 Hancocks OBE, S. (2019) When least is most. Br Dent J 227(5), 325, (doi: 10.1038/s41415-019-0740-6).

Figure 4: Percentage of Dental Procedures by Procedure Type (Source: American Dental Association, 2019)



1.7 - The remainder of this document sets out the ideas and proposals for action that emerged from Policy Lab 3

At the end of the Policy Lab, a range of ideas and proposals for action had emerged which will now be taken forward in answer to the event's overarching question:

How can the Oral Health and Dental Industries Benefit from Enabling Positive Behaviour in Caries Prevention and Control Amongst Patients and the Public?

These can be grouped under four headings which are explored further in the remainder of this document:

2. Driving behaviour change

3. Operationalising and paying for the 4Ds

4. Influencing regulation and public policy

5. Getting oral health onto CSR agendas

2 – Driving behaviour change

The Policy Lab identified four ways in which the dental and oral health industries could contribute to changing behaviours that would lead to improved health outcomes:

- Understand what is needed for people to change behaviour
- Give consistent messages to patients and the public
- Use campaigns, public-private partnerships and product placement to support change underpinned by the COM-B model
- Engage patients with technology

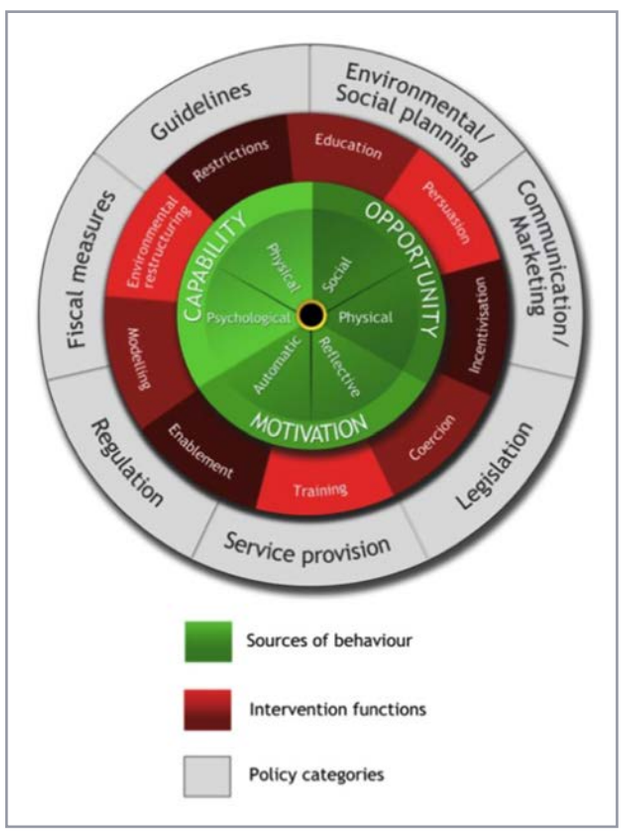
2.1 – Understand what is needed for people to change behaviour

People need to have capability, opportunity and motivation

The COM-B model is an evidence-based model that describes the ingredients needed to help someone change their behaviour in terms of:

- Capability – the person has to have the physical (e.g. strength) and psychological (e.g. knowledge) skills to perform the behaviour
- Opportunity – the physical availability (e.g. product being affordable or the service accessible) and social environment (e.g. exposure to ideas) have to be in place for someone to feel able to undertake the new behaviour.
- Motivation – the person's conscious (e.g. planning and decision making) and automatic (e.g. innate drives, emotional reactions, habits) processes underline their motivation to undertake any behaviour

Using this framework, the 'Behaviour Change Wheel' flags potential areas for action to support individuals to provide them with the sense of responsibility AND control that can lead to successful behaviour change.



This model can be used by industry to identify opportunities for products, services, information and other forms of direct and indirect support that it could develop and offer.

Behaviour change requires trust and fit with personal identity

People are motivated to act in ways which are congruent with their identities and that of the groups they live in or are influenced by. Identity-based motivation theory provides a way to understand how trust can be built with people so that they can then be open to the COM-B model of change.

The RETURN Intervention being run by The University of Liverpool and National Institute for Health Research in the UK, seeks to build trust and tackle fear amongst groups of people that are suffering high levels of tooth decay and are prevented from seeking support and care through strong feelings of embarrassment and experience of anxiety.

The approach blends education, group and individual support to increase trust in the dental profession and reduce levels of fear in the process of attending dental care.

"I had a bad tooth on the bottom and it was getting really thingy... so I goes to me doctor because I'm terrified of the dentist, I just get this feeling I'm gonna die..."

Related to this, clinical settings need to be conducive to encouraging the right behaviours. Dental practices need to be places that are inviting to patients and that have environments that are designed to reduced fear and anxiety and encourage discussions about prevention that lead to actions being remembered and acted on once the patient has left. Many practices are not designed with these ideas in mind (perhaps having been converted from houses) and patients are often whisked straight to the treatment chair where the implicit power dynamics often preclude a conversation about preventative behaviours.

People are individuals and supporting behaviour change needs tailored action

Patient and public populations are evidently not homogeneous. There is often a more or less 80:20 spilt between those who are "already in the dental system" and those who are outside of the system. The latter includes those who are excluded for reasons of cost and other socio-economic or life factors and also those who choose to not engage, whether for their own reasons (e.g. an unwillingness to pay for prevention) or because of carer decisions (parents without cavities may think that "it's not a problem for my kids"), peer group pressure or other social and generational norms (e.g. 'fatalism' in the form of "whatever will be will be").

Consequently, getting behaviour change across a whole population will require all stakeholders, including industry, to develop approaches that will work for different 'segments', for example tailoring some to the growth in the demand for "aesthetics" and some to making basic access affordable, non-threatening and easy-to-use.

2.2 – Give consistent messages to patients and the public

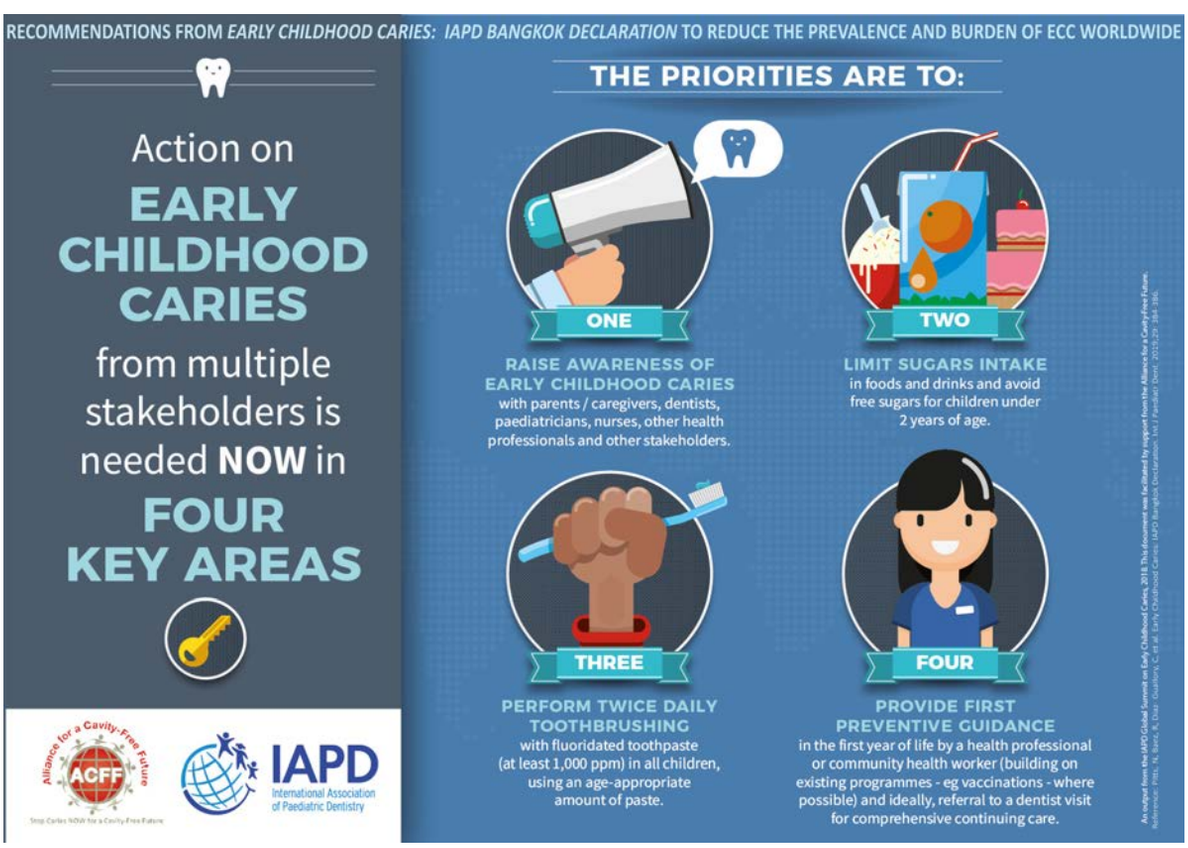
Inconsistent messages undermine behaviour change, in terms of the habits that people should be forming (e.g. what is good practice for tooth brushing in children) and the products and services they should be using (e.g. the negative impact of product recalls or information on "what the science says about fluoride").

The Policy Lab emphasised the need for industry to be part of a collective effort to give consistent messages to the public on:

- The impact of food
- The way to clean teeth
- Who to get care and support from
- How to think about oral health

The impact of food should emphasise the avoidance of sugar and the benefits of a healthy diet

Restricting sugar intake is the key message to reinforce. This is best achieved by reducing the frequency and amount of sugar containing foodstuffs eaten, particularly snacks between meals. The IAPD 'Bangkok Declaration' infographic is an example of this, emphasising how restricted sugar intake in first two years of life improves both early childhood caries and cardiovascular health, obesity and diabetes risks. This message needs to be shared more widely across all stakeholders as it is not well understood at present.[13]



13 Pitts, N.B., Baez, R., Diaz-Guallory, C. et al. (2019) Early Childhood Caries: IAPD Bangkok Declaration. Int J Paediatr Dent. 2019;29: 384-386.

The Policy Lab also concluded that while the main target is caries, there are wider benefits to be achieved beyond caries so any messaging should include the links to behaviours affecting other aspects of oral health (periodontal disease and erosive tooth wear) and the NCDs that share common risk factors with caries.

It is also important to stress that caries should not be viewed as something which is 'routine' and happens to everyone but rather as an avoidable disease which will often be experienced at the same time as other oral and general health problems.

How you clean your teeth

The consistent message here should focus on regular (e.g. twice daily for two minutes) brushing with fluoride (or proven alternative) toothpastes.

It was also recommended that messaging should encourage people to be willing to brush in different settings, challenging social expectations that it is only something done at home. Attempts could also be made to change norms to make 'not brushing' socially unacceptable. One suggested theme to support this could be "no sex without cleaning your teeth"!

Who to get care and support from should emphasise regular dental check-ups and the role of professionals other than dentists

Regular attendance at the dentist (for adults at least once every two years or more often on the basis of their risk of developing oral disease, more frequently for children) is the key message to get across. Depending on individual needs, other support (e.g. around nutrition) could be relevant from other healthcare professionals.

Messaging should also seek to alert people to the potentially misleading and non-evidence-based advice available from 'non-traditional' sources such as can be found online around dental aesthetics.

Finally, families and carers of older individuals, including those running care homes, should be receiving clear messages on the need for regular and tailored care for those in their charge and how to go about securing this.

How to think about oral health

Getting people into a 'prevention mindset' should be the key goal of messaging that focuses on how people think about their oral health. This could include:

- Taking action before problems arise avoids a lot of pain and cost further down the line
- No-one has to get cavities
- Oral health matters – it is about enjoying life
- "Curative" treatment by restoration does not equal cure – it is a failure!
- Oral health can link strongly to sustainable living

2.3 – Use campaigns, public–private partnerships and product placement to support change underpinned by the COM-B model

The Policy Lab identified three ways in which the dental and oral health industries could support change underpinned by the COM-B model:

- Campaigns to grab the attention of the public
- Public-private partnerships to put in place practical support
- Product and/or theme placement to maintain awareness and reinforce key messages

In doing so it was recommended that raising awareness to reduce tooth decay should be part of a broader message about the importance of oral health more generally – for example in having teeth to eat all foods, being confident in your appearance to increase the chance of getting employment and experiencing the wider health benefits such as avoiding diabetes.

It was also acknowledged that an effort is required to blend encouraging positive messages (ie "do more of this") with negative ones (ie "do less of that") and to take advantage of the potential links to other behaviour changes – smoking, breast feeding, alcohol, etc.

Finally, shifting knowledge alone is not enough. Widespread and sustainable behaviour change needs a shift in the social perception of the disease away from existing cultural norms (e.g. saying "it's just caries" or people not believing the science around fluoridation) to be complemented by public policies and laws that reinforce or proscribe behaviour.

Campaigns to grab the attention of the public

Larger companies have resources available to run campaigns that support specific public health initiatives. Some successful examples of these in relation to oral health and other areas are given below. Similar

campaigns could be used in relation to the prevention of tooth decay.

P&G Children's Safe Drinking Water Programme

With 1,000 children dying each day as a result of diseases caused by contaminated drinking water, this programme has the aim of providing 25 billion litres of clean water by 2025. Operating in over 90 countries with the participation of 150 public and private organisations, it provides lightweight and portable packets of water purifier powder, each one of which can effectively treat 10 litres of water, enough for a family of five for one day.

Results: 15 billion litres of clean water have been provided helping to save an estimated tens of thousands of lives.

The Wait for Water campaign

Water.org and Stella Artois created "The Wait for Water" campaign to bring attention to the fact that women in the developing world wait up to 6 hours collecting water each day. The campaign shows what happens when unsuspecting restaurant customers are told water won't be available for up to 6 hours. To help, consumers purchase a limited-edition Stella Artois chalice that helps provide 5 years of clean water to someone in the developing world.

Results: Since 2015, Stella Artois and Water.org has helped provide access to clean water for more than 1.7m people in the developing world to date. Their goal is to reach 3.5 million by 2020.

GSK Smile Train Partnership

The partnership between GSK and the Smile Train charity supports local medical professionals to provide free, life-changing surgery and comprehensive care to children with cleft lip and palate. Left untreated, children with this condition can often struggle to eat, breathe and speak properly. Support is freely available in over 90 countries, including orthodontic care and speech therapy post-surgery where available.

Results: More than 2,100 local medical professionals have been empowered to offer surgery with over 1.5 million operations performed to date.

Whirlpool's powerful Every Day, Care platform

This is designed to increase student attendance and success in schools. It donates washing machines to schools to reduce absenteeism. With an engaging website that builds excitement around the cause it sets out the Problem > Solution > Results > Stories > Donate (call to action).

Results: The programme has washed ~50 loads of laundry per participant. Over 85% of high-risk elementary school students increased their attendance during the 2017-2018 program with an overall attendance rate of 91%. More than half of participating high-risk students were no longer at risk for chronic absenteeism. According to teachers surveyed, 89% of students increased classroom participation, 95% of students had more motivation in class, 95% of students participated in more extracurricular activities.

Lifebuoy created the Help a Child Reach 5 campaign

This film aims to reduce child mortality caused by poor hygiene by establishing the role of handwashing as a lifesaving intervention. In doing so, it sought to combat the ignorance of and apathy towards basic hygiene and handwashing with soap.

Results: The film received 25 million views worldwide, helping Lifebuoy secure $20 million in external funding for its programme. A clinical trial showed that Lifebuoy's behaviour change programme helped with 25% reduction in diarrhea and a 1.5x increase in handwashing for mothers exposed to the Mobile Doctarni programme. In India, there was a 26% increase in children washing hands before meals and a 42% rise in mothers washing hands with soap before feeding their children.

Partnering with key stakeholders at a local level

To make sustainable change happen at a local level always requires more than one entity to be involved. This is especially the case where there are cultural or infrastructure challenges in getting shifts in behaviour. In response to this, public-private partnerships can play a powerful role in bringing about positive social impacts by designing and operating the resources with and within the communities that they are aiming to help.

Such partnerships have a collective objective of improving the overall health of a population and have the flexibility and responsiveness to best meet local needs. Being embedded in the communities they serve, they can help drive innovation, leverage available resources, bring management and operational efficiencies and introduce technology and best practices.

Crucially, they also create an emotional connection through authentic messaging that originates from people within the communities, bring in other stakeholders and public as champions, influencers and donors and offer incentives to those who sustain the desired behaviours.

Examples of public-private partnerships which are contributing as part of their work to a cavity-free future include:

Colgate Bright Smiles Bright Futures

- **Bright Smiles, Bright Futures** is an oral health education initiative with the goal of improving oral health of children around the world. Translated into 30 languages and used in over 80 countries, the campaign has reached over 1 billion children worldwide since its inception. The partnership involves Colgate, local governments, the dental profession and a variety of NGOs.

- **Kenya's 30 day challenge** is a school-based programme in rural Kenya that educates people to adopt good oral care habits. So far it has involved over 80,000 students in 135 schools and resulted in brushing at least twice a day to rise from 26% to 88% during the challenge before settling at 57%.

- **Community Agents in Brazil and India** is a partnership between Colgate and the national Ministries of Health which trains 30,000 agents annually to spread awareness of healthy oral care habits in rural areas. At the same time, these agents are able to gain insights into current behaviours and understand the key motivators for habit change.

"The learning from these initiatives is that positive reinforcement leads to better outcomes, changing habits requires repetition and frequent interventions, on the ground partnerships with multiple stakeholders are much more effective than single-entity initiatives and that a mix of media channels needs to be employed to build awareness successfully."

Product and theme placement

The final suggestion to help maintain awareness and to reinforce key messages was for the use of product and/or theme placement in movies and other forms of entertainment or social media.

2.4 – Engage patients with technology

The industries' online presence needs to be more effective

The Policy Lab felt that the part of the challenge in getting a consistency of message on key things like water fluoridation, brushing habits and the value of oral health is having an online presence with the necessary scale and appeal to reach different audiences.

It was suggested that the industries could invest more in their online communication, perhaps creating a social media face for oral health and connecting with leading influencers and key brands/media channels in getting the messages out.

The profession could build an app for identifying an individual's risk profile and linking this to the support provided

One of the main ideas to emerge from the Policy Lab was a proposal to use technology to link an understanding of a patient's risk profile to accredited apps and online support. Building on the fact that there are already a large number of apps and online resources related to dental and oral health care, the innovation here would be for the profession to create an independent risk rating app that would identify and build a caries risk profile of the individual based on their teeth condition alongside their beliefs and habits around oral health.

The risk rating app would gather information from an online questionnaire that could be completed at the dental practice, another clinical setting, at home, or on a mobile phone using a QR code in less developed countries. The results of this would calculate a 'predictive prevention' which could map to the risk types used in operationalising the ICCMS™ 4D model.

Following this assessment, the individual would be redirected to get 'top five sites' tailored to their needs, not just for the clinical condition but also based on the type of person they are (personality, etc). These top five sites could include links to other sites or apps to help with brushing, understanding fluoride, diet choices, etc, all of which would be pre-accredited to confirm the validity and evidence-base for the products and advice they contain.

There might also be scope to allow industry to advertise 'accredited' products and services (e.g. whitening, oral health products) along with links to the other resources they can provide to help manage individual oral health (e.g. pictures of teeth at various stages or augmented reality apps for children which increase motivation to brush). Such revenue would help pay for the effort required to undertake the on-going accreditation of top sites.

A second innovation would be to enable the user to link the risk rating app to their own dental practice (if they have one) or to find local practices that are willing to take them on. This would provide motivation for practices to engage with the app, capturing pictures of the teeth, getting readouts on brushing practice, reminders for cleaning and sending alarms if there is any deterioration in caries severity or unhealthy in-mouth changes are found. Where relevant, practices might also offer other 'health inputs' to users, such as nutrition advice or general health support (e.g. chiropody or weight loss services). The ultimate aim would be for the app to become a shared tool between the dentist and patient for diagnosis, care planning and management and on-going monitoring.

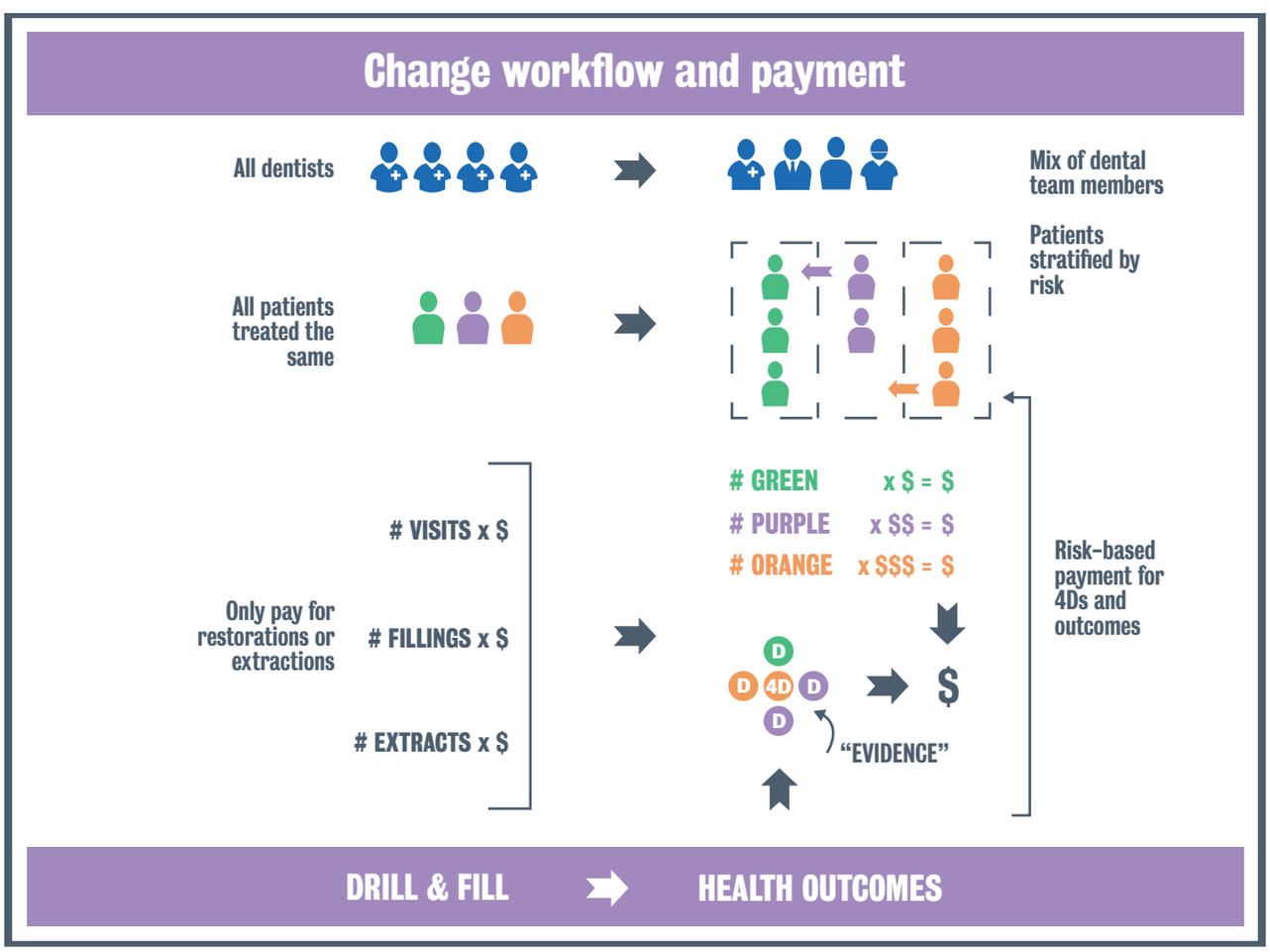
3 – Operationalising and paying for the 4D model

The Policy Lab reinforced the international consensus that the ICCMS™ 4D model provides a structured, evidence-based approach to caries management and that the worldwide roll-out of this should be supported by all stakeholders.

A critical success factor in getting the 4D approach into practices around the world will be to make reimbursement for prevention work. The necessary changes in workforce patterns and practice modalities will not work in isolation without payment reform and vice versa. This requires linking practice-level workflows to payment models (like those based on the blueprint that was designed in Policy Lab 2) that remunerate each of the 4Ds.

This will support moving from the situation today, where a practice might have a couple of head dentists, an unsegmented patient base and income based on the volume of visits and treatments to a future where:

- there are new types of provider and a different mix of practitioners (e.g. hygienists) as well as dentists
- patients are organised by risk (high, medium and low; or high/low)
- remuneration is stratified according to the risk across the patient base with incentives to adhere to evidence-based protocols for individual patients and achieve health outcomes



The overarching goal of this is, of course, to improve health outcomes. However, budgets should stay the same (or even might fall) as money is redirected from more expensive treatments (restorative fillings and implants) into prevention. In this approach, lower risk patients will pay less than others to benefit from the prevention support while, proportionately, the state pays more into the higher risk patients (as in the current French experiment).

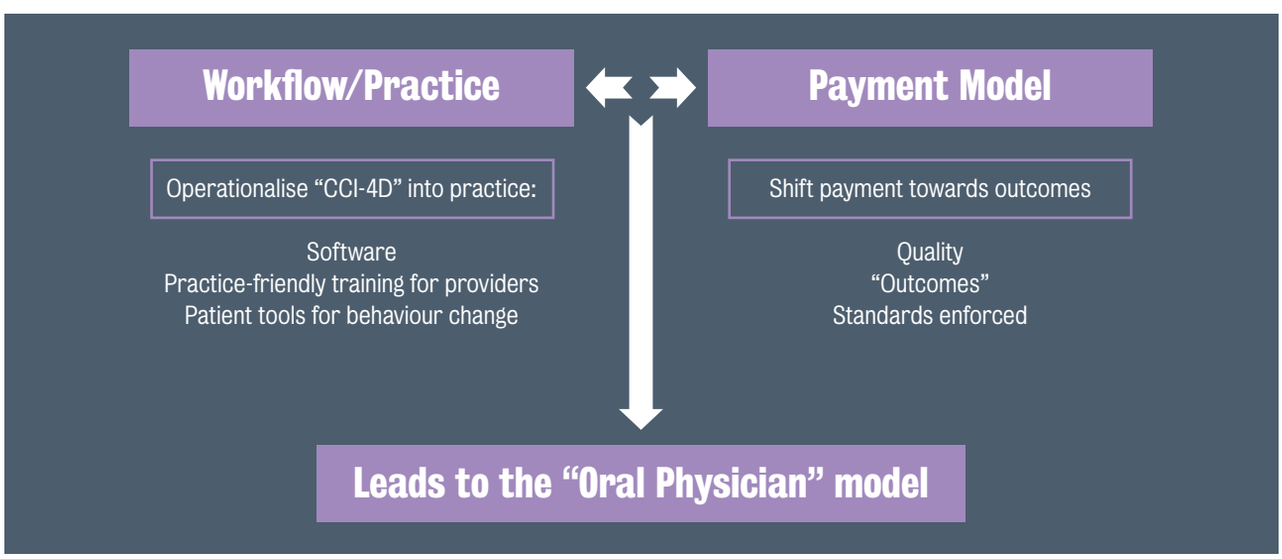
While the knowledge exists of how to undertake the 4D assessments and the switch to the new care pathways have been demonstrated, there is no single practice management tool that makes it possible for practices to operationlise this easily. It is here that industry has a great opportunity to provide the inputs needed to support this new model. These could include:

- the practice level workflow technology and software solution, encompassing suitable tools for comprehensive diagnostics, risk assessment and decision-support
- the training, education and other facilitative and information support to introduce and 'socialise' the solution across the profession
- the sales, financing, project management and implementation skills to help individual practices acquire and utilise the solution (including what do with high risk individuals)
- tools that inform and engage patients in their behaviours (e.g. co-creation of care plans and motivating patient to play a full part in self-care when they are not with health professionals)

The current experiment in France is testing many of the concepts that will underpin this switch in payment models and practice workflows, including how to stratify patients into risk groups and capture data supporting this and on outcomes.

There is also the potential for further benefits to individual dental practices in terms of:

- releasing more time for preventative care (including algorithms for prevention) to expand the patient base or take on different types of 'added value' work (e.g. around aesthetics)
- diversifying from dental care into oral health and then becoming general 'health hubs' (e.g. advising on nutrition, lifestyle, etc)
- avoiding litigation through accurate recording of audit trail of advice and care to support prevention



4 – Influencing regulation and public policy

The Policy Lab noted that while industry has a vital role to play in delivering a cavity-free future, there are many factors in the dental and oral health markets that are not in their control and which rely on others, notably policy makers and regulators, to take actions that will facilitate the movement towards that vision. Nonetheless, companies have an important opportunity to influence those actions.

4.1 – Integrating and aligning upstream, midstream and downstream

It was noted earlier that there needs to be a link between 'upstream' public health efforts around caries prevention with the 'midstream' clinical practices and the 'downstream' patient behaviours. As well as continued efforts to restrict sugar intake and improve diets, the sector needs to:

- learn the lessons from those countries where there has been a successful reduction in smoking through integrated approaches at each level
- link oral health to general health ("putting the mouth back in the body") so that it benefits from the programmes that encourage improvements and innovation around things such as self-care and shared decision-making
- work out how to make better use of other health advisers in delivering oral health messages and support. This includes better integration of care for older patients (especially those in care homes) and mobilising the 'grey dollar' to sustain good oral health over the entire life course

4.2 – Making preventative care accessible and affordable

The Policy Lab proposed that VAT on toothpaste and other necessary oral hygiene products should be removed as part of an effort to make oral health affordable to all.

It was felt that a concerted broad-based campaign around this (in similar ways to the one for women's sanitary products in the UK) would also, even if not fully successful, raise awareness of the issues and increase the profile of oral health and its importance.

This would be based on a manifesto-type approach with the following arguments:

- caries is a serious public health issue that costs the economy
- brushing twice daily with fluoride toothpaste is the most effective intervention
- VAT on toothpaste is an outrage. Oral health is essential, not a luxury
- fluoride-containing toothpaste should be VAT-exempt

The manifesto would be 'signed' by the dental professional associations, scientific community, oral care industry and consumer advocates to create a movement for the abolition of VAT.

To support the campaign would need evidence on the price elasticity of toothpaste (what happens when it is reduced) and also data on the economic impact of caries to society. This latter analysis could be part of putting a convincing financial value on a cavity-free future, something that was a recommendation from Policy Lab. Moves to start this process began even before the Lab was concluded and continue to build pace.

4.3 – Supportive regulation for innovation

Industry representatives at the Policy Lab emphasised how hard it is for individual companies to introduce

new technology to improve preventative care. This is because, as noted earlier, the workflows tied to current payment systems mean that there are no remunerated standardised preventative care pathways underpinned by the 4D model which would encourage practices to adopt new innovations.

Consequently, industry needs help from public policy to create a harmonised regulatory environment with an agreed 'target destination' around prevention-based approaches that are supported by insurers and payers and endorsed by CDOs and health departments, which would give all companies a level playing field to innovate on. This change is needed in order that industry can bring viable new products and technology to market at sufficient scale (internationally) to better deliver caries prevention and control. There is evidence that potential technologies have been developed but have not been launched because of these challenges. The interaction and clarity between policy makers, regulators and industry could be very powerful in this arena.

5 - Getting oral health onto CSR agendas

Another key proposal from the Policy Lab was for CDOs to work together to get oral health onto the CSR agendas of all major dental and oral companies. Each of the organisations has some form of CSR strategy. Increasingly these are shifting from a 'corporate charity funding focus' to one of social responsibility that aligns business objectives with employee and community engagement through the use of its people, capacities and platforms. The opportunity therefore exists to influence these companies to adopt a common goal of improving population oral health through their CSR work.

Successfully influencing such organisations can't involve an overly prescriptive approach that sets out very specific messages or actions that they have to take. Rather, the aim should be to agree themes for CSR messaging that can be shaped and brought to life within their own existing programmes and campaigns and adapted by their regional operations, building on local research and market understanding.

While it would be possible for this collaboration with industry to be organised at a national level, a more powerful approach would be to take a global approach. This would result in a much higher profile for the conversations that take place and a broader and faster cascading of the ideas that emerge. Based on this, the proposal is for these conversations with industry to come together within the FDI. The FDI could possibly act as a third-party host (preferably doing this to support the dialogue rather than as an income stream), can coordinate bringing together chief dental officers and can help avoid the potential concerns of a purely corporate platform. The ACFF can also play a role in agenda setting and acting as a network of collaborators that can share best practice from around the world on the various elements that are needed to deliver a cavity-free future.

For industry, the benefits are a very targeted CSR agenda that could help to connect and scale up pilot oral health programmes, link these initiatives into wider healthy life programmes and tie oral health to the sustainability agenda. For government there is the promotion of a key public health goal and for the public there is a common agenda on a disease that is one of the most prevalent worldwide and brings with it significant social and financial burdens.

6 - Next Steps

The very positive feedback from participants at Policy Lab 3 validates the heterogenous mix of CDOs, behaviour change experts and representatives from the dental and oral health industries that came together to consider what the industries could do to enable behaviour change amongst patients and the public that would lead to improved health outcomes.

In coming up with a range of practical actions to take forward, this third policy lab is a culmination of the work to map all the necessary steps to achieve a cavity-free world that were outlined in the first Policy Lab in 2017. While practical progress has been made in starting to implement many of these steps, others, including the ones to emerge from this most recent event, are still to be actioned.

What happens next? Following the second Policy Lab in 2018, a network was formed to share information on developments (such as the French "Payment model / CariesCare International 4D" National experiment) and this has demonstrated how progress can be accelerated by having stakeholders continue to work together. The intention now is to develop this into a fully-fledged "King's College London/ACFF Dental Policy Lab Network" for the implementation and delivery of the outputs from the three Labs. The Global Collaboratory for Caries Management can also help this Network, maintaining the spirit and ethos of the policy labs by providing a 'safe space' where all the different stakeholders (and sometime competitors!) can interact with mutual credibility to co-create and plan whatever is needed to complete the journey to a cavity-free future.

Glossary Of Key Terms

This glossary defines how the terms are used in the context of this report. It does not aim to provide an update to already existing definitions.

BLUEPRINT

An overview of a payment system design, which can then be adapted to more closely fit dental health system specifications.

CAVITY

A tooth with caries that has progressed far enough to produce a collapse in the integrity of the outer enamel, exposing the inner dentine. This stage of caries typically leads to a restoration or filling.

CARIES PREVALENCE

A population measure of the disease experience. Traditionally, survey methods have only recorded some later stages of caries (using the DMFT index) at the cavity threshold (D3MFT). More recently, comprehensive assessments of both early and late – stage disease provide an estimate of the total caries present.

CARIES PREVENTION AND CONTROL

The continuing assessment and management of early stage dental caries in order to prevent the development of cavities and limit the need for restorative treatment.

DENTAL CARIES

The disease and disease process known as tooth decay. Dental caries (tooth decay) is a dynamic, multifactorial disease in which the hard tissues of the teeth demineralise at a faster rate than they can replenish the minerals lost (remineralisation).

DMFT

An index for measuring Decayed, Missing and Filled Teeth.

GLOCAL

Glocal – a concept promoted by the ACFF in which global evidence is applied locally.

HEALTH OUTCOMES

Benefits to a patient (or group of patients) as the result of a series of interventions.

NON-COMMUNICABLE DISEASES (NCDS)

Medical conditions or diseases that are not caused by classical infectious agents. NCDs can refer to chronic diseases which last for long periods of time and progress slowly.

PAYMENT SYSTEM

The system that generates payments which directly determine or influence the personal income of the primary care dentist.

PREVENTION – PRIMARY

Prevention of the disease (in the absence of the disease).

PREVENTION – SECONDARY

Prompt detection of early – stage disease in order to provide effective arrest and/or regression of caries prior to the cavity stage.

PREVENTION – TERTIARY

Prevention applied to later stages of caries (cavity stage). It aims to prevent further hard tissue destruction, pulpal involvement and tooth loss, and restore function and aesthetics while preventing the initiation of new disease.

PREVENTIVELY ORIENTED PATHWAY

A clinical pathway which includes determining caries risk, detecting and assessing caries lesions, deciding on appropriate care from a menu of preventive and operative choices, and doing patient centred, tooth preserving care. [ICCMS™/ CariesCare International 4D is an example of such a preventively oriented pathway.]

RESTORATIVE – ONLY PATHWAY

A clinical pathway from diagnosis to treatment planning which relies solely on surgical intervention as the treatment

A very recent initiative has defined consensus on terminology in the areas of dental caries and dental caries management. This is a useful resource for 59 terms in cariology.[14]

14. Machiulskiene, V, et al. (2019), 'Terminology of Dental Caries and Dental Caries Management: Consensus Report of a Workshop Organized by ORCA and Cariology Research Group of IADR', Caries research. (doi: 10.1159/000503309)

Policy Lab Participants

Dr Marsha Butler - US - *Colgate-Palmolive Company*
Dr Nigel Carter OBE - UK - *Platform for Better Oral Health in Europe and Oral Health Foundation*
Ms Soha Dattani - UK - *GlaxoSmithKline*
Dr Gabriele David - Liechtenstein - *Ivoclar Vivadent*
Mr Bart Dopheide - Belgium - *GC Europe*
Mr Simon Gambold - UK - *Henry Schein*
Professor John Girkin - UK - *NirVisio*
Dr Guy Goffin - Belgium - *Caries Care International*
Mr Liam Hargraves - UK - *Oral B Professional Oral Health*
Professor Rebecca Harris - UK - *University of Liverpool*
Ms Rachel Hesketh - UK - *Policy Institute at King's*
Sara Hurley - UK - *Chief Dental Officer of England*
Professor Dr Anahita Jablonski-Momeni - Germany - *Phillips-University, Marburg*
Dr Andy Joiner - UK - *Unilever*
Mrs Bärbel Kiene - Switzerland - *Colgate-Palmolive Europe*
Ms Julie Lovell - UK - *Mars-Wrigley*
Dr Marco Mazevet - France - *King's College London, Alliance for a Cavity-Free Future*
Professor Tim Newton - UK - *King's College London, Alliance for a Cavity-Free Future*
Mrs Emma O'Keefe - UK - *Representing NHS Scotland*
Professor Nigel Pitts - UK - *King's College London, Alliance for a Cavity-Free Future*
Mr Ross Pow - UK - *Power of Numbers*
Mrs Catherine Rutland - UK - *Denplan (SimplyHealth Professionals)*
Mrs Kathryn Simmonds - UK - *King's College London, Alliance for a Cavity-Free Future*
Dr James Taylor - Canada - *Chief Dental Officer of Canada and FDI, Chief Dental Officer's Section*
Dr Bruce Vernon - UK - *Calcivis*
Dr Marko Vujicic - US - *Health Policy Institute - American Dental Association*
Professor John Weinman - UK - *King's College London*
Dr Sandra White - UK - *National Lead for Dental Public Health, Public Health England*

References

1. Marcenes, W., Kassebaum N.J., Bernabé, E. *et al*. (2013). Global burden of oral conditions in 1990-2010: a systematic analysis. *J Dent Res*, 92(7) 592-7.
2. Peres, M.A., Macpherson, L.M.D., Weyant, R.J. *et al*. (2019). Oral diseases: a global public health challenge. *The Lancet*, 394(10194) 249-260, (doi: 10.1016/S0140-6736(19)31146-8).
3. Kidd, E.A.M. and Fejerskov, O. (2004) What Constitutes Dental Caries? Histopathology of Carious Enamel and Dentin Related to the Action of Cariogenic Biofilms. *J Dent Res*, 83(1) 35-8.
4. Pitts, N.B., Zero, D.T., Marsh, P.D. *et al*. (2017). Dental caries. *Nature Reviews Disease Primers* 3(17030), (doi: 10.1038/nrdp.2017.30).
5. The participant list can be found above.
6. Health Policy Institute (2019), Annual Dental Industry Report 2019.
7. FDI World Dental Federation (2019). FDI Policy Statement – Carious Lesions and First Restorative Treatment, September 2019, San Francisco. Available at: https://www.fdiworlddental.org/resources/policy-statements/carious-lesions-and-first-restorative-treatment [Accessed 4 March 2020].
8. Pitts, N.B., Ismail, A.I., Martignon, S. *et al*. (2014). ICCMS™ Guide for Practitioners and Educators. *Zenodo*. Available at: https://zenodo.org/record/853106#.Xl-YUaj7SUl [Accessed 4 March 2020] (doi: 10.5281/zenodo.853106).
9. Watt, R.G., Daly, B., Allison, P. *et al*. (2019) Ending the neglect of global oral health: time for radical action. *The Lancet*, 394(10194), pp. 261-272, (doi:10.1016/S0140-6736(19)31133-X) (PMID:31327370).
10. Hancocks OBE, S. (2019) Global oral health; eggs and stones. *Br Dent J* 227(3), 173. (doi: 10.1038/s41415-019-0619-6).
11. Martignon, S., Pitts, N.B., Goffin, G. *et al*. (2019) CariesCare practice guide: consensus on evidence into practice. *Br Dent J* 227(5), 353–362. (doi: 10.1038/s41415-019-0678-8).
12. Hancocks OBE, S. (2019) When least is most. *Br Dent J* 227(5), 325, (doi: 10.1038/s41415-019-0740-6).
13. Pitts, N.B., Baez, R., Diaz-Guallory, C. *et al*. (2019) Early Childhood Caries: IAPD Bangkok Declaration. *Int J Paediatr Dent*. 2019;29: 384-386.
14. Machiulskiene, V., Campus, G., Carvalho, J.C. *et al*. (2019), 'Terminology of Dental Caries and Dental Caries Management: Consensus Report of a Workshop Organized by ORCA and Cariology Research Group of IADR', *Caries research*. (doi: 10.1159/000503309).

Executive Summary

ACFF Dental Policy Lab 3 – The overarching question for the event was: How can the Oral Health and Dental Industries Benefit from Enabling Positive Behaviour in Caries Prevention and Control Amongst Patients and the Public?

Introduction and Context

- Tooth decay (dental caries) remains an unacceptable global burden despite the knowledge existing of how to prevent it
- Two previous Policy Labs have led to big strides being made shifting to a greater emphasis on the prevention and control of caries
- The third Policy Lab focused on how the dental and oral health industries could benefit from enabling positive behaviour changes in patients and the public
- A world where caries prevention works for everyone, regardless of geography, demographic or socio-economic factors, requires all the stakeholders who play a part in the dental and oral health system to come together and collaborate

A number of external trends are likely to have profound effects on the dental and oral health industries over the next 10 years:

- Demographics,
- Environment and sustainability,
- Technology,
- Workforce,
- Economics and markets

The dental and oral health industries have different structures and dynamics

There is also a changing understanding of 'what Oral Health is' and the role of prevention in delivering that as well as in the policies recommended for caries prevention and management.

There is a desire to integrate upstream, midstream and downstream activity and a growing international consensus to implement the ICCMS™ 4D approach from CariesCare International

The ideas and proposals co-created at the 3rd Dental Policy Lab can be grouped into four themes:

1. Driving behaviour change
2. Operationalising and paying for the "4Ds"
3. Influencing regulation and public policy
4. Getting oral health onto CSR agendas

1) Driving behaviour change

- Understand what is needed for people to change behaviour – an evidence-based model describes the ingredients people need to have in terms of their Capability, Opportunity and Motivation (COM-B)
- Give consistent messages to patients and the public
- Use campaigns, public-private partnerships and product placement to support change underpinned by the COM-B model
- Engage patients using technology -using both the online presence of Industry and through specific Apps

2) Operationalising & paying for the 4Ds

- The Policy Lab reinforced the international consensus that the worldwide roll-out of the ICCMS™ 4D model should be supported by all stakeholders
- A critical success factor in getting the 4Ds approach into practices around the world will be to make reimbursement for prevention work. The necessary changes in workforce patterns and practice modalities will not work in isolation from payment reform and vice versa
- The overarching goal is to improve health outcomes. Industry has a great opportunity to provide the inputs needed to support this new model

3) Influencing regulation and public policy

- Integrating and aligning upstream, midstream and downstream
- Linking oral health to general health ("putting the mouth back in the body") and using innovations around self care and shared decision making.
- Making preventative care accessible and affordable
- Supporting regulation for innovation so that industry can bring viable new products to market at scale to better deliver caries prevention and control

4) Getting oral health onto CSR agendas

- The opportunity exists to influence companies to adopt a common goal of improving population oral health through their CSR work
- The aim should be to agree themes for CSR messaging that can be shaped and brought to life within existing programmes and campaigns and adapted by regional operations, building on local research and market understanding
- A powerful way forward would be to take a global approach, involving Chief Dental Officers, the FDI and ACFF, with benefits to this approach both for industry and for Governments

And now What next ?

- Following the second Policy Lab in 2018, an informal network was created to share information on developments (such as the French "Payment model / CariesCare International 4D" National experiment) and this has demonstrated how progress can be accelerated by having stakeholders continue to work together
- The intention now is to develop into a fully-fledged "King's College London/ACFF Dental Policy Lab Network" for the implementation and delivery of the outputs from the three Labs. The Global Collaboratory for Caries Management can also help this Network, maintaining the spirit and ethos of the policy labs by providing a 'safe space' where all the different stakeholders (and sometimes competitors!) can interact with mutual credibility to co-create and plan whatever is needed to complete the journey to a cavity-free future

This document represents the outcomes of a Policy Lab meeting facilitated by the Alliance for a Cavity-Free Future with the Faculty of Dental Oral and Craniofacial Sciences, Kings College London and the Policy Institute at King's. For more information please visit www.acffglobal.org

Towards Oral and Dental Health through Partnership

How can the Oral Health and Dental Industries Benefit from Enabling Positive Behaviour in Caries Prevention and Control Amongst Patients and the Public?

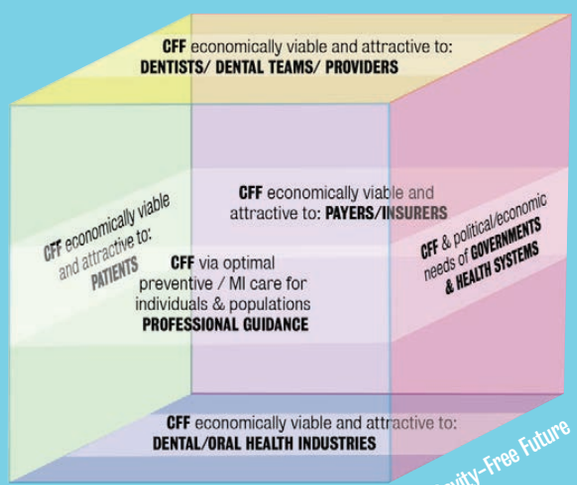
External trends likely to have profound effects on the dental and oral health industries over the next 10 years

- Demographics
- Environment & sustainability
- Technology
- Economics & markets
- Workforce

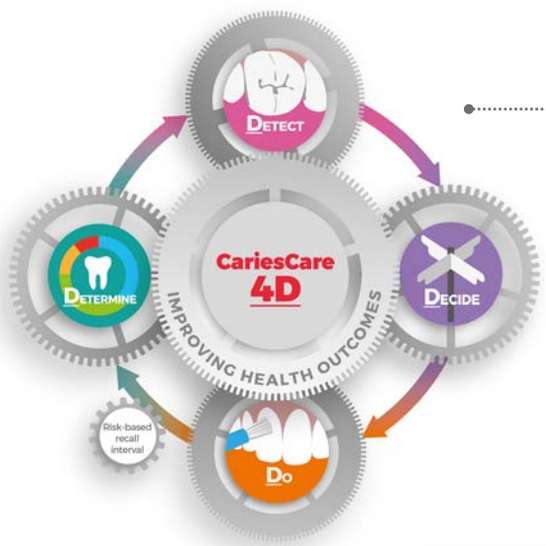
Tooth decay (dental caries) remains an unacceptable global burden, despite the knowledge existing on how to prevent it.

The third Policy Lab focused on how the dental and oral health industries could benefit from enabling positive behaviour changes in patients and the public to improve health.

There is a changing understanding of 'what Oral Health is' and the role of prevention in delivering that as well as in the policies recommended for caries prevention and management.



Successfully implementing changes will require buy-in from all parties.



There is a growing international consensus to implement the ICCMS™ 4D approach from CariesCare International.

The 3rd Dental Policy Lab identified 4 main areas for positive change...

- Driving behaviour change
- Operationalising & paying for the "4Ds"
- Influencing regulation and public policy
- Getting oral health onto CSR agendas

What's next ?

The intention now is to develop into a fully-fledged "King's College London/ACFF Dental Policy Lab Network" to deliver the outputs from the three Dental Labs. The Global Collaboratory for Caries Management can also help this Network, providing a 'safe space' where stakeholders can interact with mutual credibility to co-create and plan whatever is needed to complete the journey to a cavity-free future.

This document represents the outcomes of a Policy Lab meeting facilitated by the Alliance for a Cavity-Free Future with the Faculty of Dental Oral and Craniofacial Sciences, Kings College London and the Policy Institute at King's. For more information please visit www.acffglobal.org

Alliance for a Cavity-Free Future ACFF Stop Caries NOW for a Cavity-Free Future

KING'S College LONDON

The Policy Institute at King's

power of numbers