MiCD: Do no harm cosmetic dentistry – Part I

Dr. Sushil Koirala
Nepal

The demand for cosmetic dentistry is a growing trend globally. Increased media coverage, the availability of free online information and the improved economic status of the general public has led to a dramatic increase in patients’ aesthetic expectations, desires and demands. Today, a glowing, healthy and vibrant smile is no longer the exclusive domain of the rich and famous; hence, many general practitioners are now being forced to incorporate various aesthetic and cosmetic dental treatment modalities into their daily practices to meet the growing demand of patients.

Cosmetic dentistry is a science-based art guided by the desire of the patient. Many young clinicians who plan to incorporate it into their practice are confused about what they and their patients actually wish to achieve. It is to be noted that the treatment modalities of any health care service should be aimed at the establishment of health and the conservation of the human body with its natural function and aesthetics. However, it is worrying to note that the treatment philosophy and technique adopted by many cosmetic dentists around the world tend towards macro-invasive protocols, and millions of healthy teeth are aggressively prepared each year for the sake of creating beautiful smiles.

The practice philosophy adopted by the clinic and the professional team members generally guides the overall output of the practice. Minimally invasive cosmetic dentistry (MiCD), a do no harm practice philosophy, has four fundamental components: level of care, quality of operator (dentist), protocol adopted and technology selected, which must all be re-approved in daily clinical practice. Adopting this holistic medical science practice philosophy is not an easy task, as it requires a change in the mindset of professionals.

In Parts I and II, I explain MiCD, do no harm cosmetic dentistry, based on my Vedic Smile concept, which I have been practising successfully in Nepal for the last 20 years, and advating globally since 2009 as the MiCD global mission. It is to be noted that both parts are based on fundamental science (truth and available evidence), clinical experience and the common sense required in holistic dentistry.

Cosmetic dentistry, a global trend

The prevalence and severity of dental decay have been declining over the last decades in many developed countries and this trend is shifting towards developing countries as well. With increased media coverage, the availability of free online information, public awareness has fuelled the demand for cosmetic dentistry globally. Now, a glowing, healthy and vibrant smile is no longer the exclusive domain of the rich and famous.1 The population of beauty- and oral health-conscious people is increasing every year and data from various sources shows that the coming generations of children, especially from the middle- to higher-income population, will have fewer decayed teeth and will need less complex restorative dental care as they age. These changing patterns of dental care needs will bring about a major shift in the nature of dental services from traditional restorative care to cosmetic and preventive services.

The increased market demand for smile aesthetics among patients is forcing general practitioners of today to incorporate the art and science of cosmetic dentistry into their practice. Cosmetic dentistry is not yet recognised as a separate clinical specialty like orthodontics, periodontics or paediatric dentistry. Cosmetic dentistry is synonymous with multidisciplinary dentistry, as its success and failure are related to the patient’s psychology, health, function and aesthetics. Ethical, high-standard cosmetic dentistry skill training of clinicians is essential for the increased global market of cosmetic dentistry and its promotion. It is widely seen that the treatment modalities of contemporary cosmetic dentistry are tending towards more-invasive procedures with an over-utilisation of full crowns, bridges, dentine veneers, and invasive periodontal aesthetic surgery, while neglecting long-term oral health, actual aesthetic needs and the characteristics of the patient.2 These aggressive treatment modalities are indirectly degrading social trust in dentistry, owing to the trend of fulfilling the cosmetic demands of patients without ethical consideration and sufficient scientific background and promoting the “the more you replace, the more you earn” or “more is more” mindset in dentistry.

Changing the professional mindset of the practising clinician is not an easy task; it is just like quitting smoking for a heavy smoker. In order to practise healthy dentistry, one must be groomed, starting from dental school education, with moral values, a high ethical standard, a positive attitude and a patient-centred practice philosophy. A student reflects the mindset of his or her teachers, and a teacher or mentor with comprehensive knowledge, clinical skills, honesty and human- ity is difficult to find in today’s business-oriented dental education. I believe that knowledge
The words “aesthetics” and “cosmetic” are viewed as synonyms by many cosmetic dentists. However, it is necessary to understand the core difference in meaning. The Oxford dictionary defines “aesthetic” as “the branch of philosophy which deals with questions of beauty and artistic taste” and “cosmetic” as “improving only the appearance of something.”

In dentistry, “aesthetics” explains the fundamental taste of a person concerning beauty, whereas “cosmetic” deals with the superficial or external enhancement of beauty. Therefore, aesthetic dentistry falls under need-based dental service, and is generally guided by the sex, race and age (SRA) factors of the patient. However, cosmetic dentistry, which is influenced by perception, personality and desires (PDD factors), can be categorised as want- or demand-based dental service. For example, a patient’s request to replace old amalgam restorations with tooth-colored restorative materials can be considered an aesthetic requirement or demand. The request of an old woman for pearly white teeth and the ideal smile design is far more than an aesthetic requirement, and must be considered a demand or requirement.

In my clinical practice, I divide aesthetic and cosmetic clinical cases into three different categories:

1. Preventive, or support based: treatment prevents or intercepts the diseases, defects, habits and other factors that may adversely affect the existing or the future smile aesthetics of the patient.
2. Nature-mimetic, or need based: treatment is carried out to restore or mimic the natural aesthetics, bearing the SRA factors of the patient in mind, and the treatment generally enhances the health and function of the oral tissue.
3. Cosmetic, or desire based: treatment is performed to enhance or supplement the aesthetic components of the smile; hence, the treatment outcome of cosmetic treatment may not be in harmony with the patient’s SRA factors as in nature-mimetic dentistry, and cosmetic treatment may not necessarily be beneficial to the health and function of the oral tissue.

Practice philosophy in dentistry: The mindset

The majority of dental schools around the world focus on teaching knowledge and skills in dental medicine that are based on contemporary dental science and art. Dental school education does not give due consideration to healthy dental practice philosophy owning to various factors, such as the right choice one’s practice philosophy and the domination of business rather than service-oriented dental practice in the global market. However, quality and healthy clinical practice is always a dream of a good clinician, and establishing such practice requires an unbiased vision, learning and serving attitudes, and dedication from the dentist. We must understand that science and art in dentistry have no meaning if practiced by an unethical operator, who does not respect the overall health of the patient. Any scientific advancement in technology has positive and negative sides; hence, if not applied properly, it may adversely affect the profession and may become a threat.

I believe that a clinic or treatment centre must establish its practice philosophy according to its objectives. What a clinician wants and the kind of services he or she wants to deliver to his or her patients guides the clinic. Practically, the practice philosophy in dentistry can be classified into two different categories, depending on the mindset of the operator.

Patient-centred

Clinicians with this kind of mindset generally have a do no harm dental practice (Fig. 1). Professional honesty and humanity are the fundamental principles of such a practice. Operators with this mindset enjoy sharing their clinical knowledge and skills with their professional friends and junior colleagues to promote patient-centred clinical practice in society. This group of clinicians firmly believes in the work-of-mouth approach to practice marketing and always thinks of their patient’s long-term health, function and aesthetics. Clinicians practising do no harm dentistry are generally cheerful, happy and healthy in their professional life.

Financially focused

Clinicians with this kind of mindset practise a financially focused dentistry and adopt various kinds of direct marketing approaches to sell their dentistry like a commodity in the market rather than a health care service. Practitioners in this group generally achieve a secure financial position quickly, however, it is frequently seen that they develop chronic stress, burn-out syndrome, depression, frustration and professional guilt, leading to compromised health and happiness in their professional life.

Table I: Treatment options, treatment procedures and biological cost in cosmetic dentistry.

<table>
<thead>
<tr>
<th>Treatment options</th>
<th>Treatment procedures</th>
<th>Biological cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-invasive treatment: when hard and soft tissue is not prepared during smile enhancement procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Smile exercise</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Re-creation of white smile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oral appliances and brace support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business requiring tissue preparation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gingival mask</td>
<td></td>
</tr>
<tr>
<td>Micro-macro treatment: when hard and soft tissue is prepared at a micro-level during smile enhancement procedures</td>
<td></td>
<td>Very low</td>
</tr>
<tr>
<td></td>
<td>Cosmetic chemical treatment, such as bleaching and intra-oral aluminisation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cosmetic restorations with chemically bonded preparations, such as direct bonding, ultra-thin veneers, adhesive pontics and veneers</td>
<td></td>
</tr>
<tr>
<td>Minimally invasive treatment: when hard and soft tissue is prepared at a super-facial or minimal level during smile enhancement procedures</td>
<td></td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Cosmetic continuing (build-up and progression)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cosmetic restorations with minimal bulk preparation, such as direct veneers, modified inlays and onlays, partial restorations, partial dentures, and fixed bridges Non-invasive conventional and McCandless orthodontic treatment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mandibular implants (small diameter)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gingival deproportioning</td>
<td></td>
</tr>
</tbody>
</table>

Table II: MiCD treatment protocol that I apply in my practice. Since late 2009, I have been promoting my practice philosophy and clinical protocol in South Asia, and started the MiCD Global Academy in 2012 with the help of like-minded friends, who also practise a similar kind of holistic dentistry around the world. The MiCD Global Academy has a mission to share clinical knowledge and fundamental clinical skills free of charge with all clinicians who desire to practise do no harm cosmetic dentistry for better patient care and to enhance their happiness in their professional life.

Three-way test: Questions for your conscience

Cosmetic dentists can make errors in practice in two ways, first owing to a lack of the required professional knowledge and skills, and second owing to a lack of professional
In 2002, the FDI World Dental Federation endorsed the approach of minimal intervention dentistry, which has a vital role to play in the conservative management of carious lesions, applying the concept of “minimally invasive surgery” or “decay removal”. History clearly shows that, since Dr. G.V. Black era to the present day, we have been applying the concept of “extension in dentistry” in the name of prevention, retention, function, aesthetic need and complexity, reducing the amount of caries removal. It is a clinical fact that this concept will remain the focus because, if an extension is performed, it will be different, as its treatment modalities are guided by multifactorial issues such as the defect, procedures, namely non-invasive, micro-invasive, minimally invasive and invasive, and the treatment options, varis, the treatment protocols and their biological cost for each are presented in Table 1. There is only one principle which is: Treatment modalities in MiCD: always select the least invasive procedure, protocol and technology in treatment, so that extension in dentistry is always minimal, safe and healthy.

The invasiveness of procedures selected in cosmetic dentistry depends on the level of smile defect, type of smile design, proposed treatment types and treatment complexity. MiCD uses the most conservative treatment approach because the level of invasiveness in cosmetic dentistry can be classified as follows: namely non-invasive, micro-invasive, minimally invasive and invasive, and the treatment options, varis, the treatment protocols and their biological cost for each are presented in Table 1. There is only one principle which is: Treatment modalities in MiCD: always select the least invasive procedure, protocol and technology in treatment, so that extension in dentistry is always minimal, safe and healthy.

The MiCD clinical technique focuses on the aesthetic pyramid of the Smile Design Wheel (Fig. 5). Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.

Each aesthetic group deals with different smile aesthetic components. Aesthetic components in dentistry are divided into three broad groups:

1. macro-aesthetics,
2. mini-aesthetics; and
3. micro-aesthetics.
Smile analysis and photoshop smile design technique

Prof. Edward A. McLaren & Lee Culp
USA

Introduction: Smile analysis and aesthetic design

Dental facial aesthetics can be defined in three ways.

Traditionally, dental and facial aesthetics have been defined in terms of macro- and micro-elements. Macro-aesthetics encompasses the interrelationships between the face, lips, gingiva, and teeth and the perception that these relationships are pleasing. Micro-aesthetics involves the aesthetics of an individual tooth and the perception that the colour and form are pleasing.

Historically, accepted smile design concepts and smile parameters have helped to design aesthetic treatments. These specific measurements of form, colour, and tooth/aesthetic elements aid in transferring smile design information between the dentist, ceramist, and patient. Aesthetics in dentistry can encompass a broad area—known as the aesthetic zone.

Rufenacht delineated smile analysis into facial aesthetics, dental facial aesthetics, and dental aesthetics, encompassing the macro- and micro-elements described in the first definition above. Further classification identifies five levels of aesthetics: facial, orofacial, oral, dentogingival, and dental (Tab. 1).

At the macro level, facial elements are evaluated for form and balance, with an emphasis on how they may be affected by dental treatment. During the macro-analysis, the balance of the facial thirds is examined (Fig. 1). If something appears unbalanced in any one of those zones, the face and/or smile will appear unaesthetic.

Such evaluations help determine the extent and type of treatment necessary to affect the aesthetic changes desired. Depending on the complexity and uniqueness of a given case, orthodontics could be considered when restorative treatment alone would not produce the desired results (Fig. 2), such as when facial height is an issue and the lower third is affected. In other cases—not all—restorative treatment could alter the vertical dimension of occlusion to open the bite and enhance aesthetics when a patient presents with relatively even facial thirds (Fig. 3).

Evaluating oral aesthetics

The dentolabial gingival relationship, which is considered oral aesthetics, has traditionally been the starting point for treatment planning. This process begins by determining the ideal maxillary incisal edge placement (Fig. 4). This is accom-
6 Months Clinical Masters™ Program in Aesthetic and Restorative Dentistry

8 days of intensive live training with the Masters in Dubai (UAE)

2 sessions, hands-on in each session, plus online learning and mentoring.

Learn from the Masters of Aesthetic and Restorative Dentistry:

Dr. Panos Batsos  
Dr. Savvas Pelikanas  
Prof. Francesco Mangani  
Prof. Angelo Pulignano

Registration information:

8 days of live training with the Masters in Dubai (UAE) + self study

Curriculum fee: €6,900

(Based on your schedule, you can register for this program one session at a time.)

Collaborate on your cases and access hours of premium video training and live webinars

University of the Pacific

you will receive a certificate from the University of the Pacific

100 C.E. CREDITS

Details on www.TribuneCME.com

contact us at tel.: +49-341-484-74134  
email: request@tribunecme.com

Tribune Group GmbH is the ADA CERP provider. ADA CERP is a service of the American Dental Association to assist dental professionals in identifying quality providers of continuing dental education. ADA CERP does not approve or endorse individual courses or instructors, nor does it imply acceptance of credit hours by boards of dentistry.

For the Continuing Education Recognition Program (CERP) of Tribune Group GmbH, Inc. is designated as an Approved PACE Program Provider by the Academy of General Dentistry. The formal continuing dental education programs of this program provider are accepted by AGD for Fellowship, Mastership, and membership maintenance credit. Approval does not imply acceptance by a state or provincial board of dentistry or AGD endorsement.
Dentogingival aesthetics

Gingival margin placement and the scalloped shape, in particular, are well discussed in the literature. As gingival heights are measured, heights relative to the central incisor, lateral incisor, and canine in an up/down/up relationship are considered aesthetic (Fig. 6). However, this may create a false perception that the lateral gingival line is incisal to the central incisor. Rather, in most aesthetic tooth relationships, the gingival line of the four incisors is approximately the same line (Fig. 6), with the lateral incisor perhaps being slightly incisal. The gingival line should be relatively parallel to the horizon for the central incisors and the lateral incisors and symmetric on each side of the midline.2 The gingival contours (i.e., gingival scallop) should follow a radiating arch similar to the incisal line. The gingival scallop shapes the teeth and should be between 4 mm and 5 mm (Fig. 7).1

Related to normal gingival form is midline placement. Although usually the first issue addressed in smile design, it is not as significant as tooth form, gingival form, tooth shape, or smile line.3

Several rules can be applied when considering modifying the midline to create an aesthetic smile design:

• The midline only should be moved to establish an aesthetic intra- and inter-tooth relationship, with the two central incisors being most important.

• The midline only should be moved restoratively up to the root of the adjacent tooth. If the midline is within 4 mm of the centre of the face, it will be aesthetically pleasing.

• The midline should be vertical when the head is in the postural rest position.

Evaluating dental aesthetics

Part of evaluating dental aesthetics for smile design is choosing tooth shapes for patients based on their facial characteristics (e.g., long and dolichothroic, or squarish and brachycephalic). When patients present with a longer face, a more rectangular tooth within the aesthetic range is appropriate. For someone with a square face, a tooth with an 80% width-to-length ratio would be more appropriate. The width-to-length ratio most often discussed in the literature is between 75% and 80%, but aesthetic smiles could demonstrate ratios between 70% and 75% or between 80% and 85% (Fig. 8-10).4

The length of teeth also affects aesthetics. Maxillary central incisors average between 10 mm and 11 mm in length. According to Magne, the average length of an unworn maxillary central to the cementoenamel junction is slightly over 11 mm.5 The aesthetic zone for central incisor length, according to the authors, is between 10.5 mm and 12 mm, with 11 mm being a good starting point. Lateral incisors are between 1 mm and a maximum of 2 mm shorter than the central incisors, with the canines slightly shorter than the central incisors by between 0.5 mm and 1 mm (Fig. 11).

The inter-tooth relationship, or arch form, involves the golden proportion and position of tooth width. Although it is a good beginning, it does not reflect natural tooth proportions. Natural portions demonstrate a lateral incisor between 60% and 70% of the width of the central incisor, and this is larger than the golden proportion.6 However, a rule guiding proportions is that the canine and all teeth distal should be perceived to occupy less visual space (Fig. 12). Another rule to help maintain proportions throughout the arch is 1.2-5-4-5. Another rule to help maintain proportions is that the canine and all teeth distal should be perceived to occupy less visual space (Fig. 12). Another rule to help maintain proportions throughout the arch is 1.2-5-4-5. Another rule to help maintain proportions is that the canine and all teeth distal should be perceived to occupy less visual space (Fig. 12). Another rule to help maintain proportions throughout the arch is 1.2-5-4-5. Another rule to help maintain proportions throughout the arch is 1.2-5-4-5.
To determine digital tooth size and proportion of the teeth.

- Use the forward warp tool by clicking on an area of the existing tooth and dragging to mold/move the tooth into the shape of the new proposed outline form (Fig. 14).

Repeat this for each tooth. If you make a mistake or do not like something, click command (or control) and “z” to go back to the previous edit (Fig. 15).

Adjusting tooth brightness

The following steps are recommended next:

- Select the whitening tool (dodge tool) to brighten the teeth. In the dodge tool palette, click on “midtones” and set the exposure to approximately 20 %, click on the areas of the tooth you want brightened (Figs. 16 & 17).

- Alternatively, with the teeth selected, you can use the brightness adjustment in the brightness/contrast menu; click “image > adjustments > brightness/ contrast”.

Performing the changes on the entire tooth, select, you can use the brightness adjustment in the brightness/contrast menu; click “image > adjustments > brightness/ contrast”.

Images of the grid can be individually adjusted to brighten or darken the specific tooth or teeth. The mask creates a digital limit that the teeth cannot be altered beyond. This is similar to creating a mask with tape for tooth form.

- Using the brush tool, you can apply a custom tooth grid (e.g., 75 % W/L central).

- To create a pencil outline of the tooth, select the pencil tool from the top to the bottom of the tooth to generate a vertical number in this case 170 pixels (Fig. 24). Multiply the number of pixels by the conversion factor. In this case, 170 x 1.29 ≈ 210 pixels, which is the pixel equivalent to 11 mm (Fig. 25).

- Determine the digital tooth width using the same formula.

- Create a new layer, leave it transparent, and mark the measurement with the pencil tool (Fig. 26).

Applying a new proposed tooth form

Next, follow these steps:

- After performing the smile analysis and digital measurements, choose a custom tooth grid appropriate for the patient. Select a tooth grid based on the width/height ratio of the planned incisal edge of the tooth grid in Photoshop and drag the grid on to the image of the tooth to be smile designed (Fig. 27).

- If the shape or length is deemed inappropriate, press the command button (control button for PCs) and “z” to delete and select a suitable choice.

- Depending on the original image size, the tooth grid may be proportionally too big or too small. To enlarge or shrink the tooth grid created (with the layer activated), press command (or control) and “t” to bring up the free transform function. While holding the shift key (holding the shift key allows you to transform the object proportionally), click and drag a corner left or right to expand or contract the custom tooth grid.

- Adjust the size of the grid so that the outlines of the central incisors have the new proposed length. Move the grid as necessary using the move tool so that the incisal edge of the tooth grid lines up with the new proposed length (Fig. 28).

- Areas of the grid can be individually altered using the liquify tool (Fig. 29).

Digital creating new aesthetic teeth

Next, follow these suggested steps:

- With the new tooth grid layer and the magic wand tool both activated, click on each tooth to select all of the teeth in the grid (Fig. 30).

- Expand the selection by two pixels in the expand menu; click “select > modify > expand” (Fig. 31). Note that the selection better approximates the grid. You can expand the selection or contract as necessary using the same menu.

- Activate the layer of the teeth (cheek-retracted view) by clicking on it (Fig. 32).

- Next, activate the liquid filter (you will see a red mask around the shapes of the proposed teeth). The mask creates a digital limit that the teeth cannot be altered beyond. This is similar to creating a mask with tape for painting a shape (Fig. 33).

- Use the forward warp tool by clicking on an area of the existing tooth and dragging to mold/move the tooth into the shape of the new proposed outline form (Fig. 14).

This article was originally published in the Journal of Cosmetic Dentistry, spring issue, No 1/2013, Vol. 29, and the Clinical Masters Magazine No 1/2015.

Author Info

Lee Culp, CDT, is an adjunct faculty member at the University of North Carolina at Chapel Hill School of Dentistry. He can be contacted at lee.culp@cshdental.com.
The Power of One Software
Imaging and CAD/CAM in one system

Planmeca Romexis

Planmeca highlights

Planmeca Romexis® Smile Design
Design smiles in a matter of minutes
FREE TRIAL!

Planmeca Romexis® CAD/CAM module
Bring CAD/CAM to clinics and dental labs

Planmeca PlanMill® 40
High-precision milling, real-time monitoring

Planmeca Ultra Low Dose™
Pioneering low dose 3D imaging
An even lower dose than in panoramic 2D imaging

Planmeca ProSensor® HD
A new standard for intraoral imaging

See you at Sino-Dental, Hall B, Booth D51/D60, June 9-12 2015, Beijing