



College of Dental Technicians

POSITION PAPER ON REGISTRATION

To be presented to the College membership as a discussion paper in support of National Registration to be submitted to CORA and the ADC discussions as a starting point for the final submission to COAG.

Prepared with the assistance of:

The NSW Dental Technicians Registration Board
The New Zealand Institute of Dental Technologists
The College of Dental Technicians / ACDLA

**CRITERIA FOR ASSESSING THE NEED FOR STATUTORY REGULATION OF
UNREGISTERED HEALTH OCCUPATIONS**

DENTAL TECHNICIANS

CRITERION 1:

Is it appropriate for Health Ministers to exercise responsibility for regulating the occupation in question, (ie dental technician) or does the occupation more appropriately fall within the domain of another Ministry?

Yes, for the following reasons:

- Dental technicians are involved in all aspects of the construction of artificial removable and fixed dentures, mouthguards, restorative or corrective dental appliances and other prosthetic appliances such as crowns, bridges, indirect endodontic posts and cores, implant supported and stabilised over-dentures, implant-fitted crowns and bridges and adhesively and implant retained maxillofacial prostheses to restore function to the human mouth. Simply, all custom made medical devices made for the oral setting.
- Dental technicians may only perform technical work on the order of a dental specialist, dentist or dental prosthetist and not deal directly with a patient for the provision of any of these devices.
- Training for the profession is a nationally approved Diploma of Dental Technology HLT50507 contained within the Community Services and Health Industry Skills Council's Health Training Package HLT07.
- Dental Prosthetists are registered dental technicians who have successfully completed a two-year part time clinical training programme at a public hospital with a dental facility treating public patients.
- Dental technicians are a part of a team of oral health professionals', collectively contributing to the oral health of the public. This "team" approach is best achieved/reinforced through having all members of the team within the health regulatory environment.

CRITERION 2:

Do the activities of the occupation pose a significant risk of harm to the health and safety of the public?

Yes, for the following reasons:

- Dental technicians construct appliances that are inserted into human mouths. Any failure on the part of dental technicians to observe proper infection control procedures could lead to adverse health outcomes such as hepatitis C for the public and for the dental technician.
- The Therapeutic Goods Act 1989 (the Act)¹ provides the legislative basis for uniform national controls over therapeutic goods, including dental products. Unless

CRITERION 2: cont'd

Do the activities of the occupation pose a significant risk of harm to the health and safety of the public?

specifically excluded or exempt, therapeutic goods may not be supplied in Australia unless the product is included in the Australian Register of Therapeutic Goods (ARTG). It is an offence under the Act to use and/or import a product that is not on the ARTG. Registration of dental technicians facilitates the use of an audit trail and system of accountability that would not otherwise be possible if unregistered persons manufactured (or imported) dental prostheses made from materials that were not included in the ARTG.

- A wide range of dental materials used to manufacture dental prostheses are classified by the Therapeutic Goods Administration into five categories: [*materials used to manufacture prostheses are underlined*],
 1. Class I (low risk), - dental impression materials, artificial teeth, hand-held dental mirror, dental patient chair, dental curing light;
 2. Class IIa (low-medium risk), - dental filling materials and pins, dental alloys, ceramics and polymers, powered dental drill, X-ray film, orthodontic wire, fissure sealants, dental aspirator tips;
 3. Class IIb (medium-high risk), - diagnostic X-ray sources, non-absorbable sutures, permanent implants;
 4. Class III (high risk), and
 5. Active Implantable Medical Device (high risk);
- The following scenarios illustrate the sort of serious or permanent harm to the public that could be caused by dental technicians:
 1. Manufacture of maxillofacial prostheses – the inappropriate selection of non-medical grade silicones and pigments, and incorrect processing of the materials can lead to:
 - a. Microscopic porosity of the fitting surface of the prosthesis caused by incorrect material selection and processing, which when exposed to the oral-nasal cavity, will result in retention of detrimental biofilms that cannot be removed by normal cleaning by the patient. This can lead to bacterial infections, stomatitis, risk of aspergillus, pseudomonas pathogenic nasal organisms and colonisation by gram negative organisms within the porosity. In the case of immune-compromised patients, this can be fatal.
 - b. Incorrect selection of non-medical grade intrinsic and extrinsic pigments based on elements such as cadmium or lead, when exposed to the intra-oral / maxillofacial environment, can leach out leading to

**CRITERION 2:
cont'd**

Do the activities of the occupation pose a significant risk of harm to the health and safety of the public?

- a range of pathologies from allergic reactions to poisoning of the patient.
2. Porosity and greater than 40 micron marginal seals in crown marginal areas can cause serious and permanent damage to the periodontium, potentially leading to bone resorption around the roots of the teeth or implants.^{2,3} This can ultimately lead to the loss of the implant or tooth. Unless the dentist has a microscope present in the dental surgery, they would be unable to detect masked porosity or open marginal seals between 40 to 100 microns with the naked eye. **The dentist is totally dependent on the quality of the prosthesis supplied by the dental technician. Example of failure :**
Attachment 1
 3. The oral environment is moist and ranges in pH from 2.5 to 7.0. Any metals or alloys placed in this environment are subject to a potential galvanic process and potential tarnish and corrosion. If inappropriate alloys are used in prostheses, they will corrode and release ions into the oral environment that can have serious harm for the patient.^{4,5} The dentist is dependent on the integrity of the dental technician to use an appropriate alloy. Tissues in contact with tarnish and corrosion become inflamed and can result in serious or permanent damage to the periodontal structures.⁶
 4. Mechanical properties of alloys are critical in the design and long-term success of fixed bridges, both implant supported and on natural abutments. Dentists are dependent on the integrity of the dental technician to use an appropriate alloy and to apply the correct design features to the case. When embedded in porcelain or acrylic, dentists cannot evaluate the substructure. Failure in this regard can lead to flexing of the bridge, resulting in stress transfer to the implants or abutments leading to loss of osseointegration of implants and loss of bone support for the natural abutments. This may lead to permanent loss of the implants or abutments and the bridge, thereby requiring costly treatment to restore the patient's function and/or aesthetics at a lower level than was the case previously.
 5. Cast posts and cores are custom manufactured by dental technicians from appropriate dental alloys. These are then permanently "implanted" / cemented into the root canals of the teeth where there is potential access and direct entry to the underlying biological structures. Inappropriate alloys used in the manufacture of prostheses will corrode and release potentially toxic ions into the internal supporting biological environment and the rest of the body, which can lead to serious consequences for the patient.

**CRITERION 2:
cont'd**

Do the activities of the occupation pose a significant risk of harm to the health and safety of the public?

Dentists are wholly dependent on the integrity of the manufacturer of the post and core to use an appropriate alloy.

CRITERION 3:

Do existing regulatory or other mechanisms fail to address health and safety issues?

Yes, but only in the presently unregulated jurisdictions.

- In regulated jurisdictions such as New South Wales, the Infection Control Standards for Dental Technicians are outlined in legislation (Schedule 3 to the Dental Technicians Registration Regulation 2008). Registration of dental technicians provides the means by which practitioners can be held accountable for their actions by providing a mechanism, through enforceable codes etc for promoting and enforcing best practice in the relationship between dentists and dental technicians.
- Dentists and dental prosthetists are unable to provide a satisfactory gate-keeping role, (ie as protector of public health) as the root causes of disease and infection, carried through the use of inappropriate materials and alloys in dental appliances, are not visible to the naked eye.

CRITERION 4:

Is regulation possible to implement for the occupation in question?

Yes, for the following reasons:

- Dental technicians are regulated by legislation in four jurisdictions throughout Australia (NSW, ACT, QLD & SA) and in New Zealand. Representations have been made over several years for the governments of Victoria and Western Australia to reintroduce regulation of the profession in the public interest and to introduce a form of accountability from the use of TGA registered materials, appropriate manufacturing standards, right through to the insertion in the mouth
- The majority of Dental technicians are regulated in Australia and New Zealand. Registration has been introduced in Great Britain and a number of other jurisdictions throughout the world as a means to better monitor Oral Health outcomes from the point of manufacture to insertion in the mouth (see Attachment 2).

CRITERION 4:

Is regulation possible to implement for the occupation in question? Cont.

- Entry to the Advanced Diploma of Dental Prosthetics course is incumbent upon the applicant being a registered dental technician and able to demonstrate competency in a defined string of compulsory units delivered in the Diploma of Dental Technology (or equivalent).

CRITERION 5:

Is regulation practical to implement for the occupation in question?

- Yes, for the following reasons:
- As indicated above, dental technicians are regulated by legislation in four jurisdictions throughout Australia (NSW, ACT, QLD & SA) and in New Zealand. As a result, there are already standards of training, competence and best practice agreed across New Zealand and much of Australia – making the implementation of a broader regulatory scheme easier to implement. As previously stated all Prosthetists are Technicians with post graduate training to cover their clinical scope of practice.
 - As dental technicians were regulated in the other Australian jurisdictions, and as the vocational educational qualifications for both dental technicians and dental prosthetists are nationally endorsed and contained within the Community Services and Health Industry Skills Council's Health Training Package HLT07, regulation of the profession nationally is not only practical but highly desirable in the public interests and for the good governance of the overall dental profession.

CRITERION 6:

Do the benefits to the public of regulation clearly outweigh the potential negative impact of such regulation?

- Yes, for the following reasons:
- Most members of the public would not be aware that the overwhelming majority of dentures and other appliances supplied and fitted by dental professionals are in fact manufactured by dental technicians off site and that dental technicians are responsible for the choice of appropriate materials and alloys that are used in those appliances.
 - Most members of the public would not be aware that there have been significant changes to the training curriculum for dentists, such that very little time is now devoted to the study of materials science or the manufacture of prostheses. In short, the more recent dentistry graduates have become dependent upon the expertise of registered dental technicians to manufacture appliances skilfully and in accordance with TGA requirements. The role of dentists as gatekeepers of standards of quality of artificial and restorative dental appliances has diminished significantly over time.

**CRITERION 6:
cont'd**

Do the benefits to the public of regulation clearly outweigh the potential negative impact of such regulation?

- However, were oral health care consumers aware of those facts, the benefits to them of regulation would include the following:
 - Assurance that the dental appliances that their dentists, orthodontists, specialists etc place in their mouth have been constructed in laboratories that are staffed by qualified, registered technicians and that the materials and alloys used in those devices will not cause infections, disease or other adverse health outcomes;
 - Recourse to a registration authority with powers to investigate complaints and invoke disciplinary proceedings in appropriate circumstances;
 - Provision of a mechanism for government (through the registration authority) to promulgate infection control standards and TGA requirements to dental technicians and a means to ensure compliance therewith;
 - The holistic regulatory approach to the independent but symbiotic members of the dental profession, who collectively contribute to improving the oral health of the public, is supported through the regulation of each profession. Poor and unregulated dental technical work could prove expensive in terms of pathological potential.

Conclusion

It seems inconceivable that professionals who design and manufacture highly complex prostheses to restore the loss, function and aesthetics of a patient oral and maxillofacial structures does not have to be registered. The five examples showing how dental technicians work can cause serious and permanent harm to the public are examples in point. It is the College position that registration of technicians is an integral part of both achieving and monitoring oral health outcomes for patients through regulated standards of competence and national accreditation of education.

Attachment 1



Example of Bridgework removed from a patient issued in good faith by clinician who thought it had been manufactured with biocompatible materials.

Attachment 2

List of Countries and or States having registration for Dental Technicians as of September 2008

- Great Britain
- France
- Japan
- New Zealand
- South Africa
- Nigeria
- Namibia
- Zambia
- Bermuda
- United States of America
 - States with compulsory registration are:
 - Virginia
 - Florida
 - Kentucky
 - Illinois
 - Texas
 - Oregon
 - Massachusetts
- Canada
 - Provinces with compulsory registration are:
 - Nova Scotia
 - British Columbia
 - Saskatchewan
 - Prince Edward Island

List of References

1. The Therapeutic Goods Act (the Act), <http://www.tga.gov.au/> sited 1 September 2008
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3. Martignoni M. and Schonenberg, A., 1990, Precision Fixed Prosthodontics: Clinical and Laboratory Aspects, Quintessence Pub Co.
4. Anusavice, K.J., 2003, Phillip's Science of Dental Materials, 11th Ed., W.B. Saunders Co., Philadelphia.
5. Darvell, B.W., 2004, Material Science for Dentistry, 7th Ed., B.W. Darvell, Hong Kong.
6. White, G.E., 1993, Osseointegrated Dental Technology, Quintessence Pub Co.