

## Broadening Your Perspectives

Orthodontics and Beyond

### The Role of a Dental Therapist in Orthodontics

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University of Minnesota School of Dentistry



## The Role of a Dental Therapist in Orthodontics

1. Legislation enacted for MN in 2009
2. World travels and lessons learned
3. Formation curriculum Steering Committee
4. Dental Therapy Programs – 2 tracks
5. Inaugural class of dental therapy students
6. Opportunities for the Specialty of Orthodontics

## Legislation Enacted 2009

Discipline title: Dental therapist

### Professional supervision:

- works under a collaborative management agreement with a dentist
  - Dentist must be licensed Minnesota dentist
  - No more than 5 collaborative agreements
  - DDS responsible for all services authorized & performed
  - Law specifies procedures that can be performed under *general* supervision and which can be performed under *indirect* supervision.

### Education:

- Baccalaureate or master's degree from a dental therapy education program approved by the Board of Dentistry or accredited by CODA or another board-approved national accreditation organization.

### Practice settings:

- Settings that serve low-income and underserved; dental shortage area

## Legislation Enacted 2009

### Settings that serve low-income, uninsured, and underserved

- Critical access dental provider settings
- Dental hygiene collaborative practice settings (including medical facilities, assisted living facilities, FQHCs, selected community clinics)
- Military/veterans administration hospitals, clinics, etc.
- Private residences for home-bound patients
- Oral health educational institutions
- Clinics in which at least 50% of d.t. or a.d.p. patients consists of patients who:
  - Are enrolled in a MN health care program
  - Have a medical disability/chronic condition that creates significant access barrier
  - Have no health coverage and have annual gross family income  $\leq$  200% federal poverty level

## Scope of practice Under *general* supervision

- Oral health instruction & disease prevention education
- Preliminary charting of the oral cavity
- Radiographs
- Polishing
- Application of topical preventive/prophylactic agents, including fluoride varnishes & sealants
- Pulp vitality testing
- Application of desensitizing medication or resin
- Mouthguard fabrication
- Place temporary restoration
- Fabricate soft occlusal guards
- Tissue conditioning & soft reline
- Atraumatic restorative therapy
- Dress changes
- Tooth re-implantation
- Administer local anesthetic, nitrous oxide

## Scope of practice Under *Indirect* Supervision

- Emergency palliative treatment of dental pain
- Place and remove space maintainers
- Prepare cavities
- Restore primary and permanent teeth
- Place temporary crowns
- Prepare and place preformed crowns
- Pulpotomies on primary teeth
- Indirect & direct pulp capping on primary/permanent teeth
- Stabilize re-implanted teeth
- Extract primary teeth
- Remove sutures
- Brush biopsies
- Repair defective prosthetic devices
- Re-cement permanent crowns

## Outcomes assessment

*In statute:*

The Board of Dentistry shall evaluate the impact of dental therapists on the delivery of and access to dental services & report to legislature by 2/15/14 based on the following outcome measures:

- Number of d.t. annually licensed beginning 2011;
- Settings where d.t. are practicing & populations served
- Number of complaints & basis for each complaint
- Number of disciplinary actions taken

In consultation with DHS, BOD shall also develop a process that focuses on assessing impact of d.t. in terms of patient safety, cost-effectiveness & access, focusing on the following outcome measures:

- number of new patients served
- reduction in waiting times for needed services
- decreased travel time for patients
- impact on emergency room usage for dental care
- costs to the public health care system



## Advanced Dental Therapist

### ■ Qualifications:

- Complete a dental therapy education program
- Pass an examination
- Be licensed as a dental therapist
- 2,000 hours of dental therapy clinical practice
- Graduate from a masters' advanced dental therapy education program
- Pass a board-approved certification examination to demonstrate competency
- Apply for certification

■ **Supervision:** General

■ **Practice settings:** Same as dental therapist

## Scope of practice Advanced Dental Therapists under *general* supervision

- Oral evaluation and assessment of dental disease and the formulation of an individualized treatment plan authorized by the collaborating dentist
- All services and procedures of a dental therapist
- Non-surgical extractions of permanent teeth
  - Periodontally diseased
  - Tooth mobility of +3 or +4
- Provide, dispense & administer analgesics, anti-inflammatories & antibiotics



## Next steps: Dental Therapist

### ■ Board of Dentistry

- write rules and regulations regarding licensure for dental therapists.
- establish criteria for approving dental therapy education programs and/or identifying approved national accrediting organizations.
- approve competency-based clinical examination required for licensure.
  - administered independently of an institution providing dental therapy education
- establish renewal procedures for licensure.
- evaluate the impact of the use of dental therapists on the delivery of and access to dental services and report to legislature.
- in consultation with the MDH, evaluate process focusing on accessing the impact of dental therapists in terms of patient safety, cost effectiveness and access.

## Next steps: Advanced Dental Therapist

- Develop the curriculum, determine length of study, identify appropriate education sites.
- Determine content, format, and administration protocols for Board approved certification examination.
- Board of Dentistry write rules and regulations re: licensure, approval of educational programs & accrediting bodies
- CDE
  - For dental offices: integrating new providers into dental team
  - For dental therapists: ongoing skills & patient management sessions

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## Site visits to recognized dental therapist programs

- First Nations University
  - Prince Albert, Saskatchewan, Canada
  - 32 years in operation
- University of Otago, School of Dentistry
  - Dunedin, New Zealand
  - 70+ years in operation
- University of Sheffield, Faculty of Dentistry
  - Sheffield, England
  - 25+ years in operation

## State of Minnesota Delegation

- University of Minnesota (6)
- Minnesota State College and Universities (3)
  - Central Administration
  - Metropolitan State University
  - Mankato State University
- Minnesota Dental Association (2)
- Minnesota Board of Dentistry (1)

## Site visits to recognized dental therapist programs

- **First Nations University**
  - **Prince Albert, Saskatchewan, Canada**
  - **32 years in operation**



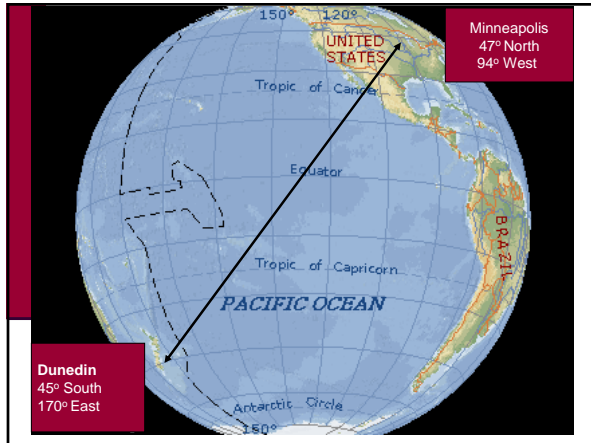
## Lesson learned from Canada visit



Without a dental school-based program the profession did not embrace dental therapists.

## Site visits to recognized dental therapist programs

- May 29-30, 2008
  - First Nations University
  - Prince Albert, Saskatchewan, Canada
  - 30+ years in operation
- August 1-3, 2008
  - University of Otago, School of Dentistry
  - Dunedin, New Zealand
  - 70+ years in operation



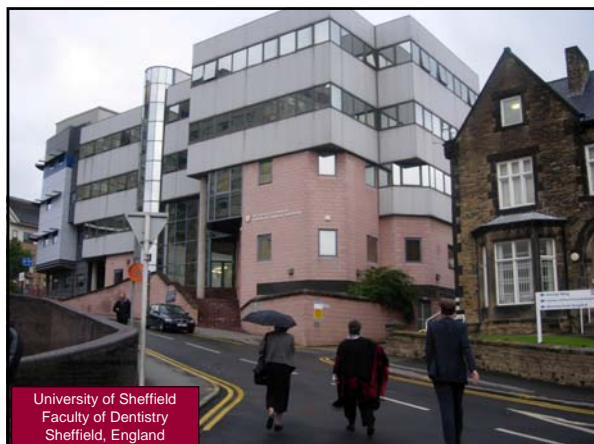
## Lesson learned from visit to New Zealand



Educating dental therapy students with dental students creates a professional partnership.

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## Lesson learned from visit to England



Having the dentist "on site" builds patient confidence and trust in dental therapists.

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## SOD Curriculum Steering Committee

**Chair, Judith Buchanan, Associate Dean for Academic Affairs**

Darryl Hamamoto, Assistant Dean for Academic Affairs  
 Gary Hildebrandt, Director, Division of Operative Dentistry  
 Chris Blue, Director, Division of Dental Hygiene  
 Peter Berthold, Director, Division of Community Oral Health  
 Ron Grothe, Director, Advanced Training Program Pediatric Dentistry

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## Guiding Principles for SOD Curriculum Steering Committee: Dental Therapist

- The "**standard of care**" taught to dental therapists will be identical to that taught to dental students;
- Within the defined "scope of practice", **competency requirements** for dental therapists will be **identical** to those which apply to dental students;
- Examination, diagnosis & treatment planning are the **purview of the dentist**;
- Health promotion & disease prevention will be **core elements** of the educational program;
- Irreversible surgical procedures will be performed under **indirect supervision**;

## Guiding Principles for SOD Curriculum Steering Committee: Dental Therapist

- Program will be **structured to complement**, rather than compete with, other dental professionals;
- Program will provide a foundation for **professional advancement and career growth**;
- Graduates will contribute to **reducing the cost of care** and to **improving access** for underserved populations;
- Education will occur in a professional environment which includes dental hygienists & dentists, to ensure graduates are prepared to **work in a team setting**;
- Graduates will find **viable career opportunities** in the dental marketplace; and
- Program could be **replicable by other dental schools**.

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**KARE 11 LOCAL NEWS**  
Dental care's reach to expand with new breed of health professional

**StarTribune.com MINNEAPOLIS - ST. PAUL, MINNESOTA**  
Mid-level 'dental therapists' could lower the cost of care  
Reps to give dental therapists -- a step between a hygienist and a dentist -- the OK. Next up, the Legislature.

**WCCO.com Health**  
UM Dental School Hopes To Train Dental Therapists  
MINNEAPOLIS (UPI) — For it and other professionals could see expanded access to dental care under a plan to begin training dental therapists at the University of Minnesota.  
The therapists — dentists' equivalent of a hygienist's assistant — would be trained to take on some of the responsibilities that have been reserved for dentists. Significant portions of the training would be done alongside students in the university's doctor of dental surgery program.

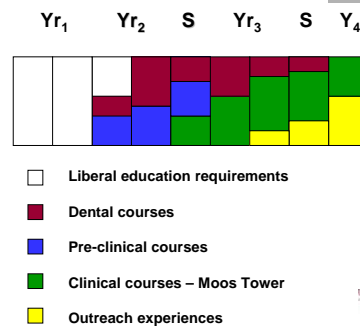
**DrBicuspid.com**  
University of Minnesota says yes to midlevel providers

**KARE 11 LOCAL NEWS**  
U of M dental school hopes to train dental therapists

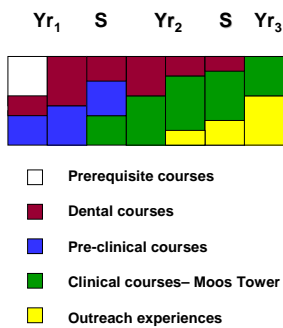
## Dental Therapist Tracks

- Bachelor of Science in Dental Therapy
  - for high school graduates
  - undergraduate degree
  - 40 months in length
- Master in Dental Therapy
  - for adult learners
  - professional degree
    - 2<sup>o</sup> emphasis public health, leadership and education
  - 28 months in length

## Bachelor in Dental Therapy: Curriculum Map



## Master in Dental Therapy: Curriculum Map



## Programs in Dental Therapy

- Prerequisites or part of program
    - Compositional Writing – 4 credits
    - General Biology – 4 credits
    - Principles of General Chemistry – 4 credits
    - Human Physiology – 4 credits
    - Biochemistry – 3 credits
    - Statistics – 4 credits
    - Psychology – 4 credits
    - Intensive Writing – 4 credits
    - Human Anatomy – 3 credits
    - Microbiology – 3 credits
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## Curriculum of Program

- **Fall 2009**
  - Head and Neck Anatomy
  - Introduction to Psychomotor Skills
  - Oral Anatomy Lecture and Lab\*
  - Dental Therapy Care Process; Clinical Application I
  - Prerequisite courses or elective courses in one of three tracks
    - Education
    - Public Health
    - Leadership

\* Course taken with dental students

## Curriculum of Program

- **Spring 2010**
  - Provider – Patient Relationship
  - Oral Histology and Embryology\*
  - Cariology and Applied Nutrition in Dental Therapy Care
  - Oral and Maxillofacial Radiology\*
  - Prerequisite or elective courses

\* Course taken with dental students

## Curriculum of Program

- **Summer-2010**
  - General and Oral Pathology
  - Local Anesthesia and Pain Management
  - Pharmacology
  - Oral and Maxillofacial Radiology II Lec & Lab\*
  - Applied Biomaterials\*
  - Periodontology I\*
  - Preclinical Pediatric Dentistry\*
  - Operative Lec & Lab\* I

\* Course taken with dental students

## Curriculum of Program

- **Fall-2010**
  - Dental Public Health and Academic Service Learning I
  - Ethics and Jurisprudence for the Dental Therapist\*
  - Operative Dentistry II & III\*
  - Preventive Pediatric Dentistry Clinic\*

\* Course taken with dental students

## Curriculum of Program

- **Spring-2011**
  - Management and Supervision of a Dental Practice\*
  - Research Methods
  - Dental Public Health and Academic Service Learning II
  - Comprehensive Care Clinic\*
  - Radiology/Operative/DAU/Pediatric Clinics\*

\* Course taken with dental students

## Curriculum of Program

- **Summer- 2011**
  - Comprehensive Care Clinic\*
  - Operative/DAU/Radiology/Pediatric Clinics\*
  - Outreach Experiences\*
  - Team Building Course\*
- **Fall-2011**
  - Comprehensive Care Clinic\*
  - Operative/DAU/Radiology/Pediatric Clinics\*
  - Outreach Experiences\*
- **Graduation December 2011**

\* Course taken with dental students

## Dental Therapist

- Psychomotor skill development achieved in a state-of-the-art facility under the direction of expert dental faculty.



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## Dental Therapist

- Clinical training in the patient clinics at the dental school, as well as at its urban and rural community outreach clinics.



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## Costs: Tuition and fees (per degree)

- **BSDT**
  - Tuition = ~\$43,000 (Resident), \$58,500 (NR)
  - Fees = ~\$20,000
  - Total = ~\$63,000 (Resident), \$78,500 (NR)
- **MDT**
  - Tuition = ~\$39,000 (Resident), \$65,000 (NR)
  - Fees = ~\$19,000
  - Total = ~\$58,000 (Resident), \$84,000

## Research

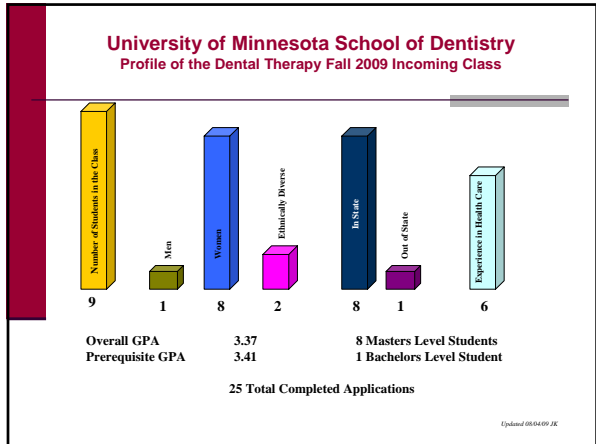
- **Teams organized with specific goals**
  - Experts from dentistry, public health, health policy
  - Attitudes of current students, staff and faculty
  - Attitudes of current patients
  - Placement of graduates
  - Salaries of graduates
  - Impact on access to care

<p><b>Post-Bulletin</b></p> <p>Dental therapist could be new career via Rep. Norton's bill Thu, Feb 12, 2009 9:08 Online</p> <p>By Heather J. Carlson Post-Bulletin, Rochester MN</p>	<p><b>TwinCities.com</b></p> <p>UM dental school hopes to train dental therapists</p> <p>By LIT REGIS Associate Press Writer</p>
<p><b>StarTribune.com</b> MINNEAPOLIS - ST. PAUL, MINNESOTA</p> <p>Mid-level 'dental therapists' could lower the cost of care February 12, 2009</p>	<p><b>mndaily.com</b></p> <p>Published on mndaily.com - Serving the University of Minnesota Since 1940 (http://www.mndaily.com)</p> <p><b>U, Metro State to teach new dental health practitioners</b></p> <p>Publish Date: 02/12/2009 Reporter: Editor: Carter</p>
<p><b>twincities.com</b> St. Paul Pioneer Press</p> <p><b>Minnesota</b></p> <p>Mid-level 'dental therapists' could lower the cost of care</p>	<p><b>twincities.com</b> St. Paul Pioneer Press</p> <p><b>Minnesota</b></p> <p><b>U might begin training dental therapists</b></p> <p>Plan addresses deficit in rural areas</p>

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- ### Information on Inaugural Class
- **Seventeen interviewed**
    - Interviewed by trained team of two
    - Wrote impromptu essay
    - Completed critical thinking evaluation
    - Evaluation on Advanced Simulation Criteria
    - Evaluated on potential for meeting mission of program

### Dental therapy students (2009)

Program	Background
Bachelor	dental hygienist
Master	dental assistant (4) dental technician new college grads (2) biotech junior scientist




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  6. **Opportunities for the Specialty of Orthodontics**

- ### Opportunities for the Specialty of Orthodontics
1. Expand scope of services offered
  2. Orthodontic Therapists –  
The UK Model

## Expand scope of services offered

- **Preventive**
  - oral hygiene instruction
  - fluoride applications
- **Restorative**
  - primary and secondary dentition
- **Extractions**
  - primary teeth
- **Benefits**
  - improve oral hygiene care and enhance caries resistance
  - maximize utility of patient visits
  - use underused clinical space
  - increase clinic revenue

## Orthodontic Therapists – The UK Model

- Driven by
  - access to care – especially rural areas
  - cost of educating
  - time to educate
  - lack of trained auxiliaries
  - cost of care



## GDC Orthodontic Therapy Course

- One year course developed to train individuals as Orthodontic Therapists
  - 4 week core course at Leeds Dental Institute
  - 8 additional study days throughout the year
  - workplace training in an approved practice
  - satisfactory workplace reports; successful completion of end-term assessments; and a project
- Eligibility: dental nurse, dental hygienist, dental therapist, or dental technician
- A Diploma in Orthodontic Therapy

1998

## Orthodontic Therapists

### General

Orthodontic therapists are registered dental professionals who carry certain parts of orthodontic treatment under prescription and close supervision of a dentist, who is an orthodontist on the Specialist Orthodontic register of the GDC.

## Orthodontic Therapists SOP

- Clean and prepare tooth surfaces for orthodontic treatment
- Identify, select, use and maintain appropriate instruments
- Insert passive removable orthodontic appliances
- Insert active removable orthodontic appliances adjusted by a dentist
- Remove fixed appliances, orthodontic adhesives and cement
- Take impressions
- Pour, cast, and trim study models
- Make a patient's orthodontic appliance safe in the absence of a dentist

## Orthodontic Therapists SOP

- Fit orthodontic headgear
- Fit orthodontic facebows which have been adjusted by a dentist
- Take occlusal records including orthognathic facebow readings
- Place brackets and bands
- Prepare, insert, adjust, and remove archwires
- Give advice on appliance care and oral health instruction
- Fit tooth separators
- Fit bonded retainer
- Make appropriate referrals to other healthcare professionals

Additional skills which orthodontic therapists could develop during their career include:

- Applying fluoride varnish to the prescription of a dentist
- Repairing the acrylic component part of orthodontic appliances
- Measuring and recording plaque indices and gingival indices
- Removing sutures after the wound has been checked by a dentist

## Orthodontic Therapists – The UK Model in 2000

The issues being debated:

- Length of training
- Funding
- Location
- Final examination
- NHS Fees

Pollard T.  
Practice Management Forum  
2000 British Journal of Orthodontics

## Orthodontic Therapists – The UK Model 2000

“The quality of care, if orthodontic therapists assist orthodontists, should improve, as perhaps **greater time** could be spent **on diagnosis, and overall supervision and progress of treatment.**”

Pollard T.  
Practice Management Forum  
2000 British Journal of Orthodontics



“I’m absolutely delighted to see the first Orthodontic Therapists qualify. They will now make a significant impact on the number of patients accessing orthodontic care.”

Sarah Bain  
Head of Dental Care Professional training,  
University Hospital Bristol, 2008

## Bristol Orthodontist Therapy Course

- **Expectations:**
  - Increase productivity, efficiency, and treatment standards
  - Reduction in the clinical workload for specialists
  - Increase time for specialists to do treatment planning and finishing procedures
  - Reduce the cost in training the orthodontic workforce

Bain S, Lee W, Day C, Ireland A, Sandy J. Orthodontic therapists – the first Bristol cohort; Brit Dent J. 2009; 227-230.



## Bristol Orthodontist Therapy Course

“Although the permitted duties of an orthodontic therapist seem to be quite clear, there has been some confusion as to the circumstance under which they are able to perform these duties.”

- ‘Qualified orthodontic therapists must work under the prescription of a dentist.’

Bain S, Lee W, Day C, Ireland A, Sandy J. Orthodontic therapists – the first Bristol cohort; Brit Dent J. 2009; 227-230.



## Bristol Orthodontist Therapy Course

The principle author of the article is concerned:

“There is no requirement for the orthodontic therapist to be in the same premises as the orthodontist who had provided that prescription when the treatment is carried out.”

Bain S, Lee W, Day C, Ireland A, Sandy J. Orthodontic therapists – the first Bristol cohort; Brit Dent J. 2009; 227-230.

## Bristol Orthodontist Therapy Course

“The effect of the introduction of orthodontic therapists, along with a number of other changes in orthodontic provision are yet to be fully realised.”

Bain S, Lee W, Day C, Ireland A, Sandy J. Orthodontic therapists – the first Bristol cohort; Brit Dent J. 2009; 227-230.



## Lessons to be learned from the UK experience

- **Need to monitor further developments in the UK**
  - scope of practice
  - level of supervision
  - degree of professional oversight
  - impact on access to care
- **Be vigilant about what's going on “at home”**
  - access to care issues – at all levels
  - legislators' perceptions, concerns, and ideas
  - state funding for care to the underserved
- **Everyone has a part to play**
  - be “a part of the solution” – find your own way
  - support “Smiles Change Lives” initiative
  - establish or maintain a contact with your legislative representatives

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## This was **not** just about creating a new member of the dental team

- Supporting the U-M, AHC & SOD core missions
- Showing that the U-M can effectively contribute to “a state agenda”
- Working with others in developing new & innovative approaches to health care delivery
- Demonstrating leadership – locally and nationally
- Forging partnerships with professional and legislative stakeholders and lay communities
- Accessing new resources from groups, agencies, etc.
- Increasing awareness of the challenges faced by many Minnesotans

Midwestern Society  
of Orthodontists

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