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A Web-based, Searchable Database of Orthodontic Case Files for Patient Care, Education, and Research

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A Web-based, Searchable Database of Orthodontic Case Files for Patient Care, Education, and Research

MedInfo 2010
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Overview

• History of the collection
• Collection characteristics
• Demonstration
• Projects/Future work
History

• 2005 anthropology student sent out letters to all dental practitioners in New Mexico (~100)
• Dr. James Economides responded that he had a collection of records he wanted to donate
• 2006 developed a plan to accept and manage the collection in compliance with US privacy regulations
• 2007 National Library of Medicine funding to develop digital version of the collection
History

- Dr. Economides opened orthodontic practice in Albuquerque in 1972
- High quality X-ray equipment
- Developed his own dental information system in the 1980’s (Sun Sparks Workstations)
- Preserved and catalogued all the pre- and post-treatment dental casts in archival boxes
- Took intra-treatment photos of many of the cases post-1983
Whole Collection Characteristics

- Represents the ethnic and racial diversity of the southwest United States 1972-1999
- 5650 unique patients
- 600 relationship sets
- Several multi-generational families
- 400,000 images (pre-, intra-, and post-treatment, intra-oral images and X-ray images)
- Many head X-rays have cephalometric measurements from manual or digital tracings (Sparks Workstation)
- Full facial photographs and paper treatment records
De-Identified, Web-based Sub-Collection

- Basic patient demographics (age, orthodontic diagnoses, ancestry, and decade of treatment)
- Selected patient history
- Extraction patterns
- Intra-oral images
- Intra-treatment images
- X-ray images (lateral head and Panaview)
- Cephalometric measurements
De-Identified, Web-based Collection

• Free to access and use:

http://hsc.unm.edu/programs/ocfs/
Welcome to the Maxwell Museum of Anthropology’s orthodontics case file collection. This collection was started by a donation of orthodontic records from approximately 5000 patients from a retiring orthodontist in Albuquerque, NM (Dr. James Economides). The purpose of the collection is to provide a case file system of a variety of orthodontic problems along with the associated treatment histories, X-rays, oral images, dental casts, and outcomes, in a population of patients with a broad racial and ethnic background not frequently encountered during orthodontic training.

The physical collection is not available to the public. The collection is available to qualified investigators that have research approved by the UNM Human Research Review Committee and approval from the Maxwell Museum. Scholars interested in access to the collection should contact Dr. Heather Edgar of the Maxwell Museum.

De-identified radiographs, inter-oral photographs, and case histories are available for review on the web. If you utilize the collection for treatment, educational, or research purposes, please tell us about your experiences.
Orthodontic Case File Search Page

Patient Demographics

Sex
- Any
- Male
- Female

Age at 1st Treatment
- Any
- <12
- 12-16
- 12-18
- >16
- >18

Ancestry
- American Indian or Alaskan Native
- Asian
- Black or African American
- Hispanic or Latino
- Native Hawaiian or other Pacific Islander
- White or European American

Select by Extractions

[Diagram of teeth]
Clinical Variables

- Thumb Sucking
- Mouth Breathing
- Lisp
- Supernumerary Teeth
- Tonsillectomy

Orthognathic Surgery

- Mandibular
- Maxillary
- Maxillary and Mandibular
- None
- Other
- Unknown

Diagnosis

- Angle Classification 1
- Angle Classification 2 Division 1
- Angle Classification 2 Division 2
- Angle Classification 2 Division Unknown
- Angle Classification 3
- Crowding
- Other
- Unknown

Record Completeness

- Number of visits > 1
- Records With Photos
Search returned 1 results.

Search Parameters: More than One Visit Photos X Rays Cephalometrics Extractions

<table>
<thead>
<tr>
<th>Patient ID</th>
<th>Sex</th>
<th>Age</th>
<th>Ancestry</th>
<th>Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>04915</td>
<td>F</td>
<td>23</td>
<td>Hisp</td>
<td>Angle Classification 2 Division 2, Other, Angle Classification 2 Division Unknown, Crowding</td>
</tr>
</tbody>
</table>

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Patient #04915: Informational Record

Patient Information

- Age at First Treatment: 23
- Diagnoses: Angle Classification 2 Division 2, Other, Angle Classification 2 Division Unknown, Crowding
- Race: Hispanic
- Treatment Decade: 1990's

Patient History

- History of Thumb Sucking: No
- History of Mouth Breathing: No
- History of Lisping: No
- History of Tonsillectomy: No
- History of Supernumerary Teeth: No

Other Patient Treatments

- Extractions: 17 Permanent Left Mandibular Third Molar, 16 Permanent Left Maxillary Third Molar, 32 Permanent Right Mandibular Third Molar, 36 Right Upper Second Bicuspid, 51 Right Lower First Premolar, 45 Right Lower Second Premolar
Patient Photos (137 photos)

Initial visit:

Later visit: (5 weeks after first visit)

Later visit: (13 weeks after first visit)
Later visit: (169 weeks after first visit)

Later visit: (180 weeks after first visit)

Later visit: (184 weeks after first visit)
Patient Xrays

Initial visit:

Later visit: (132 weeks after first visit)

Later visit: (151 weeks after first visit)

Later visit: (160 weeks after first visit)
Projects Current and Future Work

- Innovative ancestry estimation schema
- Developing standardized terminology (LOINC) for cephalometric parameters
- Explore accepting the donation of additional cases to the collection  
  http://hscapp.unm.edu/orthodontics/
- Research into the value of using cephalometric parameters as a screening test for “medical” diseases
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Thank You!

- Health Sciences Library and Informatics Center
- Maxwell Museum
- UNM Radiology
- UNM Department of Surgery Division of Dental Services
- UNM School of Medicine
- University of Tennessee Dental School
- Dr. James Economides
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