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AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS

2009 Conference Program

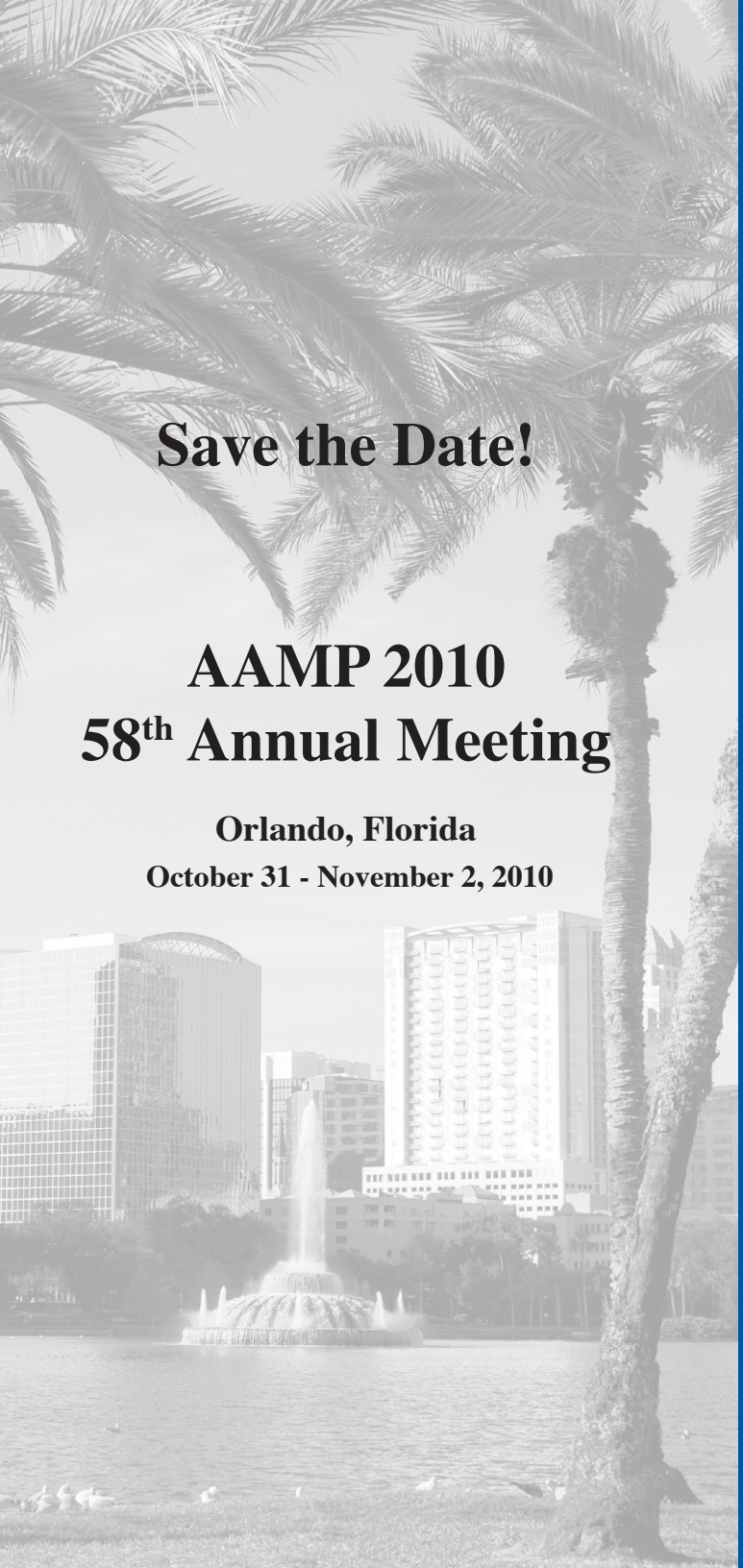
57th Meeting of the

AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS

October 31st - November 3rd, 2009

The Westin San Diego Hotel,
San Diego, California, USA

2009 Conference Program



Save the Date!

AAMP 2010
58th Annual Meeting

Orlando, Florida

October 31 - November 2, 2010

American Academy of
Maxillofacial Prosthetics

www.maxillofacialprosth.org

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The American Academy of Maxillofacial Prosthetics is an ADA CERP provider for continuing educational credits

Attendees are cautioned regarding the risks of using limited knowledge when incorporating into their practices techniques and procedures illustrated, discussed, or demonstrated during this AAMP conference.

ADA C·E·R·P® | Continuing Education Recognition Program

Meeting Planner
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100 Galleria Parkway SE, Suite 1070
Atlanta, GA 30339
Tel: 770-612-8002 | Fax: 770-612-0833
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Dentsply Prosthetics
570 West College Ave.
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Website: prosthetics.dentsply.com

Dolphin Imaging & Management Solutions
9200 Eton Ave
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Email: info@dolphinimaging.com
Website: www.dolphinimaging.com

Dynasplint Systems, Inc.
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Website: www.dynasplint.com

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Website: www.eusapharma.com

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Website: www.nobelbiocare.com

Practice Works/Kodak Dental Systems
1765 The Exchange
Atlanta, GA 30339
Tel: 800-944-6365 | Fax: 800-259-9155
Email: info@practiceworks.com
Website: www.kodakdental.com

Southern Implants
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Irvine, CA 92618
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Email: info@southernimplants.us
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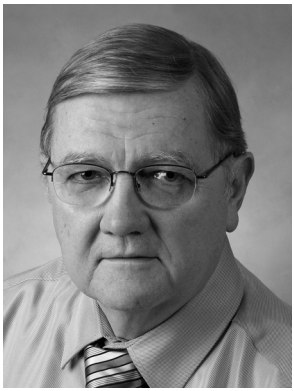
MedActive Oral Pharmaceuticals, LLC
8364 Forest Oaks Boulevard
Spring Hill, FL 34606 USA
Tel: 866-887-4867 | Fax: 888-441-7747
Website: www.medactive.com

PRESIDENT'S BIOGRAPHY



Glenn E Turner
DMD, MSD

Following 3 years of undergraduate study resulting in a bachelor's degree in Science at Auburn University, he entered dental school at the University of Alabama school of Dentistry and graduated in 1970. He served 2 years in the Air Force dental corp during the Vietnam era. He served 5years in the V.A. Hospital in Knoxville, Iowa.

In 1978 Dr. Turner returned to the University of Alabama to do a general prosthetic residency followed by a maxillofacial prosthetic residency. During 1978-1981 Dr. Turner completed a master's degree in dentistry studying color of a polyurethane maxillofacial material. Dr. Turner's First job as a Prosthodontist was at the University of Louisville on 1981 where he was assigned to lead a group to write the University of Louisville's graduate Program in Prosthodontics. He is a diplomat of the American Board of the Prosthodontics (1984). In 1984 Dr. Turner was selected by the University of Florida to create a Maxillofacial Prosthetic service in the Department of Prosthodontics in the collage of Dentistry. This is his 25th year as director of maxillofacial Prosthetics at the University. He also led a group to write the graduate Prosthodontics program in 1991 at University of Florida.

Dr. Turner is a retired colonel from the Army Reserve who served during the activation of his dental unit in Desert storm.

He is a member of the American Dental Association, IADR/AADR and ADEA. He is a fellow of the American College of Dentistry, International College Dentistry, Academy of Oseountegration and American College of Prosthodontics.

He was president of the Florida Prosthodontics Association 1991and 2007.

Dr. Turner has devoted his professional career to service in the AAMP. He has spent over 20years on the board of directors and the Executive board of the AAMP.

WELCOME

It is my pleasure to invite anyone interested in the art and science of reconstructing head and neck defects using artificial materials like silicone and acrylic to the 57th annual meeting of the American Academy of Maxillofacial Prosthetics.

Maxillofacial Prosthetics restores defects caused by cancer surgery, congenital defects and trauma.

Our Vice President and Program chair, Dr. Robert Taft has assembled a renowned list of speakers that challenge us to confront the changing dynamics of our specialty and to maintain our leadership role in the future.

The Program covers three days of lectures, Nov 1-3, 2009. The first day is devoted to procedures that are supportive care of H&N cancer patient. The second day Discusses implant supported prostheses. The third day is devoted to Advanced Digital Technology. Advanced Digital Technology is the latest scientific development in the use of I-CAT scans, virtual imagery soft ware and 3D MD camera to produce virtual images for surgical planning and construction of prostheses. This final day of our program will highlight the value of multidisciplinary treatment planning using the latest advanced digital Technology.

Dr. Robert Taft has created a CE workshop which represents excellent hands on opportunity to enhance your capabilities in diagnosis and treatment planning.

Thank you for joining me in San Diego for the 57th annual meeting of the American Academy of Maxillofacial Prosthetics and I encourage you to meet us at the cross roads of the past and the future.

Glenn E Turner, DMD, MSD
President
American Academy of Maxillofacial Prosthetics

IN MEMORIUM

Sebastian Anthony Bruno, DMD
February 12, 1919 - March 31, 2008

Dr. Sebastian A. Bruno passed away on March 31, 2008 due to complications from an unexpected fall. He was a youthful 89 years old at the time of his death. Sebastian married his beloved wife Ruth in 1942. Their marriage extended for 61 years until Ruth's passing in 2003. Dr. Bruno is survived by 4 children, 4 grandchildren and 3 great grandchildren.

Dr. Bruno was President of the AAMP in 1973 being awarded the Ackerman Award in 1984 and President of the GNYAP in 1977. Sebastian was a Fellow and Charter Member of the American College of Prosthodontists.

As a teenager, he worked for a dental laboratory and became a skilled dental technician. During WWII, he was selected for a special Armed Services educational program to ensure an adequate supply of medical professionals. The Army sent him to study at Stanford University in California. After attending college at City College of New York and Stanford University, Dr. Bruno enrolled at Tufts Dental College where he received his DMD in 1948 having graduated Magna Cum Laude. Shortly after graduating from Tufts, he returned home to Astoria, NY and opened a dental practice. He later relocated his practice Jackson Heights, NY, and finally to Rockefeller Center where he remained until he retired in 1996 at the age of 77.

He taught at Columbia University School of Dental and Oral Surgery from 1948-1988 as a Clinical Professor of Dentistry and served as Associate Attending Dental Surgeon at Columbia Presbyterian Hospital from 1950-1988 later becoming Chief of Surgical and Maxillofacial Prosthetics. He was a Consultant to the Kingsbridge V.A. Medical Center.

The Academy has lost an Honored pioneer in the field of Maxillofacial Prosthodontics; a dedicated clinician and teacher; a loving husband; and devoted father, grandfather and great-grandfather.

Commemorating Sebastian's dedication and service to our Academy, we dedicate this meeting to him.

By Tom Vergo

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Term Ending in 2010

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Alvin G. Wee, Omaha, NE

Samuel R. Zwetchkenbaum, Ann Arbor, MI

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Hassan M. Abed
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Betsy K. Davis
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Members: Lori C. Ransohoff, Denise M. Vey Voda, Nelson Lowe, Candice Zemnick
Consultants: Glenn E. Turner, Thomas R. Schneid
Board Liaison: Donna M. Hecker

Time and Place

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Consultant: Eben Yancey
Board Liaison: David J. Reisberg

Save the Date!

AAMP 2010
58th Annual Meeting

Orlando, Florida

October 31 - November 2, 2010

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of the

ACKERMAN AWARD

Andrew J. Ackerman, D.D.S.	1961
Mervin C. Cleaver, D.D.S.	1962
Arthur H. Bulbulian, D.D.S.	1964
Joe B. Drane, D.D.S.	1966
Victor J. Niiranen, D.D.S.	1968
Totten S. Malson, D.D.S.	1969
William R. Laney, D.M.D.	1971
I. Kenneth Adisman, D.D.S.	1972
Joseph B. Barron, D.M.D.	1974
Herbert Metz, D.D.S.	1976
Varoujan A. Chalian, D.D.S.	1978
Thomas A. Curtis, D.D.S.	1980
John E. Robinson, Jr., D.D.S.	1981
Arthur O. Rahn, D.D.S.	1982
Sebastian A. Bruno, D.D.S.	1984
Mohammad Mazaheri, D.D.S.	1989
Ronald P. Desjardins, D.M.D.	1991
Norman G. Schaaf, D.D.S.	1994
Richard J. Grisius, D.D.S.	1995
Luis R. Guerra, D.D.S.	1997
Gordon E. King, D.D.S.	1998
Dorsey J. Moore, D.D.S.	1999
Stephen M. Parel, D.D.S.	2000
James P. Lepley, D.D.S.	2001
Cliff W. Van Blarcom, D.D.S	2002
Carl J. Anders, D.D.S.	2003
John Beumer III, D.D.S.	2005
Salvatore J. Esposito, D.D.S.	2007
Thomas R. Cowper, D.D.S.	2008

PAST ACADEMY PRESIDENTS

*Aeldred C. Fonder, D.D.S.	Chicago, IL	1953
*Robert E. Stewart, D.D.S.	Chicago, IL	1954
*Thomas E. Knox, D.D.S.	Chicago, IL	1955
*Arthur H. Bulbulian, D.D.S.	Chicago, IL	1956
*Arthur H. Bulbulian, D.D.S.	Chicago, IL	1957
*Mervin C. Cleaver, D.D.S.	Dallas, TX	1958
*Joseph B. Barron, D.D.S.	Chicago, IL	1959
*Joseph B. Barron, D.D.S.	Los Angeles, CA	1960
*Benjamin B. Hoffman, D.D.S.	Philadelphia, PA	1961
*Edward J. Fredrickson, D.D.S.	Miami Beach, FL	1962
*I. Kenneth Adisman, D.D.S.	Atlantic City, NJ	1963
*Joe B. Drane, D.D.S.	San Francisco, CA	1964
*Louis Boucher, D.D.S.	Las Vegas, NV	1965
*Victor J. Niiranen, D.D.S.	Dallas, TX	1966
*Victor J. Niiranen, D.D.S.	Washington, DC	1967
*Ralph S. Lloyd, D.D.S.	Miami, FL	1968
*Herbert H. Metz, D.D.S.	New York, NY	1969
*Morton S. Rosen, D.D.S.	Las Vegas, NV	1970
*John E. Robinson, D.D.S.	Cherry Hill, NJ	1971
*Thomas A. Curtis, D.D.S.	Las Vegas, NV	1972
Sebastian A. Bruno, D.D.S.	San Antonio, TX	1973
Varoujan A. Chalian, D.D.S.	Williamsburg, VA	1974
William R. Laney, D.M.D.	Lake Geneva, WS	1975
*James B. Lepley, D.D.S.	San Diego, CA	1976
*Augustus J. Valauri, D.D.S.	Orlando, FL	1977
Arthur O. Rahn, D.D.S.	Las Vegas, NV	1978
Dorsey J. Moore, D.D.S.	New Orleans, LA	1979
James S. Brudvik, D.D.S.	San Antonio, TX	1980
*Seymour Birnbach, D.D.S.	St. Louis, MO	1981
James W. Schweiger, D.D.S.	Monterey, CA	1982
Norman G. Schaaf, D.D.S.	San Diego, CA	1983
*Verdi F. Carsten, D.D.S.	Nashville, TN	1984
David N. Firtell, D.D.S.	Seattle, WA	1985

Ronald P. Desjardins, D.M.D.	Williamsburg, VA	1986
Mohammad Mazaheri, D.D.S.	San Diego, CA	1987
Richard J. Grisius, D.D.S.	Baltimore, MD	1988
*Charles C. Swoope, D.D.S.	Tucson, AZ	1989
Stephen M. Parel, D.D.S.	Charleston, SC	1990
Luis R. Guerra, D.D.S.	Reno, NV	1991
Donald L. Mitchell, D.D.S.	Tampa, FL	1992
Clifford W. VanBlarcom, D.D.S.	Palm Springs, CA	1993
Gordon E. King, D.D.S.	New Orleans, LA	1994
Gregory R. Parr, D.D.S.	Washington, DC	1995
James E. Ryan, D.D.S.	Kansas City, MO	1996
Carl J. Andres, D.D.S.	Orlando, FL	1997
Salvatore J. Esposito, D.M.D.	Victoria, BC Canada	1998
Timothy R. Saunders, D.D.S.	Philadelphia, PA	1999
Jonathan P. Wiens, D.D.S.	Kauai, HI	2000
Alan J. Hickey, D.M.D.	New Orleans, LA	2001
Robert E. Gillis Jr., D.M.D, M.S.D.	Orlando, FL	2002
*Thomas R. Cowper, D.D.S.	Scottsdale, AZ	2003
Mark T. Marunick, D.D.S, M.S.	Ottawa, Canada	2004
Thomas J. Vergo Jr., D.D.S.	Los Angeles, CA	2005
Rhonda Jacob., D.D.S.	Maui, HI	2006
Jeffrey E. Rubenstein, D.D.S.	Scottsdale, AZ	2007
Terry M. Kelly, D.M.D.	Nashville, TN	2008

*Denotes Deceased

We thank all past AAMP President's for their dedication and service.

CONFERENCE EVENTS

Saturday, October 31st

8:00-16:00	AAMP Board of Directors Meeting
15:00-18:00	Conference Registration
16:30-18:00	Poster Session & Exhibit Reception

Sunday, November 1st

7:00-8:00	Continental Breakfast
8:00-10:00	Hospitality/Spouse Continental Breakfast *Located in Ivory Room*
8:00-12:30	General Session
9:30-2:00	Guest Tour: A Day of Gallivanting in La Jolla *(Elective)* *Meet in Hotel Lobby*
12:30	Conference Luncheon & AAMP Business Meeting *Located in Diamond Ballroom*
15:45-19:30	AAMP Social Outing - World Famous San Diego Zoo Tour & Dinner *(Elective)* *Meet in Hotel Lobby*


Monday, November 2nd

7:00-8:00	Continental Breakfast
7:00-8:00	New Members Breakfast *Located in Pearl Room*
8:00-10:00	Hospitality/Spouse Continental Breakfast *Located in Ivory Room*
8:00-12:00	General Session
9:30-12:30	San Diego Trolley Car Tour *Including private guided tour of the famous Hotel del Coronado (Elective)* *Meet in Hotel Lobby*
14:00-16:00	Insurance Workshop *(Elective)* *Located in Crystal Ballroom 1*
19:00 - 21:30	AAMP Big Band Reception & Banquet *(Elective)* *Located in Emerald Ballroom*


Tuesday, November 3rd

7:00-8:00	Continental Breakfast
8:00-10:00	Hospitality/Spouse Continental Breakfast *Located in Ivory Room*
8:00-12:30	General Session
12:30	Meeting Adjourns
13:30-16:30	CE Worshop Course *(Elective)* *Located in Crystal Ballroom 1*

CONFERENCE OVERVIEW

Saturday, October 31st

8:00-16:00	AAMP Board of Directors Meeting
15:00-18:00	Conference Registration
16:30-18:00	Poster Session & Exhibit Reception

Sunday, November 1st

Session Title: Supportive Care - H&N Cancer
Moderator: Craig Van Dongen

8:00	President's Address
8:05	Program Chair Address
8:15	**Carol Boliek /Jana Rieger** Pharyngeal Wall Electrical Stimulation and Swallowing
9:05	**Jan Lewin** Lymphadema and the Relationship to Prosthetic Management
9:40	**Mark Chambers** Prosthetic Management of the Problem Stoma
10:10	Coffee Break
10:30	**Barry Shipman** Saliva Modifications in Radiation Therapy
11:00	**Donald Antonson** Chlorohexidine Varnish for the High Caries Patient
12:00	**Robert Schneider** Laser Assembled Prosthetic Frameworks for the Debilitated Mandible
12:30	Session Adjourns
12:30	Conference Lunch & AAMP Business Meeting
15:45 - 19:30	AAMP Social Outing- World Famous San Diego Zoo Tour & Dinner *(elective)*

Monday, November 2nd

Session Title: Implant Support
Moderator: Steve Eckert

8:00	**Lyndon Cooper** Treatment of the Severely Resorbed Mandible

9:00	**Dale Howes** Protocols for Craniofacial Reconstruction in South Africa
10:00	Coffee Break
10:30	**Joe Kan** All - On - Four Science and Limitations
11:00	**John Brunsky** Update on the Biomechanics of Oral Implants
12:00	Session Adjourns
14:00-16:00	Insurance Workshop *(Elective)* *Located in Crystal Ballroom 1*
19:00 - 21:30	AAMP Big Band Reception & Banquet *(Elective)* *Located in Emerald Ballroom*

Tuesday, November 3rd

Session Title: Advanced Digital Technology
Moderator: John Wolfaardt

8:00	Introduction
8:15	**Dennis Rhoner** Digital Planning for Reconstruction of the Maxilla and Mandible with Immediate Loading
9:00	**Rosemary Seelaus** Digital Technology in Facial Prosthetics
9:30	**Ben King** Fundamentals of 3D Medical Modeling: An Industrial Designer's Point of View
10:00	Coffee Break
10:30	**Shayne Kondor** Comparison of Cone Beam CT and Conventional CT in Accuracy of Rapid Prototype Models: Image Registration
11:00	**Richard Bibb** Rapid Prototyping in Surgery
11:30	**Sebastian Sauerbier** Rapid Prototyping Scaffolding and Cell Printing
12:00	**Sidney Fels** TDynamic Modeling of the Oral, Pharyngeal and Laryngeal Complex
12:30	Meeting Adjourns
13:30-16:30	CE Workshop Course *Located in Crystal Ballroom 1*

SCIENTIFIC PROGRAM

Saturday, October 31st

8:00-16:00	AAMP Board of Directors Meeting
15:00-18:00	Conference Registration
16:30-18:00	Poster Session & Exhibit Reception

Sunday, November 1st

Session Title: Supportive Care - H&N Cancer
Moderator: Craig Van Dongen

8:00	President's Address
8:05	Program Chair Address
8:15	**Carol A. Boliek PhD[1]** **Jana M. Rieger PhD[2]**

[1] Associate Professor, Department of Speech Pathology and Audiology, Faculty of Rehabilitation Medicine and the Centre for Neuroscience, University of Alberta, Edmonton, Alberta, Canada

[2] Program Director for Functional Outcomes, Institute for Reconstructive Sciences in Medicine (iRSM) and Associate Professor, Department of Speech Pathology and Audiology, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, Alberta, Canada

Pharyngeal Wall Electrical Stimulation and Swallowing

Oropharyngeal cancer affects the base of the tongue, soft palate, and pharynx and is usually treated with either primary chemoradiation or with primary surgery and adjuvant chemoradiation (Duvvuri & Myers, 2009). Dysphagia is a common complication following treatment of oropharyngeal cancer, affecting as many as 75% of patients (Suarez-

Cunquiero et al., 2008). These swallowing difficulties may be due to a number of factors including surgical alteration of the tongue and pharynx, damage caused by radiation and chemotherapy, and damage to the sensory and motor nerve fibers associated with muscles of the pharynx (Duvvuri & Myers, 2009). Dysphagia can result in malnutrition, and associated aspiration and has a serious impact on quality of life.

Previous research has demonstrated that the excitability of the pharyngeal sensorimotor cortex can be modulated by sensory input. Water swallowing tasks, strong flavours, and electrical stimulation of the pharynx can all promote changes in the cortical representation of the pharyngeal muscles (Fraser et al., 2003; Fraser et al., 2002; Mistry, Rothwell, Thompson, & Hamdy, 2006). However, electrical stimulation of the pharynx using an intraluminal catheter has been found to result in larger and longer lasting effects on pharyngeal motor evoked potentials (pMEPs) than a volitional water swallowing task (Fraser et al., 2003).

Although previous research demonstrates that electrical stimulation of the pharynx may have benefits for recovery of swallowing following a cortical injury such as a stroke, the effects of this stimulation following a peripheral injury (e.g., surgery) are unknown. It is well recognized that sensation plays an important role in swallowing and reduced sensation disrupts swallowing but the effect of reduced sensation following peripheral nerve injury is not well understood (Ertekin et al., 2003). This presentation will discuss the potential effects of electrical stimulation of the pharynx on the cortical connections to the pharynx in patients with chronic pharyngeal dysphagia secondary to oropharyngeal cancer. The presentation will cover a proof of concept which may allow us to examine changes in cortical excitability using transcranial magnetic stimulation (TMS) in a population with reduced sensation from the pharynx and to determine whether electrical stimulation using an intraluminal catheter may have therapeutic applications in this population.

9:05 **Jan Lewin, Ph.D.**

Speech Pathology and Audiology at
M. D. Anderson Cancer Center,
Houston, TX

Lymphadema and the Relationship to Prosthetic Management

Significant functional consequences can result from surgical or nonsurgical treatment for head and neck cancer. The goals of any cancer treatment must be first and foremost to remove the tumor and cure the disease. However, organ preservation protocols must also ensure that respiration, deglutition, speech, phonation, and cosmesis are maintained while complications and problems are minimized.

Experience has shown that organ preservation is not synonymous with functional preservation nor does the potential for functional preservation ensure its recovery. Given the advances in rehabilitative and restorative technology, it is sometimes the case that complete surgical resection produces better functional outcomes and superior quality of life than those that spare but cripple the organ, as is the case for patients with cancer of the larynx.

Swallowing dysfunction remains one of the most morbid outcomes of treatment for head and neck cancer. The primary correlates of swallowing dysfunction are glottic incompetency, lack of tongue base retraction, limited pharyngeal wall contraction, and poor laryngeal elevation and movement. In general, any treatment that restricts the critical movements of the larynx will result in swallowing problems that usually include aspiration. With appropriate therapy, aspiration has been eliminated in up to 75% of select patients with dysphagia.

Additionally, head and neck lymphedema is a common complication after surgical and nonsurgical treatment for head and neck cancer that often results in significant functional sequelae, but remains under-addressed. Severe tongue edema impedes articulation for intelligible speech and interferes with the mastication

and transit of food within the mouth during swallowing. Our research findings support targeted therapy to improve functional recovery in patients with head and neck lymphedema.

Collaborative efforts between speech pathologists, oral surgeons, and maxillofacial prosthodontists at M. D. Anderson Cancer Center include the design of palatal obturating and augmentation prostheses, intraluminal tracheostomal attachments for hands-free alaryngeal speech production, prosthetic "plugs" to prevent aspiration resulting from the enlarged tracheoesophageal puncture, and prosthetic modifications for laryngectomized speakers. Early results show >80% success rates in preventing aspiration in laryngectomized patients with enlarged esophageal punctures. Patients with head and neck malignancies need prospective collaboration to ensure optimal oncologic and functional outcomes.

9:40 **Mark Chambers, D.M.D., M.S.**

Professor and Chief of the Section of Oncologic Dentistry and Director of the Clinical Research Program, Department of Head and Neck Surgery at M. D. Anderson Cancer Center, Houston, TX

Prosthetic Management of the Problem Stoma

Tracheoesophageal (TE) speech using a voice prosthesis and hands-free speaking valve with an intraluminal attachment is the gold standard for voice restoration after total laryngectomy. Modification of a standard self-retaining silicone cannula or laryngectomy button aids in the attachment of a Heat and Moisture Exchanger (HME) to decrease mucus and coughing. Additionally, it facilitates the use of the speaking valve within the tracheal lumen for hands-free TE speech production. An increased number of laryngectomized individuals are able to achieve hands-free TE speech when the standard length, flange, and diameter of a silicone button

is customized to accommodate individual tracheostomal contours. This lecture will discuss multiple techniques in modification of a standard silicone laryngectomy button to facilitate hands-free TE speech after total laryngectomy.

10:10 Coffee Break

10:30 **Barry Shipman D.M.D., F.A.A.M.P.**

Associate Professor, Nova Southeastern University Dental School, Miami FL

Saliva Modifications in Radiation Therapy

One of the most common sequelae associated with radiation therapy alone or in combination with chemotherapy is xerostomia. In the head and neck cancer patient treated with radiation both the major and minor salivary glands may be involved in the therapy fields. Clinical signs and symptoms can arise after only 3-4 treatments with doses as low as 800-1000 cGy. Clinical sequella can include mild to severe mucositus, xerostomia with dysphagia, eating difficulties, poor oral hygiene, taste alterations, radiation caries and mycosis. With therapeutic doses, salivary gland function is compromised with the buffering capacity of the saliva reduced creating salivary pH levels ranging from neutral to very acidic. The acid shift of saliva supports the colonization of Candida and increases the potential for demineralization of teeth with the consequence of radiation caries. Long term effects of radiation therapy are not uncommon and patient can suffer with xerostomia and radiation induced caries for many years. The use of a buffering agent to maintain a neutral salivary pH can be helpful in controlling radiation induced dental caries. The data from a clinical pilot study utilizing Nuvora's SuRe technology delivery system and a buffering lozenge will be described and discussed.

11:00 **Donald E. Antonson, D.D.S, M.Ed.**

Professor and Associate Chair,
Department of Restorative Dentistry
at the School of Dental Medicine,
University at Buffalo, SUNY, Buffalo, NY

Chlorohexidine Varnish for the High Caries Patient

Dental caries is increasing in all countries of the world. Preventive dentistry concepts and procedures have been advocated for many years but their effectiveness has not been as successful as anticipated. Young adults, geriatrics and medically compromised individuals and/or patients with complex dental issues are especially experiencing increased caries activity.

Maxillofacial patients usually have undergone extensive surgeries, as well as chemo and radio therapies. Additionally, they have completed complex restorative/reconstructive treatments, which have been time consuming and costly. Unfortunately, in most cases the patient then faces the realities of how to preserve their remaining natural dental tissues.

Adequate tooth brushing for many of these patients is difficult, and their awareness of new therapeutic chemistries that could be effective has not been widely adopted. Current research has given dentistry new weapons to fight demineralization, in fact, these new formulations can even remineralize and "heal" initial enamel lesions.

This presentation will review the current prevalence of smooth and pit/fissure caries. Root caries will be discussed from a new perspective and emphasis, which will make a strong impact on how the attendee will treatment plan and treat patients in the future. Additionally, a review of chlorohexidine, fluorides, calcium phosphate combinations, and their synergy will be presented.

11:30 **Robert L. Schneider, DDS, MS**

Professor, Hospital Dentistry Institute, Division of Maxillofacial Prosthodontics, University of Iowa Hospitals and Clinics, Iowa City, IA

Laser Assembled Prosthetic Frameworks for the Debilitated Mandible

ABSTRACT: fixed and removable implant supported and retained prostheses have traditionally been fabricated in the dental laboratory using a lost wax technique. Technology has changed to include several other techniques that potentially are superior to the traditional methods. Titanium is a very biocompatible and versatile material and when combined with laser welding and CAD/CAM techniques can yield a very well fitting, biocompatible and strong prosthesis. Team planning and fabrication techniques will be discussed along with clinical and laboratory steps and techniques. Multiple patients with partially or totally resected and reconstructed mandibles treated with fixed or removable prosthesis will be presented including both clinical and laboratory considerations.

OBJECTIVES: The participant will be more familiar with the indications for laser assembled and CAD/CAM implant frameworks for the debilitated mandible.

The participant will know how to design these frameworks in conjunction with their laboratory technician.

The attendee will be more informed in regard to some of the current technologies and their advantages/disadvantages.

12:30	Session Adjourns
12:30	Conference Lunch & AAMP Business Meeting
15:45 - 19:30	AAMP Social Outing- World Famous San Diego Zoo Tour & Dinner *(elective)*

Monday, November 2nd

Session Title: Implant Support
Moderator: Steve Eckert

8:00 **Lyndon F. Cooper, D.D.S., Ph.D.**

Professor of Dentistry of the Department of Prosthodontics at the University of North Carolina at Chapel Hill

Treatment of the Severely Resorbed Mandible

Endosseous dental implants are widely prescribed for treatment of mandibular edentulism. Implant supported fixed dentures are effective in restoration of function and enhancing social well being. Current data will be reviewed to support the concept that minimal number and dimension can support a fixed prosthesis. This review will further explore the frequent complications and failures of this therapy. Diverse restorative techniques and approaches have been recommended to prevent these limitations reported for implant supported fixed dentures. It is the aim of this presentation to illustrate through clinical treatment scenarios some of the current concepts regarding using implant supported fixed denture-based treatment of mandibular edentulism in the context of new and improving technologies that enhance treatment of the most challenging clinical scenarios.

9:00 **Dale G. Howes, B.Sc.(Dent); BDS; M.Dent (Pros); FCD(SA)**

Prosthodontist, Multidisciplinary Head and Neck Reconstruction Unit, Morningside Medi-Clinic, Morningside Johannesburg, SA and Senior Consultant of the Post Graduate Fixed Prosthodontic Programme at the University of the Witwatersrand, School of Oral Health Sciences

Protocols for Craniofacial Reconstruction in South Africa

Tumours of the craniofacial region comprise 3% - 5% of all tumours affecting approximately 30:100,000 people in the USA. It could be said that these patients suffer the greatest morbidity and quality of life disruption of all cancer patients. This is due to often grotesque facial disfigurement by the tumour and / or the surgical intervention. Treatment often alters the life supporting functions of eating and speaking due to the excision of the bony and soft tissue skeleton. Trauma such as gunshots often leave similar ablation injuries begging similar treatment protocols.

Challenges faced in the treatment of these cases are significant even in first world countries where financial constraints are less restrictive and advanced surgery is more accessible. In South Africa, it is not only the financial and socio-economic constraints that prevent them from receiving the appropriate care. Cultural and spiritual beliefs also cause communities to hide these patients from society due to embarrassment or even beliefs of curses due to witchcraft. Tumours therefore escape early detection, diagnosis and treatment that exacerbate these challenges.

The Zygomatic Implant, first introduced by P-I Brånemark has revolutionized the reconstruction of these cases where surgical reconstruction is not possible or contraindicated. This implant has been modified for maxillary reconstruction and facilitate the prosthodontic reconstruction with redistribution of maxillary forces through to the

facial skeleton and offer resistance and retention for the replaced dentoalveolar prostheses and obturators.

This lecture will cover our protocols for craniofacial reconstruction. I will present our developments in midface reconstruction, featuring the use of the zygomatic and our "oncology" implants with effective use of modern CAD CAM technology and the surgical and prosthodontic techniques in rehabilitation.

10:00 Coffee Break

10:30 **Joe Kan, DDS, MS**

Professor in the Department of Restorative Dentistry, Loma Linda University School of Dentistry, Loma Linda, CA and maintains a private practice limited to Prosthodontics and Implant Surgery

All - On - Four Science and Limitations

The All-on-Four concept entails placement of 4 implants to support a fixed complete denture with the most distal implants in a tilted trajectory to minimize the cantilever length. This evidence-based presentation will evaluate the science and limitations for the All-on-Four procedure. In additional, the benefits of computer guided All-on-Four surgery will also be discussed.

10:30 **John B. Brunski, Ph.D**

Professor, Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY

Update on the Biomechanics of Oral Implants

The use– and the related technology -- of oral/maxillofacial implants has expanded tremendously over the last 30 years; implants of many sizes, shapes,

materials, and surface textures/compositions are being used in a wide variety of bone types and clinical situations. However, despite all the truly impressive progress, it remains disquieting that full answers are lacking to a number of questions involving both the macro and molecular level of oral implant performance.

For example, at the macro level: How does one decide on the proper number (and type) of implants to support a specific type of prosthesis in a specific type of bone? Is it OK to use tilted implants, as in the "all-on-4" approach? Can an implant be "overloaded", and what does this mean in the context of immediate loading vs. delayed loading? What is micromotion and why can it be detrimental? How does one prevent micromotion clinically? How is it measured?

Likewise, at the molecular level: What exactly is meant by the word "osseointegration"? Does it merely mean bone healing, or something more? Do biomechanical factors influence the cell and molecular biology involved in bone healing, and if so, how? When is loading beneficial and when is it detrimental?

For all of these questions, we have only partial answers -- although recent advances in bioengineering and bone biology are helping. For example, at the macro level, ongoing studies are showing how case planning with biomechanical tools (and retrospective databases) can be helpful. Likewise, molecular studies are helping us compare the molecular biology of bone healing with and without implants, and as a function of biomechanical conditions. Such work should suggest new ways to guide, control and ameliorate interfacial bone healing in the context of delayed or immediate function.

Overall, progress continues to develop the next generation of implants that integrates both macro- and molecular levels of understanding of bone-implant biomechanics.

12:00	Session Adjourns
14:00-16:00	Insurance Workshop *(Elective)*

19:00 - 21:30 AAMP Big Band Reception & Banquet *(Elective)*

Tuesday, November 3rd

Session Title: Advanced Digital Technology
Moderator: John Wolfaardt

8:00 Introduction

8:15 **Dennis Rhoner, MD, DMD**
Associate Professor, University of Basel, Basel, Switzerland

Digital Planning for Reconstruction of the Maxilla and Mandible with Immediate Loading

Digital Planning for the reconstruction of mandibular and maxillary defects with immediate loading

The reconstruction of acquired maxillary and mandibular defects is a demanding procedure. To fulfill the patient's request there is need for a meticulous preoperative planning. Adequate esthetical outcome, satisfactory functional rehabilitation and reduced number of surgeries should be the aim of treatment.

The use of free vascularized free flaps for the reconstruction of extended defects is nowadays the standard procedure. Correct implant-supported occlusion, adequate reconstruction of soft tissue, correct positioning of the flap within the defect and immediate functional rehabilitation are the main tasks that decide about success and level of quality of life for the patient. Based on 3-D models of skull and fibula the new occlusion, the extension of the suprastructure, the position of the dental implants, the desired shape of the fibula and the amount of necessary soft tissue can be determined and planned before surgery.

In a first surgical procedure implants are placed in the fibula and a vestibuloplasty is performed simultaneously at the lower limb. In a second surgical procedure the reconstruction of the defect is carried out using

the preplanned reconstructed occlusion as a guide for orientation.

In a series of cases the development, the technical planning, the surgical steps and the results will be presented.

9:00 **Rosemary Seelaus, MAMS**

Senior Anaplastologist and Clinical Assistant Professor at The Craniofacial Center, University of Illinois Medical Center (UIC) in Chicago, Chicago, IL

Digital Technology in Facial Prosthetics

Digital technologies are widely accepted for use in facial prosthetic treatment. Numerous reports in the literature demonstrate their technical application for planning, design and fabrication of facial prostheses. Potential exists to define fully digital solutions from pre-surgical planning through delivery, offering improvements in treatment outcomes, protocol efficiency and patient access to care.

Through this development, technical and clinical challenges have emerged. Experts continue to pursue practical clinical solutions and efficient treatment protocols toward a new ideal standard in digital solutions.

This paper will review technical developments in planning, design and fabrication of facial prostheses, and will present for discussion obstacles and opportunities that face clinicians, researchers and educators in the global pursuit toward a definitive digital solution in facial prosthetics.

9:30 **Ben King, IDSA**

Industrial Designer, iRSM (Institute for Reconstructive Sciences in Medicine) and the University of Alberta, Edmonton, AB, Canada

Fundamentals of 3D Medical Modeling: An Industrial Designer's Point of View

Application of digital technologies in the areas of surgery and rehabilitation is no longer a novel concept. Much of the digital technology currently used in Maxillofacial Prosthetics is adopted and adapted from other industries. This presentation will identify various issues encountered with this technological transfer from the perspective of an Industrial Designer working in the realm of head and neck surgical reconstruction and prosthetic rehabilitation; such as, what information is being lost in translation and do these technologies genuinely address the needs of the patient and the medical professional as a user?

Clinicians often choose to collaborate with other professionals such as designers and engineers that have in-depth knowledge of specific technologies, but who may be lacking in medical education. Experience shows us that collaboration has obvious advantages but there are undoubtedly communication and ideology concerns when various disciplines collaborate. Well thought out strategies can facilitate these relationships to ensure considerations related to monetary, environmental and quality factors are addressed while enhancing the patient experience. Digital technology can eliminate redundancy and create efficiency, but without proper resources and information, the process can trigger confusion and may become extremely inefficient and ineffective. Industries that are entirely driven by profit and customer satisfaction tend to drive technological advancements, while health care advancements lag in the wake due to a variety of restrictions.

What can we expect from the seemingly endless stream of changes in technology, and how can health care professionals instigate change and act as innovation drivers? These along with other questions will be discussed from the unlikely perspective of an Industrial Designer employed in a health care environment.

10:00 Coffee Break

10:30 **Gerald T. Grant DMD, MS**
Shayne A. Kondor* MSAE
Robert M. Taft DDS
Deborah Shuemaker ME, MS
Charles Doyle

*Medical Modeling Engineer,
Naval Postgraduate Dental School,
Bethesda, MD

Comparison of Cone Beam CT and Conventional CT in Accuracy of Rapid Prototype Models: Image Registration

To validate the use of images from Cone Beam Computed Tomography (CBCT) in treatment planning software and production of Rapid Prototyping models, a comparison of CBCT to conventional Computed Tomography was conducted. Images from a conventional Multi Detector Computed Tomography (MDCT) scanner served as the gold standard for the comparison. A benchmark imaging model was developed by placing radio-opaque fiducial markers (5mm stainless steel balls) at anatomical landmarks on a dry human skull. The model was imaged with an Iluma CBCT scanner at three exposure settings and a Philips Brilliance 40 MDCT scanner; the tomography datasets were exported as standard DICOM 3.0 datasets. Three-dimensional (volumetric) digital models were computed from the tomography datasets using Materialise MIMICS software. The centroid of each fiducial marker was identified by applying image morphology filters in MIMICS. Next, the CBCT models were registered to the MDCT model by a least-squares fitting technique, aligning all of the models in a common coordinate axis system. Distance from a common reference point to the centroid of each fiducial marker was measured using Materialise Magics RP rapid prototyping software; spatial deviations between fiducial markers locations in CBCT and MDCT derived models were calculated along the principal axes (ΔX, ΔY, ΔZ). It was found that spatial deviations of the CBCT models from the MDCT models were less than the discrete voxel dimensions of the MDCT model; thus,

insignificant in terms of discrete geometry. Statistical analysis was performed using a Multivariate Analysis of Variation (MANOVA, α=0.05); MANOVA analysis did not detect significant differences between spatial deviations amongst the CBCT scans along the different principal axis directions, for any of the exposures tested. These results imply that CBCT scans can yield similar spatial accuracy to clinical standard MDCT scans in craniofacial modeling applications.

11:00 **Richard Bibb, BSc. (Hons), PhD, AIMPT**

Senior Lecturer, Department of Design & Technology, Loughborough University, Leicestershire, UK

Rapid Prototyping in Surgery

Rapid prototyping and manufacturing (RP&M) technologies have now been utilised in medicine for about 15 years. They have been used more routinely over the last decade as access has improved and costs reduced. Several specialist service providers have been established across the world and as RP&M machines become ever cheaper an increasing number of hospitals are investing in their own facilities. This presentation will provide an overview of the current of medical applications of RP&M technologies and in particular applications in maxillofacial surgery and prosthetic rehabilitation. This will cover anatomical models, templates, surgical guides and the direct manufacture of Titanium implants.

As medical modelling has been in regular use for over a decade it is reaching maturity in many applications and the novelty factor has diminished. It is therefore timely to evaluate which applications are now considered routine or even best practice as well as identifying those applications that have provided the greatest benefits and any which do not represent good value. The presentation will include findings from recent research that attempted to arrive at an informed consensus on which applications of RP&M technologies are the

most beneficial and those which should be avoided. The research is based on over ten years experience in medical applications combined with semi-structured interviews conducted with four of the largest and busiest maxillofacial units in the United Kingdom.

11:30 **Sauerbier S. *[1], Glaum R.1, Metzger M.1, Gutwald R.1, Schmelzeisen R.1 , Mlhaupt R.[2], Carvalho C.2**

[1] Department of Oral and Maxillofacial Surgery, University Hospital Freiburg, Germany

[2] Freiburg Materials Research Center, Albert-Ludwigs-University Freiburg, Germany

Rapid Prototyping Scaffolding and Cell Printing

Purpose: Autologous, allogenic and alloplastic materials for the reconstruction of bone and soft tissue have specific applications in the cranio-maxillofacial area [1, 2]. The research for biomaterials and tissue engineering procedures aims at new synthetic and autologeous materials. The plotting of biomaterial with living cells combines both approaches. We suggest that mesenchymal stem cells (MSCs) are the better source because they are able to proliferate under low oxygen tension and differentiate when the oxygen level rises[3].

Methods and Materials: Principle of 3D-Bioplotting: A sodium alginate tricalcium phosphate-cell mixture is pressed out of a dispenser using gas pressure into calcium chloride solution. Parallel strands are plotted for each layer. The direction of the strands in each layer can be modified to create complex nets. The plot medium supports the structure by means of buoyancy. In a randomized clinical trial 45 maxillary sinus were augmented with MSCs and Bovine Bone Matrix (BBM) and 25 sinus with BBM and autologeous bone.

Results: Constructs were kept under culture conditions

for one week. Cells stayed viable inside the biomaterial and showed a similar apoptosis line as cultured cells without biomaterial. In the clinical trial no patient had signs of infection or lost the transplant. All could be treated with dental implants and supra-structure. Biopsies showed lamellar bone formation after 3 months.

Conclusion: 3D-Bioplotting of living cells is feasible. MSCs and BBM are suited for the augmentation of the severely atrophied maxillary bone. A combination of both methods is a future perspective in maxillo-facial surgery. Other than in current approaches where cells cover just the surface of a biomaterial, individualized 3D-constructs with viable MSCs inside could be used for the reconstruction of larger defects.

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12:00 **Sidney Fels**

Associate Professor and Director of the Media and Graphics Interdisciplinary Centre (MAGIC), Head of the Human Communication Technologies Research Lab, Dept. of Electrical and Computer Engineering, The University of British Columbia, Vancouver, BC, Canada

Dynamic Modeling of the Oral, Pharyngeal and Laryngeal Complex

We are contributing to the state of the art of dynamic

computer simulation of physiological structures by creating physically-based models of the human oral, pharyngeal and laryngeal (OPAL) complex and using them to study medical disorders of this area, including speech pathologies, dysphagias, and obstructive sleep apnea (OSA). The modeling process begins by extracting the 3D geometry of anatomical components from medical imaging data, using both data-driven and model-driven approaches, to create representative geometric models of the OPAL complex structures. We are also studying techniques and workflows for using patient-specific data to register these generic models to individual subjects. Once the geometry has been determined, it is used to create dynamic biomechanical models, the forward simulation of which allows us to investigate the functional behavior of the OPAL complex as well as simulate modifications of the soft and hard tissue components including muscle activation. To date, we have been investigating dynamics of coupled tongue, jaw, and hyoid structures with muscle behaviors during chewing and swallowing for normal and hemi- mandibulectomy patients. We have also used inverse modeling techniques to derive muscle activation patterns based on kinematic trajectories of jaw motion for different behaviors. We are currently extending our models to include the face and pharyngeal components.

The physical simulation is done using ArtiSynth, an open source biomechanics platform that we have created. It provides a cross-platform environment in which researchers can create and interconnect various kinds of dynamic and parametric models to form a complete integrated biomechanical system. Various GUI devices are available for interactively editing the models and controlling the simulation, including a graphical timeline allowing the temporal arrangement of input/output channels that can control or observe different model properties. Support is available for particles, rigid bodies, springs, and linear and non-linear finite element models, along with constraints and collision handling including friction.

This dynamic modeling of the OPAL complex provides researchers and clinicians new tools to understand the

complexities and behaviors of this highly sophisticated region. Through this improved understanding, better diagnosis, treatments and care may be developed.

Acknowledgement: This research has received funding from the Natural Sciences and Engineering Research Council grant in Canada, ATR and CRL in Japan, and the Peter Wall Institute of Advanced Studies.

12:30	Meeting Adjourns
13:30-16:30	CE Workshop Course *Located in the Crystal Ballroom 1*

BIOGRAPHIES

of the 2009 Essayists
in order of appearance on the program

Sunday, November 1st

8:15 **Carol A. Boliek PhD[1]**
Jana M. Rieger PhD[2]

[1] Associate Professor, Department of Speech Pathology and Audiology, Faculty of Rehabilitation Medicine and the Centre for Neuroscience, University of Alberta, Edmonton, Alberta, Canada

[2] Program Director for Functional Outcomes, Institute for Reconstructive Sciences in Medicine (iRSM) and Associate Professor, Department of Speech Pathology and Audiology, Faculty of Rehabilitation Medicine, University of Alberta, Edmonton, Alberta, Canada

Carol Boliek, PhD, is an Associate Professor in the Department of Speech Pathology and Audiology, Faculty of Rehabilitation Medicine and the Centre for Neuroscience at the University of Alberta. Her primary research interests are related to the role neuroplasticity plays in the acquisition of speech, mastication and deglutition within the context of both developmental and rehabilitation models. Dr. Boliek is the director of the Speech Physiology Laboratory which is designed to assess the physiological parameters of voice and speech across the lifespan. She and Dr. Rieger are currently investigating central and peripheral nervous system plasticity in patients who have undergone head and neck surgery for the treatment of oro-pharyngeal cancer and also facial reanimation surgery for the treatment of facial paralysis.

Jana Rieger is the Program Director for Functional Outcomes at the Institute for Reconstructive Sciences in Medicine (iRSM) in Edmonton, Alberta, Canada. Dr. Rieger established both the Head and Neck Surgery Functional Assessment Laboratory and the Stomatognathic Function Laboratory at iRSM. She holds a joint appointment between

iRSM and the University of Alberta, where she is an Associate Professor in Rehabilitation Medicine. Dr. Rieger is currently supported by the Alberta Heritage Foundation for Medical Research as a Heritage Researcher (Population Health Investigator). She is studying the effect of pharmaceutical and surgical interventions to determine the most effective approach to prevent xerostomia and maintain functional ability and quality of life in patients with head and neck cancer. Other current research interests include determination of function after surgical reconstruction and prosthetic rehabilitation of structures of the head and neck. Dr. Rieger has lectured internationally by invitation on functional outcomes of head and neck surgery and has published in scientific journals on research in this area.

9:05 **Jan Lewin**

Speech Pathology and Audiology at
M. D. Anderson Cancer Center,
Houston, TX

Dr. Lewin received her Ph.D. degree from Michigan State University in 1994. She is a well-known authority on speech and swallowing restoration in patients with head and neck cancer, and is a board-recognized specialist in swallowing. She served as the Director of the International Association of Laryngectomees and continues to lecture and write extensively for public education networks and cancer survivor groups. She has received numerous honors and awards for her meritorious contributions to academic scholarship. Dr. Lewin serves on the editorial board for Head and Neck and provides editorial review for additional journals. She has authored over 30 articles in peer-reviewed journals, 15 book chapters, along with other publications on the topic of functional restoration of speech and swallowing. Under her direction, the Section of Speech Pathology and Audiology at M. D. Anderson Cancer Center is recognized as the premiere program for functional rehabilitation and restoration of oncology patients.

BIOGRAPHIES

9:40 **Mark Chambers, D.M.D., M.S.**

Professor and Chief of the Section of Oncologic Dentistry and Director of the Clinical Research Program, Department of Head and Neck Surgery at M. D. Anderson Cancer Center, Houston, TX

Dr. Chambers received his D.M.D. and M.S. degrees in Biological Sciences from the University of Louisville, in Louisville, Kentucky. He completed his training in combined Prosthodontics at the University of Louisville and a fellowship in Maxillofacial Prosthetics and Dental Oncology at The University of Texas M. D. Anderson Cancer Center (MDACC) where he also received an American Cancer Society Clinical Fellowship in Oncology.

Dr. Chambers is a Professor and Chief of the Section of Oncologic Dentistry and Director of the Clinical Research Program in the Department of Head and Neck Surgery at MDACC. He is a member of numerous local, national, and international organizations, and serves the AAMP as the Executive Secretary-Treasurer. His current federal and corporate-sponsored research activities include efficacy trials of drug delivery systems in managing and preventing radiation-induced oral morbidities, integrative oral medicine, oral premalignancy diagnosing, and maxillofacial biomaterials.

10:30 **Barry Shipman D.M.D., F.A.A.M.P.**

Associate Professor, Nova Southeastern University Dental School, Miami FL

Barry Shipman D.M.D.,F.A.A.M.P. Dr. Shipman is affiliated with the Mt. Sinai Medical Center and is an adjunct Associate Professor at the Nova Southeastern University Dental School. Dr. Shipman received his D.M.D. degree from Tufts University School of Dental Medicine, his graduate prosthodontic

training at Kingsbrook Jewish Medical Center and his Maxillofacial Prosthetic training at Roswell Park Memorial Institute and the State University of Buffalo. Dr. Shipman held the rank of Associate Professor, Division of Oral and Maxillofacial Surgery, U.M.H.C, Sylvester Comprehensive Cancer Center, University of Miami School of Medicine, Miami, Florida and the rank of Professor, Medical College of Virginia School of Dentistry and School of Medicine and was the Director of Maxillofacial Prosthetics. Dr. Shipman is a life member of the AAMP and the American College of Prosthodontists. He is a member of the Head and Neck Tumor Board and Cancer Education Committee at the Mt. Sinai Medical Center, Miami Beach, Florida. He has lectured and written on a variety of related subjects and is currently involved in the development of rehabilitation modalities for managing trismus and the sequella associated with radiation therapy in head and neck cancer patients.

11:00 **Donald E. Antonson, D.D.S, M.Ed.**

Professor and Associate Chair,
Department of Restorative Dentistry
at the School of Dental Medicine,
University at Buffalo, SUNY,

Buffalo, NY

Dr. Antonson received his D.D.S. degree from Loyola University, Chicago, and earned his Master's Degree in Education from the University of Florida.

Until 2001, he served as Professor and Chair of Operative Dentistry at the University of Florida College of Dentistry. He also was the Director of Clinical Research for the Dentsply Caulk. In 2001 he was appointed as Professor and Chair of Cariology and Restorative Dentistry, and Clinic Director at Nova Southeastern University, College of Dental Medicine in Fort Lauderdale, Florida. Currently he is Professor and Associate Chair, Department of Restorative Dentistry at the School of Dental Medicine, University at

Buffalo, SUNY. His research interests include adhesive dentistry, micro-conservative dentistry, cariology, remineralization, dental lasers, periodontal/restorative relationships, polymerization techniques, indirect restoration techniques, ergonomics, CAD-CAM, and ceramic-based restorations.

He has been in private dental practice in Illinois and Florida, and currently maintains a faculty practice in Buffalo, NY.

11:30 **Robert L. Schneider, DDS, MS**

Professor, Hospital Dentistry Institute, Division of Maxillofacial Prosthodontics, University of Iowa Hospitals and Clinics, Iowa City, IA

Dr. Schneider works at the University of Iowa Hospitals and Clinics, Hospital Dentistry Institute, Division of Maxillofacial Prosthodontics, and holds the rank of Professor. He received his DDS from the University of Southern California and practiced general dentistry in Arizona for five years before earning his MS and Certificate in prosthodontics from the University of Iowa.

He has published extensively in the prosthodontic literature and is very active in many prosthodontic and dental laboratory organizations. Additionally he lectures nationally and internationally on many subjects addressing the clinical and laboratory phases of fixed, removable and implant prosthodontics. Dr. Schneider is a Diplomate of the American Board of Prosthodontics, Fellow in the American College of Prosthodontists, Past President and Past Executive Director of the American Prosthodontic Society, and has over thirty-five years experience as a dental technician. He is also a Fellow in the International Team for Implantology and the Academy of Osseointegration.

Monday, November 2nd

8:00 **Lyndon F. Cooper, D.D.S., Ph.D.**

Professor of Dentistry of the Department of Prosthodontics at the University of North Carolina at Chapel Hill

Dr. Lyndon Cooper D.D.S., Ph.D. is the Stallings Distinguished Professor of Dentistry of the Department of Prosthodontics at the University of North Carolina at Chapel Hill. He is currently Chairperson, acting Director of Graduate Prosthodontics and the director of the Bone Biology and Implant Therapy Laboratory. Dr. Cooper is a Diplomate of the American Board of Prosthodontics and serves as the president-elect of the American College of Prosthodontics Board of Directors. He received the ACP's 2004 Clinician/ Researcher Award and the IADR's 2009 Distinguished Scientist Award for Prosthodontics and Implantology. Dr. Cooper's laboratory focuses on bone biology, adult stem cell bone regeneration, and clinical evaluation of dental implant therapies. The laboratory receives funding through NIH and by industry collaboration. Their research findings have been presented in over 70 publications and in more than 200 national and international presentations. These efforts integrate basic and clinical research to improve patient care.

9:00 **Dale G. Howes, B.Sc.(Dent); BDS; M.Dent (Pros); FCD(SA)**

Prosthodontist, Multidisciplinary Head and Neck Reconstruction Unit, Morningside Medi-Clinic, Morningside Johannesburg, SA and Senior Consultant of the Post Graduate Fixed Prosthodontic Programme at the University of the Witwatersrand, School of Oral Health Sciences

Professor Howes is in full time private Prosthodontic practice in Morningside Johannesburg. He is in practice with 4 Prosthodontists and two hygienists who help supply the advanced restorative services to the Multidisciplinary Head and Neck Reconstruction Unit at the Morningside Medi-Clinic.

He is the senior consultant of the Post Graduate Fixed Prosthodontic Programme at the University of the Witwatersrand, School of Oral Health Sciences. He is an internal examiner for this programme and has served as external examiner at Gent University, Belgium and the University of Pretoria. He has served as examination coordinator and examiner for the South African College of Dentistry. This College has recently awarded him a fellowship by peer review.

He is the current President of the Academy of Prosthodontics of South Africa and serves on the National Council of the South African Dental Association. He has published, both locally and internationally in refereed journals. His research with Dr Boyes Varley and others (including Professor PI Brånemark) has received prizes including the Scientific session at the Nobel Biocare World Conference in Las Vegas (2003), the Academy of Osseointegration in Boston (2008) and he was awarded best presentation for his lectures at the Southern Implants International Congress held in Fancourt (2000).

Professor Howes' implant related studies have resulted in new implant designs and procedures being published and accepted at the international congresses of the

Academy of Osseointegration in the USA and the European Association of Osseointegration meetings in Belgium and Paris as well as at the International College of Prosthodontists. Professor Brånemark invited him and Dr Boyes-Varley to present their work to the 40th anniversary World Celebration of Osseointegration in Sao Paulo in 2005. They are now involved in multicentre collaboration studies with P-I Brånemark and other international centres.

He is advancing international research in digital technology in craniofacial reconstruction. He has rapid prototyping technology for the diagnostics, virtual surgery and guided surgery for basic and advanced head and neck rehabilitation with the PI Branemark Institute of South Africa which he founded (on the invitation of PI Brånemark) with Dr Boyes -Varley. His other research interests have involved jaw movement studies, occlusion and caries susceptibility. He has lectured extensively in South Africa, Zimbabwe and Namibia, as well as internationally in Hong Kong, Sweden, United Kingdom, Australia, Belgium and across the United States of America in addition to a regular lectureship with the Georgia Academy of General Dentistry. As an undergraduate student, he was awarded South African National "Springbok" colours for rowing, winning a bronze medal at the British International Rowing Championships. His spare time is filled by his family, Rowing, Canoeing, Squash, Cycling and his workshop.

10:30 **Joe Kan, DDS, MS**

Professor in the Department of Restorative Dentistry, Loma Linda University School of Dentistry, Loma Linda, CA and maintains a private practice limited to Prosthodontics and Implant Surgery

Dr. Kan completed his Prosthodontics and Implant Dentistry training from Loma Linda University School of Dentistry (LLUSD) in 1997. He is a Professor in the Department of Restorative Dentistry in LLUSD and maintains a private practice limited to Prosthodontics and Implant Surgery. Dr. Kan is on the Editorial Board of the European Journal of Esthetic Dentistry and the Practical Periodontics & Aesthetic Dentistry. His honors include the 1997 Best Research Award from the Academy of Osseointegration, 2003 Judson Hickey Award from the Journal of Prosthetic Dentistry, and 2005 Robert James Achievement Award in Implant Dentistry.

11:00 **John B. Brunski, Ph.D**

Professor, Department of Biomedical Engineering, Rensselaer Polytechnic Institute, Troy, NY

John B. Brunski is Professor at Rensselaer Polytechnic Institute in Troy, NY. He was recently appointed as Senior Research Engineer in the Division of Plastic & Reconstructive Surgery at Stanford University's School of Medicine. Dr. Brunski has authored numerous articles and chapters on oral/maxillofacial implants; served on editorial boards of several journals; and is currently a member of NIH's Musculoskeletal Tissue Engineering Study Section. Dr. Brunski has a consulting position in OsseoConception LLC, a company that he and his partner, Dr. Kenji W. Higuchi, founded in 2007. Dr. Brunski's current research on mechanobiology at bone-implant interfaces is supported by NIH. Professor Brunski has received a number of research

awards, including: the 2001 Isaiah Lew Memorial Research Award (AAID Research Foundation); the 1st William R. Laney Visiting Professorship (Mayo Foundation, Rochester, MN); 2006 Jerome M. and Dorothy Schweitzer Research Award (Greater NY Academy of Prosthodontics); and the 2007 Anders Tjellström Award (COMPRU, Edmonton, Alberta).

Tuesday, November 3rd

8:15 **Dennis Rhoner, MD, DMD**

Associate Professor, University of Basel, Basel, Switzerland

Dennis Rohner completed the Dental and Medical Board examinations in 1985 and 1990, respectively. He has been trained in Handsurgery, General Surgery and Orthopedic Surgery before entering the Dept. for Reconstructive Surgery. He spent 1 year as Research/ Clinical Fellow in Singapore (Plastic Surgery, Singapore General Hospital). He completed his training in Maxillofacial and Reconstructive Surgery at the Universityhospital of Basel (Prof. J.Prein) in 1999.

In 2005 he has written a master thesis ("Prefabrication of free vascular flaps") and was subsequently appointed as an Associate Professor at the University of Basel. He is one of the founders of the Cranio Facial Center, where he practices since 2003.

Dennis Rohner is a Faculty Member of AO International. He has lectured and published internationally. His research interests include tissue engineering, prototyping of resorbable scaffolds, prefabricated free flap reconstruction and application of 3D manufacturing technology.

9:00 **Rosemary Seelaus, MAMS**

Senior Anaplastologist and Clinical Assistant Professor at The Craniofacial Center, University of Illinois Medical Center (UIC) in Chicago, Chicago, IL

Rosemary Seelaus, MAMS is Senior Anaplastologist and Clinical Assistant Professor at The Craniofacial Center, University of Illinois Medical Center (UIC) in Chicago. She is a clinician, researcher and instructor in the Maxillofacial Prosthetics Clinic and in the Department of Biomedical and Health Information Sciences. Ms. Seelaus received her graduate degree, MAMS, in 1997 from UIC, where she specialized in 3D modeling and facial prosthetics; she is an alumnus of Northwestern University where she received her Bachelor of Science degree in 1989. Ms. Seelaus has been practicing clinically for nearly ten years, and maintains a clinical focus on the use of osseointegrated implants and technology in facial prosthetics.

Ms Seelaus is an active researcher, instructor and developer of advanced technology and techniques in anaplastology. She has a particular interest in the contribution of digital technologies towards improving the surgical and prosthetic outcomes of patients worldwide; an area of research and development that she has pursued for the entirety of her career. Ms. Seelaus is currently involved in research addressing the use of 3D digital imaging and modeling, CADCAM and rapid prototyping for surgical and prosthetic reconstruction; and in the use of spectrophotometry and computerized colour formulation to enhance the predictable colouration of facial prostheses.

Ms. Seelaus is active in her professional and peer associations, has served in board positions for the American Anaplastology Association (IAA) and the Board for Certification in Clinical Anaplastology (BCCA), and is a Research Fellow with the Institute for Reconstructive Sciences in Medicine (iRSM), Edmonton, Alberta, Canada. She has lectured

extensively, nationally and internationally, on her research interests and clinical experience.

She enjoys spending time outdoors, exploring the latest technology in bicycles, boards and boats.

9:30 **Ben King, IDSA**

Industrial Designer, iRSM (Institute for Reconstructive Sciences in Medicine) and the University of Alberta, Edmonton, AB, Canada

Ben King is an Industrial Designer with iRSM (Institute for Reconstructive Sciences in Medicine) and the University of Alberta. He has extensive experience with Computer-Aided-Design, Rapid Prototyping, visual communication, as well as product visualization and development. Ben incorporates user-centered and participatory design strategies to achieve innovative approaches within interdisciplinary projects, which have included products and services for Rehabilitation Medicine, Engineering, Audiology and Pediatric Medicine. Ben has experience designing and teaching courses on 3D modeling, and is dedicated to improving patient health care experiences and enhancing the abilities of health professionals.

10:30 **Gerald T. Grant DMD, MS**
Shayne A. Kondor* MSAE
Robert M. Taft DDS
Deborah Shuemaker ME, MS
Charles Doyle

*Medical Modeling Engineer,
Naval Postgraduate Dental School,
Bethesda, MD

Mr. Kondor is a Medical Modeling Engineer with the Craniofacial Imaging Research Group at the Naval Postgraduate Dental School in Bethesda, MD, where he has been conducting research in Craniofacial Imaging and Rapid Prototyping Modeling techniques since October 2008. His research interests are the acquisition and use of Cone Beam Computed Tomography in craniofacial reconstruction. He is also a part-time Senior Research Engineer with Georgia Tech Research Institute in Atlanta, GA, investigating computer modeling of human anatomy. From 1996–2008 Mr. Kondor was a full-time research engineer with GTRI investigating fluid flow, medical modeling, rapid prototyping and dental materials. He earned a Bachelor of Aerospace Engineering in 1990 and Master of Science in Aerospace Engineering in 1991, both from Georgia Tech, and is currently a doctoral candidate in the Georgia Tech School of Aerospace Engineering.

11:00 **Richard Bibb, BSc. (Hons), PhD, AIMPT**

Senior Lecturer, Department of Design & Technology, Loughborough University, Leicestershire, UK

Dr. Bibb graduated in Industrial Design in 1995 and then moved to the National Centre for Product Design & Development Research (PDR) to undertake doctoral research in rapid prototyping. After obtaining his doctorate he established the Medical Applications Group, formed in response to the increasing demand

for PDR's expertise from medical companies and hospitals. This service is still highly active and has supplied over 1000 medical models to more than 70 hospitals, universities, museums and medical companies worldwide.

He moved to Loughborough University in June 2008 to continue his research into the effective application of advanced product design and development technologies in medicine. The creation and pursuit of on-going collaborative research programmes has resulted in international conference presentations in the UK, Belgium, Germany, Spain, Japan, South Africa, Canada and the USA and more than 40 peer-reviewed publications.

11:30 **Sauerbier S. *[1], Glaum R.1, Metzger M.1, Gutwald R.1, Schmelzeisen R.1 , Mlhaupt R.[2], Carvalho C.2**

[1] Department of Oral and Maxillofacial Surgery, University Hospital Freiburg, Germany

[2] Freiburg Materials Research Center, Albert-Ludwigs-University Freiburg, Germany

Dr. Sauerbier graduated from Jakob-Grimm-Schule Rotenburg a.d.F., where he was a member of the Honor Society for academic achievement,1993-1996. Then continued his studies in Germany at Ludwigs-University Freiburg Dental and Medical School where he received the Chemical Industry Foundation Award for best exam in Chemistry, 1996 - 1997 and Military Service in Artillery Meteorological Service Award for exceptional service, 1997 - 2005. Upon graduation he completed an internship at the Department of Oral and Maxillofacial Surgery, University Clinic Freiburg, Germany and received an award for best achievements in preclinical prosthetics, 2003 - 2004. He also received an award for best achievements in preclinical prosthetics, 2003 - 2004. He also completed internships at the Department of Oral and Maxillofacial Surgery, University Clinic Freiburg, Germany, the

Department of Rheumatology and Pulmonology Zrcher Hhenklinik, Davos, Switzerland, and the Trauma-Unit, Gastrointestinal-, Vascular-Surgery, Groote Schur Hospital, University of Cape Town, South Africa, 2002 - 2006.

He was Junior Researcher at the Department of Operative Dentistry and the Department of Oral and Maxillofacial Surgery, University Clinic Freiburg, Germany, with focus on Self Etching Primers, Plate-Osteosynthesis, Tissue Engineering of Oral Mucosa and Bone, 2006 and MD on Self Etching Primers, 2006. From 2006 - present he completed Cranio-maxillofacial training University Clinic Freiburg, Germany. A research visit of Cranio-maxillofacial Surgery Clinic in Groningen, Netherlands in 2007, IPJ-Poster Award with research focus on regenerative medicine, stem cells and biomaterials (In-vitro, In-vivo, clinical trials) in 2008, national and international research collaborations (University of Trieste, Italy; University of Groningen, Netherlands; Srinakharinwirot University Bangkok, Thailand, Harvard University, Boston, USA; University of Sao Paulo, Brazil).

12:00 **Sidney Fels**

Associate Professor and Director of the Media and Graphics Interdisciplinary Centre (MAGIC), Head of the Human Communication Technologies Research Lab, Dept. of Electrical and Computer Engineering, The University of British Columbia, Vancouver, BC, Canada

Sidney Fels has been in the department of Electrical & Computer Engineering at the University of British Columbia since 1998. Sid received his Ph. D. and M.Sc. in Computer Science at the University of Toronto in 1994 and 1990 respectively. He received his B.A.Sc. in Electrical Engineering at the University of Waterloo in 1988. He was recognized as a Distinguished University Scholar at UBC from 2004. He was a visiting researcher

at ATR Media Integration & Communications Research Laboratories in Kyoto, Japan from 1996 to 1997. He is known for his work in human-computer interaction, biomechanical modeling, neural networks, intelligent agents, new interfaces for musical expression and interactive arts. He leads the group that created the Artisynth (HYPERLINK "http://www.artisynth.org" www.artisynth.org) modeling and simulation environment his team uses for modeling the oral, pharyngeal and laryngeal complex. He has been the Director of the Media and Graphics Interdisciplinary Centre (MAGIC) since 2001.

COMPETITION POSTER PRESENTATIONS

Table #1

Association Between Microbial Flora and Peri-Implant Tissue Abonrmality Around Dental Implant Penetrating Skin in Reconstructed Oral Cancer Patients

Ahmed.A.A., Jacob.R.F
The University Of Texas, MD Anderson Cancer Center, Section Of Oncologic Dentistry and Maxillofacial Prosthodontics, Houston, TX, US

Purpose: Oral cancer patients who have reconstruction of their jaws and dental implants passing through skin, have been reported to have an incidence of granulamatous peri-implant tissue. This pilot clinical trial determines the microflora of the skin peri-implant sulcus in oral sites without abnormality compared with sites exhibiting hyperplasia or erythema.

Methods & Materials: Ten patients (10) who meet the eligibility criteria were examined during their routine follow up for their implant retrained removable prothesis.8/10 patients had ± osteocutanous free flaps and 2/10 had split thickness skin grafts. Subjects had at least two independent Astratech intraoral implants penetrating skin with one implant having confined localized erythema or granulamatous tissue. The length of abutments ranged from 2-5mm with =3mm as the median length. Microbiological paper point samples were taken from precrevicular fluid of both implants. One month later the samples were repeated after the patients followed a strict oral hygiene regimen to brush the tissues twice daily with a soft tooth brush. Microbial

identification was done through culture technique using selective and nonselective media; incubated aerobically and anaerobically. Biolog microbial identification system (Hayward, California) was used to identify the microflora after isolation and purification of different growing colonies.

Results: The range of the microbial species within sites was from 10-21 per site. Among all patients, there were 44 different microbial species identified. None of the organisms were virulent periodontal pathogens. After strict mechanical tissue cleaning, some subjects had elimination of some species. Almost all subjects had identical microbial species in both sites, but the visible colonies were fewer in the normal site. The difference between both sites was observed through the quantity more than the quality of the microorganism isolated.

Conclusion: This inflammatory change is related to the volume of the microorganisms rather than specific pathogens. Mechanical oral hygiene improves these redundant tissues and maintains healthy peri-implant skin tissues.

Table #2

New Technologies Applied to the Design and Fabrication of an Auricular Prosthesis

Bell D.L., Liacouras P.C., Wilson W.O., Grant G.T.
Naval Postgraduate Dental School, Navy Medicine Manpower, Personnel, Training and Education Command, Bethesda, MD, US

This case report demonstrates the advancement of previous techniques with the use of new equipment, materials and technology to decrease the fabrication time of an auricular prosthesis. With the use of digital technology and rapid prototyping, prosthetic molds can be made virtually and machine built alleviating the necessity for a moulage impression, a diagnostic wax-up, and a patient verification appointment. This procedure not only decreases the fabrication time for delivery of the prosthesis, but also generates a reusable, easily duplicated mold that is not as susceptible to breakage or deterioration when compared to a conventionally fabricated gypsum mold.

Table #3

Antimicrobial Efficacy of Various Oral Topical Agents on Common Microorganisms Associated with Radiated Head and Neck Cancer Patients- An In-Vitro Study

Avinash S.Bidra B.D.S., M.Dent.Sc., Jeffery Tarrand MD, Dianna Roberts PhD, Kenneth Rolston MD and Mark S.Chambers DDS, MS.
MD Anderson Cancer Center, Section of Dental Oncology, Department of Head and Neck Surgery, Houston, TX, US

Purpose: Oral side effects of radiation therapy in head and neck cancer patients are broad and are well documented in the literature. As the oral ecology of these patients is altered because of the radiation therapy, a variety of topical agents are used for prevention and treatment of side effects. A comparison of microbial inhibitory efficacies of these topical agents is unknown.

Methods & Materials: Seven commonly used topical oral agents—0.12% chlorhexidine rinse, alcohol-free 0.12% chlorhexidine rinse, baking soda-salt rinse, 0.4% stannous fluoride gel, 0.63% stannous fluoride rinse, calcium phosphate mouth rinse, and acemannan hydrogel (Aloe Vera) rinse—were evaluated in vitro for their microbial inhibitory efficacy against four common microorganisms related to head and neck cancer patients. A combination of baking soda-salt rinse and 0.4% stannous fluoride gel was evaluated as the eighth agent. A Minimum inhibitory concentration (MIC) assay was performed. The microorganisms used were Staphylococcus aureus, group B Streptococcus, Escherichia coli, and Candida albicans. A quantitative analysis using enzyme linked immuno-sorbent assay (ELISA) was performed for each of the wells on the tissue culture plate. Wells with lowest optical density (OD) values represented the least growth of a microorganism. Thus, for each set of topical agent and microorganism, four wells with the lowest OD values were chosen and divided by the OD of the control well. The mean of these 4 ratios were used for all statistical analysis. Tukey HSD test was done to compare the mean ratios at an alpha value of .05.

Results: There was a significant difference in microbial inhibitory efficacy between the various topical agents against each microorganism. ($P < .05$). The mean value of OD ratios (<1) classified for agents from lowest to highest were: chlorhexidine with alcohol, chlorhexidine without alcohol, baking soda-salt, calcium phosphate rinse and combination of baking soda-salt and stannous fluoride. The stannous fluoride gel, stannous fluoride rinse and acemannan had mean value of OD ratio greater than 1. There was no significant difference in ratios of mean OD values between chlorhexidine containing alcohol and chlorhexidine without alcohol The mean value of OD ratios (<1) classified for microorganisms from lowest to highest were Escherichia coli, Staphylococcus aureus and group B Streptococcus. Candida albicans had a mean value of OD ratio greater than 1.

Conclusion:

1. There was a significant difference between the microbial inhibitory efficacies of each topical agent against all of the four microorganisms. ($p<.05$).
2. There was a significant difference between the microbial inhibitory efficacies of various topical agents for each of the four microorganisms. ($p<.05$).
3. There was no difference between the microbial inhibitory efficacies of chlorhexidine with alcohol and chlorhexidine without alcohol for all microorganisms.

Table #4

Use of 3D Digital Stereophotogrammetry to Enhance the Esthetic Outcomes of Complex Maxillofacial Obturator Patients

Gunnell, T.R.*, Villalobos, J.J., Carballeyra, A.D.
Wilford Hall Medical Center, United States Air Force Maxillofacial Prosthetics Department, Lackland Air Force Base, TX, US

Purpose: Restoration of the maxillectomy patient with an obturator prosthesis provides a unique and

enjoyable challenge for providers. The multi-faceted tasks of restoring phonation, deglutition, esthetics and masticatory function are all paramount to a successful outcome. Besides the extent of surgical resection, wound contracture and post surgical radiation affects the ability of an obturator prosthesis to provide and restore maximum lip and soft tissue support for esthetics. This poster describes a process that can be used to evaluate facial change associated with surgical resection of the maxilla and clarify a desired esthetic outcome using 3D surface imaging.

Methods & Materials: 3dMDcranial™ system was used to acquire 3D surface images of the patient's face with and without the obturator prosthesis in place. The 3dMD images were then imported into Geomagic Studio® software for analysis. A mirror image of the patient's non-affected side was correlated over the side of the face receiving the maxillectomy. Histogram and volumetric calculations were utilized to provide topographical measurements to aid in the recontouring during the fabrication of a new prosthesis. Patient symmetry and esthetics were numerically and subjectively evaluated using this approach.

Results: The process described provides a starting point from which to begin construction of an obturator prosthesis. Although the face is not symmetrical, a likeness of symmetry can be restored to the affected patient digitally using a mirror image of the non-affected side. This allows a close approximation of the patient's pre-surgical facial form and provides numerical calculations to help guide the restorative process. Treatment is individualized maximizing the patient's esthetic outcome and not based on anatomical norms.

Conclusion: The 3dMDcranial™ system and Geomagic Studio® Software used together, allow quantification of deficient facial structures and provides guidance during the construction of an obturator prosthesis to aid in restoring the patient's facial esthetics.

Table #5

Microstomia - Implant Rehabilitation of a Victim of Domestic Violence

Klostermyer,U.; Flinton,R.; Weiner,S.

Umdnj University of Medicine and Dentistry New Jersey, Postgraduate Prosthodontics, Restorative Department, Belle Mead, NJ, US

Purpose: Case presentation of an unusual case

Methods & Materials: Patient presentation, Treatment planning, the poster leads through the treatment and demontrates the success

Results: Successful treatment of a microstomia case.

Conclusion: Microstomia can be either congenital or aquired. In either case, dental management is complex, particularybecause of the lack of access for oral hygiene as well as professional treatment, including surgical and restorative phases.This table clinic illustrates management of aquired microstomia (from acid thrown in face) in an individual, who lost her mandibular dentition because of her inability to manage plaque control and oral hygiene. Implants and an unique designed two piece mandibular removable prothesis was designed.

Table #6

A Proposed Universal Maxillectomy Classification System Part I: Retrospective Analysis

Klotz, Mw, Bohle, Gc, Patel S, Estilo Cl, Huryn Jm

Memorial Sloan-Kettering Cancer Center, Department of Surgery- Dental Service, New York, NY, US

Purpose: Multiple publications have discussed proposed systems to classify maxillectomy defects from both surgical and prosthodontic perspectives. Classification systems enable colleagues to accurately describe treatment rendered to patients and prepare them for future rehabilitation. The purpose of this study is to apply

the known prosthodontic maxillectomy classification systems and propose a universal classification system based on a 46 year experience in a single institution.

Methods & Materials: Records from 1963 to April 2009 were reviewed for patients who underwent a maxillectomy, craniofacial resection, soft palate resection, or delivery of a surgical obturator at Memorial Sloan-Kettering Cancer Center. Patients were excluded if there was no oroantral communication with the need for an obturator. Following approval by the Institutional Review Board, the following data were collected: hospital medical record number, gender, operating surgeon, operating dental surgeon, date of procedure, histological diagnosis, anatomical site, size of lesion as described by final pathology report, and extent of maxillectomy. A schematic diagram of the oral cavity was obtained and the defect was drawn for each patient. Using established prosthodontic oriented classifications, the patients were grouped for analysis.

Results: Records from 1963 to April 2009 were reviewed for patients who underwent a maxillectomy, craniofacial resection, soft palate resection, or delivery of a surgical obturator at Memorial Sloan-Kettering Cancer Center. Patients were excluded if there was no oroantral communication with the need for an obturator. Following approval by the Institutional Review Board, the following data were collected: hospital medical record number, gender, operating surgeon, operating dental surgeon, date of procedure, histological diagnosis, anatomical site, size of lesion as described by final pathology report, and extent of maxillectomy. A schematic diagram of the oral cavity was obtained and the defect was drawn for each patient. Using established prosthodontic oriented classifications, the patients were grouped for analysis.

Conclusion: The well-known prosthodontic classification systems developed by Aramany and Okay are based on the clinical experience of 123 patients in 6 years and 47 patients in two years, respectively. Using retrospective data from our 447 patients and applying the previously developed classification systems, a proposed classification system was developed. This

new system utilizes three defined parameters (D- defect size, L-defect location, T- number of teeth remaining) that describe the complexity of rehabilitation while promoting standardization of communication among colleagues, patients, and third party carriers.

Table #7

Use of Orbital Conformer to Improve Speech in Patients With Confluent Maxillectomy and Orbital Defects

Nichols C*, Bohle G, Golden M, Estilo C, Huryn J
Memorial Sloan-Kettering Cancer Center, Dental Service, New York, NY, US

Purpose: Prosthetic rehabilitation following radical maxillectomy and orbital exenteration is a challenging endeavor. Given its central location in the midface and its contributions to the key midfacial elements (the orbit, the zygomaticomaxillary complex, the nasal unit, and the stomatognathic complex) the maxilla functions as the keystone of the midface and unifies these elements into a functional and esthetic unit. Maxillary defects are inherently complex because they generally involve more than one midfacial component. In the prosthetic restoration of confluent maxillary and orbital defects the following goals should be met: (1) obturation of the defect; (2) restoration of speech and deglutition; (3) provision for adequate structural support to each of the midfacial units; and (4) esthetic reproduction of the external features on basis of contralateral anatomy. The maxillary obturator prosthesis often satisfies the objective of adequate deglutition; however, defects that are not obturated in the medial septal or posterior walls of the orbital defect still allow air to escape, which impacts phonation. The following protocol addresses the prosthetic restoration of speech and deglutition with the combination of the maxillary obturator prosthesis, orbital conformer, and orbital prosthesis using magnetic attachments.

Methods & Materials:

1. Fabrication of definitive maxillary obturator prosthesis based on the wearing history of the

maxillary interim obturator prosthesis. Sequence for fabrication of maxillary obturator prosthesis:

A. Irreversible hydrocolloid impression for pouring of master cast
B. Bite rim fabricated from master cast
C. Jaw relation records
D. Wax set-up of teeth
E. Verification of esthetics and phonetics from wax set-up of teeth
F. Finishing and processing for delivery of maxillary obturator prosthesis

2. Fabrication of intermediary orbital conformer to aid in sealing septal defect to eliminate air escaping from this area. Sequence of fabrication for the orbital conformer:
   A. Irreversible hydrocolloid impression of orbital defect with obturator in position
   B. Trim and modify impression
   C. Convert to heat processed clear acrylic resin conformer
   D. Polish and finish
   E. Connection of maxillary obturator prosthesis to orbital conformer segment by use of magnetic components embedded in acrylic using chairside self-cure acrylic

3. Fabrication of orbital prosthesis
   A. Irreversible hydrocolloid moulage with maxillary obturator prosthesis, orbital conformer, and magnetic positioning jig in position and pouring of Type IV stone for master cast
   B. Wax-up of orbital prosthesis on acrylic resin base housing the magnetic attachments
   C. Trial appointment of wax orbital prosthesis
   D. Conversion of wax orbital prosthesis to silicone definitive orbital prosthesis

4. Delivery of three prosthetic components via magnets placed at right angles of the two opposing base prostheses to provide optimal retention and stability

Results: Prosthetic rehabilitation of confluent maxillectomy and orbital defects with use of the intermediary orbital conformer prosthesis optimizes closure of passages for

air leaks, especially the non-maxillectomy defects which historically has often compromised phonation in these patients.

Conclusion: The favorable outcome of this protocol is evident at Memorial Sloan-Kettering Cancer Center as patients rehabilitated with the maxillary obturator prosthesis-orbital conformer-orbital prosthesis with magnetic attachments report long term success and satisfaction. The addition of the orbital conformer component has advantages as it aids in proper orientation of the maxillary obturator prosthesis and orbital prosthetic components for better retention and stability, better seals the non-maxillectomy defect areas decreasing air leakage and improving phonation, decreases the bulk of material necessary for fabrication of the maxillary obturator and orbital prostheses, and increases support of midfacial contours.

Table #8

Radiopaque Markers Incorporated Into Pediatric Ocular Prostheses

Nichols C, Bohle G, Estilo C, Huryn J, Abramson D
Memorial Sloan-Kettering Cancer Center, Dental Service, New York, NY, US

Purpose/Introduction: Pediatric patients who wear a custom ocular prosthesis following enucleation are at risk for swallowing that prosthesis. Mouthing habits in the patient population <4 years old need to be considered when instructing the parents on ocular care. While the acrylic resin is non-toxic it is also radiolucent and difficult at best to detect with radiologic imaging. The purpose of this study was to develop a more radiopaque ocular prosthesis by incorporating barium sulfate, dental composite resin, or tin foil into the prosthesis so that if the child were to swallow or aspirate the prosthesis it would be more easily viewed on routine imaging.

Methods & Materials: The study design compared by subjective and objective measurements a standard acrylic resin ocular prosthesis to the experimental

ocular prostheses containing several familiar radiopaque materials. The experimental materials were a dental composite resin (Gradia Direct, GC America, Alsip, IL), .016"aluminum foil (Ash's Metal, Niagara Falls, NY) , or varying concentrations by weight (10%, 20%, 30%, 50%) of barium sulfate powder (E-Z-HD Barium sulfate for suspension (98% w/w), E-Z-EM, Inc.). The subjective measures used three prosthodontists to evaluate the physical and cosmetic properties of the acrylic resin used for the ocular and five radiologists to interpret the films. The objective measure used to test each of the proposed techniques, required a cone beam computer tomography scan (ILUMA scanner, IMTEC Corp, Ardmore, OK) placing the control and completed experimental oculars inside of a standard radiological phantom torso.

Five radiologists were chosen as examiners to rate the oculars from the easiest to most difficult to visualize on a standard chest plain film that would most likely be ordered should a patient swallow/aspirate the prosthesis. In addition an analysis using Hounsfield Units (HU) was completed (V-implant software, ILUMA scanner, IMTEC corp.) on the experimental oculars for a quantitative measure of the relative density of the prosthesis in relationship to the control prosthesis and normal anatomical structures.

Results: The three prosthodontists rated the overall surface topography and esthetic appeal of the scleral acrylic resins. The ocular acrylic resins containing either the dental composite or the foil had no changes in properties when compared to the control. The ocular acrylic resins impregnated with the varying concentrations of the barium however exhibited increasing porosity as the %/wt of barium increased. Thus the 50% mixture was virtually unusable from a material property and cosmetic standpoint.

The plain film identification test from the five radiologists indicated that all of the examiners found the control prosthesis the most difficult to distinguish and the experimental ocular prosthesis with aluminum foil and composite the next most difficult to visualize. The prostheses with varying concentrations of barium sulfate powder were easier to identify with three out

of five radiologists finding the prosthesis with a 50% concentration of barium the easiest to see followed by the prosthesis with a 30% concentration. Most of the radiologists candidly offered that it was difficult to see the difference in the two concentrations.

The Hounsfield Unit analysis found that the control prosthesis was comparable to surrounding soft tissue explaining why it the most difficult to visualize. The experimental prostheses with the dental composite and the tin foil carried HU comparable to bone with very low density however the orientation of the prosthesis must be perpendicular to the axis of the film or it will remain difficult to visualize due to the small amount of the radiopaque material. The prostheses with barium sulfate were more readily identified regardless of orientation due to the fact the barium is dispersed throughout the entire sclera. The 10-20% range mimicked bone without affecting the physical properties. The prosthesis with a 30% concentration of barium sulfate carried a median 1223 HU value making it appear as very dense bone in the lung or digestive tract. While this makes identification very easy the physical properties of the acrylic resin are becoming altered to a questionable state.

Conclusion: The addition of any of these three materials will allow easier visualization of the ocular on plain film radiographs when compared to the control. The technique for the addition of the materials will not distort the prosthesis in any manner provided the concentration of barium does not exceed 20% by weight. Because mouthing is an innate tendency within this age-group the possibility of a patient swallowing an ocular is plausible, therefore the addition of a suitable radiopaque marker is recommended for all pediatric patients wearing an ocular prosthesis.

Table #9

Nasal Prosthesis Utilizing Novel Fabrication and Retention Techniques to Treat a Total Rhinectomy

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Department Of Post-Graduate Prosthodontics, Fresh Meadows, NY, US

Purpose: To fabricate a nasal prosthesis utilizing novel techniques, incorporating lighter materials to improve retention.

Methods & Materials: A facial moulage of the patient's nose was captured with alginate and quick-set plaster. The cast was poured in type III stone. A duplicate of the cast was made, and sectioned at the midline of the nose. The left side of the nose was removed from the cast and replaced by a preliminary wax-up. This was based on the patient's right side.

After eight weeks of healing post-radiation therapy, an alginate impression of the defect was made using a custom triad tray. This impression was poured in type III stone. The depth of the posterior aspect of the defect was reduced with block-out compound allowing 1.5" of space anteriorly for the fabrication of the retentive component for the final prosthesis. A breathing tube was constructed using boxing wax, and placed at the center of the defect. Ortho resin (polymethylmethacrylate) was poured into the defect up to the anterior margin circumferentially, allowing intimacy of the material with the surrounding skin. The cast was sectioned to retrieve the retentive component.

On the patient, the margins of the retentive component were evaluated against the soft tissue, and engagement of the natural undercuts under function. There was no evidence of dislodgement. A pick-up impression of the retentive component was taken using regular and light body polyether, and poured in type V reinforced stone. The component was removed from the cast, and retentive elements were placed on the facial aspect. A bulk wax-up was made on the final cast.

At the esthetic try-in, the wax-up was adjusted three-dimensionally, and refined utilizing the patient's daughter's nose as a reference. Clinical pictures and measurements were taken of both the patient and the daughter, which was then developed on the wax-up indirectly.

The final prosthesis utilized a hollow cast titanium substructure to minimize weight. Veneering acrylic and silicone were utilized to finalize the prosthesis. Margination was successfully incorporated for adaptability under function. At the time of placement, final coloring was accomplished with the assistance of an Anaplastologist.

Results: The fabrication of a highly retentive prosthesis that has the advantage of being lighter than a conventional prosthesis.

Conclusion: The novel technique and fabrication design enabled this prosthesis to be lighter and more adaptable under patient function.

Table #10

Effect of UV Protecting Mineral-Base Opacifier on Color Stability of Pigmented Maxillofacial Silicone Elastomer Subjected to Artificial Aging.

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[4]Professor and Chief Section of Oncologic Dentistry and Prosthodontics. Director of Clinical Research

Department of Head and Neck Surgery. Department of Radiation Oncology. The University of Texas M.D. Anderson Cancer Center, Houston, TX.
[5]Associate Professor, Department of Restorative Dentistry and Biomaterials, The University of Texas Dental Branch, at Houston, TX.

Objectives: To determine the effect of UV mineral-based opacifier in comparison to 2 commonly used opacifiers on the color stability of pigmented silicone A-2000 maxillofacial elastomer when subjected to artificial aging.

Methods: Forty-five groups (n=5) were made by various combinations (5%, 10%, and 15%) of 2 dry earth opacifiers (UV mineral-base [Uv], titanium white dry pigment [Td]); and 1 silicone pigment white [Sw] with one of 5 silicone pigments (no pigment only opacifier [control], red [Pr], yellow [Py], burnt sienna [Po], and a mixture of Pr+Py+Po). A reflection spectrophotometer was used for color measurements. Color differences (ΔE^*) between baseline and after an energy exposure of 450 kJ/m2 in an artificial aging chamber were calculated. A $\Delta E^*=3.0$ was used as 50:50% acceptability threshold in result interpretation, while $\Delta E^*=1.1$ was used as 50:50% perceptibility threshold. Means were compared by Fisher's PLSD intervals at the 0.05 level of significance. Color differences after aging were subjected to 3-way analysis of variance.

Results: Literature data on CIELAB 50:50% perceptibility ($\Delta E^*=1.1$) and acceptability thresholds ($\Delta E^*=3.0$) of light skin-colored maxillofacial elastomers were used in interpretation of recorded color differences. Analysis of variance of ΔE^* showed significant differences among opacifiers, concentrations, pigments and their interactions ($P<0.001$). Tukey-Kramer intervals ($P<0.05$) for comparing means of ΔE^* among opacifiers, concentrations, and pigments were 1.04, 0.81, and 0.81, respectively. When mixed groups were considered, at 5%, ΔE^* value of all opacifiers are below 1.1. Silicone opacifier mixed with yellow pigment is not color stable ($\Delta E^* = 5.9$). At 10% opacifier concentration, similar results were found with 5% concentration. At 15% opacifier concentration, similar results were

found with 5% and 10% concentration. In addition, dry earth titanium white mixed with red pigment is not color stable ($\Delta E^* = 4.20$). Yellow pigment mixed with all opacifiers at all intervals had increased ΔE^* values significantly from 1.1-1.2 (control) up to 1.9-5.9. However, once mixed with red and blue (mixed group) with the same amount, the color changes were significantly lower ($p < 0.001$). All color difference of mixed group were below the 50:50% perceptability threshold of $\Delta E^*=1.1$. Overall UV mineral base has the smallest changes observed in the red, yellow, and blue at all concentrations. When compare 5%-15% of each opacifier, 10% Uv and Sw, 5% titanium dry earth pigment underwent the smallest color change after artificial aging.

Conclusion: Silicone A-2000 mixed with UV mineral base at 5%,10% and 15% protectedthe silicone from color degradation over time and could be used as an alternative commercially available opacifier. Yellow silicone intrinsic pigment significantly affected color stability of all opacifiers especially silicone pigment white.

Keywords: color stability, silicone A-2000, maxillofacial prosthetics, silicone elastomer, facial prosthesis, color differences (ΔE^*), artificial aging

POSTER PRESENTATIONS

Table #11

Radiation Therapy for Mycosis Fungoides Utilizing a Cad/Cam Bolus Face Mask

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Purpose: Mycosis fungoides is the most common of a rare group of cutaneous T-cell lymphomas. In the United States, approximately 1000 new cases of mycosis fungoides occur per year affecting men twice as often as women, and are more common in black people than in whites. Mycosis fungoides can begin at any age, but the most common age of onset is 50 years old. The cause of the disease is unknown and if mycosis fungoides is diagnosed in an early stage, treatments such as steroid creams, topical chemotherapy, or radiation therapy may be used. Should an individual's disease not respond to the skin treatments, or have progressed to the tumor stage, systemic treatments such as recombinant alfa interferon or other chemotherapy may be used. There is no cure for mycosis fungoides however if diagnosed early long and responsive periods of remission are possible.

Methods & Materials: Our patient is a 60-year-old female with a long history of lupus initially diagnosed in early 1990. The patient was followed closely and in 2006 the malar rash that had been continuously present became more diffuse and thickened on her face. She had a biopsy demonstrating atypical epidermotropic lymphocytic infiltrate with features consistent with a cutaneous T-cell lymphoma. This was initially treated with steroid creams until a new eruption in 2008 was diagnosed as folliculotropic mycoses fungoides.

Results: Her treatment plan then consisted of external beam radiation therapy using 6MV electrons in 9

fractions totaling 1800 cGy to the face and upper neck completed in April 2009. Prior to her radiation therapy a custom face mask acting as a bolus was fabricated using CAD/CAM technology. A non-contrast CT scan of the patient's head and neck was obtained and the image was cleared of dental artifact using surgical planning software (V-works, IMTEC/3M, Ardmore, OK). The head and neck stabilizing board was measured and a virtual model was designed (SolidWorks 2008, Dassault Systèmes SolidWorks Corp., Concord, MA, USA). Lastly the neck pillow to be used was scanned using cone beam CT (ILUMA, IMTEC/3M). These virtual images of the patient, neck pillow, and stabilizing board were fitted together allowing the Radiation Oncology team to verify the patient position and outline the extent of the mask. The Radiation Physics department calculated that a 1 cm thick mask would be needed for proper dose distribution. The mask was designed using medical software (Mimics, Materialise, Ann Arbor, MI, USA) using a proprietary "rubber-like" material (TangoPlus, Objet Geometries, Billerica, MA, USA). Through polyjet printing technology (Connex500, Objet Geometries) the soft, pliable mask and rigid connecting apparatuses were fabricated in one build session.

Conclusion: By utilizing CAD/CAM technology the CT imaging did not distort the soft tissues of the face and the prototyping machines that manipulate the materials are extremely accurate and control for factors such as expansion/contraction, density, and thickness. This custom mask ensured uniform thickness and density for exact therapy delivery as well as a comfortable and reliable means of patient fixation.

Table #12

Survey of Currently Selected Dental Implants and Restorations by Prosthodontists

Richard C. Cardoso, Peter J. Gerngross, and Sudarat Kiat-Amnuay*
Michael E. Debakey Va Medical Center- Houston the University of Texas Dental Branch At Houston*, Dental Department, Houston, TX, US

Purpose: The purpose of this study is to survey the prosthodontists of the American Academy of

Maxillofacial Prosthetics (AAMP) and the American College of Prosthodontists (ACP) to gain insight into the decision making process of selecting an implant company. Popular restorative procedures were also surveyed. Results of this survey will generate research study ideas, alter the way in which implant companies try to market their products, and possibly bridge the gap between the scientific literature and clinical practice.

Methods & Materials: A 22 question electronic survey was sent via e-mail to 1739 members of the AAMP and ACP for evaluation of personal preference of implant brand, used currently as well as during training, and preference in regards to certain aspects of implant restoration such as preference of abutment style, loading philosophies in various clinical situations and use of implant planning software. Participants were asked to rank mutually exclusive implant company criterion. The use of new implant technology was also assessed.

Results: The responses to this survey indicate that the majority of AAMP and ACP members who responded make decisions based on the actual implant features and literature support versus more traditional criteria like cost and customer service. The majority of respondents were trained using Nobel Biocare implants, which is the brand most selected by our participants. Abutments preferences varied by clinical presentation; incisors and highly esthetic areas are more likely to be restored with custom milled abutments, but in premolars and molar areas, prefabricated abutments were most often used. While immediate loading is used in their practice, conventional loading is still applied the majority of the time in all presented situations. In completely edentulous patients, the great majority of participants use stud attachments for their complete denture patients, Locators being the attachment of choice. Our respondents report that while implant planning software is used occasionally, they rarely order the concurrent surgical guide. It was determined that in selecting an implant company, most respondents consider the implant's features and literature support to be most important and cost, the least important.

Conclusion: Using this survey, the most often used implant restorative techniques by prosthodontists were

established. More research effort should be centered on the most commonly used restorative techniques in order to establish a more evidence based practice.

Table #13

Advanced Digital Technology in Treating Maxillectomy Patients

Verdonck H. (†), Kessler P., Lie N., Laurin T., De Beer F., Lethaus B
Maastricht Universitair Medisch Centrum, Mumc, Department of Cranio-Maxillofacial Surgery, Maastricht, NL

Purpose: Introduction: Visualisation, design and manufacturing are key elements in maxillofacial prosthodontics. Digital visualisation enables us to work in a virtual environment using computer-based solutions. Any given design can be transformed to a real product by means of rapid prototyping. This digital workflow can be applied intra- as well as extraorally. The ultimate goals are to increase predictability, improve manufacturing and enhance patients comfort. Reduced costs and time spent with planning and manufacturing are positive side effects.

Methods & Materials: From 2003 to 2009 10 patients with partial or total maxillary defects were reconstructed with virtually designed obturators. All patients underwent resection due to a tumourous disease. Before the resection of the maxilla possible implant sites were identified on preoperatively acquired 3D-data sets. Intraoperatively the implants were placed in the remaining bone. Frequently used sites for implant insertion were the zygoma and pterygoid region. At the end of the operation the defects were provisionally obturated. Three months postoperatively a second 3-D data set was gained. The dicom data set was imported into the planning software to visualize the inserted implants, the defect and the remaining bone. The obturator was then designed by rapid manufacturing and transferred into an acrylic prosthesis. In order to make the implant posts parallel individual titanium

abutments with the correct length and angle were fabricated. After abutment placement the acrylic obturator acted as an impression tray. The models were used as a mold for casting the final acrylic obturator. Bars and obturator were placed in the oral defect. Two techniques were applied depending on the size of the defect: A) Prosthesis and obturator formed one block B) The obturator formed the basis for the prosthesis which was magnetically attached.

Results: Sufficient retention was attained by precise obturator manufacture and implant support. Hence no further surgical intervention, e.g. free split skin grafting, was necessary to create retention support. The obturator could be reduced in size to minimize weight and dimension. A good result was achieved on the "Obturator Functional Scale" dictated by patients in the follow-up period.

Conclusion: We regard the CAD/CAM obturator manufacturing as a suitable method to plan and reconstruct maxillary defects. It allows a quick and precise functional rehabilitation and enhances the patients comfort.

Table #14

Assesment of Quality of Life After Implant Retained Prosthetic Rehabilitation in Reconstructed Maxilla and Mandibles with Free Fibular Flap

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[1,2] Tata Memorial Hospital, Dental & Prosthetic Surgery, Mumbai, Maharashtra, IN

Purpose: Fourteen patients who underwent implant retained prosthetic rehabilitation following microsurgical reconstruction of the upper and lower jaws in the last five years were evaluated for quality of life. After completion of surgical and adjunctive treatment for an amount of time so that the tissues have matured sufficiently to tolerate prosthetic manipulation were selected.

Methods & Materials: Patient was asked to answer EortcQlQ-C30 (version3) before surgical insertion of

the implants and at six months interval after fitting the prosthesis for a period of two years.

Speech evaluation was done by asking patient to answer a questionnaire designed for assessing deglutition based on dietary habits of Indians (Bachher GK, 1993) was utilized in this study. The questionnaire consists of information on evaluation of deglutition, salivation, status of the mandible and teeth in relation to pre-disease level.

Results: Speech was assessed with the help of Dr. Speech Software Version 4 (Tiger DRS, Inc., Seattle). This software allows the user to record, analyze and display the acoustic signals. The programme will automatically compute statistical information and plot a voice profile from sustained vowel and continuous speech.

Conclusion: This is an objective, non-invasive method to evaluate acoustic signals. Result of this study will be presented.

Table #15

Maxillofacial Prosthodontic Treatment by Home Visit Dental Service –A Case Report-

Hagino A., Inohara K., Nokubo Y.*, Yamamoto K.*, Taniguchi H.
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Purpose: Owing to the combination of surgery and neoadjuvant therapy, the survival rate of head and neck cancer is remarkably improved. However, there are many patients who can not go to hospital by themselves because of disorders. Therefore the dentists who can make maxillofacial prostheses at patients' home are required. In this presentation, we report the producing a dent-maxillary prosthesis and the oral care by home visit dental service.

Methods & Materials: A 79 years old male had undergone hemi-total maxillectomy due to squamous cell carcinoma and had the difficulty in walking because

of the amputation of toe by the necrosis due to diabetic. Owing to maxillectomy, he had speech, swallowing and mastication disorder. As the general dentist near his house could not produce the maxillofacial prosthesis owing to the shortage of skill, he requested us, belonging to the section of maxillofacial prosthetics, to produce dent-maxillary prosthesis and do oral care for prevention of pneumonia at his home. We fabricated maxillofacial prosthesis in conventional way. We took impression with alginate impression material for personal tray, and then we took final impression with silicon impression material and personal tray. We recorded maxillomandibular relation using record block, adjusted the arrangement of artificial teeth. Then the final prosthesis was fabricated. Each time we visited, the dental hygienist performed oral care, brushing teeth, scaling, teeth brushing instruction and cleaning inside the perforation with disposable sponge brush. Three months after attached the prosthesis, Speech Intelligibility (SI) test was carried out.

Results: Proper function, speech, mastication, swallowing and aesthetics, were established with dent-maxillary prosthesis. SI score with prosthesis is 65.7, without prosthesis is 14.3. He keeps good condition, caries free, no periodontitis and no pneumonia.

Conclusion: Home visit dental service is important for the maxillofacial patients and it is needed that we, professional maxillofacial prosthodontists, go to make a house call.

Table #16

Evaluation of Prosthodontic Treatment in Managing Hypernasality of Maxillectomy Patient

Kwon, H.B., Lim Y.J., Kim M.J., Lee J.B., Heo S. J., Lee S.H., Chang S.W. Yim S.H.
School of Dentistry, Seoul National University and Samsung Medical Center, School of Medicine, Sungkyunkwan University, Department of Prosthodontics and Department of Conservative Dentistry, Seoul, Jougno, KR

Purpose: The purpose of this study was to analyze the effect of maxillary obturators quantitatively and to analyze the defect size in relation with the degree of hypernasality for the patients who had acquired hard palate defects after maxillectomy.

Methods & Materials: This study included 30 normal subjects and 18 maxillectomy patients who underwent postoperative prosthodontic rehabilitations. The subjects of normal group were composed of 15 men and 15 women, with an age of 21 to 33 years and a mean age of 25.37 years. Maxillectomy patients were composed of 10 men and 8 women, and their ages ranged between 29 and 72 and the mean age was 53.78. Nasalance scores from subjects were obtained while they were reading vowels, consonants, no nasal sentence, mild nasal sentence, and high nasal sentence and analyzed using the Kay Nasometer 6400. Nasalance scores from the normal subjects and those from maxillectomy patients with and without obturators were compared. And then the maxillectomy patients were divided into 2 groups according to the size of defects to investigate the relation of the defect size with nasalance scores. The nasalance scores of large defects were compared with those of small ones. Comparisons of the data were made using the Mann-Whitney U test and Wilcoxon signed-rank test. Results were analyzed at a 5% significance level using statistical software.

Results: The nasalance scores from maxillectomy patients were significantly different from those from normal group irrespective of the use of obturators. And the results when obturators were used were different from those without prostheses, except when the syllables and sentenced including nasal consonants were read. There were no significant differences between the nasalance scores of patients with large defects and those with small defects when obturators were used or not.

Conclusion: In terms of managing hypernasality, obturators showed positive effect. However, the patients' nasality was not restored completely with obturators. And the nasalance scores did not seem to be closely related with defects size irrespective of the existence of obturator.

Table #17

Teleprosthetics: Maxillofacial Prosthetic Support to Remote Theater Hospitals Located at Joint Base Balad, Iraq and Bagram Ab, Afghanistan

Villalobos, J.J.
Wilford Hall Medical Center Lackland AFB, Department of Maxillofacial Prosthetics, Lackland AFB, TX, US

Purpose: Telemedicine is a unique method of delivering medical services which is rapidly expanding to virtually all medical domains. The ability to provide specialized care to populations in isolated communities or underserved remote locations is a main advantage. This presentation introduces a novel application termed "Teleprosthetics" and describes its use in providing both Maxillofacial Prosthetic care to patients and laboratory support to surgeons in remote military hospitals. Teleprosthetics utilizes a telecommunication network infrastructure coupled with Bio-Medical Imaging, Computer-Assisted Design (CAD) software and Rapid Prototyping technology.

Methods & Materials: Following consultation and request for services by theater surgeon, computed-tomography (CT) scan of patient is accomplished at the remote site. The CT data is uploaded onto a secure, community-of-practice (CoP) site and transferred via the internet to the 3D Medical Modeling Laboratory at Lackland AFB, San Antonio TX (receiving station). The 3D Medical Modeling Lab reviews and formats the CT data. Adjunct patient information, laboratory instructions and appropriate digital clinical photos of patient are sent similarly via CoP site upload or e-mail. A virtual patient examination is completed and a treatment plan is formulated using all data received. A computer-aided-design (CAD) of the prosthesis, or requested device, is accomplished using computer software programs (Mimics, Free-Form, SolidWorks). The completed virtual prosthesis and/or device is evaluated at the computer work station using multiple views. Rapid Prototyping (Stereolithography) technique is utilized for fabrication of the custom-made prosthesis

prototype, mold or 3D soft tissue/hard tissue model. A definitive prosthesis is then fabricated using conventional techniques and sent to the requesting provider.

Results: N/A

Conclusion: The Maxillofacial Prosthetics Department in conjunction with the 3D Medical Modeling Laboratory at WHMC, Lackland AFB has been providing support to theater hospital surgeons using the "store and forward" technique of Telemedicine and Teleradiology. Individuals suffering severe disfigurement due to IED blast or other war-related injury, where surgical repair and reconstruction is unavailable, have benefitted from Teleprosthetics.

INSURANCE WORKSHOP

Monday, November 2nd

14:00 - 16:00

How to Profit from a Maxillofacial Prosthetic Practice, and an Update on Medicare Negotiations

Instructors:

Dr. Betsy Davis, Dr. Alan Hickey, Dr. Terry Kelly, Dr. Barry Shipman, Dr. Craig Van Dongen

This year, several topics will be discussed in the workshop. We will review what has occurred with our CMS negotiations, and our attempts to change reimbursement levels for our specialty. Once again, we will discuss current strategies for Medicare reimbursement within current CMS guidelines. Several of our guest speakers will discuss how they manage their practices, and will include both private practice, and institutional practice. They will explain how they deal with reimbursement and insurance in their practices.

Betsy Davis, D.M.D.

Charleston, South Carolina

Dr. Betsy K. Davis is an Associate Professor of Otolaryngology-Head and Neck Surgery in the College of Medicine at the Medical University of South Carolina (MUSC). She also is an Associate Professor of Oral & Maxillofacial Surgery in the College of Dental Medicine at MUSC, and Adjunct Professor with Clemson University. Dr. Davis is a cum laude graduate of Wofford College and received her D.M.D. degree from the Medical University of South Carolina. Dr. Davis pursued graduate training in Prosthodontics at the University of Iowa where she received her Certification and Master's degree in Prosthodontics. She joined the faculty at Ohio State University where she taught and practiced from 1989-1992. Davis completed her fellowship training in Maxillofacial Prosthetics at M.D. Anderson Cancer Center in Houston, Texas, followed by a Maxillofacial Prosthetic/Implant Residency at UCLA Maxillofacial Prosthetic Clinic under the direction of Dr. John Beumer.

Alan J. Hickey, D.M.D.

Portland, Maine

Alan J. Hickey, DMD received his DMD from the University of Pittsburgh School of Dental Medicine in 1972. He then completed a general practice residency at Moncrief Army Hospital in Columbia, South Carolina in 1973. Dr. Hickey served in the United States Army as the OIC at the Bad Hersfeld Dental Clinic in Germany. He completed his maxillofacial prosthetic residency at M.D. Anderson Hospital and Tumor Institute in Houston, Texas in 1978. He has been in private practice in Portland, Maine since 1978. Dr. Hickey is active on the staff at Maine Medical Center in Portland as well as on the staff at Mercy Hospital in Portland. He is a Fellow of the American Academy of Maxillofacial

Prosthetics, served as Chairman of the Education Committee, Chairman of the Insurance Committee and a member of Board of Directors for a number of years. He has served as President of the American Academy of Maxillofacial Prosthetics in 2001 and is presently on the Past Presidents Committee.

Terry Kelly, D.M.D.

Tampa, Florida

Dr. Kelly attended the University of Illinois majoring in biology, and graduated from Southern Illinois University School of Dental Medicine in 1984. In 1986, he received a specialty certificate in prosthodontics from Louisiana State University School of Dentistry in New Orleans, La., and completed a fellowship in Maxillofacial Prosthetics at M.D.. Anderson Hospital and Cancer Institute in 1987. Dr. Kelly is a Clinical Assistant Professor in the Department of Otolaryngology at the University of South Florida College of Medicine and director of Maxillofacial Prosthetics at H. Lee Moffitt Cancer Center in Tampa, FL. where he maintains a private practice limited to prosthodontics.

Barry Shipman, D.M.D., F.A.A.M.P.

Miami, Florida

Dr. Shipman is affiliated with the Mt. Sinai Medical Center and is an adjunct Associate Professor at the Nova Southeastern University Dental School. Dr. Shipman received his D.M.D. degree from Tufts University School of Dental Medicine, his graduate prosthodontic training at Kingsbrook Jewish Medical Center and his Maxillofacial Prosthetic training at Roswell Park Memorial Institute and the State University of Buffalo. Dr. Shipman held the rank of Associate Professor, Division of Oral and Maxillofacial Surgery, U.M.H.C,

Sylvester Comprehensive Cancer Center, University of Miami School of Medicine, Miami, Florida and the rank of Professor, Medical College of Virginia School of Dentistry and School of Medicine and was the Director of Maxillofacial Prosthetics. Dr. Shipman is a life member of the AAMP and the American College of Prosthodontists. He is a member of the Head and Neck Tumor Board and Cancer Education Committee at the Mt. Sinai Medical Center, Miami Beach, Florida. He has lectured and written on a variety of related subjects and is currently involved in the development of rehabilitation modalities for managing trismus and the sequella associated with radiation therapy in head and neck cancer patients.

Craig Van Dongen, D.D.S.

Providence, Rhode Island

Craig A. Van Dongen, D.D.S., received his D.D.S. from Georgetown University School of Dentistry in 1980. After serving 2 years in the Public Health Service, he completed his prosthodontic and maxillofacial prosthetic residency in 1986 at the V.A. Hospital in Wilmington, Delaware. He was an assistant clinical professor at Tufts University from 1986-1993, in the Maxillofacial Prosthetic Service. He established his private practice in Providence, Rhode Island in 1990. He was Past President of Rhode Island Dental Association. He is currently a member of the American College of Prosthodontics, and a Fellow in the American Academy of Maxillofacial Prosthetics, where he now serves as chairman of the insurance committee.

AAMP CONTINUING EDUCATION COURSE

Tuesday, November 3rd

13:30 - 16:30

Achieving a True Digital 3D Treatment/ Surgical Planning Protocol in a Busy Team Environment

Instructor: Chuck Heaston

Heaston has 25-plus years of experience in computer technology and quality systems engineering. After serving as a Communications Electronics officer in the U.S. Army, Heaston transitioned to the private sector in the field of technology, where he has held management positions in Development, Quality Engineering, Professional Services, and Product Management. During his 9 year tenure at 3dMD, Heaston has served as the vice president of operations and customer service. Heaston holds a Bachelors Degree in Business and Accounting from Augusta State University and an MBA from New Mexico State University.

Located in the Crystal Ballroom 1

After a brief introduction to a range of commercially available 3D imaging modalities and 3D software applications, attendees will have the opportunity to participate in a hands-on session imaging live subjects with 3dMD's non-invasive 3D surface imaging system. This session will explain the technology but more importantly focus on practical advice and field

experience in establishing successful patient protocols in high-throughput environments. Next, attendees will gain hands-on experience using 3dMD's software platform to digitally fuse hard and soft tissue together for patient analysis quantifying each of the modalities in 3D using linear, angular and volumetric measurements. Attendees will then digitally model potential outcomes using 3dMD's facial simulation module.

IMPORTANT

Seats will be limited to 25 participants and contact information must be provided (email) so that we may send software ahead of time to prepare for the course. 3DMD has agreed to provide a 30 day software trial to workshop participants in order to make the CE session more beneficial. On-site registration is discouraged. Register early to ensure your attendance.

CPU Support

Participant will be required to come with their own laptop computer. Suggested configuration is as follows:

General Laptop Specifications:

- OS: Windows Vista Business OS (32 bit) or Windows XP Pro (32 bit)
- CPU: Intel Core2 Duo > 2.0 Ghz
- Memory: 2 GB or higher DDR2
- Minimum Graphics: NVIDIA GeForce 8800 GTX, 512MB MB Dedicated memory* or similar
- NVIDIA GeForce 9600M/9650 GT with 512MB Dedicated memory* or similar
- Graphics Enhanced: NVIDIA GeForce 9800M GTX, 768MB MB Dedicated memory*
- Hard Drive: 250GB
- Monitor: 17 inch
- Mouse: 3 Button (Roller wheel)
- DVD/CD RW

*Please note that dedicated memory is mandatory.

The following two laptops are highly recommended by 3dMD.

1. Apple MacBook Pro:
   - 2.5GHz Intel Core 2 Duo Processor
   - 2GB of 667MHz DDR2 SDRAM

- 250GB Hard Drive
- 17 inch monitor
- NVIDIA GeForce 8600M GT with 512MB dedicated memory
- DVD/CD RW
- Window Vista Business OS (32 bit) or Windows XP Pro (32 bit)

and

2. HP Pavilion dv7t Notebook (replacement for dv9700t)

- Intel Core 2 Duo Processor T5900 (2.2GHz)
- 17 inch WXGA+ High Definition Monitor
- 3GB DDR2 Memory
- NVIDIA GeForce 9600M GT with 512MB dedicated memory
- 250GB Hard Drive
- DVD/CD RW
- Windows Vista Business OS (32 bit) or Windows XP Pro (32 bit)

AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS
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