



# IMPT CONGRESS

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50 YEAR ANNIVERSARY

# **THE INSTITUTE OF MAXILLOFACIAL PROSTHETISTS AND TECHNOLOGISTS**

## **25<sup>th</sup> SCIENTIFIC CONGRESS**

**BIRMINGHAM – UK  
7<sup>th</sup> – 9<sup>th</sup> SEPTEMBER 2011**

Welcome to the 25<sup>th</sup> Scientific Congress held in Birmingham at the Austin Court Conference Centre. The event begins at midday on Wednesday 7<sup>th</sup> September 2011 with a series of professional seminars and workshops. The Scientific programme on Thursday 8<sup>th</sup> and Friday 9<sup>th</sup> September comprises of 'Keynote' lectures by peer respected colleagues and open short free papers. The plenary will also include an exhibition of scientific posters and be complimented by commercial exhibitors specifically chosen for the event.

A broad range of topics have been selected that will be of interest within maxillofacial prosthetics and technology.

The organising committee are keen to showcase innovative and new work and educate through presentations by established and respected professionals.

CPD points will apply to the Congress, these will be awarded after the sessions have been completed. You will need to sign the register of attendance at the Registration (Austin Court) desk to receive the final awarded certificate.

# THE IMPT CHAIRMANS WELCOME

Dear Delegates,

It gives me great pleasure to welcome our members and guests to the 25<sup>th</sup> Scientific Congress on Maxillofacial Prosthetics and Technology. I would also like to take this opportunity to extend a warm welcome to many of our friends and colleagues from overseas.

This year we will be following on from the programme format from our successful congress in Belfast 2009, with some changes following feedback from our membership. We have planned stimulating “hands on” workshops for all delegates, followed by two full days of lectures and poster presentations that are sure to initiate plenty of discussion amongst the conference guests.

I am in no doubt that this years programme will be both enlightening and educational for all the delegates, from the trainee to the most experienced Maxillofacial Prosthetist amongst us.

I would like to give special thanks to the Congress organising committee for their tireless help and support in organising this event.

I hope you all enjoy the conference and the delightful Midland’s entertainment we have scheduled.

**Sarah Parkinson BSc (Hons) MIMPT**

Chairman of the Institute of Maxillofacial Prosthetists and Technologists.

## **Learning Objectives**

To provide an opportunity for all Maxillofacial Prosthetists and colleagues to meet, discuss, evaluate and determine the best available clinical, scientific and technological treatment options for patients.

## **Learning Outcomes**

Every delegate will have observed and have been given the opportunity to question a comprehensive range of current, “state of the art” clinical, scientific and technological options for the treatment of patients.

Assessment of the Learning Outcomes will be undertaken using a questionnaire, “Feedback Form”. This form will be supplied to every delegate in their Congress folder and should be returned completed to the Congress Organisers. Continuing Professional Development, (CPD) certificates will only be issued to delegates who register and sign attendance for this event and submit their completed feedback form.

### **2011 Congress Organising Committee**

Mr Steve Worrollo  
Mr Jason Watson  
Mr Richard Eggleton  
Miss Barbara Anne Thomson  
Mrs Paramjit Kaur Sandhu  
Mrs Liz Gill

## **Message from Organising Committee**

**To assist all the presenters, all delegates are respectfully reminded that mobile phones and radio pagers should be set on silent running or switched off in the workshop rooms and lecture theatre.**

**Thank you.**

## **The Institute of Maxillofacial Prosthetists and Technologists**

### **President**

Mr Peter Ramsay-Baggs FDS FFD FRCS

### **President Elect:**

Mr Steve Dover BDS, FDSRCS (Eng) MBChB, FRCS (Eng)

**Immediate Past President:**

Mrs Sheila Fisher MSc FDSRCS FFDRCSI FRCS

**Chairman:**

Miss Sarah Parkinson BSc (Hons) MIMPT

**Honorary Secretary:**

Mr Fraser Walker MSc FIMPT

**Honorary Treasurer:**

Mr Richard Eggleton FIMPT

**Honorary Registrar:**

Mr Adrian Kearns MIMPT

**Education Officer**

Carol Winter MIMPT

**AIB Chairman**

Stephen Edmondson BSc (Hons) MIMPT

**Members of Council:**

Mr David Allen FIMPT

Dr M Anwar Bamber PhD FIMPT

Mr Mark Cutler FIMPT

Mrs Liz Gill BSc (Hons) MIMPT

Mrs Paramjit Kaur Sandhu BSc (Hons) MIMPT

Mr Charles V Fraser-MacNamara MIMPT (Hon)

Mr David Thompson MIMPT

Miss Barbara Anne Thomson MIMPT

Mr Jason Watson BMedSci (Hons) MIMPT

Karen Glen-Boyd MIMPT

Mr Barry Edwards MSc MIMPT

# Congress Awards

## Assessed Awards

### **The Wim de Ruiter Delft Plate**

Awarded for the most outstanding scientific technical display or workshop. Mr Wim de Ruiter a commercial laboratory owner from Ridderkirk near Rotterdam provided a maxillofacial prosthetic service for the Rotterdam area and donated this award in 1985.

### **The Mount Vernon Award**

Awarded for the most outstanding lecture. Designed and fabricated by Chief Maxillofacial Prosthetist Mr John Hayward at Mount Vernon Hospital, this award was first presented at the 1981 IMPT Congress held at Brunel University, London.

### **The Presidents Award**

Awarded for the most outstanding innovative contribution to maxillofacial prosthetics. This award was inaugurated in 1983 at the IMPT Congress held at the Royal College of Surgeons, London.

### **The Kidd Award**

Awarded for the most outstanding contribution to implant technology. This award was donated by Mr Norman Kidd, who began making sub-periosteal implants in 1956 and upon his retirement, instigated the Kidd Award plaque in 1997.

## **Technovent Award for the best first time lecturer**

### **2011 Congress Awards Assessors**

Mr Chris Maryan  
Mr Adrian Kearns  
Mrs Paramjit Kaur Sandhu

## **Presented Award**

### **Brian S. Conroy Award**

Awarded for outstanding services to maxillofacial prosthetics. Donated by Mr Brian Conroy in 1969, the award was commissioned- *“For those who have given significant service for advancement in technology, prosthetics, surgery and other activities that relate to maxillofacial prosthetics and technology”*.

## **Peer Assessed Award**

### **The IMPT Travel Fellowship**

To provide the means for study and research.

### **The IMPT 25<sup>th</sup> Scientific Congress Birmingham 7<sup>th</sup> – 9<sup>th</sup> September 2011**

The IMPT is very grateful to Steve Worrollo and his colleagues in Birmingham for hosting the Congress.

The workshop and plenary sessions will be held in the Austin Court Conference Centre and accommodation has been secured in the Copthorne Hotel with a city centre location and in walking distance to the Congress venue.

The programme is presented below and we hope that the altered format will provide delegates with a very interesting and informative event. We also trust that the Congress and programme will allow for the presentation of the very varied and innovative work being carried out within the profession.

Welcome to Birmingham.

## **Congress Information**

### **Venues**

#### **1. Registration – Workshops - Plenary –**

Austin Court Conference Centre,  
80 Cambridge Street, Birmingham, B1 2NP, Tel: 0121 600  
7500

#### **2. Congress Hotel – Accommodation – Reunion**

Copthorne Hotel, Paradise Circus Queensway, Birmingham,  
B3 3HJ

#### **3. Congress Prize Giving Event and Dinner**

The Birmingham Botanical Gardens, Westbourne Road, Edgbaston,  
Birmingham, B15 3TR

Pick up will be available from the Copthorne for those on the  
Congress packages (time see program)

Delegates arriving in Birmingham on the morning of Wednesday 7<sup>th</sup> September may check into the Copthorne Congress Hotel to receive their

rooms or secure bag storage before proceeding to the Congress Venue for the Workshop's.

**On Wednesday 7<sup>th</sup> September 2011 no evening dinner will be provided but delegates may obtain this at the Congress Hotel at their own expense or take advantage of the many restaurants near this central location.** A free evening to explore this unique city centre location.

Delegates who wish to stay at the Congress Hotel before the Congress starts or after the 9<sup>th</sup> September can arrange this at their own expense by booking personally with the Copthorne Hotel, Paradise Circus Queensway, Birmingham, B3 3HJ.

Please Contact the Sales Manager at the Copthorne Birmingham

Tel: +44 (0) 12 1200 2727

When booking please quote The IMPT to obtain consistent rates.

## **Travel**

Birmingham is served by two International airports:

**1) Birmingham International Airport** - Approximately 25 minutes by taxi or bus to the Congress Venues. The Airport has a very good train service to the City centre that takes 10 minutes and Birmingham New Street Station is only 10 minutes walk from the Copthorne Hotel and 15 minutes to the Congress venue.

**2) East Midlands Airport** – Approximately 30 miles away. 40 minutes by car from the Venue.

## **Parking**

There is no parking available at Austin Court Conference Centre but ample parking is available in the Birmingham city centre. The International Conference Centre (ICC) is very close and so is the Sea Life Centre. 24hr parking is available close to these venues. There is also a very good NCP at Brindley Place off Broad Street, about 10 minutes from the Hotel and Congress Centre.

The Copthorne Hotel does have limited on-site parking.

Austin Court Conference Centre and Copthorne Hotel are within an easy 8 minute walk of each other.



## Congress Programme

### Wednesday 7<sup>th</sup> September 2011

The President and Council of The IMPT would like to express their thanks to all the presenters of the Workshops for their support and time and sharing their experiences with Delegates.

#### 9.00 am – 12.00pm Assessment Interview Board (AIB)

Mr Stefan Edmondson AIB Chairman  
To be Held in Randall Room, Austin Court

**12:00**      **Austin Court, Birmingham**  
**Light Lunch Tea and Coffee**  
**Registration**  
**Scientific Poster Set Up**  
**Exhibition Set Up, Lecture Theatre Gallery**

Continuing Professional Development, (CPD) – Would all Delegates please ensure that they print their name and sign the Attendance Register for each Workshop, CPD Certificates will only be issued on this basis (at the end of the Congress).

13:00 - 14:30      **Workshops:** 2 Groups split between two rooms

Workshop LODGE ROOM 1 and 2, 1<sup>st</sup> Floor  
A) PDR  
B) Objet

Workshop THE TELFORD and CROMFORD ROOM 1<sup>st</sup> Floor  
C) 3DMD

14:00 – 14:30      Tea & Coffee, Trade Stands

14:30 – 16:00      Repeat Workshops ; Groups swap over rooms A, B, to Room Telford Room, Group C to Lodge 1 and 2 Rooms

16:00 - 16.30      End of session; Networking and Trade Exhibition

## **Check in Copthorne Hotel**

2727 Paradise Circus Queensway, Birmingham, GB B3 3HJ, Tel: 0121  
600 7500

## **FREE EVENING TO EXPLORE THE CITY**

## **Thursday 8<sup>th</sup> September 2011**

Austin Court Conference Centre

08:30 – 09:00    Registration  
                      Scientific Poster Set Up  
                      Trade Stands  
                      Tea and Coffee

### **Opening Ceremony – Main Lecture Theatre**

09.00            Delegates to be seated

09:05            Welcome and opening address from the IMPT and the  
                      Congress Host  
                      The Chairman of the IMPT Miss Sarah Parkinson  
                      Mr Steve Worrollo, Queen Elizabeth Hospital, Birmingham

Official Opening of the 25<sup>th</sup> Scientific Congress 2011

### **Session1: ‘Free paper session.’**

#### **Main Theatre; Chairman Miss Sarah Parkinson**

09.25            ‘President’s Lecture’  
                      Dentists and Mechanics how times have changed  
                      Mr Steve Dover BDS, FDSRCS (Eng) MBChB, FRCS (Eng)  
                      Consultant Maxillofacial Surgeon; Queen Elizabeth’s Hospital,  
                      Birmingham

09.55            10 Years Experience with Zygomatic Implants for Extra Oral  
                      Prosthetics  
                      Peter LI. Evans MIMPT Consultant in Maxillofacial Prosthetics

10:05            Results with titanium mini plates for bone anchorage of  
                      craniofacial prostheses  
                      Philippe Federspil, Consultant Ear Nose and Throat  
                      Surgeon; Vice President of The IASPE, Heidelberg, Germany

10:20            3D Modelling and Surgical Planning in Free Tissue Transfer; a  
                      short case series and review  
                      Andrew Richmond MIMPT Principal Maxillofacial Prosthetist

10:30 The Validation of an Improved Articulator System for Orthognathic Model Surgery  
Pauline Paul MSc MIMPT ; Principal Maxillofacial Prosthetist

10.45 Questions: 10minutes

10.55 Tea & Coffee, Trade Stands: 30 minutes

**Session 2: 'Keynote Speaker and Free paper session.'**  
**Main Theatre; Chairman Mr Steve Worrollo**

11:25 Military trauma "Working outside the comfort zone"  
Group Captain Andrew Monaghan, BDS FDSRCS(Eng)  
FRCS(Eng) FRCS  
Queen Elizabeth Hospital, Birmingham

11.55 The Effectiveness of Pressure Splints on Keloid Scars  
Graham Marshall MIMPT

12:05 Evolution Not Revolution: Integrating Advanced Digital  
Technology into Maxillofacial Prosthetics  
James Dimond MIMPT; Principal Maxillofacial Prosthetist

12:15 A New Watusi Collar used in the Treatment of Neck Burn  
Hypertrophic Scarring.  
Yvonne Moore: MIMPT; Practising Maxillofacial Prosthetist

12.25 Prosthetic Rehabilitation following Meningococcal Septicaemia  
Caroline Reed; BSc (Hons) AIMPT; DPS; Maxillofacial  
Prosthetist

12.35 Extrinsic Sealants, is it all in the Timing?  
Heidi Silk BSc (Hons) MIMPT Principal Maxillofacial Prosthetist

12:45 Questions: 10 minutes

**12.55 LUNCH: 45 minutes**

13:40 IMPT Chairman Sarah Parkinson  
Induction of the New IMPT President

**Session 3: Panel Discussion session.**  
**Main Theatre; Chairman Mr Philippe Federspil**

13.50      **Panel Discussion 1:**

**Panel;** Mr Philippe Federspil, Mr Steve Worrollo, Mr Stephen Dover, Mr Peter Evans, Mr Matt Pilley, Jan De Cubber

Expert panel of Prosthetists and Surgeons to examine patient cases and give insight into the various rehabilitation possibilities for each case

- Panel to present each case history
- Expert discussion and opinion on the cases (panel)
- Questions and input 'from the floor'

14:50      Chair; Discussion Summary

15.00      Tea and Coffee, Trade Stands

Poster Presentation Session; 60 minutes

- Each presenter to defend their work
- Examination by assessment committee

**Session 4: 'Free paper session.'**  
**Main Theatre; Chairman Mr Matt Pilley**

16.00      A New Patient Consultation for a Patient with a Maxillary Defect  
Steve Bailey MSc MIMPT Dip CDT RCSEng; Maxillofacial Prosthetist

16.25      Obturator versus Surgical Reconstruction of the Maxillectomy Patient  
Barbara Anne Thomson: BSc Dip (Eng) MIMPT

16.35      Spectacles Adaption for Pressure Point Responsive Blepharospasm  
Dave Allen FIMPT

16.45      Evaluation of Cranioplasty Plate Design and Fabrication in the UK  
Dr Richard Bibb PhD BSC (hons)

- 17.00 Cranioplasty Defects; a review of cases and the development of a classification for referral, identification and audit purposes  
Dr Muhanad Hatamleh PHd Mphil BSc (Hons) Dip MaxFac AIMPT
- 17.10 Questions 10 minutes
- 17.20 Close of Day**
- 19:30 The IMPT Reunion Dinner  
Cophthorne Hotel  
2727 Paradise Circus Queensway, Birmingham, GB B3 3HJ  
Invited guest: Professor Sue Hill Chief Scientific Officer

**Friday 9<sup>th</sup> September 2011**

Austin Court Conference Centre

- 08:30 – 09:15 Registration  
Scientific Poster Set Up  
Trade Stands  
Tea and Coffee
- 09.15 Lecture Theatre - Delegates to be seated

**Session 5: Free paper session.'**  
**Main Theatre; Chairman Mr Fraser Walker**

- 09:20 Facial Transplant  
The BAOMS Lecture  
Professor Peter Butler MD, FRCSI, FRCS, FRCS(Plast)  
The UK Lead Clinician on Facial Transplantation
- 09:50 The Future of Retention: CAD/CAM Custom made Retentive Components in Facial Prosthetic Applications  
Jason Watson BSc (Hons) MIMPT; Consultant Maxillofacial Prosthetist
- 10.00 A Rapid Prototype (RP) Jigsaw Technique in the Manufacture of a Titanium Orbital Floor Implant

Gareth Robinson Dip Maxfac MIMPT; Principal Maxillofacial  
Prosthetist

- 10.10 The Optimum Site for Implant Placement in the Orbital Region:  
A Birmingham Review  
Hitesh Korla BSc (Hons) MIMPT; Maxillofacial Prosthetist
- 10.20 A Critical Comparison of Digital Technologies in Nasal  
Prosthesis Production  
Dr. Dominic Eggbeer PhD BSc (Hons)
- 10.35 Rehabilitation in Head and Neck Oncology. Advantages of  
implants and digital technology (or not?)  
Dr. Harry Reitsema DDS PhD AIMPT
- 10:50 Questions: 10 minutes
- 11:00 Tea & coffee, Trade stands; 30 minutes**

**Session 6: 'Keynote speaker and Free paper session.'**  
**Main Theatre; Chairman Miss Barbara Thomson**

- 11:30 Keynote Lecture:  
Head and neck reconstructions what are the options  
Mr Sat Parmar BChD BMBS BMedSci FDSRCS FRCS FRCS  
Consultant Maxillofacial Surgeon, QE, Birmingham UK.
- 12:00 New Trends Utilising old Methods  
Matthew Pilley MIMPT, Specialist in Clinical Prosthetics  
Rob Whitehead MIMPT
- 12:10 "3-part-mould-technique"  
Joern Brom AIMPT Accredited Anaplastologist of the IASPE.
- 12:20 The Development of Measuring Tools for Artificial Eye  
Research  
Keith Pine BSc MBA MIMPT
- 12:35 Using the Spectromatch Reality Colouring System  
Lawrence Dovalski BSc MIMPT
- 12.45 Questions : 10 minutes

**12.55 LUNCH 50 minutes**

**Session 7: 'Current Issues Affecting our Profession; 'Challenging Environment'**

**Main Theatre; Chairman Mr Chris Maryan**

13:45 Chair: Introduction to Key Issues to be discussed

13.50 **Panel; Key Speakers on areas affecting membership:**

Education- Carol Winter

Registration- Dave Allen

30 minutes combined

Questions 20 minutes

14.40 Funding- Sarah Parkinson 15 minutes

Future Challenges- Steve Worrollo 15 minutes

Questions 20 minutes

15.30 Submitted Questions: Chairman delivers questions from delegates to Council Officers 20 minutes

15:50 Chairmans Summary ; 5 minutes

**IMPT Business meeting, non-members to please vacate the hall**

16:00 IMPT General Meeting ; 25 minutes

- Accounts
- Subscriptions
- Journal
- Website

MEMBERS ONLY

16.30 Close of Plenary sessions and Congress Chairman

18.30 Coaches depart from the Copthorne Hotel

**19.30 Prize Giving Ceremony and Dinner**

After Dinner Speaker

"Mr Andrew Parker Consultant ENT Surgeon".

Botanical Gardens

Westbourne Road, Birmingham B15 3  
0121 454 1860

**Saturday 10<sup>th</sup> September - Check out of your Hotel by 12.00 am**

### **Abstracts for Lecture Presentations**

#### **Lecture 1: 10 Years Experience with Zygomatic Implants for Extra Oral Prosthetics**

Peter Ll. Evans MIMPT Consultant in Maxillofacial Prosthetics  
Maxillofacial Laboratory, Welsh Centre for Burns Plastics and Maxillofacial Surgery,  
Morrison Hospital, Swansea SA6 6NL UK; peter.evans2@wales.nhs.uk  
Implants for the retention of nasal and mid third facial prostheses have a relatively poor survival rate, especially in those patients who undergo an oncological radiotherapy regime. We report on an improved survival rate using Zygomatic Implants (Nobelbiocare AG) placed across the maxillary sinus in 24 patients from 1999 to 2011 with survival and failure rates over this period. The presentation describes the computer planning necessary to place the implants, the guide led surgical technique and also the retentive mechanisms that are best suited to these fixtures.

#### **Lecture 2: Results with titanium mini plates for bone anchorage of craniofacial prostheses**

Phillippe Federspil Consultant Ear Nose and Throat Surgeon; Heidelberg, Germany; Vice President of the IASPE  
University Hospital Heidelberg, Oto-Rhino-Laryngology, Heidelberg, Germany

**Purpose** Since 30 years, the Brånemark titanium fixtures represent the first and the most widely used system for extraoral percutaneous bone anchorage of epistheses (craniofacial prostheses). However, in areas with lower bone availability or quality such as the orbital and nasal region, the implant placement is more critical. Hence, the idea to use a different form of implanted retention system as known from osteosynthesis in craniofacial traumatology. Since the year 2000, we were involved with the adaptation of 2.0 titanium miniplates for the needs of surgical episthetics, called the Epiplating system, intended to overcome some of the drawbacks of other systems.

**Material and Methods** This study is a retrospective review of the patients implanted with the Epiplating system at the University Hospital Homburg 2000-2004 and University Hospital Heidelberg, Germany 2004-2010. Out of a total of 380 patients treated with titanium implants, 95 patients received Epiplating implants solely or in combination with other systems for bone anchored epistheses.

**Results** 185 Epiplating implants were used. Primary stability was excellent in all cases. In all cases implant placement was possible. 4 plates (2.2%) lost osseointegration. In 5 patients, parts of the plate were exposed, however without any signs of soft tissue or bone infection. We did not note an elevated rate of adverse skin reactions at the skin penetrating site.

**Conclusions** The Epiplating system is an excellent system for bone anchorage of epistheses especially in areas with low bone quality or availability.

#### **Lecture 3: 3D Modelling and Surgical Planning in Free Tissue Transfer; a short case series and review**

Andrew Richmond MIMPT Principal Maxillofacial Prosthetist



Maxillofacial Laboratory, Nottingham University Hospitals Trust, Derby Road, Nottingham [andrew.richmond@nuh.nhs.uk](mailto:andrew.richmond@nuh.nhs.uk)

3D modelling and rapid manufacturing is now an everyday part of a full maxillofacial prosthetic service. This paper describes the use of this technology in respect of complex reconstruction and free tissue transfer. In 19 cases utilising this method the authors have found that the technique is very useful for providing predictable outcomes in surgery, reduces theatre time, improves accuracy of the plating, reduces donor site harvesting and importantly an improved and informed patient consent to this complex and sometimes problematic treatment option.

#### **Lecture 4 : The validation of an improved articulator system for orthognathic model surgery**

Pauline Paul MSc MIMPT ; Principal Maxillofacial Prosthetist

Maxillofacial Laboratory, Regional Maxillofacial Unit, Neurology Building Ground Floor, Southern General Hospital, Govan Road, Glasgow, G51 4TF, Scotland

A review of the literature showed that the outcome of orthognathic surgery may differ from the pre-operative planned prediction, that casts mounted on semi-adjustable articulators show systematic errors of orientation and that there may be a casual connection between them.

It was demonstrated that movements of casts mounted on, and moved relative to, a standard articulator produced movements of different magnitudes relative to the natural head position. These movements produce significant errors in relation to the prediction outcomes which are transferred to the patient via the perioperative wafer. A mathematical model was developed to quantify the difference and the predictions of the resulting equations were confirmed in a photographic study using image analysis. The second stage of the study compared a standard and the improved orthognathic articulator. The results indicated that the improved articulator was significantly more accurate than the standard articulator.

#### **Lecture 5: The Effectiveness of Pressure Splints on Keloid Scars**

Graham Marshall MIMPT

Maxillofacial Lab, Universiy Hospitals of Leicester NHS Trust; [graham.marshall@uhl-tr.nhs.uk](mailto:graham.marshall@uhl-tr.nhs.uk)

A two year retrospective audit to evaluate effectiveness of pressure therapy in Keloid scars

#### **Lecture 6: Evolution Not Revolution: Integrating advanced digital Technology into maxillofacial prosthetics**

James Dimond MIMPT; Principal Maxillofacial Prosthetist

Maxillofacial Prosthetics, 2nd Floor, Old Queen Elizabeth Hospital, Edgbaston, Birmingham, B15 2TH; [james.dimond@uhb.nhs.uk](mailto:james.dimond@uhb.nhs.uk)

The combination of Medical Imaging, Computer Aided Design Software and Rapid Prototyping is a rapidly expanding field with a large application potential in maxillofacial prosthetics. Digital technology is used routinely across the globe in a vast range of industries and professions. It can be implemented into the daily maxillofacial procedures associated with post-traumatic reconstruction, orthognathic planning, cranioplasty manufacture, pressure therapy and facial prosthetics. Manipulation of data using specialised software in the 3D environment can improve efficiency by eliminating traditional labour intensive techniques and produces predictable results that can be utilised in a number of ways. This brief presentation gives an overview of acquisition and manipulation of data, current and potential uses

of digital technology along with its limitations, and the benefits that can be gained for the maxillofacial prosthetist, surgical team, and ultimately the patient.

### **Lecture 7: A new Watusi collar used in the treatment of neck burn hypertrophic scarring.**

Yvonne Moore: MIMPT; : Practising Maxillofacial Prosthetist

Glasgow Royal Infirmary, Prosthetics Laboratory, 2nd Floor Walton Building, Castle Street, Glasgow, G31 2ER; [yvonne.moore@ggc.scot.nhs.uk](mailto:yvonne.moore@ggc.scot.nhs.uk)

This lecture outlines a new design of watusi collar for the treatment of post neck burn hypertrophic scarring/contracture, first reported by Hurlin Foley et al. Changes to the design are discussed. These have improved hygiene, functional mobility, comfort, cost effectiveness, and negates the need to remake the collar as tissue changes occur. 3 early stage case studies are also discussed.

### **Lecture 8: Prosthetic Rehabilitation following Meningococcal Septicaemia**

Caroline Reed; BSc (Hons) DPS; Maxillofacial Prosthetist

Queen Victoria Hospital, Holtye Road, East Grinstead, West Sussex, RH19 3DZ; [caroline.reed@qvh.nhs.uk#](mailto:caroline.reed@qvh.nhs.uk#)

Case study describing the fabrication of bi-lateral glove prostheses for a 12 year old girl who had 9 toes amputated due to meningococcal septicaemia. The lecture outlines the construction process; problems encountered and offers tips for Maxillofacial Prosthetists undertaking similar cases.

### **Lecture 9: Extrinsic Sealants, is it all in the timing?**

Heidi Silk BSc (Hons) MIMPT Principle Maxillofacial Prosthetist

Maxillofacial Prosthetics Service, Poole Hospital NHS Foundation Trust, Longfleet Road, Poole, Dorset, BH15 2JB

Extrinsic sealants are needed to prevent the delamination of colours added to enhance the aesthetics of silicone prosthesis. This project looks at three different types of sealants used to create this seal and the times at which they are applied. Results show that the time of sealant application has an influence on the success of the bond.

### **Lecture 10: A new patient consultation for a patient with a maxillary defect**

Steve Bailey MSc MIMPT Dip CDT RCSEng; Maxillofacial Prosthetist

Maxillofacial Unit Pilgrim Hospital, Sibsey Rd, Boston, Lincolnshire, [Steve.Bailey@ulh.nhs.uk](mailto:Steve.Bailey@ulh.nhs.uk)

To include 1.Examining the patient intra oral examination – tongue, lips, cheeks, floor of mouth, extra oral examination facial symmetry, neck nodes, tmj; 2. Examining the patients existing prosthesis; 3. Medical and social history; 4. Diagnosing the problem; 5. Discussing the treatment options; 6. Formalising the treatment plan

### **Lecture 11: Obturator versus surgical reconstruction of the maxillectomy patient**

Barbara Anne Thomson, Practising Maxillofacial Prosthetist

A literature review on obturation versus surgical reconstruction appears to be controversial. This presentation will discuss and elaborate on the treatment available and examine how they affect the quality of life for patients. Multiple published evidence base articles state different advantages and

disadvantages for maxillectomy patients, although limited research has recommended more clarity on techniques and options available. Published studies on changes with prosthetic rehabilitation versus surgical options are limited. In reviewing the available literature it is apparent that there is insufficient evidence in relation to maxillectomy patients however the bulk of the evidence all acknowledge that more research in to obturation and patients quality of life (QOL) need to undertaken.

## **Lecture 12: Spectacles Adaption for Pressure Point Responsive Blepharospasm**

Dave Allen FIMPT

Queen Victoria Hospital, Holtye Road, East Grinstead, West Sussex, RH19 3DZ;  
[dave.allan@gvh.nhs.uk](mailto:dave.allan@gvh.nhs.uk)

The paper will seek to give an introduction into the condition of blepharospasm along with the traditional treatment and therapies used in its management. The paper will then concentrate on pressure point responsive blepharospasm where the adaption of spectacles to provide pressure point therapy can improve the condition.

## **Lecture 13: Evaluation of cranioplasty plate design and fabrication in the UK**

Dr Richard Bibb PhD BSC (hons)

Loughborough Design School, Bridgeman Centre, Loughborough University, Ashby Road, Loughborough, Leicestershire, LE11 3TU; [r.j.bibb@lboro.ac.uk](mailto:r.j.bibb@lboro.ac.uk)

With many methods of cranioplasty production available and the application of Computer-Aided Design (CAD) technologies creating further options, there is a need to measure the cost effectiveness of existing techniques in order to compare new techniques accurately. This research investigated the cost implications of common methods of cranioplasty construction in the UK. A questionnaire was sent to major UK maxillofacial/neurological units. The same questions were asked to each respondent but answers and discussions were open ended. Records were kept of lab technician time, material costs, equipment used and equipment lead-time. A hemi-craniotomy case was chosen as an example and the results were compared to theoretical Additive Manufacture (AM) of a plate for this example. The study found there is wide variation in production costs but that more efficient CAD and AM methods are required to ensure economic competitiveness against lab-based techniques.

## **Lecture 14: Cranioplasty defects; a review of cases and the development of a classification for referral, identification and audit purposes**

Dr Muhanad Hatamleh PHd Mphil BSc (Hons) Dip MaxFac AIMPT

Manchester Dental School and Nottingham University Hospitals Trust, UK;  
[Muhanad.Hatamleh@manchester.ac.uk](mailto:Muhanad.Hatamleh@manchester.ac.uk)

Nottingham University Hospitals Trust is a large regional trauma unit that provides Neurosurgical services to the whole East Midlands. Cranioplasty implants have been provided since 2002 and in-house manipulation of the data and subsequent rapid prototyping has proved a useful adjunct to this service. A review was undertaken utilising the in-house processing of the DICOM data stored on the hospital servers. The last 30 cases were chosen as an investigative sample to look at average size and position of the defects. This data was then used to classify the defects in terms of position and size. This interim classification is being used to identify the defect on initial referral, to provide an estimate of build time and as part of an ongoing audit project.

## **Lecture 15: The Future of Retention: CAD/CAM Custom made Retentive Components in Facial Prosthetic Applications**

Jason Watson BSc (Hons) MIMPT; Consultant Maxillofacial Prosthetist  
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Rapid prototyping of 3D models is an everyday part of a maxillofacial prosthetic service. Since 2008 we have used in-house 3D models routinely in complex trauma, craniofacial surgical planning, reconstruction, implant planning, oncology resection and deep buried implant fabrication. Understanding this technology has allowed us to look at the use of Rapid Manufacture (RM) in other areas of our work. We previously presented the use of this technology in the field of cranioplasty manufacture to the IMPT (2009). We are now applying this technology specifically in terms of the retention of facial prostheses. We have for too long relied on the basic retaining forms of bars, clips and magnets. The next steps for custom made bars and individual retention will be described and its first case. Cost implications will also be addressed.

## **Lecture 16: A Rapid Prototype (RP) jigsaw technique in the manufacture of a titanium orbital floor implant**

Gareth Robinson Dip Maxfac MIMPT; Principal Maxillofacial Prosthetist  
Worcestershire Royal Hospital, UK ;[Gareth.Robinson@wrcsacute.nhs.uk](mailto:Gareth.Robinson@wrcsacute.nhs.uk)

The presentation explores the use of CAD to mirror and sculpt an orbital floor onlay jigsaw piece to be used in conjunction with an anatomical model built using Additive Manufacture (AM). The improvements in accuracy, production time and costs are discussed in the context of downstream use in producing a wrought titanium orbital floor implant.

## **Lecture 17: The optimum site for implant placement in the orbital region: A Birmingham Review**

Hitesh Koria BSc (Hons) MIMPT; Maxillofacial Prosthetist  
Maxillofacial Prosthetics, 2nd Floor, Old Queen Elizabeth Hospital, Edgbaston, Birmingham, B15 2TH; [Hitesh.koria@uhb.nhs.uk](mailto:Hitesh.koria@uhb.nhs.uk)

Since the start of the implant programme in 1988 there have been significant changes in practice. The 'ideal' location for implant placement is of great importance when considering facial prosthetic rehabilitation whether it is for an orbital prosthesis, nasal, auricular or midface. The focus of this evaluation is to determine the optimum location for implant placement within the orbital region to achieve a lower rate of implant failure without compromising the aesthetics. Many factors such as lifestyle habits, tumour type/size and surgical skill all contribute to implant failure. The records of 20 retrospective patients are examined to identify the number of implants inserted, the length and type of implant used and their placement within the orbital cavity. The outcome will show which location within the orbital rim will give best results for osseointegration with a particular type of implant without compromising the clinical result for patients.

## **Lecture 18: A critical comparison of digital technologies in nasal prosthesis production**

Dr. Dominic Eggbeer PhD BSc (Hons)  
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This research helps to identify clinically viable methods of using digital technologies in extra-oral prosthesis production. A magnet retained nasal prosthesis case was chosen as a single case study to illustrate three processes. Three dimensional surface capture, computer aided design and additive manufacture methods were used to produce a prostheses via a mould tool and directly. These were compared to lab based methods used to create a prosthetic for the same patient. Pictures of the final prostheses were taken and were subject to rated qualitative analysis by a panel of observers. Consideration was also given to the efficiency of the workflow and clinical viability of the final prosthesis. Critical comparisons of shape, colour, margins and position were in favour of a digital version. The results highlight the most effective method of utilising digital technologies in facial prosthesis production as well as the limitations. Future research directions are identified.

## **Lecture 19: Rehabilitation in Head and Neck Oncology. Advantages of implants and digital technology (or not?)**

Dr. Harry Reitsema DDS PhD AIMPT

dept. for Maxillofacial Surgery and maxillofacial prosthetics (center for special dental care), University Medical Center Groningen, PO Box 30.001, NL-9700 RB

Rehabilitation in Head and Neck Oncology is very challenging for patient and clinicians. Maxillofacial Prosthetics plays an important role in the planning and execution of this process as part of a team approach. New techniques have become available over the last decades, but have to be put in place appropriately. Implantology has deserved its place to improve retention of prostheses especially in compromised cases, both intra- and extra-orally. However risks have to be taken into account as well. For planning, guiding and construction of (implant retained) prostheses digital technology can be of great help, although 'conventional' thinking and craftsman-ship still will be needed. Strategies and results from the Groningen UMC Head and Neck Oncology Team will be presented.

## **Lecture 20: New Trends Utilising old Methods**

Matt Pilley MIMPT, Specialist in Clinical Prosthetics University Hospitals of Leicester, Maxillofacial Laboratory/Prosthesis Clinic, [m.pilley@uhltr.nhs.uk](mailto:m.pilley@uhltr.nhs.uk)

Robert Whitehead Clinical Prosthetist, Artizan Medical

This paper describes the use of a non-contact structured light scanning technique, computer aided design (CAD) and Additive Manufacturing (AM) to produce selected laser sintered (SLS) models for producing bespoke prostheses. Non-contact structured light scanning was used to capture accurate data from lifecasts. This data was then post processed to produce SLS models of the required anatomy for the production of bespoke prostheses. The results illustrate the benefits and effectiveness in terms of accuracy of adopting an integrated surface scanning, CAD and AM approach to produce lifelike, anatomically accurate and labour saving prostheses. Keywords: Additive Manufacturing, Structured light scanning, bespoke prostheses.

## **Lecture 21: “3-part-mould-technique”**

Joern Brom AIMPT Accredited Anaplastologist of the IASPE.

Brom Epithetik, Mittermaierstrasse 25, 69115 Heidelberg, Germany; : [info@brom-epithetik.de](mailto:info@brom-epithetik.de)

The lecture presents how to construct a three piece sectional mould in plaster and PMMA with locking devices to enable the production of a large nasal prosthesis, producing a large hollow silicone prosthesis with reduce weight while maintaining the extensive fitting surface. The technique developed by myself can be modified and utilised in the construction of many prosthetic devices that require reduced weight



because of the simple construction and nature of application. I am confident that the technique produces excellent results and would be a useful application for others to employ.

## **Lecture 22: The Development of Measuring Tools for Artificial Eye Research**

Keith Pine BSc MBA MIMPT

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Hurst et al have created a photographic grading system for contact lens deposits but in order to investigate artificial eyes, an alternative method for displaying and measuring deposits needs to be developed. The nature and dynamics of deposition on artificial eyes is very different from deposition on contact lenses. Deposits revealed by the staining solution used in this presentation form over all artificial eye surfaces except perhaps for the inter-palpebral zone. Because the body of an artificial eye is opaque, only very thick deposits are visible unless they are stained. Contact lens deposits on the other hand exist in the inter-palpebral zone and can easily be seen because the material on which they form is transparent. This presentation describes a technique for displaying and grading deposits on artificial eyes and for grading conjunctival inflammation in anophthalmic sockets. The development of the grading scales included consultation with experienced ophthalmologists and optometrists using perceptual and physical attributes.

## **Lecture 23: Using the Spectromatch Reality Colouring System**

Lawrence Dovalski BSc MIMPT

Maxillofacial Laboratory, Welsh Centre for Burns, Plastics and Maxillofacial Surgery; [lawrence.dovgalski@wales.nhs.uk](mailto:lawrence.dovgalski@wales.nhs.uk)

The Spectromatch Reality colour system is a new facial and body prosthetic colour system available in the UK. The improvements in colour stability have been researched and documented, we present our practical analysis of the system including working practice, costs and time savings. The presentation will include direct comparison to one of the more traditional colouring systems.

## **Abstracts for Poster Presentations**

### **P1 Steffan Daniel, BSc, MSc**

PDR UWIC, Western Avenue, Cardiff, UK. CF5 2YB\_stdaniel@uwic.ac.uk

#### **Poster Title: An IMPT Survey: The design and manufacture of retention mechanisms for auricular prostheses.**

Research literature on user requirements and evaluation of current extra-oral retention mechanisms is limited. Computer Aided Design (CAD) in maxillofacial prosthetics is becoming more common, but without user requirements and performance specifications, proposed new designs cannot be evaluated. This study captured user requirements based on maxillofacial prosthetist and technician opinions and evaluation of their work in order to inform the development of new mechanism design.

A survey was distributed to IMPT members to discover their preferences in designing and fabricating auricular retention systems. Opinions on CAD were also captured.

The surveys showed that there are many factors that determine the success of retention devices and the success of current devices are largely based on subjective measurements. There were also mixed opinions on the application of CAD. Newly developed solutions for retention devices must meet the user requirements and match

the performance of benchmark designs created by maxillofacial prosthetists and technicians.

## **P2 Elaine Baird, Dip Maxillofacial Prosthetics & Technology, \_**

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elainebaird1@hotmail.co.uk

### **Poster Title: Evaluation of a new method of face-bow registration**

The poster demonstrates how a modified face bow designed to be used in conjunction with a semi-adjustable articulator has improved the accuracy of Orthognathic surgery. Therefore reducing unseen and unwanted movements presently incorporated in commonly used orthognathic model surgery techniques.

## **P3 Miss Holly Turner BSc (Hon) Trainee Maxillofacial Prosthetist**

Maxillofacial Prosthetics, 2<sup>nd</sup> Floor, Old Queen Elizabeth Hospital, Edgbaston, Birmingham, B15 2TH, holly.turner1985@gmail.com

### **Poster Title: Evaluation of Colour Stability in Ocular Prostheses**

Objectives: To evaluate the colour stability of light cure denture pigments after being subjected to two curing cycles, and conclude if this medically tested material would be suitable for iris painting. The effect of background colour on overall colour of the pigment was also assessed.

Materials and Methods: Thirty six disks were prepared in four shades. Three disks from each shade were painted with polar pigment, three with umbre and three with white. Colour was then measured using a colorimeter prior to curing, after one cure then after a second and change in values calculated.

Conclusions: The study revealed that background colour did have an effect on the overall colour. It can be concluded that the light cure denture pigments would not be suitable for use in the painting of iris units as they do not remain stable below the clinically acceptable level of 3.7 following two curing cycles.

## **P4 Mr Joern Brom**

Brom Epithetik / University Hospital Heidelberg, Department for Head and Neck Surgery Heidelberg, Germany

### **Poster Title: The Nasal Hook**

#### Purpose:

The supply for facial defects is a great challenge for the Anaplastologist.

Epitheses supplies at existing rudiments or after partial resections are particularly difficult to provide.

#### Materials & Methods:

A 59 years old patient agreed to his nose ablatio to keep the front part of the nose only under the prerequisite.

During the tumor surgery, a medicon nasal-plate was inserted - the front part of the nose (tip of the nose) didn't become resection.

#### Results:

After about 8 weeks the defect could be provided with an implant fixed epithesis.

The problem was how to hold the remaining nasal part in the natural position, cause it moved downward. The tip of the nose was brought back into the natural position, fixed at the bone anchorage with a "hook" made of acrylic.

Magnets became the epithesis established on this construct via one.

#### Conclusion:

By the combination of the bone anchorage and "hook technology", a perfect restoration of the nose could be carried out.

The epithetic supply was despite a questionable receipt of the tip of the nose, for the patient a gigantic profit to living quality.

**P5 Reitemeier Bernd, Brom Jörn, Böttcher Günther, Schöne Christine, Kant Ludwig, Kleeaupt Karl, Meißner Heike, Gronke Karin, Schmidt Frank**

From: Fa. KET Liegau-Augustusbad, Technische Universität Dresden, Fa. NRU Chemnitz, Fa. Kleeaupt Regensburg, Schlafmedizinisches Zentrum Dresden

**Poster Title: Production and Use of a Customized Space-saving Inhalation Mask**

The production of a customized inhalation mask was achieved with the use of digital data obtained from a scanning process. The digital data set served as the basis for a CAD-module for an inhalation mask manufacture. The module consists of a commercially available standard mask with customized features. This design combination allows mask adaptations that minimize the dead space in the mask. A cranial attachment was also developed for the mask. The new mask design was tested on 10 patients. Patient comfort and selected anaesthesiology parameters were also evaluated.

**P6 Andrew Traynor MIMPT, HND, BSc, Dip Maxillofacial prosthetics and technology**

University hospital Birmingham, Queen Elizabeth Hospital, Edgbaston, Birmingham B152TH Tel: 0121 627 2314 Fax: 0121 6272302 andrew.traynor@uhb.nhs.uk

**Poster Title: Protocol for the Management of Keloid Scars, a Technical Perspective**

Background: There are many types of treatments for keloid scaring, many of which that can be used in conjunction, i.e. surgical excision, splint therapy and drug treatments. This study was to look at splint therapy alone and in combination with other treatments and there effectiveness.

Objective: The aim of the study was to establish a framework with a clearly defined timetable for management of keloid scars and to assess the effectiveness of splint therapy.

Method: A wide range of patients were reviewed all with auricular keloid scars. The patients were divided into the following groups

- Treated by splint therapy alone.
- Steroid injections and splint therapy.
- Surgical excision followed by splint therapy
- Surgical excision followed by splint therapy and steroid injections

The scars were classified as new or a reoccurrence.

A record was maintained of each patient and whether the treatment was successful or not.

Results

The patient outcomes will be demonstrated along with recommendations.

This will be used to establish protocols to be used in the management of this difficult condition.

**P7 Caroline Reed BSc (Hons) DPS**

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## **Poster Title: Custom-Made Attachments for Auricular Prostheses**

The durability of silicone for auricular prostheses using custom-made Omega attachments was investigated in conjunction with their retentive strength. The durability study simulated 16 months use. Tensile testing indicated the retentive strength of prostheses before and after durability testing.

### **P8 Keith Pine BSc, MBA, MIMPT**

P.O. Box 31 306 Milford Auckland 0620 New Zealand keith.pine@ kp-assoc.co.nz

## **Poster Title: MUCIOD DISCHARGE ASSOCIATED WITH ARTIFICIAL EYE WEAR**

Mucoid discharge associated with artificial eye wear is a common occurrence that impacts on anophthalmic patients' quality of life. Discharge is the second most important concern for experienced artificial eye wearers after health of their remaining eye and affects 93% of wearers - 60% of these on a daily basis (1). The literature does not provide a complete understanding of the nature and causes of discharge associated with artificial eye wear. This is reflected in the inconsistent and contradictory advice given to patients by ocular prosthetists and the lack of a standardised treatment protocol for this distressing condition (2).

This presentation will review what is known about mucoid discharge and its management and will report on the outcome of an investigation of the influence on discharge of hand washing before handling the prosthesis, removal and cleaning regimes, repolishing frequency and effect, wearers' age and wearers' ethnicity.

### **P9 Keith Pine BSc, MBA, MIMPT**

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## **Poster Title: THE SOCKET'S RESPONSE TO ARTIFICIAL EYE WEAR**

A small number of researchers have investigated the anophthalmic socket's response to artificial eye wear but aside from a link between giant papillary conjunctivitis and prolonged artificial eye use, wearing behaviour and artificial eye maintenance regimes have not been found to have any effect on conjunctival cytological features or the flora of the socket.

This presentation broadens the investigation into factors that may affect the socket's response to artificial eye wear by examining daily removal and cleaning of the prosthesis, no removal and cleaning for periods up to 4 weeks, the standard of surface polish and the removal of manufacturing blemishes from the surface of artificial eyes.

### **P10 Keith Pine BSc., MBA, MIMPT**

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## **Poster Title: THE PHYSICAL, CHEMICAL AND BIOLOGICAL NATURE OF DEPOSITS ON ARTIFICIAL EYES**

The NHS National Artificial Eye Service web-site ([http://www.bfwh.nhs.uk/aes/artificial\\_eye\\_care.htm](http://www.bfwh.nhs.uk/aes/artificial_eye_care.htm)) advises patients to remove and clean their artificial eyes at least once every 30 days but daily cleaning or several times daily cleaning is also recommended if there is a lot of discharge. Their recommended cleaning method is to rub the prosthesis gently with the fingers using warm water and mild, non scented soap. The web-site suggests that cleaning the artificial eye removes the main cause of discharge which is a build-up of dirt and dust from the environment.

The presentation challenges this view and discusses the physical, chemical, and biological nature of biofilm deposits on artificial eyes and the role of tear film behaviour on recently polished artificial eye surfaces.

**P11 Barbara Thompson**

**Poster Title: The IMPT Fellows Travel Award.**

A team of seven visited Dhaka Community Hospital and Delta Medical Centre to provide "Free of charge treatment" for patients.

A rewarding trip and a big "Thank you" to IMPT for making it possible for me to undertake this trip and a big "THANK YOU" to everybody who donated tools, materials and equipment enabling the delegates attending the course to continue and use the skills passed on by the Dhaka team.

**P12 Mr Paul Diston MIMPT Nottingham University Hospitals Trust  
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**Poster Title: A Positive approach to Presentations**

Who really benefits and why! My first of many Presentations at the IMPT, with a view to encourage like minded Prosthetist's to join me in the future. Drawing on my experiences whilst working for the QMC & City of Nottingham University Hospitals.

**P13 Maryan C. Allen D, Coward T, Gill E. Patel N. Winter C.**

**Poster Title: Modernising Scientific Careers**

**The Maxillofacial Prosthetics and Reconstruction Scientist Training Programme (STP) Academic programme**

The draft academic programme for the STP in Maxillofacial Prosthetics and Reconstruction is outlined. The programme is three years part-time. The first year includes core units of Healthcare Science (Integrating Science and Professional Practice) and Research methods. These units are core to all healthcare scientists on the STP. The first year unit includes Introduction to Maxillofacial Prosthetics and Reconstruction that Integrates underpinning knowledge required for each element within Professional Practice and introduces the discipline. In the second and third year the Research project and unit Maxillofacial Prosthetics and Reconstruction complete the programme. The draft learning outcomes for the programme are presented

**P14 Maryan C. Allen D, Coward T, Gill E. Patel N. Winter C.**

**The Maxillofacial Prosthetics and Reconstruction Scientist Training Programme**

**Work based learning programme**

The draft work based learning programme for the STP in Maxillofacial Prosthetics and Reconstruction is outlined. The programme is three years part-time. The first year includes core units of Head and neck cancer, Prosthetic rehabilitation, Technology for trauma and dento-facial deformities, and Bespoke Maxillofacial devices. These areas are developed further in the following two years. Throughout the three years there is a programme of generic skills for healthcare professionals these include many aspects of legal and ethical issues, patient care, communication, leadership, NHS policy and practice, risk management & governance, patient management, and behaviour. The draft learning outcomes for the programme are presented

## COMMERCIAL CONTRIBUTORS

The President and Council of The Institute of Maxillofacial Prosthetists and Technologists would like to express their gratitude and thanks to the following Commercial Organisations who have supported this Congress. Please use the time provided in the programme to visit their exhibits and read their literature.

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