Programme and abstracts

Joint 4th ADFS Annual Conference and King's Charcot Foot Reconstruction Symposium

28 - 29 June 2018
London · United Kingdom

www.a-dfs.org
www.kingsdfc.org.uk

Association of Diabetic Foot Surgeons

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Association
of Diabetic
Foot Surgeons

WELCOME

Dear Ladies and Gentlemen,
It is a great pleasure to welcome you to the Joint 4th Association of Diabetic Foot Surgeons' Annual Conference and King's Charcot Foot Reconstruction Symposium.

We also welcome you to London, a great international city and to the Oval Cricket Ground, the location of our conference and one of its iconic sporting stadiums.

It is fitting that this meeting takes place in London, as in this city in 1881, at the 7th International Medical Congress, Jean-Martin Charcot, the French neurologist and pathologist, gave a novel and expertly illustrated presentation on neuropathic arthropathy. The President of the conference, Sir James Paget was so impressed that he declared that "This disease is, in fact, a distinct pathological entity, and deserves the name, by which it will be known, of Charcot's disease".

We welcome you also on behalf of King's College Hospital, in which a multidisciplinary diabetic foot clinic was set up in 1981, with a long standing interest in the Charcot Foot.

We hope that our meeting will help to realise the aspirations of Jean-Martin Charcot himself, when he wrote, concerning patients with Charcot arthropathy:

> *"Let us keep looking, in spite of everything. Let us keep searching. It is indeed the best method for finding, and perhaps, thanks to our efforts, the verdict we will give our patients tomorrow will not be the same as we must give them today"*

We wish you an enjoyable and fulfilling conference.

Venu Kavarthapu
Conference Convener

Michael Edmonds
Conference Convener

ABOUT ADFS

ABOUT ADFS

The Association of Diabetic Foot Surgeons (ADFS) is an international not-for-profit organisation open for all foot surgeons with an interest in the diabetic foot: Orthopaedic surgeons, podiatry surgeons, vascular surgeons etc.

ADFS aims to support cooperation between foot surgeons interested in and working with the diabetic foot, and works to enhance best practice in research, education and clinical interventions.

ADFS organises meetings and conferences and supports the development of approaches, techniques and medical devices which will facilitate better surgical treatment on the diabetic foot.

ADFS BOARD

The ADFS Board provides leadership for carrying out the association's mission to promote the interests of surgery in the diabetic foot across the global community.

President	Luca Dalla Paola, Italy
Immediate Past President	Armin Koller, Germany
Scientific Officer	Thomas Zgonis, USA
Secretary	Klaus Kirketerp-Møller, Denmark
Treasurer	Alberto Piaggesi, Italy
Board Member	Dane K. Wukich, USA
Board Member	Robert G. Frykberg, USA
Board member	Arun Bal, India
Board member	Venu Kavarthapu, United Kingdom

ADFS SECRETARIAT

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of Diabetic Foot Surgeons
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ADFS WELCOMES YOU

It is a pleasure to welcome you to the

Joint 4th ADFS Annual Conference and
King's Charcot Foot Reconstruction Symposium in London

The two meeting days will offer you a unique opportunity to meet with leading diabetic foot surgeons and to be updated on the diabetic foot surgical research happening across the world.

The conference offers three days of high quality sessions on soft tissue infections osteomyelitis, revascularization, organisation, setting and education, Charcot, critical limb ischemia, wound closure strategies as well as excellent poster presentations, oral presentations from abstracts and satellite symposia.

We hope all participants will benefit from the unique opportunity to meet with leading diabetic foot experts from around the world.
Enjoy the conference and your stay in London!

Kind regards from
On behalf of the ADFS Board

Prof Luca Dalla Paola
President of the Association of Diabetic Foot Surgeons

Association of Diabetic Foot Surgeons

ADFS Membership

Who can become a member?

Membership of the ADFS is open to diabetic foot surgeons who are either actively working with the diabetic foot, or who, for other reasons, have an interest in surgery on the diabetic foot.

Membership fee

The annual membership fee is €100 for ordinary members and €150 for industry representatives. Membership fees are annual and should be paid upon acceptance of membership. If a member wishes to terminate his or her membership, this must be done in writing to the secretariat.

To meet the membership criteria, you must have a degree in a surgical discipline and either currently being, or in the past having been, performing surgery on the diabetic foot. Foot surgeons without diabetic foot experience must motivate their interest when applying for membership.

Honorary memberships may be granted to distinguished professionals who have made extraordinary contributions to the ADFS or to development of surgery on the diabetic foot.

Representatives from industry may be members of the association, but are not allowed to stand for or vote in elections for the ADFS Board.

How to apply for membership

To apply for membership please fill in the membership form and submit it along with your CV to the ADFS Secretariat on **info@a-dfs.org** or **info@cap-partner.eu**

Membership form is available at the registration desk or online on **www.a-dfs.org/membership**

Evaluations of new applicants will be undertaken by the ADFS Board.

For more information please contact the ADFS Secretariat **info@a-dfs.org** or **info@cap-partner.eu**

ABOUT KING'S DIABETES FOOT CLINIC

ABOUT KING'S DFC

The King's Diabetes Foot Clinic (King'sDFC) was the first dedicated multidisciplinary foot clinic in the United Kingdom and one of the earliest pioneers of multidisciplinary team (MDFT) working in the management of the diabetic foot. It has since evolved into one of Europe's largest units dealing with complex diabetic (and sometimes non-diabetic) foot problems.

The team at King'sDFC, led by Prof Edmonds, have initiated and conducted many important studies in the diabetic foot, in particular in the fields of Charcot neuroarthropathy and neuro-ischaemia. They also provide international leadership, with representation on the board of many important diabetic foot interest groups including DFSG, ADFS, IWGDF, D-FOOT and NICE.

On the educational front, King'sDFC aims to foster a deeper understanding of the challenges in diabetic foot. It has developed an unique calendar of educational activities to foster and integrate foot education among podiatrists, surgeons, physicians and other interested health professionals.

THE KING'SDFC TEAM

The King'sDFC includes a team of experienced specialist podiatrists, surgeons, physicians, orthotists, vascular scientists well supported by radiology and microbiology.

Key members include:

Prof Michael Edmonds
Professor of Diabetic Foot Medicine

Prof Venu Kavarthapu
Foot and Ankle Surgeon

Mr Hisham Rashid
Vascular Surgeon

Mrs Maureen Bates
Podiatry Manager

Dr Prashant Vas
Diabetic Foot Physician

Dr Nina Petrova
Senior Lecturer

Mr Raju Ahluwalia
Foot and Ankle Surgeon

Ms Ines Reichert
Foot and Ankle Surgeon

Dr Chris Manu
Diabetic Foot Physician

Mr Hani Slim
Vascular Surgeon

Dr Jason Wilkins /
Dr Dean Huang
Interventional Radiology

Dr David Elias / Dr Lisa Meacock
Musculoskeletal Radiology

Dr Gillian Vivian
Nuclear Medicine

Dr Surabhi Taori
Microbiology

Mr Christian Pankhurst /
Ms Amy Jones
Orthotics and Prosthetics

INTERNATIONAL FACULTY

Christopher Attinger Consultant Plastic Surgeon, MedStar Georgetown University Hospital, Washington, District of Columbia, USA

Arun Bal Consultant Diabetic Foot Surgeon, S. L. Raheja Hospital, Mumbai, India

Luca Dalla Paola Chief, Diabetic Foot Department, Maria Cecilia Hospital, GVM Care&Research, Cotignola, Italy

Johnny Frøkjær Consultant Orthopaedic Surgeon, Odense University Hospital, Denmark

Robert Frykberg Professor of Practice, Dept. of Surgery University of AZ College of Medicine Phoenix, USA

Alexandru Georgescu Head of the Plastic Surgery Reconstructive Microsurgery Clinic, Rehabilitation Hospital Cluj, Napoca, Romania

Klaus Kirketerp-Møller Consultant Orthopaedic Surgeon, Copenhagen Wound Healing Center, Bispebjerg University Hospital, Denmark

Armin Koller Consultant Orthopaedic Surgeon, Chief of Division of Technical Orthopaedics, co-chief of Interdisciplinary Diabetic Foot Centre, Mathias-Hospital, Rheine, Germany

Alberto Piaggesi Professor of Diabetilogy, Diabetic Foot Unit Director, Azienda Ospedaliero, Universitaria Pisana, Italy

Dane Wukich Professor & Chairman, Orthopaedic Surgery, UT Southwestern Medical Center, Dallas, USA

Thomas Zgonis Professor and Director, Podiatric Medicine and Surgery, University of Texas Health Science Center San Antonio, USA

NATIONAL FACULTY

Michael Edmonds Consultant Endocrinologist, King's College Hospital, London, UK

Venu Kavarthapu Consultant Orthopaedic Surgeon, King's College Hospital, London, UK

Raju Ahluwalia Consultant Orthopaedic Surgeon, King's College Hospital, London, UK

Maureen Bates Chief Podiatrist, King's College Hospital, London, UK

Naveen Cavale Consultant Plastic Surgeon, King's College Hospital, London, UK

Verity Currall Consultant Orthopaedic Surgeon, Luton and Dunstable Hospital, UK

David Elias Consultant Radiologist, King's College Hospital, London, UK

Dean Huang Consultant Interventional Radiologist, King's College Hospital, London, UK

Amy Jones Clinical Specialist Physiotherapist, Guy's & St Thomas Hospitals, London, UK

Chris Manu Consultant Endocrinologist, King's College Hospital, London, UK

Christian Pankhurst Senior Orthotist, King's College Hospital, UK

Nina Petrova **Senior Lecturer** Diabetic Medicine, King's College Hospital, London, UK

Anand Pillai Consultant Orthopaedic and Trauma Surgeon with University Hospitals South Manchester, UK

Hisham Rashid Consultant Vascular Surgeon, King's College Hospital, London, UK

Ines Reichert Consultant Orthopaedic Surgeon, King's College Hospital, London, UK

Simon Shaw Consultant in Rehabilitation Medicine, GSTT, London, UK

Surabhi Taori Consultant Microbiologist, King's College Hospital, UK

Jennifer Tremlett Podiatrist, King's College Hospital, London, UK

Prashant Vas Consultant Endocrinologist, King's College Hospital, London, UK

Gillian Vivian Consultant in Nuclear Medicine, King's College Hospital, London, UK

Alex Vris Consultant Orthopaedic Surgeon, Royal London Hospital, London, UK

Chris Walker Consultant Orthopaedic Surgeon, Royal Liverpool University Hospital, Liverpool, UK

Daina Walton Podiatrist, King's College Hospital, London, UK

Alex Wee Consultant Orthopaedic Surgeon, Frimley Park Hospital, Frimley, UK

Michelle Stafford, Hetal Patel, Joanne Casey, Erika Vainieri
28th Workshop Faculty

Huilling Liew, Ioanna Elefthriadou, Wegin Tang, Sarah Davis, Tim Jemmott, Ellen Hamborg-Petersen, Elicia Bello
29th Workshop Faculty

THURSDAY 28 JUNE

8.00	**Registration Desk Open**	
09.00 - 09.10	**Welcome**	
09.10 - 11.00	**Session 1.** **Modern Approaches to Charcot Foot** **Chairs:** V. Kavarthapu, M. Edmonds **Discussants:** D. Wukich, A. Koller	Ashes Suite
09.10 - 09.30	Charcot Neuroarthropathy - The Spectrum of Presentations	Michael Edmonds, UK
09.30 - 09.45	Advanced Imaging for Assessment of Charcot Foot	David Elias, UK
09.45 - 10.00	Modern Nuclear Imaging in the Early Diagnosis of Charcot Foot	Gillian Vivian, UK
10.00 - 10.12	Offloading of an Acute Charcot	Nina Petrova, UK
10.12 - 10.27	Vascular Reconstruction in a Charcot Foot	Hisham Rashid, UK
10.27 - 10.40	Surgical Reconstruction in Acute Charcot Foot	Venu Kavarthapu, UK
10.40 - 11.00	Panel discussion	
11.00 - 11.30	**Coffee and exhibition in Jardine Suite**	
11.30 - 13.00	**Session 2.** **Infection and Osteomyelitis** **Chairs:** R. Frykberg, I. Reichert **Discussants:** P. Vas, K Kirketerp-Møller	Ashes Suite
11.30 - 11.45	The Microbiology Jungle in the Diabetic Foot	Surabhi Taori, UK
11.45 - 12.00	The Importance of Biofilm in Infection Eradication	Klaus Kirketerp-Møller, DK
12.00 - 12.15	Recorded Live Case - The Art of Debridement of an Infected Ulcer	Johnny Frøkjær, DK
12.15 - 12.30	The Diabetic Foot Attack - The Surgical Principles	Raju Ahluwalia, UK
12.30 - 12.45	Endovascular Revascularisation in Diabetic Foot Wounds	Dean Huang, UK
12.45 - 13.00	Panel discussion	
13.00 - 14.00	**Lunch and exhibition in Jardine Suite**	
13.00 - 13.15	15 min Bone Biopsy Workshop in Ashes Suite	A. Vris, M. Stafford H. Patel, J. Lucas, J. Casey

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14.00 - 14.45	**Industry Sponsored Satellite Symposium, see detailed programme on pages 50-52**	Ashes Suite
14.45 - 16.15	**Session 3.** **Amputations and Rehabilitation** **Chairs:** A. Piaggesi, R. Ahluwalia **Discussants:** T. Zgonis, R. Frykberg	Ashes Suite
14.45 - 15.00	Perioperative Management of a Diabetic Foot Patient	Prashant Vas, UK
15.00 - 15.15	Minor Amputation Techniques	Robert Frykberg, USA
15.15 - 15.30	Modern Prosthetics in Transtibial Amputations	Simon Shaw, UK
15.30 - 15.45	Internal Amputation - When to Consider?	Armin Koller, DE
15.45 - 16.00	Prevention of Avoidable Diabetic Foot Amputations!	Michael Edmonds, UK
16.00 - 16.15	Panel discussion	
16.15 - 16.45	**Coffee and exhibition in Jardine Suite**	
16.45 - 18.30	**Session 4.** **Plastic and Reconstructive Surgery in a Diabetic Foot** **Chairs:** T. Zgonis, N. Cavale **Discussants:** C. Attinger, A. Georgescu	Ashes Suite
16.45 - 17.00	The Podoplastic Approach for the Diabetic Charcot Foot	Thomas Zgonis, USA
17.00 - 17.15	Local Random and Muscle Flaps	Christopher Attinger, USA
17.15 - 17.30	Perforator and Pedicle Flaps	Alexandru Georgescu, Romania
17.30 - 17.45	Microsurgical Free Flaps	Christopher Attinger, USA
17.45 - 18.00	Revisional Plastic Surgical Reconstruction in the Diabetic Foot	Alexandru Georgescu, Romania
18.00 - 18.15	Post-op Management of a Reconstructed Diabetic Foot	Chris Manu, UK
18.15 - 18.30	Panel discussion	
18.30 - 19.30	**Welcome reception in Jardine Suite**	

Due to CME regulations no industry names or logos are allowed in the programme.
Detailed information about industry sessions is available on pages 47-57

FRIDAY 29 JUNE

8.30 - 10.00	**Session 5.** **Free Paper Session and Developing Countries Perspective** **Chairs:** : J Frøkjær, P. Vas	Ashes suite
08.30 - 09.30	**Free Paper Session**	
O1	Pedal Arch Patency Guarantees Wound Healing and Limb Salvage after Limb Revascularization and Transmetatarsal Amputation in Diabetic Patients with Critical Limb Ischemia	Mohammad Abualhin, Italy
O2	Healing Chronic Diabetic Foot Ulcers with Cyclical Pressurized Topical Wound Oxygen Therapy: Results of the TWO2 multi-national, multi-center, randomized, double blinded, placebo controlled trial	Robert Frykberg, USA
O3	More than 50% of Heel Ulcers Treated by Multi-disciplinary Surgical Treatment Healed by 6 Months	Ngwe Phyo, United Kingdom
O4	Percutaneous Flexor Tenotomy for Healing and Prevention of Ulcers in Patients with Claw Toe Deformity	Luuk Smeets, Netherlands
O5	What do Patients with Diabetic Charcot Neuroarthropathy Fear?	Dane Wukich, USA
O6	Diabetes Mellitus and Charcot Neuro-osteo-arthropathy (CNA): Retrospective Analysis and Identification of Predictive Factors.	Elisabetta Iacopi, Italy
09.30 - 09.45	The Diabetic Foot Burden in South Asia	Arun Bal, India
09.45 - 10.00	Panel discussion	
10.00 - 10.30	**Coffee and exhibition in Jardine Suite**	
10.30 - 11.45	**Session 6.** **Advanced Techniques in Charcot Midfoot Reconstruction** **Chairs:** L. Dalla Paola, C. Walker **Discussants:** T. Zgonis, A. Koller	Ashes suite
10.30 - 10.45	External Fixation - My Technique Works all the Time	Armin Koller, DE
10.45 - 11.00	My Approach to the Choice of Internal Fixation	Venu Kavarthapu, UK
11.00 - 11.15	Internal Fixation - How I Do It?	Dane Wukich, USA
11.15 - 11.30	Minimally Invasive Diabetic Foot Surgery - "Back to the Future"	Robert Frykberg, USA
11.30 - 11.45	Discussion	

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10.00 - 10.30	**Coffee and exhibition in Jardine Suite**	
10.30 - 11.45	**Session 8.** **Modern Techniques In Diabetic Foot Wound Care** **Chairs:** A. Piaggesi, C. Attinger **Discussants:** N. Cavale, J. Tremlett	Pakistan Room
10.30 - 10.45	Negative Pressure Wound Therapy in Diabetic Foot Infections	Alberto Piaggesi, IT
10.45 - 11.00	Management of Heel Ulcers in Diabetic Patients with Limb Ischemia	Christopher Attinger, USA
11.00 - 11.15	Emerging Less Invasive Skin Grafting Solutions	Naveen Cavale, UK
11.15 - 11.30	Management of Complex Post-operative Wounds	Jennifer Tremlett, UK
11.30 - 11.45	Wounds In Deformed Feet - When To Refer To A Suregeon?	Alex Vris, UK

FRIDAY 29 JUNE

11.45 - 12.30	**Industry Sponsored Satellite Symposium, see detailed programme on pages 50-52**	
12.30 - 13.30	**Lunch and exhibition in Jardine Suite**	
12.30 - 12.45	15 min TCC workshop in Ashes Suite	T. Gemmot, W. Tang, S. Davis
13.30 - 15.30	**Session 7.** **Advanced Techniques in Charcot Hindfoot Reconstruction** **Chairs:** A. Bal, J. Frøkjær **Discussants:** V. Kavarthapu, D. Wukich	Ashes Suite
13.30 - 13.45	External Fixation - The Way I Do!	Chris Walker, UK
13.45 - 14.00	Internal Fixation - My Proven Technique!	Dane Wukich, USA
14.00 - 14.15	My Stepwise Approach to the Infected Diabetic Charcot Foot and Ankle	Thomas Zgonis, USA
14.15 - 14.30	Surgical Offloading of a Reconstructed Foot	Luca Dalla Paola, IT
14.30 - 14.45	How to Measure QALY Outcomes in Chart Foot Reconstructions	Dane Wukich, USA
14.45 - 15.00	My Surgical Nightmare of Infected Hindfoot Reconstruction	Ines Reichert, UK
15.00 - 15.30	Meet the Experts - Case Examples	Verity Currall, UK
15.30 - 16.00	**Coffee and exhibition in Jardine Suite**	
16.00 - 16.45	**Industry Sponsored Satellite Symposium, see detailed programme on pages 50-52**	Ashes Suite
16.45 - 17.45	**Session 10.** **Multidisciplinary Diabetic Foot Care** **Chairs:** V. Kavarthapu, M. Edmonds **Discussants:** L. Dalla Paola, P. Vas	Ashes Suite
16.45 - 17.00	Global Diabetic Foot Surgical Challenges	Luca Dalla Paola, IT
17.00 - 17.15	My Experience in Setting up a Multidisciplinary Diabetic Foot Care?	Michael Edmonds, UK
17.15 - 17.30	Panel discussion	
17.30 - 17.45	Prizes. Closure	

Due to CME regulations no industry names or logos are allowed in the programme.
Detailed information about industry sessions is available on pages 49-51

11.45 - 12.00	Modern Diabetic Foot Wound Dressings, Chris Manu, UK Panel discussion	
12.30 - 13.30	**Lunch and exhibition in Jardine Suite**	I. Elefthriadou, E. Vainieri
12.30 - 12.45	15 min Choice of Antibiotics in Infected Diabetic Foot Ulcers in Pakistan Room	I. Elefthriadou, E. Vainieri
13.30 - 15.00	**Session 9.** **Optimal Offloading Of A Diabetic Foot** **Chairs:** R. Ahluwalia, N. Petrova **Discussants:** K. Kirketerp-Møller, M. Bates, A. Jones	Pakistan Room
13.30 - 13.45	My Algorithm of Orthotic Choice in a Diabetic Foot Patient	Christian Pankurst, UK
13.45 - 14.00	AFOs - Off the Shelf or Custom Made in Charcot Foot	Armin Koller, DE
14.00 - 14.15	The Challenge of Offloading and Complaince	Klaus Kirketerp-Møller, DK
14.15 - 14.30	Total Contact Cast is Still the Gold Standard!	Maureen Bates, UK
14.30 - 14.45	Bilateral Diabetic Foot Offloading	Daina Walton, UK
14.45 - 15.00	Panel discussion	
15.00 - 15.30	Case Examples	Raju Ahluwalia and Nina Petrova
15.30 - 16.00	**Coffee and exhibition in Jardine Suite**	

Oral Abstracts

Oral Abstracts

[O1] PEDAL ARCH PATENCY GUARANTEES WOUND HEALING AND LIMB SALVAGE AFTER LIMB REVASCULARIZATION AND TRANSMETATARSAL AMPUTATION IN DIABETIC PATIENTS WITH CRITICAL LIMB ISCHEMIA

Mohammad Abualhin[1], Alessia Sonetto[1], Paolo Spath[1], Enrico Gallitto[1], Gianluca Faggioli[1], Andrea Stella[1], Mauro Gargiulo[1]

[1]University of Bologna, Vascular Surgery, Bologna, Italy

Aim: Foot arteries' role in transmetatarsal amputation(TMA) healing and limb salvage after revascularization of peripheral arterial disease(PAD).

Method: PAD patients undergoing TMA following any type of revascularization between April-2012 and November-2017 were analyzed. Patient's characteristics were assessed. Pre-operative angiograms and interventional data were reviewed to determine patency of foot arteries and the presence of direct in-line flow to the foot (DILF). Pedal arch patency was classified as: no-pedal arch (NPA), incomplete pedal arch(IPA) and complete pedal arch(CPA). Endpoints were: wound healing (WH) and Limb Salvage(LS) and impact of foot arteries on endpoints.

Results / Discussion: Total of 112 limbs (105 patients, mean age 72-years, male 76.2%) were treated in the study period. Complete data on foot arteries were available in 104(93%) limbs. Diabetic patients represented 67% of cases. Clinical presentation was Rutherford stages-5 and -6 in 10.7% and 89.3%. Dorsalis pedis and plantar arteries patency, NPA, IPA and CPA were found in 55.8%, 54.8%,21.2%,60.6% and 18.3%, respectively. DILF was achieved in 72.1%. The mean follow-up was 17.7months. WH was 57.1%, 89.3% and 98.2% at 6,12 and 24-month, respectively. LS was 81.1%, 79.5% and 77.5% at 6,12 and 24-month, respectively. WH and LS were not affected by patency of dorsalis pedis and plantar arteries or presence of DILF (P=0.26,P=0.33 and P=0.12, respectively). While the presence of CPA compared to IPA or NPA was associated with higher WH (P=0.01) and LS rates(P=0.019). The benefit of CPA was the same in diabetic and non-diabetic patients (P=0.11).

Conclusion: Complete pedal arch has a principal role in wound healing and limb salvage after transmetatarsal amputation in diabetic patients with CLI undergoing limb revascularization.

[O2] HEALING CHRONIC DIABETIC FOOT ULCERS WITH CYCLICAL PRESSURIZED TOPICAL WOUND OXYGEN THERAPY: RESULTS OF THE TWO2 MULTI-NATIONAL, MULTI-CENTER, RANDOMIZED, DOUBLE BLINDED, PLACEBO CONTROLLED TRIAL

Robert Frykberg[1], Peter Franks[2], Michael Edmonds[3], Jonathan Brantley [4], Luc Teot[5], Thomas Wild[6], Matthew Garoufalis[7], Aliza Lee[8], Janette Thompson[9], Gerard Reach[10], Cyaandi Dove[11], Karim Lachgar[12], Dirk Grotemeyer[13]

[1]Phoenix Va Health Care System, Phoenix, Az, United States
[2]Centre for Research and Implementation of Clinical Practice, United Kingdom
[3]King's College Hospital, United Kingdom
[4]Mcguire Veterans Affairs Medical Center, United States
[5]Montpellier University Hospital, France
[6]Städtisches Klinikum Dessau, Dessau-Roßlau, Germany
[7]Jesse Brown Va Medical Center, United States
[8]Salem Veterans Affairs Medical Center, United States
[9]Washington DC Va Medical Center, United States
[10]University Paris, Public Assistance - Paris Hospitals, France
[11]Advanced Foot & Ankle Center, United States
[12]Groupement Hospitalier Eaubonne Montmorency, France
[13]Kirchberg Hospital, Luxembourg

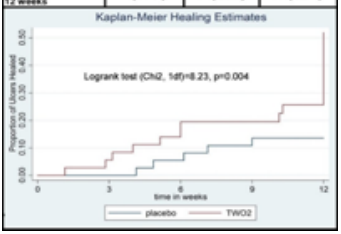
Aim: Our 17 site RCT (NCT02326337) was undertaken to explore the efficacy of cyclical pressurized Topical Wound Oxygen (TWO2) homecare therapy in healing DFUs that had been proven failures to heal with the best Standard of Care (SOC) alone.

Method: A Group Sequential Design was utilized for the study with 2 interim analyses, requiring for a significance of $p<0.022$ at each analysis point. To confirm ulcers randomized into the study were failures of SOC, all subjects meeting the inclusion and exclusion criteria were enrolled initially into a 2 week run-in with the study SOC that included gold-standard offloading and sharp debridement. Only DFUs not on a proven healing trajectory (<30% wound area reduction in 2 weeks) were randomized into the active phase of the study, where they were assigned (double blind) to additionally receive either the active, or sham (placebo), TWO2 device treatment. TWO2 therapy was administered by the subject at home 5 days per week for 90 minutes per day. Subjects visited the DFU clinic weekly for wound assessment, sharp debridement and wound photographs. The primary endpoint of the study was the proportion of ulcers healed at 12 weeks.

Results/Discussion: At the first interim analysis point of 73 subjects, the active TWO2 arm was shown to be significantly superior to the sham (placebo) arm (Pearson Chi2 = 7.2707, P = 0.007). Multivariable analysis using logistic regression and Cox proportional hazards modelling of the secondary outcome measure of time to heal showed no other covariates achieved significance. The active TWO2 arm showed nearly 4 times the likelihood to heal DFUs in 12 weeks compared to the sham arm HR 3.88 (95% CI 1.40 to 10.71), p=0.009.

Table 1. Results by randomized group using ITT Analysis

	Placebo	TWO2	Total
N	37	36	73
Gender			
Female	6 (16.2%)	4 (11.1%)	10 (13.7%)
Male	31 (83.8%)	32 (88.9%)	63 (86.3%)
UT Scale			
1A	29 (78.4%)	25 (69.4%)	54 (74.0%)
1B	2 (5.4%)	2 (5.6%)	4 (5.5%)
1C	1 (2.7%)	0 (0)	1 (1.4%)
2A	5 (13.5%)	8 (22.2%)	13 (17.8%)
2B	0 (0)	1 (2.8%)	1 (1.4%)
Neuropathic			
Yes	29 (78.4%)	28 (77.8%)	57 (78.1%)
No	8 (21.6%)	8 (22.2%)	16 (21.9%)
Infection			
Yes	3 (8.1%)	1 (2.8%)	4 (5.5%)
No	34 (91.9%)	35 (97.2%)	69 (94.5%)
Age (years)			
mean	61.9	64.6	63.3
sd	9.5	10.3	9.9
Wound area (cm^2)			
mean	3.22	3.02	3.13
sd	2.54	2.66	2.59
Duration (days)			
mean	174.6	157.9	166.4
sd	94	96.3	94.8
Hgba1c			
mean	8.07	8.43	8.25
sd	1.5	1.75	1.64
Ulcers Healed at 12 weeks	5 (13.5%)	15 (41.7%)	20 (27.4%)



Conclusion: This robustly designed RCT demonstrates cyclical pressurized TWO2 therapy to be significantly superior in healing DFUs than gold standard SOC alone.

[O3] MORE THAN 50% OF HEEL ULCERS TREATED BY MULTI-DISCIPLINARY SURGICAL TREATMENT HEALED BY 6 MONTHS

Ngwe Phyo[1], Nina Petrova[2], Wegin Tang[2], Ines Reichert[3], Raju Ahluwalia[3], Venu Kavarthapu[3]

1 Department of Orthopaedics, King's College Hospital NHS foundation Trust, London, UK, London, United Kingdom
2 Diabetic Foot Clinic, King's College Hospital NHS Foundation Trust, London, UK
3 Department of Orthopaedics, King's College Hospital NHS foundation Trust, London, UK

Aim: Diabetic heel ulcers are difficult to treat, often requiring surgical debridement when complicated by osteomyelitis. This cohort-series explores the outcomes of those infected heel ulcers treated with surgical debridement. Our primary outcomes included ulcer healing rates at 6-months, and long-term outcomes of functional-weight-bearing, recurrence rates, amputation and mortality at 12-months.

Method: A total of 30-patients (31 heel ulcers) who had undergone surgical debridement were identified from electronic theatre records from 2010-17. Post-surgery, all patients were monitored within our multi-disciplinary diabetic foot clinic and managed with appropriate sharp debridement when required, wound dressings, offloading and control of infection. Outcomes at 6 and 12-months were independently assessed from the patients' medical notes.

Results / Discussion: Of the 31 heel ulcers, 26 (84%) were complicated by calcaneal osteomyelitis. 17 ulcers (55%) healed by 6-months; 4-patients (13%) had re-ulcerated by 12 months, 4-patients had died (13%); the one patient with bilateral heel ulcers with osteomyelitis had failed ulcer healing in one foot and underwent a below knee amputation for the contralateral heel ulcer. Functional analysis was found to be recorded for 16 patients at 12-months; and 11 returned to independent weight-bearing in protective orthosis.

Conclusion: This study showed more than 50% of heel ulcers heal at 6-months, following prompt surgical debridement and multi-disciplinary-management. Aggressive treatment of infection and intensive podiatric therapy results in a very low amputation and acceptable mortality rate. Therefore heel ulcers are best managed within a multidisciplinary-team, where early referral to diabetic foot-surgeon is essential to avoid adverse outcomes.

[O4] PERCUTANEOUS FLEXOR TENOTOMY FOR HEALING AND PREVENTION OF ULCERS IN PATIENTS WITH CLAW TOE DEFORMITY

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Aim: The aim of this study is to investigate if percutaneous flexor tenotomy is an effective surgical method for treatment and prevention of toe ulcers in patients with claw deformity with and without diabetes mellitus.

Method: Percutaneous flexor tenotomy is a simple surgical procedure which can be performed under local anesthesia in an out-patient setting. This retrospective study, with a median follow-up of 13.4 (1-45) months, included all consecutive patients who underwent percutaneous flexor tenotomy in two hospitals between May 2014 and April 2017. The procedure was performed in all toes with ulceration and also in toes that were at risk for ulceration. Patients who underwent at least one flexor tenotomy on a toe with an ulcer were included in the therapeutic group. Patients who underwent only prophylactic treatments were classified as prophylactic.

Results / Discussion: A total of 256 flexor tenotomies were performed in 75 patients (mean age 71.4 years, 47 men) on 101 feet; 84 therapeutic and 17 prophylactic. Diabetes mellitus was present in 77% of all patients for a mean period of 17.8 years. In the therapeutic group 98 (95.1%) of a total of 103 ulcers healed with a median time of 27 days. In this group 11 (13.3%) re-ulcerations, 4 (4.8%) infections were recorded and 1 amputation of the digit was needed eventually. In the prophylactic group 1 local bleeding (6%) and two (12%) ulcers were recorded.

Conclusion: Percutaneous tenotomy of the flexor digitorum longus is a highly effective and safe minimally invasive procedure for the treatment and for the prevention of ulcers and therefore should be integrated and considered in the daily standard care for each diabetic foot patient.

[O5] WHAT DO PATIENTS WITH DIABETIC CHARCOT NEUROARTHROPATHY FEAR?

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Aim: The purpose of this study was to determine the greatest fears in patients with Charcot neuroarthropathy of the foot and/or ankle.

Method: A 32 question survey was developed to assess patients' fear of eight different diabetes related complications using a Likert-type scale (1 to 5). The fears included death, heart attack, stroke, kidney failure requiring dialysis, blindness, foot infection, minor amputation and major amputation. Patients ≥ 18 years of age with diabetes presenting to outpatient clinics were asked to fill out the survey during their visit. Seventy-two patients with Charcot were matched to 72 diabetic patients without diabetes related foot complications. (tendonitis, flatfeet, etc.).

Results: Patients with Charcot (n=72) compared to those without diabetic foot problems (n=72) had higher BMI (p=0.0002,), longer history/duration of diabetes (p=0.0055,), knowledge of one's HbA1c (p=0.0050,), greater proportion with a history of amputation (p<0.0001,), ulceration and amputation education (p-values < 0.0370,), neuropathy (p<0.0001,), PAD (p<0.0001,), DFUs (p<0.0001,), and diabetic foot infections (p=0.0006,). No significant differences were observed on age, gender, ethnicity, and proportion of Type 2 diabetes. The ordinal logistic regression revealed that those with diabetic Charcot had significantly greater predicted odds of increased fear of diabetic foot infection (OR=3.964, 95% CI: 2.139 to 7.347), leg amputation (OR=3.614, 95% CI: 1.953 to 6.687), foot amputation (OR=3.393, 95% CI: 1.835 to 6.275), and blindness (OR=2.142, 95% CI: 1.188 to 3.864) than those without diabetic foot problems. No significant group differences were observed for increased odds of fear of Death, Dialysis, Stroke, and Heart Attack. (i.e., those with and without diabetic foot problems).

Conclusion: Patients with Charcot fear infection, major amputation, minor amputation and blindness significantly more than death, heart attack, stroke or dialysis. Physicians who treat patients with Charcot should recognize that patients are concerned about foot infection and limb loss more than death.

[O6] DIABETES MELLITUS AND CHARCOT NEURO-OSTEO-ARTHROPATHY (CNA): RETROSPECTIVE ANALYSIS AND IDENTIFICATION OF PREDICTIVE FACTORS

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Aim: We retrospectively analysed the cohort of CNA patients followed in our clinic and the correlations between clinical and demographic characteristics and the evolution of the disease to identify predictive factors of severity and outcomes.

Method: We retrospectively searched in our databases for all patients with a diagnosis of CNA between 2000 and 2017. We analysed both inpatient and outpatient clinic records and we traced all patients which were submitted to a structured telephone interview. The items were limb salvage with or without minor or major amputation, number of surgical procedures performed and mortality.

Results / Discussion: The diagnosis of CNA was supposed in 567 and confirmed in 436 pts (male/female % 64/37; mean age 48.6±11.9 yrs; type of diabetes (1-2) 25/75, BMI (Kg/m2) 29.7 ± 7.3). All patients showed high prevalences of comorbidities, in particular ischemic cardiopathy (24.7%), diabetic retinopathy (31.5%) and peripheral artery disease (62.2%). One out of three had bilateral CNA. The onset modality was pain in 64%, oedema in 72% and the occurrence of a lesion in 47% of them. During the follow up of 89.1±76.4 months (7-188) 43% of patients underwent to a minor amputation and 4.7% of them to a metatarsal stabilization. In the same period 8.7% of patients required a major amputation and 14.8% of them died. Multivariate Cox regression was performed both in terms of major amputation and death. Amputation was predicted by peripheral artery disease, smoke habits and acute onset modalities while mortality was predicted by male sex, renal failure, peripheral artery disease and acute onset modalities.

Conclusion: Despite its high prevalence CNA is often underknown and misdiagnosed. Its impact on limb salvage and survival rate posed it as a relevant diabetes complication. The comorbidities parameters which acts on diabetes exert a role also on CNA patients and their clinical evolution.

NOTES

NOTES

Poster Abstracts

[P1] THE MEASURING PERFUSION INDEX IS MORE USEFUL THAN SKIN PERFUSION PRESSURE ABOUT CRITICAL LIMB ISCHEMIA (BELOW THE ANKLE CASE) PATIENTS TOE GANGRENE

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Aim: Diabetic foot ulcer patients have sometimes severe ischemia, otherwise revascularization technique has made advances and was cured below the ankle region. Blood supply of toe is problem, because there isn't measurement method. So I measured perfusion index of toe and examined the relation between perfusion index and wound cure rate.

Method: 40 Patients have critical limb ischemia (below the ankle cases), 26 male and 15 female, average age 68. There are toe or toes gangrene. Perfusion index was measured before first pre-amputation in operation room post revascularization. Operation room's temperature was set at 24°C. Patients were excluded if they didn't measured. They were divided into wound healing group and unhealing group. These groups compared with SPP and PI by unpaired t. test.

Results / Discussion: These groups compared about age, sex, perfusion index, skin perfusion pressure (dorsal/ plantar). The age (P=0.467), sex (P=0.054), perfusion index (P=0.0035), skin perfusion pressure (dorsal) (P=0.0033), skin perfusion pressure (plantar) (P=0.0652).

Conclusion: Before critical limb ischemia patients (below the ankle) are taken operation, perfusion index is usefulness method and the index is helpful to decide the amputation level.

[P2] AID CONCEPT FOR MULTIDISCIPLINARY TEAM MANAGEMENT OF DIABETIC FOOT ULCERS

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Diabetic patients are growing explosively throughout the world, especially in Asia. As a result, patients with a diabetic foot problem are rapidly increasing in these countries.

Arterial insufficiency, infection and deformity are highly associated with healing challenges of diabetic foot ulcers.

In patient with arterial insufficiency ulcers, restoration of blood flow by revascularization is the intervention that will most likely lead to healing. Infected feet require surgical debridement to achieve healing. The incision planning for debridement was designed based on the assumption that the defect would be closed by fillet flaps. The wounds were left open, and treated with NPWT. Fillet flaps were gradually advanced by NPWT, and complete wound closure was achieved.

But in ischemic foot, early debridement could result in worsened necrosis by increasing metabolic demand. So we performed marginal debridement without bleeding, not to worsen ischemia. And if necessary, we performed longitudinal incision and drainage not to disturb the skin blood flow.

Foot deformities are a cause of pressure concentrations and create biomechanical stresses that cause ulcerations. The mainstay of treatment for foot deformities is offloading using proper footwear.

Diabetic foot ulcers often require comprehensive, multidisciplinary management.

But the pathogenesis of foot ulceration is complex, clinical presentation variable, and management requires early expert assessment. Since we need to treat diabetic foot in multidisciplinary, common concept of treatment is required.

Here we propose a new concept of diabetic foot wound management, which we have termed AID (acronym for arterial insufficiency, infection and deformity) concept, and analyzed a retrospective series of 133 patients with diabetes mellitus, who were hospitalized because of their diabetic foot.

[P3] TREATMENT RESULTS OF FOOT AND ANKLE INFECTION IN PATIENTS WITH AND WITHOUT DIABETES MELLITUS

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Aim: Little is known about different outcomes in diabetic or non-diabetic patients with foot and ankle infection. This study was to compare patient-reported outcomes (PROs) and health-related quality of life (HrQoL) of diabetic and non-diabetic patients with foot and ankle infections in both pre-and post-treatment periods.

Method: This study included a total number of twenty-six patients who were divided as 15 patients with diabetic-related foot and ankle infection and 11 patients who had foot and ankle infections without diabetes mellitus (DM). Baseline characteristics including site of infection, PROs via visual analogue scale foot and ankle (VASFA) score, and HrQoL via Short-Form (SF)-36 score were recorded in each patient. VASFA and SF-36 scores were compared between the two groups in both pre-and post-treatment periods.

Results / Discussion: Mean follow-up time was 11.5 months. There were significant improvements of the VASFA score and SF-36 score regarding the pre-and post-treatment periods ($p < 0.001$). The correlations between VASFA scores and SF-36 scores were significant in both the pre-($r = 0.506$; $p = 0.012$) and post-treatment periods ($r = 0.771$; $p<0.001$). The variables as height, weight, body mass index (BMI) included pre-and post-treatment VASFA scores and SF-36 scores were no significant differences ($p > 0.05$). These evidence demonstrated that patients with DM had no lower results via scores assessment than non-diabetic groups in both pre-and post-treatment periods.

Conclusion: Regarding foot and ankle infection, the patients with and without DM could undergo the comparable results via patients' PROs and HrQoL assessment following the standard treatment.

[P4] PREPARATION OF WOUND FOR PLASTIC CLOSURE WITH VAC-THERAPY IN PATIENTS WITH DIABETIC FOOT

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Aim: Evaluation of the efficiency of negative pressure wound therapy (NPWT) compared with standard therapy in patients with diabetic foot syndrome (DFS).

Method: Estimated effects of NPWT using clinical (size, tissue oxygenation), histological, morphometric and immunohistochemical (eNOS-synthase) aspects of repairing of wounds among DFS patients compared to standard treatment. 62 patients with DFS were included in the study from the moment of debridement until the plastic closure of the wound. During the perioperative period, 32 patients received NPWT (-50 to-120 mmHg) - study group (SG) and 30 patients received standard therapy (control group-CG).

Results / Discussion: Reduction of the wound area 24,6±12,2% were achieved NPWT. In the CG, the corresponding values were 12,5±11,4%. The results of TcPO2 showed a greater increasing in the SG (p=0.037). An important criterion for wound preparation for a plastic closure is granulation tissue more than 75% of wound area. 94% of patients had wounds filled 82,1±16% of granulation tissuein the SG. The histological data of the SG shows a significant (p<0.05) reduction of oedemain 80%, improving extracellular matrix organization, dissolution of inflammatory infiltrate and the formation of healthy granulation tissue 90%. Immunohistochemical analysis demonstrated a significant increasing number of fibroblasts in the dermis, increasing expression of eNOS-synthase.

Conclusion: NPWT is more effective in comparison to standard treatment and achieves more rapid reduction of the area and depth of wound, increased local microcirculation and reduction of inflammation and therefore leads to reduction in time for preparing the wounds to autodermoplasty. These were confirmed histologically and immunohistochemically.

[P5] SURGICAL DEBRIDEMENT AND VACUUM-ASSISTED CLOSURE IN COMBINATION WITH SECONDARY SPLIT-SKIN GRAFTING FOR THE TREATMENT OF SEVERE DIABETIC FOOT INFECTIONS

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Aim: Despite modern advances in wound care, the process of healing of chronic diabetic wounds (CDW) is still challenging. According to foreign studies, treatment of surgical wound can be accelerated by a vacuum-assisted closure (VAC) that promotes wound healing by stimulating the growth of granulation tissue. This is our first prospective clinical study performed to assess the effectiveness of VAC in combination with secondary split-skin grafting (SSG) for the surgical treatment of severe CDW infections.

Method: In the study, we included seven male patients with severely infected CDW. After surgical debridement, all patients were treated with VAC. The wound status, granulation tissue formation and signs of infection were monitored during each change of VAC. According to the future wound care, patients were divided into two groups: firstly patients with wounds closed by SSG, secondary patients with wounds healing by advanced wound care (AWC).

Results / Discussion: In all patients treated with VAC, faster formation of clean granulations and prevention of secondary bacterial infection was achieved. The average length of hospitalization was 27 days. In five patients (postoperative wounds defects ranging between 25-55 cm^2) wound closing with VAC and SSG was achieved in average of 36.6 days of treatment. In one patient the acellular dermal substitute was used to accelerate regeneration of the wound that lay above tendons of the lower leg. In two patients (postoperative wounds defects ranging between 25-50 cm^2) treated with VAC and AWC the wounds were healed on average in 90 days.

Conclusion: Our experience confirms much faster healing rate achieved with surgery, VAC and split-skin grafting to treat severe CDW infections and open surgical wounds in comparison with AWC treatment only. Even in the group of two patients who were treated with VAC and AWC wounds healed without complications and faster when compared to AWC only.

[P6] PHOTOTHERAPY WITH LED AS AN ADJUVANT PROCEDURE IN THE HEALING OF THE DIABETIC WOUND - A PROSPECTIVE RANDOMIZED DOUBLE-BLIND STUDY

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Objective: The study examined the influence of phototherapy with LED as an adjuvant procedure in the diabetic wound treatment.

Background: Wounds in a diabetes mellitus patient are very difficult to treat due to underlying conditions. Conventional treatment options often do not provide satisfactory outcomes. Phototherapy with LED enhances the healing processes through mechanisms of energy exchange between incoming photons and their target, the main one being cytochrome-c oxidase in mitochondria.

Methods: A double-blind, randomized study included 60 patients treated between October 1, 2012 and December 1, 2014. Patients were randomized into either an active group (LED group) or a control group (Co-group). The active group was treated with LED 2.4 J/cm^2 (wavelengths 625 nm, 660 nm, 850 nm) three times a week for eight weeks. The Co-group was treated with light that simulated LED. Healing was evaluated using the Falanga wound bed score and wound surface area.

Results: The average baseline wound surface before treatment was 1315 mm^2 in the LED group and 1584 mm^2 in the Co-group ($p=0.80$). After eight weeks, the mean surface in the LED group was 56% of the baseline surface and 65% in the Co-group ($p>0.05$). Falanga score evaluation showed significantly faster wound bed healing in the LED group ($p<0.05$).

Conclusion: According to our results, LED significantly improves healing rate of diabetic wounds.

[P7] COLD ATMOSPHERIC PLASMA THERAPY WITH A COLD FLAME BY CHRONIC DIABETIC FOOT WOUNDS

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Aim: The aim of this field report is to demonstrate the positive results (reduction of bacterial load, pain and wound size), achieved by using cold atmospheric plasma with a cold flame.

Method: Five patients with chronic diabetic food wounds were treated once to twice a week with cold atmospheric plasma for 8 weeks. Because of stagnation with the conventional treatment, a cold atmospheric plasma treatment was chosen. The plasma device consisted of a pin which generated a cold flame. The gas used was argon. This plasma treatment took place during the usual wound-care in a day-hospital setting.

Each session of plasma therapy lasted 30 seconds per square centimeter followed by 10 minutes of wet pack with a wound irrigation solution.
In addition, a pain scale was measured during the therapy. A bacteriology culture was taken at the beginning and after each 2 weeks. With a 3D camera the wound size was measured in cm2 and cm3.

Results / Discussion: During the first 2 weeks of treatment all patients showed 80% less pain. The bacteriology culture was 80% negative after 2 weeks and 90% negative after 3 weeks. During the first 4 weeks the reduction of the wound size was 40-50%.

Conclusion: Our results demonstrate that the healing process of chronic wounds can be reactivated by treatment with cold atmospheric plasma.

The implementation is easy, patient-friendly and can be used in a day-hospital setting. A larger number of patients will be included in our next study.

[P8] IS IT POSSIBLE TO TREAT SUCCESSFULLY THE MOST EXTREME CASES OF DIABETIC FOOT SYNDROME IN OUTPATIENT CLINIC ONLY?

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Aim: The aim of the study is to present case series of patients with the most extreme manifestations of diabetic foot with major plantar tissue loss, bone exposure and dislocation, osteomyelitis requiring multiple procedures which are reserved mostly for hospital environment such as necrectomies, bone excisions, soft tissue reconstruction, skin grafting and continuous nerve blocks. All patients were already scheduled for below and above the knee amputation in at least one surgical department in local hospitals. All patients did not agree to amputation and were discharged at one's own request against medical advice so we treated them with the idea of doing something when there is nothing to lose.

Method: We collected retrospectively 14 cases who were treated only in outpatient clinic out of 58 cases of severe DFS. Patients were treated between years 2010–2017. The group consists of 5 females and 9 males, age range 46–76 year old. The only exception was hospitalization due to the transluminal revascularization in 8 cases. Treatment time ranged from approximately 4 to 15 months. We set the positive outcome as being able to walk standalone with a custom footwear or orthosis.

Results / Discussion: The most important advantage of keeping patients away from the hospital unit was avoiding contamination by multiresistant bacterial strains while the most important disadvantage were extending the treatment time and effort to conduct the treatment out of hospital.

Conclusion: The very first few patients were treated ambulatorily only because they were discharged at one's own request. Successive patients were treated deliberately in outpatient setting due the experience gained in managing such cases. The experience gathered in this way resulted in moving the border forward when we are able to treat outpatients with so called "mission impossible" diabetic foot quite often against the common sense in surgery.

[P9] "I WOULD LIKE TO KEEP MY FOOT" - THE NO 1 PRIORITY FOR PATIENTS OFFERED CHARCOT RECONSTRUCTION SURGERY

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Aim: We aimed to determine patient priorities ahead of reconstructive surgery for Charcot neuro-arthropathy.

Patients offered corrective surgery for Charcot foot disease have experienced deteriorating foot health and their pre-operative situation is frequently characterised by a non-usable foot and the threat of a major lower extremity amputation.

Understanding patient expectations helps their engagement in the decision-making process and improves surgical outcomes.

Method: A 'Foot School' has been developed for patients awaiting internal fixation surgery. The multidisciplinary care provided during the surgical treatment is explained in-depth and the team is available for questions. We administered a questionnaire to determine patients' expectations for surgery.

Results / Discussion: 17 patients (8 female, 9 male) completed the questionnaire. Their average age was 60 ± 7 years. 76.4% of patients (n=13/17) had type 2 Diabetes. Mean duration of Diabetes was 19.9 years (range 4 – 44 years). 64.7% of patients (n=11) had midfoot, 11.8% (n=2) had hindfoot and the remainder had combined Charcot neuro-arthropathy.

76.4% stated 'keeping the foot' as first priority (n=13/17). In the combined 2nd – 5th rankings (n=68), functional aspects dominated: the 'ability to stand and walk' with 'improved balance and gait' comprised 25% (n=17/68). Other aspects of quality of life followed: 'no more casts', 'no more ulcers' and 'a pain-free foot' were given in 22% (n=15/68). Others hoped for changes to day-to-day activities: 'independence from carers', 'playing with grandchildren' and 'return to work' made up 16.2% (n=11/68).

Conclusion: We found an overwhelming desire in these patients to avoid an amputation of the foot, even though most are aware of the challenging, long and demanding post-operative period. This overarching expectation needs to be taken into account when considering to offer or decline a patient this procedure. The 'Foot School' is an appropriate format for engaging patients during the planning of major orthopaedic foot surgery.

[P10] CONSTELLATION OF CHARCOT FOOT SYMPTOMS IN A PATIENT WITH POPLITEAL ANEURYSM

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Aim: A 65-years old patient was admitted to our institution due to the right forefoot wound. Two months earlier he developed acute right limb ischemia and was operated on for popliteal aneurysm. Later on a wound occurred involving toes III-V and corresponding metatarsals. The patient underwent amputation but wound closure was not achieved.

Method: When he contacted us few weeks later we performed computed tomography angiography, which revealed obstruction of the blood flow in right anterior tibial artery and fibular artery. His foot was hot and swollen. The amputation sight presented with necrotic infected tissue. The II toe was also affected with infection. Radiographic imaging of the foot showed osteomyelitis of lateral and intermediate cuneiform bones and the head of II metatarsal bone. These changes resembled Charcot foot type II changes. Prompt laboratory tests for diabetes were negative. Wound cultures turned out positive. Antibiotics were introduced. We performed percutaneous balloon angioplasty of affected arteries to good hemodynamic effect. As the blood circulation improved, we removed infected bones and all necrotic tissues from the wound. We used one cycle of negative pressure wound therapy as a granulation support. 5 days later foot condition improved and we decided to close it. Plantar tissues presented vital and infection-free and were mobilized in a manner of rotation flap.

Results: The temperature and swelling subsided. We observed gradual improvement in pain and discomfort. Weight-bearing was not allowed until sutures removal two weeks later. From that point on partial weight-bearing on the heel and progressive exercise were introduced. Recently the patient remains in good condition and walks freely on his right foot.

Conclusion: We believe the constellation of symptoms in our patient is consistent with Charcot foot although without diabetes. Conjunction of endovascular treatment and surgical wound care was crucial for success in this case.

[P11] TREATMENT OF COMPLEX CHARCOT FOOT BY SINGLE STAGE SURGERY WITH STATIC CIRCULAR FIXATION. CASE SERIES REPORT

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Aim: We present a case series report of patients with Charcot foot treated by single stage surgery with static circular fixation.

Method: Retrospective review of 10 cases treated with static circular external fixation since 2016, with the following inclusion criteria: 1) Deformity with any of the following: ulcers, osteoporosis, osteomyelitis or instability 2) peripheral neuropathy, 3) failed orthopaedic treatment.

Exclusion criteria: 1) peripheral vascular obstruction without revascularization, 2) inability to comply with treatment, 3) non-ambulatory patients, 4) medical contraindication for surgery.

Of the ten patients, seven men and three women, six had involvement of the left foot and four of the right one. The average age of our patients was 58 years (range 39-71). We also evaluated Eichenholtz and Brodsky classification, presence of ulcers, osteomyelitis and instability.

All were treated with circular external fixation with a medium follow up of 17 months (11-24 months). Postoperatively we evaluated limb salvation, ulcer healing, stability and re-ulcerations.

Results / Discussion: In all patients a functional plantigrade foot was achieved, cutaneous ulcer healed without recurrence. Four cases presented superficial pin infection, solved with local wound care. We had wire ruptures in 2 cases, which did not require replacement. We had a traumatic tibial fracture after frame removal, orthopedically solved. All patients were satisfied and would opt for the same technique, if necessary.

Conclusion: In Charcot foot the objectives are to avoid amputation and achieve a functional plantigrade foot, without ulcer.

Single stage surgery with static circular external fixation is reproducible in our country, and also a valid technique for those cases in which internal fixation may not be the best option.

[P12] DOES LOSS OF JOINT MOTION AFTER PARTIAL FOOT AMPUTATIONS AFFECT WALKING ABILITY IN ELDERLY DIABETIC PATIENTS?

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Aim: To retrospectively investigate loss of joint motion and recurrence of foot ulcers after partial foot amputations for diabetic foot osteomyelitis.

Method: We measured two ankle joint motions (dorsal and plantar flexion) and four foot motions (eversion, inversion, abduction, and adduction) of both feet in 24 diabetic patients. Seventeen patients (surgery group, 65±11.8 years, range 42-80 years) with diabetic foot osteomyelitis were treated with partial foot amputations (ray amputations, 9; transmetatarsal amputations, 6; Lisfranc disarticulation, 8; Chopart disarticulation, 4) in our institution between 2011 and 2017. All patients underwent walking rehabilitation with their own appropriate footwear in the early postoperative period. The other 7 patients (non-surgery group, 68.7±8 years, range 55-80 years) did not have foot ulcers or receive any surgical treatment. We statistically investigated the relationship between partial foot amputations and loss of joint motion (Wald test). Furthermore, we investigated the recurrence of foot ulcers in the surgery group.

Results / Discussion: From 3 months to 66 months postoperatively, all patients' walking abilities were preserved. All six joint motions were significantly decreased in the surgery group compared with the non-surgery group ($p<0.05$). Chopart disarticulation most affected loss of joint motions ($p<0.05$). Postoperatively, 4 patients had recurrent foot ulcers. Two elderly patients healed without surgeries, but the other two middle-aged, highly active male patients needed further partial foot amputations because of recurrence of osteomyelitis.

Conclusion: Partial foot amputations statistically decrease joint motions but do not affect walking ability in elderly diabetic patients if they undergo early walking rehabilitation and use appropriate footwear.

[P13] TRANSMETATARSAL AMPUTATION: A TWELVE-YEAR RETROSEPECTIVE REVIEW OF OUTCOMES

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Aim: The aim of the study was to assess the outcomes following Transmetatarsal amputation (TMA) evaluating 12 years of data.

Mortality rate, healing rates, duration to healing, length of hospital stay and impact of adjunctive agents were reviewed. The incidence of revision surgery/ major limb amputation was also evaluated. Factors affecting healing were analysed.

Method: 63 patients were identified as having TMA. Electronic and paper records were reviewed and assessed for meeting a minimum information requirement. Forty-seven patients were identified having a total of 54 TMA's.

Data gathered was reviewed for mean and median and subject to statistical analysis to calculate a P-value with 95% confidence.

Results / Discussion: Healing rates were highly favourable versus published data. Duration to wound healing and duration of hospital stay were more positive than the published data and localised absorbable antibiotic beads had a positive impact with a 99% confidence interval. Mortality rates were also more favourable and rate of revision surgery/ major limb amputation was low.

Outcomes	GWH	Published Data
Mortality (30day/ 1yr/ 5yr)	0/15/43%	22/44/77%
Healed Wounds (Mean)	78%	46-87%
Healing Time Mean/Median (Days)	123 / 89	120-300
Hospital Stay Mean/ Median (Days)	33.5 / 26	37

Suboptimal glycaemic control and deteriorating renal function were associated with poorer outcomes.

Conclusion: TMA is a highly effective limb salvage procedure giving excellent outcomes versus published data and adjunctive therapy was found to have a highly positive impact

[P14] RADIOLOGICAL AND CLINICAL OUTCOMES IN THE MEDIUM-TERM OF THE USE OF AN ANTIBIOTIC BONE SUBSTITUTE IN THE DIABETIC FOOT

Christine Whisstock[1], Mariagrazia Marin[2], Sasa Ninkovic[2], Marino Bruseghin[2], Giovanni Boschetti[2], Raffaella Viti[2], Enrico Brocco[2]

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Aim: The aim of this work was to evaluate, via foot and ankle TC scans, the outcomes of the use of a new bone substitute* and the growth of native bone in the treatment of osteomyelitis (OM) of the diabetic foot.

Method: In nine patients we used a calcium Sulphate Hemihydrate + Hydroxyapatite + Gentamicin Sulfate (CSH + HA + GS) compound to fill resected bone voids following surgical intervention in OM diabetic foot cases. Four patients had hindfoot involvement and underwent partial calcanectomy. Two patients presented a rocker-bottom Charcot foot pattern III and were treated with esostectomy of the symptomatic bony prominence of the midfoot. One patient presented OM of the 3°, 4° and 5° metatarsal bones. One patient underwent partial resection of the midfoot and hindfoot with arthrodesis stabilised by a hybrid fixator. One patient with a Charcot foot pattern IV-V underwent partial talectomy and calcanectomy with arthrodesis. In these patients we applied CSH + HA + GS. The above nine patients underwent foot and ankle TC scans to evaluate bone growth.

Results / Discussion: The first four patients showed new bone formation in the calcaneus. Two patients with previous midfoot destruction showed chaotic but stable bone formation. The patient with metatarsal OM showed partial bone healing with residual pseudoarthrosis. Both the two patients who underwent arthrodesis with a hybrid fixator showed a plantigrade and stable foot even though a heel wound is still present in one of the patients.

Conclusion: The TC scans have shown new bone formation sufficient to stabilise the foot and allow ambulation. In particular, very good results come from the filling of the calcaneus, probably due to the anatomy of the bone itself.

* CERAMENT|™G

[P15] USE OF ABSORBABLE GENTAMICIN LOADED CALCIUM SULPHATE/ HYDROXYAPATITE BIOCOMPOSITE IN THE MANAGEMENT OF DIABETIC FOOT ULCERS WITH OSTEOMYELITIS

Natasha Morrissey[1], Alex Wee[2]

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Aim: Lower extremity amputations in people with diabetes have been reported at a rate of 67%. Radical debridement resulting in loss of the foot or function is often needed to control infection. We report our experience and describe our technique (see Figures) of using antibiotic loaded biocomposite (ALB) with local debridement in the treatment of osteomyelitis secondary to diabetic foot infection.

Method: A case series of 32 patients is presented. A retrospective review of radiographs and electronic medical records was conducted. Patient demographics, ulcer site and grade, presence of neuropathy and ischaemia, level of amputation or debridement, organisms found at debridement, wound healing and limb salvage rates were evaluated.

Results / Discussion: Patients were followed up for a mean of 10 months (range 1-27 months). Operations included calcaneal debridement, metatarsal head debridement, ray amputations, midfoot exostectomy and transmetatarsal amputation. Infection was treated successfully in 25 patients. Of the six recurrences four had trans-tibial amputations and two patients needed minor amputations. There was one unrelated death. Limb salvage rate with use of ALB was 87.5%. ALB is an easy to use adjuvant that can allow local debridement without increasing major amputation rates. It is best employed together with MDT care, optimization of vascularity, directed antibiotic therapy and ongoing assessment of foot mechanics and risk of re-ulceration.

Conclusion: ALB use can be considered in certain cases if the alternative is radical foot amputation or debridement which will result in loss of the leg.

Figure 1 Pre-operative radiograph	*Figure 2 Pre-operative MRI*	*Figure 3 Intraoperative image*	*Figure 4 Intraoperative image*	*Figure 5 Post-operative radiograph - 10 weeks*
				

[P16] OPINIONS THAT COUNT: PATIENTS PERCEPTION AND EVALUATION OF THE PERIOPERATIVE MANAGEMENT DURING SURGERY FOR DIABETIC FOOT

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Aim: To get the patients' perspective and evaluation of the peri-operative phases of the surgical management of the diabetic foot (DF) in a highly specialized centre.

Method: 34 patients consecutively admitted to the operating room (OR) of our specialised DF centre between 1st and 30th November 2015 were asked to answer to a synthetic questionnaire (Diabetic Foot Surgical Experience Inventory) about their experience. The questionnaire was divided in three part: the first part explored the pre-operative preparatory phase (I), the second the surgical phase (II) and the third the post-operative observation in the recovery room (III). For each phase five yes/no questions were asked about the main aspects of the procedure, together with a global evaluation with a visual analogic scale (VAS, 0-10).

Results / Discussion: 28 patients (Age 62.8±17.4 yrs, diabetes duration 19.3±8.9 yrs, HbA1c 8,3±1,25%) participated to the survey. VAS for phase I was 7.9±2.1; 7 pts referred a long delay before admission in the OR and the surgery, 5 referred pain during local anaesthesia procedures (LAPs) and 3 evaluated LAPs too stressing. VAS score for phase II was 8.8±1.2, with no problems referred. For phase III VAS was 8.9±1.7 with no problems referred. No difference emerged between the phases for pain, while stress was significantly ($p<0.05$) higher in phase I (3.1±2.1) compared to phases II (1.2±0.7) and III (1.1±0.8).

Conclusion: In a generally well tolerated context, the pre-operative phase and the local anestethic procedures seem to be the more problematic and painful for DF patients, possibly related to the higher perceived anticipatory stress.

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Oral abstract prize
The winner of the prize for the best oral abstract is presented in the closing session on 29th June, 17:30-17:45.

Poster prize
The winner of the prize for the best poster abstract is presented in the closing session on 29th June, 17:30-17:45.

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CONFERENCE VENUE

The Kia Oval
56 Kennington Oval
London, United Kingdom
www.kiaoval.com

CONFERENCE SECRETARIAT

Registration desk
The conference secretariat is located outside the plenary room.

CONFERENCE HOURS

Thursday 28th June

8.00 - 18.30	Registration
9.00 - 18.30	Scientific sessions
11.00 - 17.00	Exhibition
18.30 - 19.30	Welcome reception (open to all delegates) exhibition room

Friday 29th June

8.00 - 17.30	Registration
8.30 - 17.45	Scientific sessions
9.45 - 16.15	Exhibition

BADGES

All participants and exhibitors must wear the name badge in the conference area at all times. The badge must be visible.

CERTIFICATES OF ATTENDANCE

Certificates of attendance will be available as self-print after the conference. A link will be provided.

CME CREDITS

The conference has been accredited 11 European CME credits (ECMEC®s) by the European Accreditation Council for Continuing Medical Education (EACCME®).

To receive the CME credits, please sign the attendance sheet at the registration desk each day after 14.00. The CME certificates will be sent by e-mail after the conference.

DISABLED ACCESS

All areas of the venue allow disabled access

ENTITLEMENTS

Members, non-members, nurses/podiatrists, residents
Admission to full conference programme, final programme book, conference bag, welcome reception, coffee breaks and lunches.

Exhibitors
Final programme book, 1 conference bag per company, coffee breaks and lunches.

Accompanying Person
Welcome reception, coffee breaks and lunches.

LANGUAGE
The language of the conference is English.

LOST AND FOUND
Found items should be turned in at the registration desk.
If you lose something, please report to this desk for assistance.

LUNCH AND COFFEE
Lunch and coffee is available in the exhibition area. See programme for exact time of breaks.

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Free WiFi is provided throughout the venue.

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All mobile phones must be on silent mode during the sessions.

PARKING
Please ask at the registration desk.

ORAL PRESENTATIONS
Please bring your presentation to the Session Room before your session starts. We recommend you upload your presentation at least 2 hours before your session. A technician will be present to assist in the upload if necessary.

Please bring your presentation on a USB. Use of personal laptops is not allowed. Unless otherwise agreed all presentations will be deleted after the conference in order to secure that no copyright issues will arise at the end of the conference.

POSTERS
Posters can be mounted from Thursday 28th June in the morning and must be removed by the end of the conference on 29th June.

The posters will be affixed to the poster boards with tape, pins or adhesive which will be provided to you by the conference staff.

SMOKING
Smoking is prohibited in the venue. There are dedicated outdoor smoking areas available.

SOCIAL EVENT: WELCOME RECEPTION
The welcome reception takes place on Thursday 28th June, 18:30-19:30 in the exhibition area. Join your colleagues for snacks and wine/soft drinks. Included in the registration fee. Please note that the reception is not a dinner.

SATELLITE SYMPOSIA
BONESUPPORT

Date 28th June
Time 14.00 - 14.45
Room Ashes Suite

Local Antibiotic Eluding Bone Graft Substitute in The Management Of Infected Diabetic Foot
Chair: Venu Kavarthapu

The science behind Cerament G and Cerament V
Alex Wee

The role of Cerament G in the management of calcaneal osteomyelitis
Anand Pillai

Antibiotic loaded Cerament in the reconstruction of infected Charcot foot
Venu Kavarthapu

BONESUPPORT™

SATELLITE SYMPOSIA
MARQUARDT

Date 29th June
Time 11.45 - 12.30
Room Ashes Suite

The Rationale on the Choice of Internal Fixation in Midfoot Charcot Reconstruction

Principles of Internal Fixation
Focusing on Assessment of the deformity, aims of fixation, choice of surgical approach, Achilles tendon lengthening, principles of osteotomy, general principles long-segment internal fixation.
Venu Kavarthapu

Beaming Principles in Midfoot Fixation
Focusing on indications, the techniques (antegrade vs retrograde), compression vs stabilisation beams, its role in achieving good deformity correction and limited ability to provide rotational and absolute stability
Speaker tbc

The Principles of Plating Fixation
Focusing on indications, surgical approaches, its ability to provide good bone apposition, when to use additional lag screws (possibly when used without beams), its role in providing additional rotational stability when combined with beams
Alex Wee

MARQUARDT
Medical UK

SATELLITE SYMPOSIA
ORTHOFIX

Date 29th June
Time 16.00 - 16.45
Room Ashes Suite

Offloading Perspectives with Circular and Box Frames
Chair: Venu Kavarthapu

Objectives:
The symposium will highlight different options for offloading with external fixation. External fixation has already been established as an effective way of offloading Charcot Neuropathic foot. The ever expanding world of external fixation in the last several years allowed for the number of options grow therefore it is important to explore these options and focus on the different details these will offer to both, physicians and patients.

The session will focus on frames created from a modular pin-to-bar option versus circular frames ranging from static Ilizarov type techniques to dynamic hexapod type frames with an option for gradual deformity reconstruction.

The two presenters will details their work and the above systems in 15 minutes each, leaving time for discussion points from the audience at the end.

Speakers:
Armin Koller – Rheine, Germany
Thomas Zgonis – San Antonio, Texas, United States

ORTHOFIX®

SPONSOR AND EXHIBITOR INFORMATION

Company	Description
Advanced Oxygen Therapy Inc. (AOTI) Tel. +1 760 431 4700 / +353 91660310 mike.griffiths@aotinc.net www.aotinc.net	**Stand number A7** Advanced Oxygen Therapy Inc. (AOTI) provides a patented multi-modality Topical Wound Oxygen (TWO2) Therapy devices for the treatment of non-healing chronic wounds, such as; diabetic, venous & pressure ulcers. Our single-use systems that can be applied easily by the patient at home, in clinics or at hospitals. Over 1,500,000 TWO2 treatments have been delivered to patients at home to
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Bioventus +44 0800 0516384 claire.taylor@bioventusglobal.com www.bioventusglobal.com	**Stand number A12** Our mission is to partner with the health care community to help people resume and enjoy active lives. To this end, we develop and/or market clinically proven and cost-effective orthobiologic solutions for bone healing, bone graft and osteoarthritis that are backed by clinical data.
Bonesupport Tel. +46 462865370 info@bonesupport.com www.bonesupport.com	**Stand number A6** BONESUPPORT™ is an orthobiologic company specializing in the development of innovative injectable bone graft substitutes that remodel into bone within 6 to 12 months. Used in more than 35,000 patients, and includes the only CE marked injectable antibiotic eluting bone graft substitutes; CERAMENT®|G with gentamicin, and CERAMENT® V with vancomycin.

SPONSOR AND EXHIBITOR INFORMATION

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DARCO (Europe) GmbH Tel. + 49 8807 922 8-0 info@darco-europe.com www.darco-europe.com	**Stand number A4** DARCO is dedicated to being one of the leading providers of post op, trauma and wound care solutions to the global foot and ankle community.
DePuy Synthes Tel. +44 779 889 3588 sholt9@ITS.JNJ.com www.depuysynthes.com	**Stand number A18** The DePuy Synthes Companies are part of the Johnson & Johnson Family of Companies. We offer the world's most comprehensive portfolio of orthopaedic and neuro products and services for joint reconstruction, trauma, spine, sports medicine, neuro, cranio-maxillofacial, power tools and biomaterials. DePuy Synthes Trauma is one of the leaders in orthopaedic trauma devices for internal and external fixation. Our products are designed to ensure both reliable operating procedures and rapid recovery. We are constantly innovating, investigating and creating new materials and technologies to help complement and improve current treatments and the lives of patients.
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Integra Lifesciences Tel. +39 3667753414 roberto.andreose@integralife.com http://www.integralife.eu	**Stand number A3B** Integra is a world leader in medical technology, dedicated to limiting uncertainty for clinicians, so they can concentrate on providing the best treatment options for their patients. Integra offers innovative regenerative collagen based solutions for nerve repair, dermal repair and soft tissue reconstruction. The Integra collagen has been used successfully in more than 10 million procedures worldwide.
Lavender Medical Limited Tel. +44 0 845 676 9733 info@lavendermedical.com www.lavendermedical.com	**Stand number A13** Lavender Medical represents a number of leading research-focused manufacturers from around the world and has a full range of innovative fusion, arthroplasty and sports medicine products. The latest innovation being the Axis Charcot Fixation System which is a comprehensive axial fixation system that gives surgeons key advantages in achieving superconstruct-type fixation of Charcot deformity

Company	Description
Marquardt-UK Tel. +44 07714 170438 info@marquardt-uk.com www.marquardt-uk.com	**Stand number A2** Marquardt Medizintechnik is based in Spaichingen, Germany. Founded in 1980 since then production has been consistently geared towards Orthopaedic implants. Thus, Medical engineering solutions by Marquardt Medizintechnik offer the highest level of innovation, quality and service which is the decisive criteria for excellence in medical engineering
Medartis Ltd Tel. +441924476699 mai.widdowson@medartis.com www.medartis.com	**Stand number A11** Medartis develops, manufactures and sells titanium screws, plates, surgical instruments and system solutions for fracture fixation. These implants allow for patient rehabilitation after surgical reconstruction of fractures, malunions and deformities or skeletal diseases and their adjacent soft tissues. Medartis is represented worldwide through its subsidiaries and a broad distributor network. Our motto is "Precision in Fixation". The goal of Medartis is to continually improve early functional rehabilitation through our high-quality products and exclusively developed technologies.
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OPTIMA MOLLITER SRL Tel: + 39 0733 80 10-60 info@optimamolliter.com www.optimamolliter.com	**Stand number A4** OPTIMA MOLLITER is a Company that produces prevention shoes (MAC1-2-3), Daily Activity Shoes (YDA) and Offloading Walkers for the management of the Diabetic foot ulceration or post-surgery/trauma (SBi).

SPONSOR AND EXHIBITOR INFORMATION

Company	Description
OrthoSolutions Emma.Keech@orthosol.com Tel. +44 (0) 1621 874376 www.orthosol.com	**Stand number A5** We believe in always looking for new ways of doing things. For OrthoSolutions developing new ways of serving our customers is as important as designing new products. · We were one of the first companies in the UK to offer sterile packed orthopaedic consumables and foot and trauma implants to make them simpler to use, reduce the need for re-sterilisation and ensure full product traceability. · We established a specialist sales team who are able to focus on the distinct needs of our Extremity customers. · We have price positioned our orthopaedic consumable product range saw blades, drill bits and K-wires – to offer excellent value for money. However, where we believe that where there is a clear unmet clinical need we will also invest our time and resources to develop product solutions that address the needs of our specialist extremity customers.
Orthofix Tel. +39 045671900 CustomerService@Orthofix.it www.orthofix.com	**Stand number A3** Orthofix International N.V. is a diversified, global medical device company focused on improving patients' lives by providing superior reconstructive and regenerative orthopedic and spine solutions to physicians worldwide. The company has four strategic business units that include BioStim, Biologics, Extremity Fixation and Spine Fixation. For more information, please visit www.orthofix.com
Paragon28 Tel. +31 621410139 areppel@paragon28.com www.paragon28.com	**Stand number A10** The name "Paragon 28" is chosen as we are an exclusively F&A product focused company, with the "28" representing the number of bones in the foot. We will remain loyal to that vision and our goal is to improve the space of F&A surgery. Our first product was the Monster Screw System, followed by the Gorilla Plating System. Adding more products, we keep detail to every feature of every product we design. Paragon 28 is a family-based company and we have kept these core ideals as we have expanded with our passion for unbiased research and our commitment in this specialty
Perimed AB Tel: +46 858011990 mail@perimed-instruments.com www.perimed-instruments.com	**Stand number A8** PERIMED is a global provider of diagnostic solutions for patients with peripheral vascular diseases and complex diabetic foot ulcers. PeriFlux 6000 tcpO2 Stand-alone – for transcutaneous oximetry (tcpO2) PeriFlux 6000 Pressure System – for ABI/TBI, toe pressure PeriFlux 6000 Combined System – for ABI/TBI, toe pressure and tcpO2 in a unique combination For more information, please visit www.perimed-instruments.com

Company	Description
Urgo Medical Tel. +33 380 545 000 www.urgomedical.com	**Stand number A2B** Urgo Medical is the Healing Company committed each day to improve wound care treatments for both patients and health care professionals by offering highly innovative solutions
Woundcare-Circle Tel. + 49 8807 922 8-0 info@woundcare-circle.com www.woudcare-circle.com	**Stand number A4** The 3 Woundcare-Circle founders, OPTIMA, Heelift and DARCO are international market leaders providing innovative product solutions. The group permanently supports research & science as well as the advancement
Wright Tel. +33 660746179 wright.international@wright.com www.wright.com	**Stand number A1** Wright Medical Group N.V. is a global medical device company focused on Extremities and Biologics. We deliver innovative, value-added solutions improving quality of life for patients worldwide. We are a recognized leader of surgical solutions for the upper extremities (shoulder, elbow, wrist and hand), lower extremities (foot and ankle) and biologics markets, three of the fastest growing segments in orthopaedics.

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Bold = Presenting author

NOTES

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