



The Society for
Cardiothoracic
Surgery



Annual Meeting

March 7th - 9th 2010
Liverpool Arena
& Convention Centre

LIVERPOOL



The Society for Cardiothoracic Surgery in Great Britain and Ireland

2010 ANNUAL MEETING

Liverpool Arena and Convention Centre

President

Mr Leslie Hamilton (2008 – 2010)

Honoured Guests

Professor James Cox

Washington University, St. Louis, USA

Ms Maura Buchanan

President, Royal College of Nursing, London, UK

Professor Michael Mack

*Cardiopulmonary Research Science and Technology
Institute, Dallas, Texas, USA*

Professor Valerie Rusch

Memorial Sloan-Kettering Cancer Centre, New York, USA

Professor Hugo Vanermen

Onze Lieve Vrouwziekenhuis, Belgium

Dr Dean Ferguson

Ottawa Hospital Research Institute, Canada



Programme sponsors



Cardiosolutions



Edwards

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Sorin

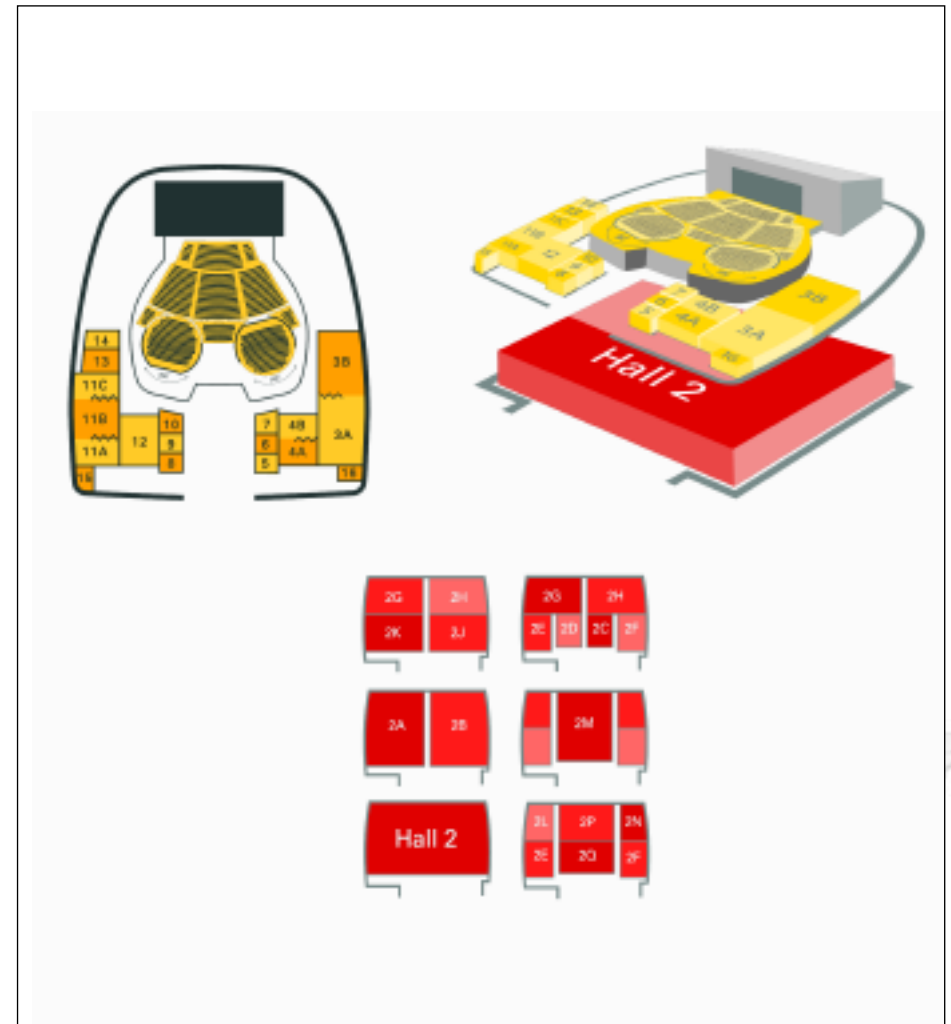
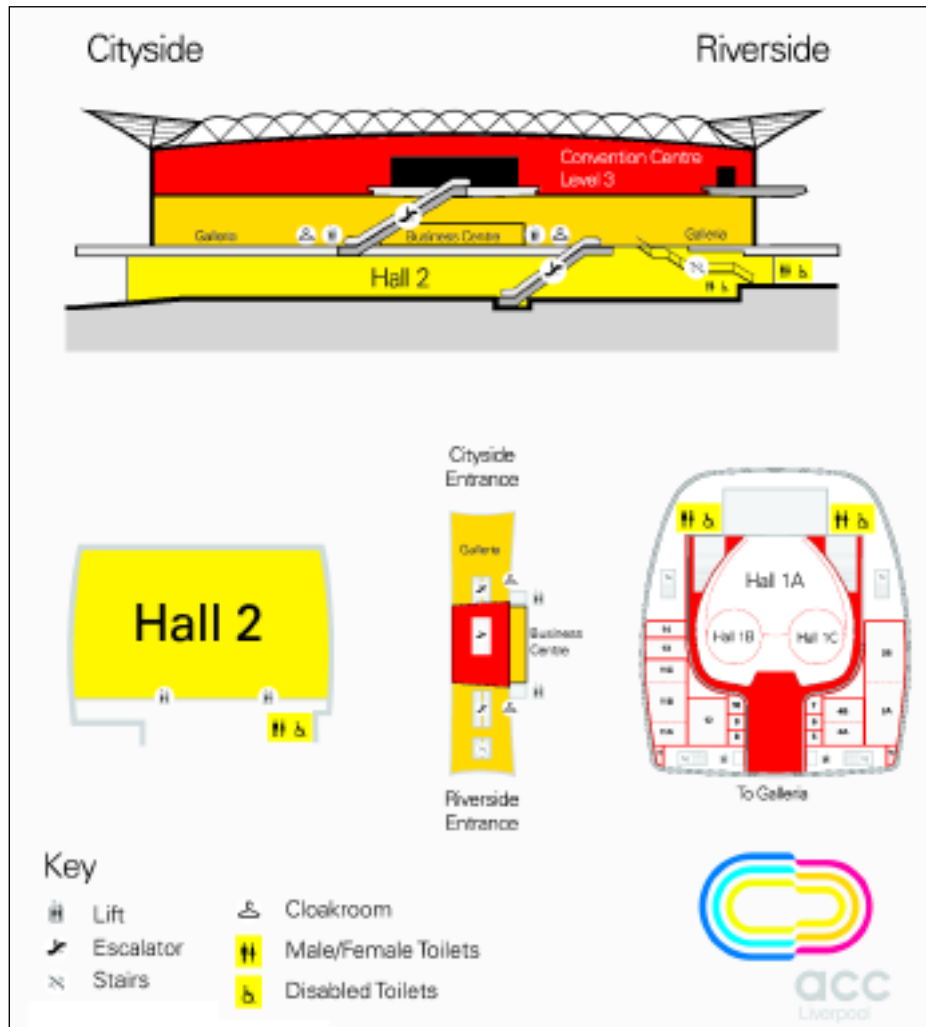
Please look after this programme.

Replacement programmes will cost £10, which is payable at the registration desk

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VENUE MAPS **Liverpool BT Convention Centre**



OUTLINE PROGRAMME

SUNDAY 7th March 2010

Time	Room	Session
08.30 – 09.00	1b	SCTS University welcome
09.00 – 12.30	4b / 6	SCTS UNIVERSITY Atrial Fibrillation surgery
09.00 – 12.30	4a / 5	SCTS UNIVERSITY Mitral Valve Surgery
09.00 – 12.30	12	SCTS UNIVERSITY Thoracic Surgery
09.00 – 12.30	13	SCTS UNIVERSITY Ross Procedure
12.30 – 13.30	1b	Cardiothoracic Surgical Trainees: Working Lunch
12.30 – 13.30		LUNCH
13.30 – 16.45	14	COVIDIEN: ACSA - Association of Cardiothoracic Surgical Care Practitioners
13.30 – 15.30	4b / 6	SCTS UNIVERSITY Atrial Fibrillation Surgery
13.30 – 15.30	4a / 5	SCTS UNIVERSITY Mitral Valve Surgery
13.30 – 15.30	12	SCTS UNIVERSITY Thoracic Surgery
13.30 – 15.30	13	SCTS UNIVERSITY Ross Procedure
15.00 – 17.00	1b	Cardiothoracic Surgical Trainees Meeting
16.30 – 17.00		TEA
17.00 – 18.00	1b	PULSE SURGICAL Lecture: Hugo Vanermen
18.00 – 19.30	1b	Annual Business Meeting
19.30 – 20.30	Foyer	Welcome Reception

MONDAY 8th March 2010

Time	Room	Session
07.00 – 09.00	4b	PULSE SURGICAL Thoracic Symposium
07.00 – 09.00	4a	COVIDIEN Cardiac Symposium
08.00 – 09.00	1b	Scientific Oral Presentations
08.30 – 10.00	6	Thoracic Sub-Committee
08.50 – 10.00	13	PHILIPS CVIS (TOMCAT) Database Managers
08.50 – 10.00	1a	Opening Session with Forum and ACSA
10.00 – 10.45		COFFEE
10.45 – 11.45	4a	Cardiac AVR / TAVI Presentations
10.45 – 12.30	13	PHILIPS CVIS (TOMCAT) Database Managers 5th Annual Meeting
10.45 – 11.45	1b	ETHICON Cardiothoracic Forum
10.45 – 11.45	1a	Cardiac Revascularisation
11.45 – 12.30	1a	HEART RESEARCH UK Lecture: Dr Michael Mack - SYNTAX
11.45 – 12.30	1b	Patients' forum
12.30 – 13.30	6	Education Sub-committee Meeting
12.00 – 18.00	14	Council of Perfusionists Workshop
12.30 – 13.30		LUNCH
13.30 – 15.00	1a	UK Activity: Cardiac and Thoracic Surgery
13.30 – 15.00	13	Patients' forum
15.00 – 15.45		TEA
15.45 – 17.00	6	Data Committee
15.45 – 17.00	4a	Thoracic Surgery: Symposium Mesothelioma
15.45 – 17.00	1b	ETHICON Cardiothoracic Forum
15.45 – 17.00	1a	Cardiac Oral Presentations - Coagulation
17.00 – 18.30	4a	Thoracic Surgery Papers
17.00 – 18.30	1a	NOVONORDISK Symposium (Bleeding in Cardiac Surgery)
18.30 – 20.00	4b	VASCUTEK Symposium
18.30 – 20.00	4a	UK Medical Symposium: Malignant Pleural Effusions

TUESDAY 9th March 2010

Time	Room	Session
07.45 – 09.00	4b	MEDTRONIC Off-Pump CABG Symposium
08.00 – 17.00	14	Council of Perfusionists
08.00 – 9.00	1a	Cardiac Oral Presentations
09.00 – 10.00	1a	Cardiac Oral Presentations
08.45 – 10.00	1b	ETHICON Cardiothoracic Forum
08.45 – 10.00	13	Congenital Oral Presentations
08.40 – 10.00	1c	Thoracic Oral Presentations
10.00 – 10.45		COFFEE
10.45 – 12.30	4b	Hunterian Lecture and transplant papers
10.45 – 12.30	1b	ETHICON Cardiothoracic Forum
10.45 – 12.30	13	Congenital Meeting and Anatomical Workshop
10.45 – 11.45	1c	Thoracic Oral Presentations
10.45 – 12.30	1a	Aortic surgery - A Regional Service?
11.45 – 12.30	1c	LILLY - Tudor Edwards Thoracic Lecture-Dr Valerie Rusch
12.30 – 13.30		LUNCH
13.30 – 15.00	1b	ETHICON Cardiothoracic Forum
13.30 – 15.00	1c	Thoracic Surgery Papers
13.30 – 15.00	1a	St Jude Symposium: Patient Prosthesis Mismatch
14.00 – 14.30	4b	Exhibitors Meeting
15.00 – 15.45		TEA
15.45 – 17.00	1a	Cardiac Surgery Papers – Comorbidity and Prognosis
15.30 – 17.00	13	Congenital Cardiac Surgery – Invited Lectures
15.45 – 17.00	1c	Thoracic Surgical Papers
15.45 – 16.45	1b	ETHICON Cardiothoracic Forum
15.45 – 17.00	6	Scholarship Award Meeting
15.45 – 17.00	4b	Cardiac Papers
17.00 – 18.00	1a	President's Address: Leslie Hamilton
18.00 – 18.30	6	Presentation Meeting
19.30 – 23.59	Hilton Liverpool Hotel	Annual Dinner, Racenight, Lifetime Achievement Award, Prizes and Scholarship Awards

WEDNESDAY 10th March 2010

09.00 – 12.30	Jury's Inn Hotel	Executive and Board of Representatives Meeting
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Society for
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in Great Britain and Ireland

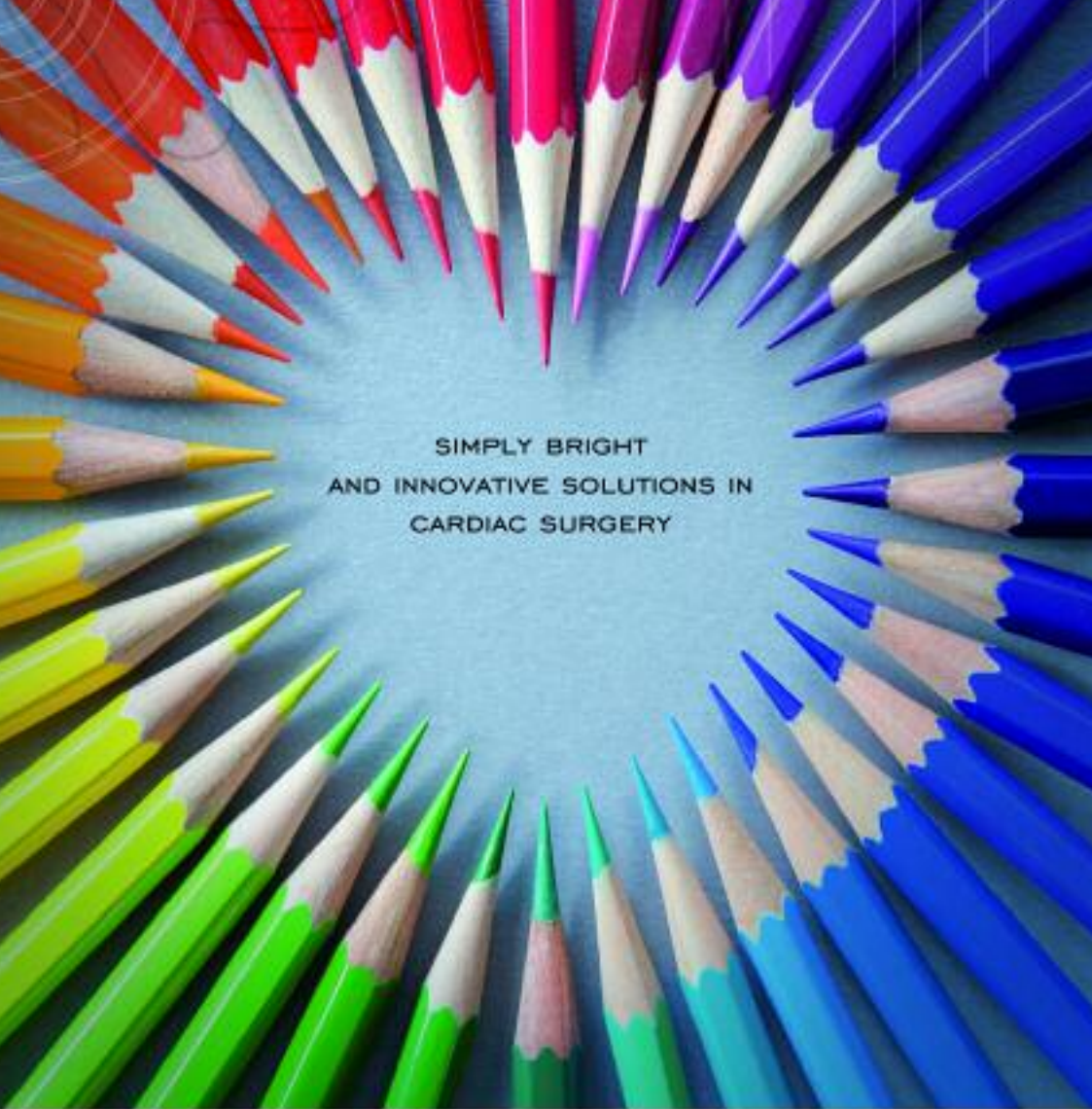
Annual Meeting



March 7th - 9th 2010

Liverpool Arena & Convention Centre

MEETING PROGRAMME



SIMPLY BRIGHT
AND INNOVATIVE SOLUTIONS IN
CARDIAC SURGERY

 **SORIN** | TISSUE VALVES



SIDE BY SIDE WITH CARDIAC SURGEONS SINCE 1969

The heart and soul of Sorin Group has always been creativity and innovation. Creativity in designing unique, reliable pericardial prostheses that are virtually identical to native valves in performance. And innovative proprietary technologies, developed together with leading cardiac surgeons, that have proved to benefit patient recovery and well-being.

 **SORIN GROUP**
AT THE HEART OF MEDICAL TECHNOLOGY

Meeting Programme

Sunday 7th March 2010

08:30 - 09:00 **SCTS University: Welcome**
Room 1b *Professor Sir Bruce Keogh, Mr Ian Wilson, and Mr Rajesh Shah*

Sunday 7th March 2010

09:00 - 12:30 **SCTS University Thoracic Surgery**
Room 12 *Mr Richard Page, Mr Pala Rajesh*

09:00 201 09.00 - 9.05: **Introduction / Welcome** Mr Rajesh Shah

09.05 - 9.35: **EBUS - Diagnosis / Staging of Lung Cancer**,
Dr Robert Rintoul, Consultant Respiratory Physician at Papworth.

09.35 - 11.00: **WET LAB**

Station 1: **EBUS**, *Dr Rintoul.*

Station 2: **EBUS**, *Dr Munnavar (Preston).*

Station 3: **Airway Stenting**, *Dr William Warren (USA) and Mr M Kalkat*

11.00 - 11.15 Coffee

11.15 - 12.30 **HOW TO DO IT.**

Chairmen - *Mr Sion Barnard and Mr Pala Rajesh*

11.15 - 11.50 - **VATS Lobectomy**, *Mr William Walker*

11.50 - 12.30 - **Chest Wall Resection / Reconstruction**, *Dr Valerie Rusch*

Sunday 7th March 2010

09:00 - 12:30 SCTS University Surgery for Atrial Fibrillation
Room 1b/4b/6 *Mr Peter Braidley, Mr Malcolm Dalrymple Hay*

09:00 202 09.00 - 9.20: **Why Intervene with Atrial Fibrillation?**
Room 1b *Dr Steve Furniss, Consultant Electrophysiologist. Freeman Road Hospital, Newcastle.*

Room 1b 09.20 - 9.40: *Understanding Atrial Fibrillation?*
Dr Maurits Allesie, Electrophysiologist. Maastricht.

Room 4b: 09.40 - 12.00: **'Hands On Sessions'** 45 minutes each
Station 1, **The History of Intervention "Setting the Gold Standard"**
Prof James Cox

Station 2, Room 4b: **Alternative Energy Sources**,
Dr Nicholas Doll, Leipzig

Station 3, Room 6: **Concomitant Atrial Fibrillation Surgery**,
Mr Sam Nashef, Papworth.

Sunday 7th March 2010

- 09:00 - 12:30 **SCTS University Degenerative Mitral Valve Disease**
Room 4a /5 *Mr Chris Munsch, Mr Ben Bridgewater*
- 09.00 203 09.00 – 11.30: **Interactive ‘Minds / Hands On Sessions’** 45 minutes each
Station 1, room 4a: **Contemporary Mitral Interrogation** *Dr Alain Beerebi, Argenteuil.*
Station 2, room 5: **Encouraging Early Referral**, *Mr Ben Bridgewater, Wythenshawe.*
Station 3, room 4a: **Functional Anatomy of the Mitral Valve**, *Mr Neil Moat, Brompton.*
- 11.30 – 12.15 (and to be concluded in afternoon)
Station 4, room 4a: **Essential Principles of Repair** *Mr Frank Wells, Papworth.*
Station 5, room 5: **Standard and Alternative Surgical Approaches**, *Mr Chris Munsch, Leeds*
Station 6, room 4a: **Intra-operative Decision Making**, *Mr Graham Venn, St Thomas’.*

Sunday 7th March 2010

- 09:00 - 12:30 **SCTS University Ross Procedure**
Room 13 *Mr Asif Hasan, Mr Andrew Parry*
- 09:00 202 09.00 - 09.05: **Introduction**
Mr Asif Hasan, Mr Andrew Parry
- 09.05 - 09.25: **Tissue Engineered Heart Valve Technology**
Dr John Kearney
- 09.30 – 09.45: **Historical Perspective**
Mr Andrew Parry
- 09.45 - 10.00: **Surgical Steps and Potential Pitfalls**
Mr David Anderson
- 09.05 - 09.25: **State of the Art Ross Procedure Surgery – Video Commentary**
Mr Asif Hasan
- 10.15 – 10.45: **“Hands-On” Demonstration of the Ross Procedure**
Faculty
- 11.00 – 12.30: **“Hands-On” Construction of the Ross Procedure**
Faculty

Sunday 7th March 2010

- 12:30 - 13:30 LUNCH
Foyer

Sunday 7th March 2010

- 12:30 - 13:30 **Cardiothoracic Surgical Trainees - Working Lunch**
Room 1b *Mr Sunil Bhudia, Mr Tim Graham*
- 12:30 200 **PANEL:** *Sunil Bhudia, Trainee Rep; Tim Graham, Chair SAC; Sion Barnard, Dean; Mike Lewis, Tutor; Steve Hunter, National Selection; Bob Jeffrey, Exam; Vicky Osgood, Lead Dean.*

Sunday 7th March 2010

- 13:30 - 15:00 **SCTS University Ross Procedure**
Room 13 *Mr Asif Hasan, Mr Andrew Parry*
- 13:30 – 15.00 209 **Hands On Construction of the Ross Procedure**
Faculty
- Hands-On Discussion of Indications, Surgical adjuncts, and Results in 2010.**
Prof. John Pepper
- Surgical Debrief of Achievements and Objectives**
Faculty
- 13:30 - 15:00 **SCTS University Surgery for Atrial Fibrillation**
Room 4b / 6 *Mr Peter Braidley, Mr Malcolm Dalrymple-Hay*
- 13:30 **Interactive ‘Minds / Hands On Sessions’** 30 minutes each
- Station 1, room 4b: **Lone AF Surgery.**
Mr Steve Hunter, Middlesbro’, Dr Per Blomstrom, Uppsala.
Station 2, room 4b: **Management of Left Atrial Appendage,**
Mr Peter Braidley, Sheffield.
Station 3, room 6: **Post-op care / Procedural results,**
Mr Malcolm Dalrymple-Hay, Plymouth.

Sunday 7th March 2010

- 15.00 – 15.30 **Discussion – All Faculty**
Room 4b

Sunday 7th March 2010

- 13:30 - 15:00 **SCTS University Degenerative Mitral Valve Disease**
Room 4a / 5 *Mr Chris Munsch, Mr Ben Bridgewater*
- 13:30 209 **Interactive 'Minds / Hands On Sessions'** 45 minutes each
- Station 4, room 4a: **Essential Principles of Repair**
Mr Frank Wells, Papworth.
- Station 5, room 5: **Standard and Alternative Surgical Approaches**
Mr Chris Munsch, Leeds
- Station 6, room 4a: **Intra-operative Decision Making,**
Mr Graham Venn, St Thomas'.

Sunday 7th March 201015.00 – 15.30 **Discussion – All Faculty****Sunday 7th March 2010**

- 13:30 - 16:00 **SCTS University Thoracic Surgery**
Room 12 *Mr William Walker, Mr David Waller*
- Evidence Based Multidisciplinary Management of Lung Cancer**
PANEL: *Dr Valerie Rusch, Dr Paul Taylor (medical oncologist), Dr Joe McGuire (clinical oncologist), Dr Klaus Iron (radiologist), Dr Robert Rintoul (chest physician).*
- 13.30 - 14.00 **Stage 1a** - *Ms Juliet King*
- 14.00 - 14.30 **Synchronous Lung Tumours** - *Mr Ed Black*
- 14.30 - 15.00 **Single Station N2 Disease** - *Mr Ehab Bishay*
- 15.00 - 15.30 **Locally Advanced Lung Cancer** - *Mr Martin Ucar*
- 15.30 - 16.00 **Oligometastatic Disease** - *Mr John Edwards*

Sunday 7th March 2010

- 13:30 - 16:45 **COVIDIEN, ACSA - Association of Cardiothoracic Surgical Care Practitioners**
Room 14 *Mr Tobias Rankin*
- 13:30 206 **President's Address** - *Mr Tobias Rankin (Plymouth)*
- 13:45 001 **A Recommended Technique for Skin Closure to Avoid the Application of Knots in Suture Materials.**
S. Attaran; D.M. Pullan; B.M. Fabri (Liverpool)

- 13:55 002 **Improved Clinical Outcome Following Vein Harvesting Using Endoscopy Via Insertion of a High Vacuum Wound Drain – Results of a Randomised Pilot Study.**
B. Krishnamoorthy; O. Najam; M.T. Jones; T.L. Hooper; P.D. Waterworth; J. Fildes; N. Yonan (Wythenshawe)
- 14:05 **EVH vs Open Technique. Debate, and Business Meeting**
Tobias Rankin (Plymouth)
- FOR:** *Mr Malcolm Dalrymple-Hay (Plymouth), Mr Joe Zacharias (Blackpool)*
AGAINST: *Mr Stephen Large (Papworth), Mr Gavin Murphy (Bristol)*
- 15:00 **Members presentation** - *Peter Bhinda*
- 15:15 207 **ACSA BUSINESS MEETING**

Sunday 7th March 2010

- 15:00 - 17:00 **Cardiothoracic Surgical Trainees Meeting**
Room 1b *Mr Sunil Bhudia, Mr Tim Graham*
- 14:30 205 **PANEL:** *Sunil Bhudia, Trainee Rep; Tim Graham, Chair SAC; Sion Barnard, Dean; Mike Lewis, Tutor; Steve Hunter, National Selection; Bob Jeffrey, Exam; Vicky Osgood, Lead Dean.*

Sunday 7th March 201016:30 - 17:00 TEA
Foyer**Sunday 7th March 2010**

- 17:00 - 18:00 **PULSE SURGICAL Lecture**
Room 1b *Mr Sam Nashef, Mr Steve Hunter*
- 211 **The Role of Lesser Invasive Mitral Valve Surgery.**
Dr Hugo K. Vanermen (Aalst, Belgium)
- 18:00 - 19:30 **ANNUAL BUSINESS MEETING**
Room 1b *Mr Leslie Hamilton, Mr Graham Cooper*
- 19:30 - 20:30 **CIVIC WELCOME RECEPTION**
Foyer 212 Welcome from the Lord Mayor of Liverpool and Musical entertainment will be provided by the North Staffordshire University Orchestra. Conducted by *Mr Chris Satur, Consultant Cardiothoracic Surgeon*

Monday 8th March 2010

07:00 - 08:30 **PULSE SURGICAL Thoracic Symposium**
Room 4b

07:00 - 09:00 **COVIDIEN Cardiac Symposium**
Room 4a

Monday 8th March 2010

07:30 - 08:45 Exhibition Hall - Coffee - Cash Coffee Bar
Room 2a

Monday 8th March 2010

08:00 - 08:50 **Papers on Scientific Research**
Room 1b *Dr David Chambers, Professor Gianni Angelini*

08:00 003 **An Important New Angiogenic Growth Factor Brain Derived Neurotrophic Factor (BDNF) with Potential for Treatment of Ischaemic Heart Disease.**

P. Whitlock¹; P. Kermani²; B. Hempstead²
1(United Kingdom); 2(USA)

08:10 004 **Cardiac Tumours May Provide an Intriguing Insight into Cardiac Stem Cell Biology.**

T.A. Barker; M.L. Clarke; J.D.W. Evans; S.J. Rooney; T.R. Graham; J.G. Mascaro; I.C. Wilson; J. Frampton; D. Pagano (Birmingham)

08:20 005 **Treatment of Ischaemia is Improved Using Multiple Isoforms of Vascular Endothelial Growth Factor (VEGF).**

P. Whitlock¹; N. Hackett²; R.G. Crystal²(United Kingdom); 2(USA)

08:30 006 **Dexamethasone Arterializes Venous Endothelial Cells by Inducing MAP Kinase Phosphatase-1 (MKP-1). A Novel Anti-Inflammatory Treatment for Vein Grafts.**

M. Zakkar; P.P. Punjabi; J.R. Anderson; P.L. Smith; D.O. Haskard; P. Evans (Hammersmith)

08:40 007 **Epicardial Adipose Tissue Products Induce Atherogenic Changes in Coronary Artery Endothelial Cells.**

K. Karastergiou; I. Evans; N.C. Ogston; J.C. Kaski; V. Mohamed-Ali; M. Jahangiri (St Georges)

08:50 008 **Bone Marrow Resident and Circulating Progenitor Cells in Patients with Coronary Artery Disease Undergoing Surgical Revascularisation.**
O. Dotsenko; Q. Xiao; Q. Xu; M. Jahangiri (St Georges)

Monday 8th March 2010

08:50 - 10:00 **PHILIPS CVIS (TOMCAT) Database Managers**
Room 13 *Ms Tracey Smalles, JCUH Middlesbrough., Mr Philip Kimberley, Brompton London.*

Monday 8th March 2010

08:50 - 10:00 Main Auditorium **OPENING SESSION; Paper Presentations**
Room 1a *Mr Leslie Hamilton, Ms Tara Bartley, Mr Tobias Rankin*

08:50 009 **Pre-Flight Check List for Cardiac Surgery. 100,000 Lives Campaign. Has it Improved our Safety Record?**

C.A. Efthymiou; S. Pappaspyrou; D.J. O'Regan (Leeds)

09:00 010 **The UK Experience of Pulmonary Endarterectomy Surgery, a Report of the First 500 Patients.**

M. Berman; J. Dunning; S. Tsui; J. Arrowsmith; R. Hall; A. Klein; J. Kneeshaw; K. Sheares; J. Pepke-Zaba; D.P. Jenkins (Papworth)

09:10 011 **Should Lung Resection Patients with COPD and/or Over the Age of 75 Receive Prophylactic Minitracheostomy?**

P. Agostini; H. Cieslik; S. Rathinam; E. Bishay; M. Kalkat; S. Singh; U.B.V. Naidu (Heartlands)

09:20 012 **Intravenous Omega-3 Pre-Operatively Attenuates the Systemic Inflammatory Response Following Paediatric Cardiac Surgery.**

Niamh Keenan; J. McGuinness; D. McLoughlin; J.S. Byrne; J.M. Redmond (Ireland)

09:30 013 **GRACE Score as Novel Triage Strategy for CABG Following ACS.**
A. Kumar; A. Tang; D.H. Roberts (Blackpool)

09:40 014 **The Effect of Ex-Vivo Perfusion on the Inflammatory Cytokine Profile of the Donor Lung.**

D.M. Karamanou; H.R. Walden; S. Bean; H. Pauli; S. Clark; A.J. Simpson; P.A. Corris; A.J. Fisher; J.H. Dark (Newcastle)

09:50 015 **A Multi-Modal National Approach for Selection of Trainees into Cardiothoracic Surgery.**

R. Aggarwal; K. Miles; K. Ahmed; S. Arora; T. Lewis; C. Sugden; A. Darzi; S. Barnard; S. Hunter; J. Pepper (United Kingdom)

Monday 8th March 2010

08:30 - 10:00 **Thoracic Sub - Committee**
Room 6 *Mr Graham Cooper*

Monday 8th March 2010

10:00 - 10:45 Exhibition Hall COFFEE
Room 2a

Monday 8th March 2010

10:45 - 11:45 **Cardiac Surgical Papers on Aortic Valve Replacement**
Room 4a *Mr Chris Young, St Thomas' London, Dr Rod Stables, Liverpool, Prof. James Cox, St. Louis, USA.*

10:45 213 **TAVI - The US Perspective** *Dr Michael. Mack (USA)*

11:05 016 **Transcatheter Aortic Valve Implantation in Patients after Previous**

- 11:15 017 **Coronary Artery Bypass Grafting: Feasibility and Outcome.**
V. Bapat; A. El-Gamel; C. Young; K. Wilson; D. Rafal; O. Wendler; G.K.T. TAVI GROUP (United Kingdom)
- 11:25 018 **Transcatheter Aortic Valve Implantation for High Risk Aortic Valve Stenosis. A Viable Alternative to Conventional Surgery?**
P.A. Calvert; B.A. Ozdemir; C. Sudarshan; S. Tsui; J. Dunning; I. Rafiq; W. Watson; A.A. Klein; L.M. Shapiro; C.G. Densem (Papworth)
- 11:35 019 **Cardiac Surgery in Octogenarians is Associated with Acceptable Mortality and Above Average Quality of Life.**
U. Dandekar; V. Rogers; N. Howell; R. Bonser; T. Graham; J. Mascaro; S. Rooney; I. Wilson; D. Pagano (Birmingham)
- 11:35 019 **Early and Late Outcome after Aortic Valve Replacement in 96 Consecutive Patients with Previous Coronary Artery Bypass Grafting and Patent Grafts.**
D. Pousios; H. Vohra; C.W. Barlow; M.P. Haw; S.A. Livesey; S.K. Ohri; G.M. Tsang (Southampton)

Monday 8th March 2010

- 10:45 - 12:30 **PHILIPS CVIS (TOMCAT) Database Managers**
Room 13 Ms Tracey Smailes, Mr Philip Kimberley
- 10:45 **Introduction to session** Mr Ben Bridgewater, Wythenshawe.
- 11:00 - 11:15 **Update from Data Group, Mr James Roxburgh, Guys and St Thomas'**
214
- 11:15 020 **Has Microsoft® Left Risk Modelling In Cardiac and Thoracic Surgery Behind?**
M. Poullis; M. Pullan (Liverpool)
- 11:25 021 **A New Model for Performance Monitoring in Cardiac Surgery.**
J. Nowell; A. Kourliouros; O. Valencia; V. Chandrasekaran; M. Sarsam; E.E.J. Smith; R.K. Kanagasabay; M. Jahangiri (St Georges)
- 11:45 022 **The Development of a Web-Based Electronic Integrated Care Pathway for Adult Cardiac Surgery.**
P. Kimberley; H. Goodman; G. Cowell; B. Simkiene; O. Haskins; R. Trimlett; K. Farrow; R. Boldry; A. Morris; A. Anscombe (Brompton, London)
- 12:00 **Feedback from DBM managers discussion including action points,**
Philip Kimberley, Tracey Smailes.
- 12:20 215 **Database Managers Forum Update and close,** Tracey Smailes

Monday 8th March 2010

- 10:45 - 11:45 **ETHICON Cardiothoracic Forum**
Room 1b Mr Mario Hughes, Mr Leslie Hamilton
- 10:45 **Cardiothoracic Forum - First Session**

Tara Bartley (Birmingham)

- 10:45 - 10:50 **Opening Remarks, Tara Bartley, Nursing Representative, SCTS**
- 10:50 - 11:00 **Address, Maura Buchanan, President of the RCN**
- 11:00 - 11:40 **Leadership Lecture, Dr Carter, Chief Executive RCN.**
216

Monday 8th March 2010

- 10:45 - 11:45 Main Auditorium
Room 1a **Cardiac Surgical Papers on Revascularisation**
Professor Malcolm Underwood, Mr Pankaj Kaul
- 10:45 023 **A Randomised Prospective Study Comparing Three Different Vein Harvesting Techniques in the Donor Leg for Coronary Artery Bypass Grafting.**
B. Krishnamoorthy; U.A. Khan; S. Al-Janabi; M.T. Jones; T.L. Hooper; P.D. Waterworth; J. Fildes; N. Yonan (Wythenshawe)
- 10:55 024 **Thoracic Epidural Anaesthesia Improves Early Outcomes in Patients Undergoing OPCAB Surgery: A Prospective Randomised Controlled Trial.**
M. Caputo¹; H. Alwair²; C. Rogers²; A. Cohen¹; C. Monk¹; S. Tomkins¹; I. Ryder²; C. Moscariello²; V. Lucchetti²; G.D. Angelini¹ ¹(Bristol); ²(Italy)
- 11:05 025 **Left Main Coronary Artery Stenosis Following Percutaneous Intervention Of Left Sided Coronary Vessels.**
M. Poullis; S. Ghotkar (Liverpool)
- 11:15 026 **Does Off-Pump Coronary Artery Revascularisation Improve Long-Term Survival in Patients with Left Ventricular Dysfunction?**
S. Attaran; M. Shaw; L. Bond; D.M. Pullan; B.M. Fabri (Liverpool)
- 11:25 027 **Young Patients with Coronary Artery Disease have Better Outcomes after Coronary Artery Bypass Surgery Compared to Percutaneous Coronary Intervention.**
A.A. Dhanji; A.M. Habib; W.I. Awad (Barts)

Monday 8th March 2010

- 11:45 - 12:30 **Patients' Forum**
Room 1b Mr David Geldard, Mr Pat Magee
- 11:45 029 **Patient Preference For Coronary Artery Bypass Graft Surgery Performed On or Off-Bypass: A Questionnaire Study.**
N. Patel; E. Akowuah; J.A. Hutter (Bristol)
- 12:05 030 **Post Discharge Complications: What happens When the Patient Goes Home?**
C.A. Efthymiou; D.J. O'Regan (Leeds)

Monday 8th March 2010

11:45 - 12:30 Main Auditorium **Heart Research UK Lecture:**
Room 1a Professor David Taggart, Dr Rod Stables, Interventional Cardiologist,
Liverpool

218 **SYNTAX – What does it mean for the Cardiac Surgeon and Surgical Unit?** Dr Michael Mack (Dallas, USA)

Monday 8th March 2010

11:59 - 18:00 **Council of Perfusionists: Workshop**
Room 14

Monday 8th March 2010

12:30 - 13:30 Exhibition Hall LUNCH
Room 2a

Monday 8th March 2010

13:30 - 15:00 **Main Auditorium UK Cardiothoracic Surgical Activity**
Room 1a Mr Ben Bridgewater, Mr Leslie Hamilton

13:30 **Introduction** Ben Bridgewater

13.35 - 13.55 **Process for Service Reconfiguration** - Mr Stephen Livesey

13.55 - 14.15 **Update on Reconfiguration of Paediatric Cardiac Surgical Services**
- Mr Leslie Hamilton

14.15 - 14.40 **Variation in Lung Cancer Resection Rates** - Mr Richard Page.

14.40 - 15.00 **Future for the Blue Book** - Mr Ben Bridgewater
219

Monday 8th March 2010

13:30 - 15:00 **Patients' Meeting**
Room 13 Mr David Geldard, Mr Pat Magee

13:30 220 **Exploring the Impact of Lung Resection for Carcinoma on Health Related Quality of Life**
Antonio Martin-Ucar (Leicester)

13:55 221 **What are Critical Care Nurses' Perceptions of the Long-Term Mechanically Ventilated Patient the ICU Setting?**
Lisa Mace (Bristol)

14:20 222 **Prolonged Intensive Care Stay and Subsequent Psychological Distress – a Study in Cardiac Patients**
Maura Screatton (Cambridge)

Monday 8th March 2010

15:00 - 15:45 Room 2a Exhibition Hall TEA

Monday 8th March 2010

15:45 – 17:00 **Thoracic Surgery – SURGERY FOR MESOTHELIOMA?**
Room 4a Mr John Duffy, Mr Jim McGuigan, Mr Keith Buchan

15:45 031 **Mathematical Modelling to Obtain an Upper Estimate of the Survival Benefit Associated with Radical Surgery for Mesothelioma.**
T. Treasure; F. Fiorentino; M. Utley (London)

15:55 032 **The Mesothelioma and Radical Surgery (MARS) Trial.**
C. Tan; D. Waller; L. Lang-Lazdunski; K. Papagiannopoulos; M. Dusmet; J.G. Edwards; T. Treasure (London)

16:15 223 **Radical Surgery for Mesothelioma – a US Perspective,**
Dr Valerie Rusch (New York, USA)

Monday 8th March 2010

17:00 – 18:30 **Thoracic Surgery – Chest Drains, Air Leaks, Pulmonary Sepsis**
Room 4a Mr David Waller, Mr Pala Rajesh

17:00 033 **Chest Drain Insertion - Are BTS Guidelines Being Followed?**
S. Rao; N. Roberts, E. Beddow (United Kingdom)

17:10 034 **Chest Drain Insertion is Not a Harmless Procedure: Are We Performing it Safely?**
H. Elsayed; R. Roberts; M. Emadi; E. Fontaine; M. Shackcloth (Liverpool)

17:20 035 **An Audit of Single Versus Double Chest Drains for Lobectomies.**
K. Nagarajan; P. Kapsomenakis; S.M. West; A.J.B. Kirk; A. Jilaihawi (Glasgow)

17:30 036 **Air Leaks Following Pulmonary Resections: Is it a Patient or Surgeon Related Problem?**
H. Elsayed; J. McShane; E. Fontaine; M. Shackcloth (Liverpool)

17:40 037 **Predicting Prolonged Air Leak After Standard Pulmonary Lobectomy: Computed Tomography Assessment and Risk Factor Stratification.**
F. Petrella; S. Rizzo; D. Radice; A. Borri; D. Galetta; R. Gasparri; P. Solli; G. Veronesi; M. Bellomi; L. Spaggiari (Italy)

17:50 038 **A Prospective, Randomised Trial Comparing BioGlue and Vivostat for the Control of Alveolar Air Leak.**
E. Belcher; M. Dusmet; S. Jordan; G. Ladas; E. Lim; P. Goldstraw (Brompton)

18:00 039 **A Prospective Randomized Controlled Study to Assess the Effectiveness of CoSeal® to Seal Air Leaks in Lung Surgery.**
C. Tan¹; M. Utley¹; J. Pilling¹; J.D. Robb²; J.K.F. Hon¹; K.M. Harrison-Phipps¹; L. Lang-Lazdunski¹; T. Routledge¹; J.E. King¹; T. Treasure^{1 1}(United Kingdom); ²(USA)

18:10 040 **Pleuropulmonary Sepsis in a Tertiary Thoracic Centre: Impact of**

British Thoracic Society (BTS) Guidelines and MRSA Prevention on Antibiotic Choice.

S. Rathinam; J.C.W. Cuell; P. Cornejo; S. Sivalingam; M.S. Kalkat; P.B. Rajesh (Heartlands)

- 18:20 041 **Debridement Alone without Decortication can Achieve Lung Re-expansion in Patients with Empyema: An Observational Study.**
Phoebe Hoon Choo Kho; J. Karunanantham; M. Leung; E. Lim (Brompton)

Monday 8th March 2010

- 15:45 - 16:55 **ETHICON Cardiothoracic Forum**
Room 1b Mr Ehab Bishay, Thoracic Surgeon, Heartlands, Ms Chrissie Harbun, SCP, Birmingham.
- 15:45 224 **The Climb to Everest: Lessons from Extreme Altitude for Critically Ill Patients?** Chris Imray (University of Warwickshire, Walsgrave Hospital)
- 16:05 042 **Role and Value of a Dedicated Thoracic HDU: Experience of a Tertiary Centre.**
S. Rathinam; J. Cahill; M. Jan; T. Cantlin; R. Steyn; P.B. Rajesh (Heartlands)
- 16:20 043 **Impact 5 Day Versus 7 Day Physiotherapy on Length of Stay (LOS) following Coronary Artery Bypass Graft (CABG): A Service Evaluation.**
B. Paradza; (Middlesbrough)
- 16:35 044 **To Tie Them Down or Set Them Free: Thopaz Portable Suction Systems.**
S. Rathinam; A. Bradley; D. Mondel; P. Keogh; T. Cantlin; P.B. Rajesh (Heartlands)

Monday 8th March 2010

- 15:45 - 16:55 **Cardiac Surgical Papers on Bleeding**
Room 1a Mr Gavin Murphy, Mr Malcolm Dalrymple Hay
- 15:45 **Is blood transfusion harmful to cardiac surgery patients?** Gavin Murphy (Bristol, United Kingdom)
- 16:05 045 **Clopidogrel and Aspirin Treatment up to Surgery Increases the Risk of Postoperative Myocardial Infarction, Bleeding and Reoperation in Patients Undergoing Isolated Coronary Bypass Grafting.**
A. Miceli¹; P. de Siena²; G. Aresu^{1,2}; S. Duggan¹; M. Iqbal¹; R. Capoun¹; F. Romeo³; G.D. Angelini²; M. Caputo¹ (Bristol); 2;Italy)
- 16:15 046 **A Novel Blood Transfusion Index (TI) for Predicting Transfusion Risk during Cardiac Surgery.**
S. Farid; S. Sarvananthan; A. Chan; T. Hooper; B. Bridgewater; M. Jones; D. Whitaker; A. Vohra (Wythenshawe)
- 16:25 047 **Mini-Cardiopulmonary Bypass Impact on Blood Conservation Strategy in Coronary artery bypass grafting.**
M. Abdel Aal; N. ElNahal; Y.A. AlRahman; B.M. Bakir; A. Alsaddique; M. Fouda; A.A. Alshaer (Saudi Arabia)
- 16:35 048 **Duration of Red-Cell Storage is Associated with Post-Operative**

Length of Stay and New Renal Complications Following Cardiac Surgery.

J. Sanders; S. Patel; J. Cooper; J. Berryman; D. Farrar; M. Mythen; H.E. Montgomery (UCL)

- 16:45 049 **The Effect and Interaction of Red Cell Unit Storage Duration and Cardiopulmonary Bypass on Post Cardiac Surgery Acute Lung Injury in Swine.**
N. Patel; C. Jones; P. Ray; H. Lin; T. Toth; R. Cardigan; P.A. Sleeman; G.D. Angelini; G.J. Murphy (Bristol)

Monday 8th March 2010

- 15:45 - 16:55 **Data Commtee**
Room 6 Mr Ben Bridgewater

Monday 8th March 2010

- 17:00 - 18:30 Main Auditorium **NovoNordisk Symposium: Management of Severe Bleeding following Cardiac Surgery**
Room 1a 226 Mr Gavin Murphy, Mr Domenico Pagano
- 17:00 **Introduction: Severe bleeding post cardiac surgery; an indicator of quality assurance** Gavin Murphy (United Kingdom)
- 17.05 - 17.25 **Preoperative Assessment: Antiplatelet Agents and Point of Care Testing.** Dr. Andrew Mumford, University of Bristol.
- 17.25 - 17.50 **Prevention: Antifibrinolytics for the Prevention of Severe Bleeding**
Dr Dean Ferguson, Ottawa Health Sciences.
- 17.50 - 18.10 **Treatment: Factor VII for the treatment of severe bleeding; Insight From a Randomised Trial** Dr Ravi Gill, Southampton.
- 18.10 - 18.30 **Discussion**

Monday 8th March 2010

- 18:30 - 20:00 **Vascutek Symposium**
Room 4b a) The Biosalva Experience
b) A 15 year follow-up with the Aspire stented biological valve

Monday 8th March 2010

- 18:30 - 20:00 **UK Medical Symposium**
Room 4a **New Alternatives to the Treatment of Malignant Pleural Effusions with Indwelling Catheters.**
William H. Warren, Chicago, USA

Tuesday 9th March 2010

07:45 - 09:00 **MEDTRONIC OFF-PUMP CABG Symposium**
Room 4b *Prof. David Taggart, Prof. GD Angelini*

- 07:45 **Welcome and Introduction**
DP Taggart, GD Angelini
- 07:50 **Does current evidence still support OPCABG**
DP Taggart
- 08:00 **The Liverpool Approach (Tips and Tricks)**
M Pullan, B Fabri
- 08:10 **The Edinburgh Approach (Tips and Tricks)**
V Zamvar
- 08:20 **How to train in OPCABG**
GD Angelini
- 08:30 **New Tools for OPCABG**
Trevor Dekker, Medtronic
- 08:40 **Open Floor Discussion**

Tuesday 9th March 2010

07:30 - 08:45 Room 2a Exhibition Hall Coffee - Cash Coffee Bar

Tuesday 9th March 2010

08:00 - 17:00 Room 14 **Council of Perfusionists**

Tuesday 9th March 2010

08:00 - 09:00 Main Auditorium **Cardiac Surgical Papers**
Room 1a *Mr Inder Birdi, Mr Kulvinder Lall*

- 08:00 050 **Prevention of Post-Cardiopulmonary Bypass Acute Kidney Injury and Endothelial Dysfunction Using Sitaxsentan Sodium, an Endothelin-A Receptor Antagonist.**
N. Patel; H. Lin; C. Jones; T. Toth; P. Ray; P.A. Sleeman; G.D. Angelini; G.J. Murphy (Bristol)
- 08:10 051 **A Randomized Trial Comparing Antegrade Cerebral Perfusion and Deep Hypothermic Circulatory Arrest in Pulmonary Endarterectomy – PEACOG Study**
M. Berman; S. Tsui; J. Dunning; G. Charman; J. Armstrong; C. Freeman; L. Sharples; A. Vuyksteke; D.P. Jenkins (Papworth Hospital)
- 08:20 052 **Does Varying Atrio-Ventricular Delay Influence the Haemodynamics Post Coronary Artery Bypass Grafting (CABG)?**
K.K. Doddakula; M.N. Anjum; M. Hargrove; S. O'Callaghan; J. Hinchion; A. O'Donnell; T. Aherne (Ireland)

08:30 053 **Management of Acute Cardiac Failure by Intracoronary Administration of Levosimendan: Results from the First Clinical Series.**
E.I. Kapetanakis¹; E. Grossini²; C. Molinari²; G. Vacca²; P.P. Caimmi²
1(United Kingdom); 2(Italy)

08:40 054 **Left Ventricular Hypertrophy (LVH) Secondary to Aortic Stenosis (AS) Manifests Impaired Cardiac Metabolism: Implications for Surgical Intervention.**
N.J. Howell; N.E. Drury; M. Viant; H. Ashrafian; D. Pagano (United Kingdom)

Tuesday 9th March 2010

09:00 - 10:00 Main Auditorium **Cardiac Surgical Presentations**
Room 1a *Mr Alex Shipolini, Mr Doug Aitchison*

- 09:00 055 **Administration of the Flu Vaccine Prior to Cardiopulmonary Bypass does not Alter the Inflammatory Response.**
N.C.R. McGonigle; W.T. McBride; A. Brennan; M.A. Armstrong (Belfast)
- 09:10 056 **Does Remote Ischaemic Preconditioning Protect the Heart and Kidneys in Human Coronary Artery Bypass Surgery – a Randomised Controlled Trial.**
I.A. Rahman; J.G. Mascaro; R.P. Steeds; M.P. Frenneaux; P. Nightingale; P. Gosling; P. Townsend; J.N. Townend; D. Green; R.S. Bonser (Birmingham)
- 09:20 057 **Randomised Controlled Trial of Intensive Atorvastatin Pretreatment for the Prevention of Atrial Fibrillation Following Cardiac Surgery.**
A. Kourliouros; O. Valencia; M. Tavakkoli Hosseini; M. Sarsam; A.J. Camm; M. Jahangiri (St. George's)
- 09:30 058 **An Investigation of the Applicability of Rapid Molecular Amplification and Sequencing to Diagnose Patients with Suspected Infective Endocarditis.**
Kelvin Lim; John Yap; G. Roger; S. Lee; A. Zumla; J. Huggett; S. Morris-Jones (UCL)
- 09:40 059 **The Effect of Mitral Valve Surgery on the Right Ventricle: A Ventricular Strain Study.**
D. Pandis; J. Grapsa; D. Dawson; P. Nihoyannopoulos; P.P. Punjabi (UK)
- 09:50 060 **Independent Predictors of Recurrent Mitral Regurgitation Post Mitral Valve Surgery. Follow Up with Real time 3D Echocardiography and Speckle Tracking.**
D. Pandis; J. Grapsa; D. Dawson; P. Nihoyannopoulos; P.P. Punjabi (Hammersmith)

Tuesday 9th March 2010

- 08:45 - 10:00 **ETHICON Cardiothoracic Forum**
Room 1b *Mr Gus Tang, Consultant Surgeon, Blackpool, Ms Lisa Cross, CCP, Blackpool.*
- 08:45 227 **Sustaining Pathways National Project; Results from the Pilot Sites. Wendy Gray, Intern Director, Heart Improvement Programme, NHS Improvement.**
- 09:15 061 **Development of the (extra corporal membrane oxygenation) ECMO Specialist Nurse at Specialist Centre.**
Maura Sreaton; J.A. Fowles; J. Bracken (Papworth)
- 09:30 062 **The Introduction of Outpatient Management for Ventricular Assist Device Recipients - A Single Centre Experience.**
N. Wrightson; S. Schueler; G. Mac Gowan; T. Butt; T. Pillay; D. O'leary (Freeman)
- 09:45 063 **Releasing Time To Care - The Productive Ward: The impact of the Process at Papworth.**
J. Davis (Papworth)

Tuesday 9th March 2010

- 08:45 - 10:00 **Congenital Cardiac Surgery: Paper Presentations**
Room 13 *Mr Jim Pollock, Mr Kevin Watterson*
- 09:00 064 **The Importance of Blood Lactate Profile as a Predictor of Very Early Perioperative Mortality Following the Modified Norwood Stage I Procedure.**
B. Murtuza; D. Wall; T. Jones; J. Stickley; D.J. Barron; W.J. Brawn (Birmingham)
- 09:10 065 **Prediction of Serious Morbidity after Revision Fontan Surgery- A Scoring System.**
H.A. Vohra; G.R. Veldtman; R. DeSilva; Z. Ahmad; S. Badle; R. Cope; A.P. Salmon; M.P. Haw (Southampton)
- 09:20 066 **Early Experience of Temporary Restriction of RV-PA Conduit Flow on Early Outcomes Following Modified Norwood Stage I Reconstruction.**
B. Murtuza; T. Jones; J. Stickley; D.J. Barron; W.J. Brawn (Birmingham)
- 09:30 067 **Assisted Fontan Procedure: Animal and In Vitro Models and Computational Fluid Dynamics Study.**
A. Corno; C. Subramanian; N. Alphonso; P. Venugopal; J.C. Jarvis (Liverpool)
- 09:40 068 **Aortic Valve Repair in the Congenital Population**

Marco Pozzi; A. Quarti; M. Colaneri; A. Oggianu (Italy)

- 09:50 069 **Cardiac Surgery for Adults with Congenital Heart Disease. Have we Underestimated the Demand?**
N. Nikolaidis; G. Veldtman; A. Carroll; T. Salmon; N. Viola; M. Kaarne; M. Haw (Southampton)

Tuesday 9th March 2010

- 08:40 - 10:00 **Thoracic Surgery: Papers on Pre-operative Staging.**
Room 1c *Mr Eric Lim, Mr Mark Jones (Belfast)*
- 11:00 028 **Day-of-Surgery Admission is Associated with a Reduced Post-Operative Length of Stay Following Lung Resection.**
N. Nwaejike; C.L. Evans; C.C. Paoloni; T.J.P. Batchelor (Bristol)
- 08:50 070 **Does PET Scanning Improve Survival In Patients Undergoing Potentially Curative Lung Resections For Non Small Cell Lung Cancer?**
M. Poullis; M. Shackcloth; R. Page; N. Mediratta (Liverpool)
- 09:00 071 **Does Routine Preoperative CT-PET Improve on an Aggressive Surgical Approach to the Suspicious Solitary Pulmonary Nodule?**
E.W.K. Peng; S. Deacon; S. Muller; A. Nakas; A.E. Martin-Ucar; D. Waller (Leicester)
- 09:10 072 **The Rise of EBUS: Is this the end of Mediastinoscopy?**
E.J. Fontaine; C. Menakaya; H. Elsayed; S. Binukrishnan; M. Walshaw; M. Ledson; R.D. Page; K. Mohan (Liverpool)
- 09:20 073 **Intra-Tumoural Vascular Invasion as a Prognostic Factor for Overall and Disease Free Survival in Early Stage Non-Small Cell Lung Cancer.**
B. Al-Alao; E. McGovern; K. O'Byrne; V. Young (Ireland)
- 09:30 074 **Day-Case Thoracic Surgery. A New Concept in the UK.**
M. Ghosh-Dastidar; R. Deshpande; K. Rajagopal; D. Andersen; M. Marrinan (King's College Hospital)
- 09:40 075 **Extra-Pulmonary Bypass for the Treatment of Homogenous Emphysema.**
M. Polkey; P. Goldstraw; S. Jordan (Royal Brompton)
- 09:50 076 **Pulmonary Metastasectomy in Colorectal Cancer: Quantitative Data Synthesis of 3,504 Patients in 51 Case Series Covering 40 Years of Practice.**
T. Treasure¹; K. Teoh²; F. Fiorentino¹; I. Hunt¹; M. Utley¹ 1(United Kingdom); 2(Singapore)

Tuesday 9th March 2010

10:00 - 10:45 Room 2a Exhibition Hall COFFEE

Tuesday 9th March 2010

10:45 - 12:30 Main Auditorium
Room 1a **Cardiac Workshop: Surgery on the Aorta - a Regional Service?**
Mr Graham Cooper, Professor Robert Bonser

10:50 077 **Aortic Root Support in Marfan syndrome: Technical Results in the First 10 Consecutive Patients.**
J. Pepper; T. Treasure; T. Golesworthy; S. Ganeshalingam; K.M.J. Chan; R. Mohiaddin; M. Utley (United Kingdom)

11:00 078 **Effective Cerebral Protection Using Near-Infrared Spectroscopy Monitoring with Antegrade Selective Cerebral Perfusion During Aortic Surgery**
E. Senanayake; M. Komber; A. Nassef; N. Massey; G. Cooper (Sheffield)

11:10 079 **The Time-Delay to Treatment in Type A Aortic Dissection: The Black-Hole of Dissection Management.**
N. Thalji; J. Evans; A.M. Ranasinghe; V. Barnett; T.R. Graham; C.J. Mascaro; S.J. Rooney; I.C. Wilson; D. Pagano; R.S. Bonser (Birmingham)

11:20 228 **Is There a Case for a Regional Aortic Service?**
Graham Cooper (United Kingdom)

11.30 - 11.40 **UK Results for Acute Type A Dissection - Graham Cooper**

11.40 - 11.50 **The case for concentrating expertise - Leon Hadjinikolaou**

11.50 - 12.00 **The London Experience - Chris Young**

12.00 - 12.10 **Research and database - Robert Bonser**

12.10 - 12.30 **Discussion**

Tuesday 9th March 2010

10:45 - 12:30 **ETHICON Cardiothoracic Forum**
Room 1b *Mr Domenico Pagano, Cardiac Surgeon, Birmingham, Ms Penny Gowland.*

10:45 229 **The Court Room In Action.** Dr David Burrows-Sutcliffe, Solicitor

11:15 230 **Documentation and Record Keeping.** Martine Tune, Professional Adviser, NMC

11:45 080 **Specialist Nurse Consenting in Thoracic Surgery: is it Satisfactory?**

M. Devbhandari; K. Hewitt; R. Shah (Wythenshaw)

12:00 081 **To Understand the Role of Nurse Practitioners as Non Medical Prescribers in a Cardiothoracic unit.**
D. Sandeman, S Garden, J Delaney (Edinburgh)

12:15 082 **Clinical Decision Making by Cardiac Intensive Care Nurses in the First Two Hours Following Cardiac Surgery.**
E. Nolan (Swansea)

Tuesday 9th March 2010

10:45 - 12:30 **Congenital Cardiac Surgery: Workshop on Transposition Anatomy**
Room 13 *Mr Babulal Sethia and Mr David Barron*

10:45 083 **Anatomical Repair for Congenitally Corrected Transposition of the Great Arteries (CCTGA): Midterm Results.**
D. Eaton; B. Murtuza; S. Laker; J. Stickley; P. Miller; J. DeGiovanni; O. Stumper; T. Jones; D. Barron; W.J. Brawn (Birmingham)

10:55 231 **Congenitally Corrected Transposition of the Great Arteries: Morphology and Management.**
V Toh (Rayne Institute)

Tuesday 9th March 2010

10:45 - 11:45 **Thoracic Surgical Papers: Dilemmas in N2 Disease.**
Room 1c *Mr. K.Papagianopoulos, Mr Tim Batchelor*

10:45 084 **Should NICE Guidelines for Mediastinal Staging Continue to be Used?**
I. Ahmed; R. Stuart; M. Muller; S. Stamenkovic (Newcastle)

10:55 085 **Systematic Mediastinal Nodal Dissection and Stage Migration: Impact on Clinical Pathway.**
Khalid Amer; A.Z. Khan (Southampton)

11:05 086 **Surgical Resection for Non-Small Cell Lung Cancer: Influence of Number of Lymph Nodes Dissected on Survival.**
B. Al-Alao; E. McGovern; K. O'Byrne; V. Young (Ireland)

11:15 087 **Should We Operate on Microscopic N2 Non Small Cell Lung Cancer?**
M. Poullis; N. Mediratta; M. Shackcloth; M. Carr; R. Page (Liverpool)

11:25 088 **After Induction Treatment, Radiotherapy is not Superior to Surgery for N2 Disease: a Meta-Analysis of Randomised Trials.**
A. Sadri; J. Karunannantham; F. Song; E. Lim (United Kingdom)

11:35 089 **Persistent N2 Disease after Neoadjuvant Chemoradiotherapy and**

Surgical Resection of NSCLC.

D.G. West; L. Coate; A. Bezjak; F. Shepherd; T.K. Waddell (Canada)

Tuesday 9th March 2010

- 10:45 - 12:30 **Hunterian Lecture and Transplant Papers**
Room 4b Mr Stephen Clark, Mr Stephen Large
- 10:45 232 **Hunterian Lecture: Species Differences in Adenosine Metabolism: Implications for Cardiac Transplantation.** Mr Zain Khalpey (United Kingdom)
- 11:20 090 **Donor Heart Rate - a Marker of Myocardial Injury?**
V.B. Dronavalli; J.N. Townsend; C.A. Rogers; N.R. Banner; R.S. Bonser (United Kingdom)
- 11:30 091 **The Effect of Ex-Vivo Perfusion on the Microbiological Profile of the Donor Lung.**
D.M. Karamanou; J. Perry; H.R. Walden; A.J. Simpson; P.A. Corris; K. Gould; A.J. Fisher; J.H. Dark (Newcastle)
- 11:40 092 **Time-related Changes in Inflammatory and Cardiac Stress Responses in the Human Heart Donor.**
V.B. Dronavalli; A. Normandale; P. Gosling; C.A. Rogers; N.R. Banner; R.S. Bonser (United Kingdom)
- 11:50 093 **Regulatory T Cell Immunomodulation In Patients Receiving Statins Following Cardiac Transplantation.**
Nouman Khan; W. Critchley; C. Puchalka; J. Fildes; N. Yonan (Wythenshawe)
- 12:00 094 **Cardiac Resuscitation Following Circulatory Arrest in the Non-Heart Beating Donor is Associated with Excellent Functional and Metabolic Recovery.**
Ayyaz Ali¹; B. Xiang²; P. White¹; S. Tsui¹; E. Ashley³; S.R. Large¹; T. Lee²; R. Arora²; G. Tian²; D.H. Freed²
1(United Kingdom); 2(Canada); 3(USA)
- 12:10 095 **Ventricular Assist Device (VAD) Therapy in Post Cardiotomy Cardiogenic Shock (PCCS): Current Practice in the United Kingdom and Republic of Ireland.**
A. Nasir¹; G. Beattie¹; P. Bonde²; A.N.J. Graham¹
1(United Kingdom); 2(USA)
- 12:20 096 **Lung Transplantation from Donors over 70: Medium Term Outcomes.**
D.G. West; M. De Perrot; K. Yasufuku; T.K. Waddell; S. Azad; M. Hutcheon; L.G. Singer; S. Keshavjee; A.F. Pierre (Canada)

Tuesday 9th March 2010

- 11:45 - 12:30 **LILLY - Tudor Edwards Thoracic Surgical Lecture**
Room 1c Mr Jim McGuigan, Mr John Duffy
- 11:45 233 **The New TNM Classification for Lung Cancer - The New Method.**
Valerie.W. Rusch (New York, USA)

Tuesday 9th March 2010

- 12:30 - 13:30 Room 2a Exhibition Hall LUNCH

Tuesday 9th March 2010

- 13:30 - 15:00 **Thoracic Surgical Papers: General and Oesophageal**
Room 1c Mr Richard Page, Ms Farah Bhatti
- 13:30 097 **Is Lung Cancer Screening Justifiable?**
A. Sheel; M.P. Poullis (Liverpool)
- 13:40 098 **Preoperative Body mass Index Greater than 25 kg/m² is Related to a Higher Incidence of Respiratory Complications After Pneumonectomy.**
F. Petrella; D. Radice; A. Borri; D. Galetta; R. Gasparri; P. Solli; G. Veronesi; L. Spaggiari (United Kingdom)
- 13:50 099 **The Effect of Morbid Obesity on Outcomes Following Oesophagectomy.**
G. Bhamra; C.J. Magee; N. Howes; M. Hartley; R.D. Page; M.J. Shackcloth (Liverpool)
- 14:00 100 **Radical Oesophageal Resection and Ward Based Management**
N.C.R. McGonigle; P. Whitlock; A.N. Graham; K.G. McManus; J. McGuigan (Belfast)
- 14:10 101 **Carcinoma of the Middle and Lower Thirds of the Oesophagus Resected via the Left Thoracoabdominal Approach. Peri-Operative Outcomes in 678 Patients.**
E.J. Clark; F.M. Carnochan; W.S. Walker (Edinburgh)
- 14:20 102 **Short and Long Term Effects of Post-Operative Chest Infections and Unexpected Returns to the ITU Following Oesophagectomy for Cancer.**
L. Hajdu; C.J. Magee; G. Khera; N. Howes; M. Hartley; R.D. Page; M.J. Shackcloth (Liverpool)
- 14:30 103 **The Impact of Neoadjuvant Chemotherapy on Mortality and Survival**

in Elderly Patients Undergoing Oesophagogastrectomies.

H. Elsayed; I. Whittle; N. Howes; M. Hartley; M. Shackcloth; E. Fontaine; R. Page (Liverpool)

14:40 104 **The Impact of Systemic Fungal Infection in Patients with Rupture Oesophagus: Should we be Using Antifungal Therapy Empirically?**

H. Elsayed; I. Whittle; H. Shaker; M. Shackcloth; R. Page (Liverpool)

14:50 105 **'Three Tube Drainage' [TTD] of Oesophageal Perforations [OP].**

R. Jujjavarapu; K.R. Jujjavarapu; J.A. Mcguigan; A.D. Muir (United Kingdom)

Tuesday 9th March 2010

13:30 - 15:00 **ETHICON Cardiothoracic Forum**

Room 1b *Mr John Dunning, Consultant Surgeon, Papworth, Ms Julie Quigley, Alert team Leader, Papworth*

13:30 106 **Effect of European Working Time Directive on Training and Outcome Following Coronary Artery Bypass Grafting.**

M. Bashir; M. Field; A. Rashid; A. Oo (United Kingdom)

13:45 107 **Clinical Audit on Early Aspirin Administration Following Coronary Artery Bypass Surgery.**

P. Gukop; O. Valencia; M. Kuppaswamy; K. Fincham; A. Kourliouros; M. Sarsam; V. Chandrasekaran (St George's)

14:00 108 **Risk Factors for Postoperative Pulmonary Complications Following Thoracic Surgery.**

P. Agostini; H. Cieslik; S. Rathinam; S. Singh; R.B. Rajesh; R.S. Steyn; U.B.V. Naidu (United Kingdom)

14:15 109 **Variation in Current Physiotherapy Practice of Patients Undergoing Thoracic Surgery in the UK**

P. Agostini; S. Dromard; S. Singh; R.S. Steyn; U.B.V. Naidu (United Kingdom)

14:30 110 **Exploring the Impact of Lung Resection for Carcinoma on Health Related Quality of Life.**

S.E. Deacon; L. Beggs; F.D. Beggs; J.P. Duffy; A.M. Majweski; A.E. Martin-Ucar (Nottingham)

14:45 111 **Diversity in the Surgical Care Practitioner Role – Reflection on the Experiences During Year One of Training.**

A. Halewood; N. Barran (Middlesbrough)

Tuesday 9th March 2010

13:30 - 15:00 Main Auditorium

Room 1a **St JUDE Symposium: Patient Prosthetic Mismatch**

Proessor David Taggart, Professor Marjan Jahangiri

13:35 112 **Patient Prosthesis Mismatch, Early Outcome of Aortic Valve Replacement for Isolated Aortic Stenosis.**

A.A. Hatem¹; R.H. Bilal¹; I.R. R¹; D. Keenan¹; B. Mustaf²; B. Prendergast¹ (United Kingdom); 2(Egypt)

13:45 *Professor George Sutherland and Professor Marjan Jahangiri*

13:45 – 14:10 **Definition of PPM, review of literature mainly form a surgical perspective, techniques of root enlargement,** *Professor Marjan Jahangiri*

14:10 – 14:30 **Imaging, particularly echocardiographic definitions and diagnosis of PPM,** *Professor George Sutherland*

14:30 – 14:50 **Case presentations,** *Professors Jahangiri and Sutherland*

14:50 – 15:00 234 **Discussion**

Tuesday 9th March 2010

14:00 - 14:30 **Exhibitors Meeting**

Room 4b *Mr Simon Kendall, Mr Ian Wilson, Ms Tilly Mitchell*

Tuesday 9th March 2010

15:00 - 15:45 Room 2a Exhibition Hall TEA

Tuesday 9th March 2010

15:45 - 17:00 **Cardiac Surgery Papers: Aortic Valve and Sternal Closure**

Room 4b *Mr Stephen Billing, Mr Neil Moat*

15:45 113 **Glucose-Insulin-Potassium Reduced the Incidence of Low Cardiac Output Syndrome (LCOS) Following Aortic Valve Replacement (AVR)**

N.J. Howell; N.E. Drury; A.M. Ranasinghe; R.S. Bonser; T.R. Graham; J. Mascaro; S.J. Rooney; I.C. Wilson; D. Pagano (Birmingham)

15:55 114 **A Novel Technique in Detecting Subclinical Changes in LV Function and Predicting Optimal Time for Surgery in Patients with Valve Disease.**

A. Marciniak; G.R. Sutherland; M. Marciniak; A. Kourliouros; E.E.J. Smith; M. Jahangiri (St George's)

- 16:05 115 **Randomized Trial of Antithrombotic Therapy after Tissue AVR.**
Justin Nowell; H. Markus; M. Sarsam; E.E.J. Smith; M. Jahangiri (St George's)
- 16:15 116 **Comparing Outcomes of Mini to Standard Aortic Valve Replacement.**
I. Saeed; M. Tavakkoli Hosseini; M. Sarsam; E.E.J. Smith; M. Jahangiri (St George's)
- 16:25 117 **Technical Lessons Learnt in Sternal Closure with Nitillium Thermoreactive Clips in 1,000 High-Risk Patients - A single Centre Cohort Study.**
J. Dunning; S.K. Balasubramanian; V.S. Avlonitis; M. Gill; J. Ferguson; J. Wallis; S. Hunter; A. Goodwin; A. Owens; S.W.H. Kendall (United Kingdom)
- 16:35 118 **Titanium Mesh Reconstruction for Sternal Dehiscence: a Novel Technique of Sternal Repair.**
N. Unnikrishnan; R. Mallina (Leeds)
- 16:45 119 **Intra-Operative Normal Saline Wash-Out of Pericardial Cavity and Sternal Wound, Reduces the Risk of Major Sternal Wound Infection.**
T. Katbeh; R.H. Bilal; P.K. Sarkar (Sheffield)

Tuesday 9th March 2010

- 15:30 - 17:00 **Congenital Cardiac Surgery: Invited Lectures**
Room 13 *Professor Mark Redmond, Mr Andrew Parry*
- 15:45 120 **Single Centre Experience of Berlin Heart Ventricular Assist Device (VAD) in Paediatric and Adult Populations.**
T. Butt; J. Cassidy; N. Wrightson; M. Griselli; G. MacGowan; T. Pillay; A. Hasan; S. Schueler (Newcastle)
- 15:55 235 **'The Current Status of Mechanical Assist Devices in Congenital Cardiac Surgery - Medium and Long Term Results.'**
Asif Hasan (Newcastle)
- 16:20 236 **Cardio-Protection of the Developing Heart: Experimental & Clinical Aspects.** *Professor Saadeh Suleiman, Cardiac Physiologist, Bristol*
Saadeh Suleiman (United Kingdom)

Tuesday 9th March 2010

- 15:45 - 16:45 **ETHICON Cardiothoracic Forum: Paper Presentations**
Room 1b **Dr John Kendall, Consultant Anaesthetist Liverpool, Ms Georgina Aldous, Clinical Governance, Liverpool.**
- 15:45 121 **What are Critical Care Nurses' Perceptions of the Long-Term Mechanically Ventilated Patient the ICU Setting?**
Lisa Mace (Bristol)

- 16:00 122 **Prolonged Intensive Care Stay and Subsequent Psychological Distress – a Study in Cardiac Patients.**
Maura Screamon; A. Vuylsteke; L. Sharples (Cambridge)
- 16:15 123 **Implementation of care bundles for the insertion of central venous catheters in cardiac theatres and cardiac intensive care unit.**
S. Kivi (Swansea)
- 16:30 124 **Role of Intra-Gastric Balloon in Cardiac Surgery: 'An Adjunct to Pre-Operative Optimization for Morbid Obesity'**
A. Sharkey; C. Mumbi; H. Bilal; R. Ackroyd; P.K. Sarkar (United Kingdom)

Tuesday 9th March 2010

- 15:45 - 17:00 **Thoracic Surgical Papers**
Room 1c *Mr Alan Kirk, Ms Juliet King*
- 15:45 125 **Uniportal VATS Surgery: Experience From a Single Centre.**
A. Roubelakis; A.Z. Khan; A. Modi; M. Holman; G. Casali (Southampton)
- 15:55 126 **Is Major VATS Resection Safe in Octogenarians? The Southampton Experience.**
K. Amer; A.Z. Khan; H.A. Vohra (Southampton)
- 16:05 127 **Implications of Lung Cancer Waiting Time Targets for Thoracic Surgeons in the UK.** *M.P. Devbhandari; P. Krysiak; M.T. Jones; R. Shah (Wythenshawe)*
- 16:15 128 **Improving Lung Cancer Resection in a Regional Thoracic Surgical Centre.**
E. Addae-Boateng; K.L. Ang; A.M. Martin-Ucar; S. Handagala; J.P. Duffy (Nottingham)
- 16:25 129 **How Does Gene Expression Profile for Lung Cancer Change Based on the Timing of Acquisition? A Preliminary Study.**
A. Sadri; M. Freidin; N. Bhudia; A.G. Nicholson; M. Moffat; W.O. Cookson; E. Lim (United Kingdom)
- 16:35 130 **Functional outcome in Patients with Non-Small Cell Lung Cancer who Failed BTS Recommended Post-Operative Predicted Criteria for Lung Resection.**
H.A. Pattenden; J. Karunanantham; M. Leung; M. Beckles; S. Cooper; E. Lim (United Kingdom)
- 16:45 131 **Thoracic Surgical Patients Requiring Unscheduled Admission to ITU: An Audit on the Usefulness of Thoracoscore.**
S. Qureshi; D. Craig; S.D.M. West; A.J.B. Kirk (Glasgow)

Tuesday 9th March 2010

- 15:45 - 17:00 Main Auditorium
Room 1a **Cardiac Surgery Papers: Comorbidity and Cardiac Surgery**
Mr Malcolm Dalrymple Hay, Ms Ellis McGovern
- 15:45 132 **The Midterm Outlook for Patients with Early Stage Diabetes Following Coronary Revascularisation.**
Priya Sastry; M. Shaw; B.M. Fabri (Liverpool)
- 15:55 133 **Preoperative Anaemia Increases Mortality and Postoperative Morbidity After Cardiac Surgery.**
A. Miceli¹; P. de Siena²; S. Duggan¹; F. Romeo²; R. Capoun¹; G.D. Angelini²; M. Caputo¹ 1(United Kingdom); 2(Italy)
- 16:05 134 **The Sick Euthyroid Syndrome Post Coronary Artery Surgery is Associated with Reduced Mid-Term Survival.**
A.M. Ranasinghe; J.A. Franklyn; T.R. Graham; C.J. McCabe; C.J. Mascaro; S.J. Rooney; I.C. Wilson; D. Pagano; R.S. Bonser (Birmingham)
- 16:15 135 **FEV1 Predicts Length of Stay and In Hospital Mortality in Patients Undergoing Cardiac Surgery.**
D.A. McAllister; S. Wild; J.D. Maclay; A. Robson; D.E. Newby; W. MacNee; A. Innes; V. Zamvar; N.L. Mills (Edinburgh)
- 16:25 136 **Post-Operative Renal Function is Predictive of Late Survival Following Adult Cardiac Surgery.**
N.J. Howell; N. Freemantle; R.S. Bonser; T.R. Graham; B.E. Keogh; J. Mascaro; S.J. Rooney; I.C. Wilson; D. Pagano (Birmingham)
- 16:35 **The Impact of Post Operative AF on Prognosis following Cardiac Surgery**
Dr Ahlsson (Sweden)

Tuesday 9th March 2010

- 15:45 - 17:00 **Scholarship Meeting**
Room 6 *Mr Leslie Hamilton*

Tuesday 9th March 2010

- 17:00 - 18:00 Main Auditorium **President's Address** *Mr Leslie Hamilton*
Room 1a *Chairman: Professor David Taggart, President Elect*

Tuesday 9th March 2010

- 18:00 - 18:30 **Presentation Meeting**
Room 6 *Mr Simon Kendall*

Tuesday 9th March 2010

- 19:30 - 23:59 **ANNUAL DINNER**

Wednesday 10th March 2010

- 09:00 - 10:30 **Board of Representatives**
Jury's Inn Hotel *Professor David Taggart, Mr Graham Cooper*

Wednesday 10th March 2010

- 10:30 - 11:00 Coffee

Wednesday 10th March 2010

- 11:00 - 12:30 **Board of Representatives**
Jury's Inn Hotel *Professor David Taggart, Mr Graham Cooper*





Society for
Cardiothoracic Surgery
in Great Britain and Ireland

Annual Meeting



March 7th - 9th 2010

Liverpool Arena & Convention Centre

FORUM & DATABASE PROGRAMME

Sponsors of the Forum and Database Managers' Meeting

Ethicon

Philips CVIS (TOMCAT)

CALS (Cardiac Advanced Life Support)

are sponsoring the forum dinner on Monday night.

DATABASE MEETING PROGRAMME

Monday 8th March 2010

Forum Programme

Room 1b

- 08:45 – 10:00 **Multidisciplinary Shared Session With Papers From Science, Nursing And Surgical Care Practitioners**
- 08:50 – 09:00 **Pre-Flight Check List for Cardiac Surgery. 100,000 Lives Campaign. Has it Improved our Safety Record?** *Efthymiou, C.A.; Papaspyrou, S.; O'Regan, D.J. Yorkshire Heart Centre*
- 09:00 – 09:10 **The UK Experience of Pulmonary Endarterectomy Surgery, a Report of the First 500 Patients.** *Berman, M. ¹; Dunning, J. ¹; Tsui, S. ¹; Arrowsmith, J. ²; Hall, R. ²; Klein, A. ²; Kneeshaw, J. ²; Sheares, K. ³; Pepke-Zaba, J. ³; Jenkins, D.P. ¹ Papworth Hospital*
- 09:10 – 09:20 **Should Lung Resection Patients with COPD and/or Over the Age of 75 Receive Prophylactic Minitracheostomy?** *Agostini, P. ¹; Cieslik, H. ¹; Rathinam, S. ¹; Bishay, E. ¹; Kalkat, M. ¹; Singh, S. ²; Naidu, U.B.V. Birmingham Heartlands Hospital,*
- 09:20 – 09:30 **Intravenous Omega-3 Pre-Operatively Attenuates the Systemic Inflammatory Response Following Paediatric Cardiac Surgery.** *Keenan, Niamh; McGuinness, J.; McLoughlin, D.; Byrne, J.S.; Redmond, J.M. Royal College of Surgeons in Ireland*
- 09:30 – 09:40 **GRACE Score as Novel Triage Strategy for CABG Following ACS.** *Kumar, Abhishek; Tang, A.; Roberts, D.H. Blackpool Victoria Hospital, (United Kingdom)*
- 09:40 – 09:50 **The Effect of Ex-Vivo Perfusion on the Inflammatory Cytokine Profile of the Donor Lung.** *Karamanou, D.M. ¹; Walden, H.R. ¹; Bean, S. ²; Pauli, H. ²; Clark, S. ²; Simpson, A.J. ³; Corris, P.A. ¹; Fisher, A.J. ¹; Dark, J.H. ¹, ¹ Newcastle University, (UK); ² Freeman Hospital, Newcastle upon Tyne, (UK); ³ Edinburgh University, (UK)*
- 09:50 – 10:00 **A Multi-Modal National Approach for Selection of Trainees into Cardiothoracic Surgery.** *Aggarwal, R. ¹; Miles, K. ¹; Ahmed, K. ¹; Arora, S. ¹; Lewis, T. ¹; Sugden, C. ¹; Darzi, A. ¹; Barnard, S. ²; Hunter, S. ³; Pepper, J. ⁴ ¹ Imperial College Healthcare NHS Trust, (UK); ² Freeman Hospital, Newcastle Upon Tyne, (UK); ³ The James Cook University Hospital, Middlesbrough, (UK); ⁴ The Royal Brompton Hospital, (UK)*

Chairs *Leslie Hamilton (President, SCTS), Tara Bartley, (Nursing Representative, SCTS) & Tobias Rankin (President, ACSA)*

10:00 – 10:45 Tea and coffee

10:45 – 10:50 **Opening Remarks**, Tara Bartley, Nursing Representative, SCTS

10:50 – 11:00 **Key Note Speaker Opening Remarks**, Maura Buchanan, President of the RCN

11:00 – 11:40 **Dr Carter, Chief Executive RCN. Leadership Lecture**
Chairs Mr Leslie Hamilton, Mr Mario Hughes

11:45 – 12:30 **Heart Research Presentation, Joint Session**

12.30 – 13.30 Lunch

13:30 – 15:00 **UK Activity, Joint Session**

15:00 – 15:45 Tea and coffee

15:45 – 16:15 **'The climb to Everest: lessons from extreme altitude for critically ill patients?'** Professor Chris Imray, Consultant Vascular Surgeon, UHCW (UK)

16:15 – 16:30 Paper 1. **Role and Value of a Dedicated Thoracic HDU: Experience of a tertiary centre.** Rathinam, S.; Cahill, J.; Jan, M.; Cantlin, T.; Steyn, R.; Rajesh, P.B. Birmingham Heartlands Hospital, (UK)

16:30 – 16:45 Paper 2. **Impact 5 Day Versus 7 Day Physiotherapy on Length of Stay (LOS) following Coronary Artery Bypass Graft (CABG): A Service Evaluation.** Paradza, Brighton ¹; Paradza, B. ² 1James Cook University Hospital, (UK); 2James Cook University Hospital, South Tees NHS Trust, (UK)

16:45 – 17:00 Paper 3. **To tie them down or set them free: Thopaz portable suction systems.** Rathinam, S.; Bradley, A.; Mondel, D.; Keogh, P.; Cantlin, T.; Rajesh, P.B. Birmingham Heartlands Hospital, (UK)

Chairs *Mr Bishay, Thoracic Surgeon, Heartlands Hospital, Birmingham & Ms Chrissie Harbun Lead Surgical Care Practitioner, University Hospitals, Birmingham*

17:00 – 18:30 **Novonordisk Symposium, Joint Session (Bleeding in Cardiac Surgery)**

Forum Dinner: Sponsored by CALS (Cardiac Advanced Life Support)

Tuesday 9th March 2010

08:45 – 09:15 **Sustaining Pathways National Project; results from the pilot sites.** Wendy Gray, Intern Director, Heart Improvement Programme, NHS Improvement.

09:15 – 09:30 Paper 4. **Development of the (extra corporal membrane oxygenation) ECMO Specialist Nurse at Specialist Centre.** Maura Screaton, Maura; Fowles, J.A.; Bracken, J. Papworth Hospital, (UK)

09:30 – 09:45 Paper 5. **The Introduction of Outpatient Management for Ventricular Assist Device Recipients - A Single Centre Experience.** Wrightson, Neil; Schueler, S.; Mac Gowan, G.; Butt, T.; Pillay, T.; O'leary, D. Freeman Hospital, (UK)

09:45 – 10:00 Paper 6. **Releasing Time To Care - The Productive Ward: The impact of the Process at Papworth.** Davis, Jacqueline Papworth Hospital NHS Foundation Trust, (United Kingdom)

Chairs *Mr Gus Tang, Consultant Surgeon, Blackpool Hospital & Ms Lise Cross Cardiothoracic Critical Care Practitioner, Blackpool Hospital*

10:00 – 10:45 Tea and coffee

10:45 – 11:15 **The Court Room In Action.** Dr David Burrows-Sutcliffe, Solicitor.

11:15 – 11:45 **Documentation and Record Keeping.** Martine Tune, Professional Adviser, NMC

11:45 – 12:00 Paper 7. **Specialist Nurse Consenting in Thoracic Surgery: is it Satisfactory?** Devbhandari, M.; Hewitt, K.; Shah, R. South Manchester University Hospital, (UK)

12:00 – 12:15 Paper 8. **To Understand the Role of Nurse Practitioners as Non Medical Prescribers in a Cardiothoracic unit.** Sandeman, Daisy, Garden Sheila, Delaney James. Edinburgh Royal Infirmary, (UK)

12:15 – 12:30 Paper 9 **Clinical Decision Making by Cardiac Intensive Care Nurses in the First Two Hours Following Cardiac Surgery.** Nolan, E. Morrision Hospital, (UK)

Chairs *Mr Domenico Pagano, Consultant Cardiac Surgeon, UNCW & Mr Mario Hughes, Charge Nurse, South Tees Hospital, Middlesbrough*

12:30 – 13:30 Lunch

13:30 – 13:45 Paper 10. **Effect Of European Working Time Directive On Training And Outcome Following Coronary Artery Bypass Grafting.** *Bashir, M. ¹; Field, M. ²; Rashid, A. ²; Oo, A. ²* 1 UHB-Queen Elizabeth Hospital, (UK)

13:45 – 14:00 Paper 11 **Clinical Audit on Early Aspirin Administration Following Coronary Artery Bypass Surgery.** *Gukop, Philemon; Valencia, O.; Kuppuswamy, M.; Fincham, K.; Kourliouros, A.; Sarsam, M.; Chandrasekaran, V.* St George's Hospital, (UK)

14:00 – 14:15 Paper 12 **Risk Factors for Postoperative Pulmonary Complications Following Thoracic Surgery.** *Agostini, Paula ¹; Cieslik, H. ¹; Rathinam, S. ¹; Singh, S. ²; Rajesh, P.B. ¹; Steyn, R.S. ¹; Naidu, U.B.V. ¹*

14:30 – 15:45 Paper 13 **Variation in Current Physiotherapy Practice of Patients Undergoing Thoracic Surgery in the UK.** *Agostini, P. ¹; Dromard, S. ²; Singh, S. ³; Steyn, R.S. ¹; Naidu, U.B.V. ¹*
1 Birmingham Heartlands Hospital, (UK)

15:45 – 16:00 Paper 14 **Exploring the Impact of Lung Resection for Carcinoma on Health Related Quality of Life.**
Deacon, S.E.; Beggs, L.; Beggs, F.D.; Duffy, J.P.; Majweski, A.M.; Martin-Ucar, A.E. Nottingham University Hospitals NHS Trust, (UK)

14:00 – 14:15 Paper 15 **Diversity in the Surgical Care Practitioner Role – Reflection on the Experiences During Year One of Training.** *Halewood, Ann* South Tees - James Cook University Hospital, (UK); *Barran, N.* Teesside University, (UK)

Chairs *Mr John Dunning, Consultant Cardiac Surgeon, Papworth Hospital & Ms Julie Quigley, Alert team Leader, Papworth Hospital*

15:00 – 15:45 Tea and coffee

15:45 – 16:00 Paper 16. **Expectations of the long term Mechanical Ventilated Patient in ITU.** *Mace, Lisa* Bristol Heart Institute, (UK)

16:00 – 16:15 Paper 17 **Implementation of Care Bundles for the Insertion of Central Venous Catheters in Cardiac Theatres and Cardiac Intensive Care Unit.** *Kivi, S.* Morrilton Hospital, (UK)

16:15 – 16:30 Paper 18 **Prolonged Intensive Care Stay and Subsequent Psychological Distress – a Study in Cardiac Patients.** *Maura Screatton, Maura; Vuylsteke, A.; Sharples, L.* Papworth Hospital, (United Kingdom)

16:30 – 16:45 Paper 19 **Role of Intra-Gastric Balloon in Cardiac Surgery: 'An adjunct to Pre-Operative Optimization for Morbid Obesity'** *Sharkey, Annabel ¹; Mumbi, C. ¹; Bilal, H. ¹; Ackroyd, R. ²; Sarkar, P.K. ¹*
1 Northern General Hospital, (UK); 2Royal Hallamshire Hospital, (UK)

Chairs *Dr John Kendall Consultant Anaesthetist, Cardiothoracic Centre, Liverpool & Ms Georgina Aldous, Cardiothoracic Centre, Liverpool*

16:45 – 16:55 **Closing Remarks,** *Tara Bartley, Nursing Representative, SCTS*

17:00 – 18:00 **The Presidential Address,** *Mr Leslie Hamilton, President, SCTS*

Poster presentations will be displayed in the registration area.



DATABASE MANAGER'S DAY

Room 13

08.50 – 10.00 **PHILIPS CVIS (TOMCAT) Database Managers**

Room 13

Discussion Forum

Ms Tracey Smailes, Mr Philip Kimberley

10:45 - 12:30 **PHILIPS CVIS (TOMCAT) Database Managers**

Room 13

Ms Tracey Smailes, Mr Philip Kimberley

10:45 **Introduction to session** *Mr Ben Bridgewater, Wythenshawe.*

11:00 - 11:15 **Update from Data Group, Mr James Roxburgh, Guys and St Thomas'**
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11:15 020 **Has Microsoft© Left Risk Modelling In Cardiac and Thoracic Surgery Behind?**

M. Poullis; M. Pullan (Liverpool)

11:25 021 **A New Model for Performance Monitoring in Cardiac Surgery.**

J. Nowell; A. Kourliouros; O. Valencia; V. Chandrasekaran; M. Sarsam; E.E.J. Smith; R.K. Kanagasabay; M. Jahangiri (St Georges)

11:45 022 **The Development of a Web-Based Electronic Integrated Care Pathway for Adult Cardiac Surgery.**

P. Kimberley; H. Goodman; G. Cowell; B. Simkiene; O. Haskins; R. Trimlett; K. Farrow; R. Boldry; A. Morris; A. Anscombe (Brompton, London)

12:00 **Feedback from DBM managers discussion including action points,**
Philip Kimberley, Tracey Smailes.

12:20 215 **Database Managers Forum Update and close,** *Tracey Smailes*

12:30 **Lunch**



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March 7th - 9th 2010

Liverpool Arena & Convention Centre

ABSTRACTS

The Society would like to thank the following Session sponsors:

- 1) **CALS (Cardiac Advanced Life Support)**
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- 10) **St Jude**
- 11) **UK Medical**
- 12) **Vascutek**

001 A Recommended Technique for Skin Closure to Avoid the Application of Knots in Suture Materials.

Authors: Attaran, S.; Pullan, D.M.; Fabri, B.M.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: In post-operative clinics a common complaint of patients regarding a completely healed scar is irritation and swelling of the ends of the wound where knots are placed.

Suture materials used for skin closure usually dissolve after four to six weeks, for which direct contact with body tissue is required. Tightly applied knots prevent this process and delay dissolution of the suture, resulting in irritation, swelling, and sometimes protrusion of the knot out of the scar. We introduced a method of skin closure without the application of knots and observed the results after six weeks.

Methods: In 80 patients, skin scars on the chest, leg, or forearm were closed by two different techniques. Out of 186 healed scars (80 sternotomy, 62 radial site and 44 vein harvest site), 68 scars were closed without knot insertion. In this technique, the needle is inserted away from the corner; the suture is secured by making a square on the skin prior to the start of the closure and finishing the same way. Any irritation, redness, bulging, discharge, or protrusion of the suture material was documented in the post-operative clinic.

Results: In 42% (n=50) of scars with knot insertion, redness, swelling, irritation, and/or stitch protrusion were observed, and in 4% (n=5), the remaining part of the knot had to be removed in the clinic. In the other group without knot insertion, only 2% (n=3) showed redness or swelling.

Conclusion: This technique is easy to apply and can prevent additional discomfort that patients experience with their scars after cardiac surgery. It is a recommended skin closure method for junior doctors and surgical practitioners.



002 Improved Clinical Outcome Following Vein Harvesting Using Endoscopy Via Insertion of a High Vacuum Wound Drain - Results of a Randomised Pilot Study.

Authors: Krishnamoorthy, B.¹; Najam, O.¹; Jones, M.T.¹; Hooper, T.L.¹; Waterworth, P.D.¹; Fildes, J.²; Yonan, N.¹

¹University Hospital of South Manchester NHS Foundation Trust, United Kingdom;

²School of Translational Medicine, Faculty of Medical and Human Sciences, University of Manchester, United Kingdom

Objectives: Endoscopic harvesting (EVH) of the long saphenous vein (LSV) is a widely accepted technique used for coronary artery bypass grafting with well reported benefits. However, EVH can associate with severe haematoma, bruising; we hypothesised that the use of a leg wound drain at the endoscopic site may ameliorate this co morbidity.

Methods: 50 consecutive patients were prospectively randomised into two groups. Group1 consisted of 25 patients undergoing endoscopic LSV harvesting followed by closure with a size 10 high vacuum leg wound drain (20 kPa). Group 2 consisted of 25 patients undergoing endoscopic LSV harvesting followed by closure without a leg wound drain. All patients were assessed for post-operative pain, wound infections and satisfaction using validated scoring systems immediately following surgery and at 2, 4 and 6 weeks.

Results: Pain at rest ($p < 0.001$) and with movement ($p < 0.001$), incidence of haematoma ($p < 0.001$) and patient satisfaction ($p < 0.001$) were significantly improved in the drain group at day 1, week 2, week 4 following surgery. Interestingly, the use of antibiotics (4% vs 25%, $p = 0.049$) and the number of GP visits (0% vs 29%, $p = 0.008$) were lower in the drain group compared to the non-drain group. However, there were no differences between the two groups at week 6 following surgery.

Conclusion: Our findings indicate the use of a high vacuum leg drain following endoscopic harvesting for LSV is of clear therapeutic benefit in the early post operative period. We also report that this technique may reduce antibiotic administration and GP visits following patient discharge.

003 An Important New Angiogenic Growth Factor Brain Derived Neurotrophic Factor (BDNF) with Potential for Treatment of Ischaemic Heart Disease.

Authors: Whitlock, P.¹; Kermani, P.²; Hempstead, B.³

¹Royal Victoria Hospital Belfast, United Kingdom; ²Cornell University New York, United Kingdom; ³Cornell University New York, USA

Objectives: To show a potential role for Brain Derived Neurotrophic Factor (BDNF) in the treatment of ischaemia. The role of BDNF in cardiac development is well defined, its deficiency resulting in oedematous and vacuolated myocardium during development, with fatal consequences.

Methods: To assess the potential angiogenic activity of BDNF in ischaemic conditions, C57BL/6 mice were subjected to femoral artery ligation followed by administration of AdBDNF, AdVEGF121, AdNull, or PBS. Haemodynamic data were obtained pre and post-ligation, and on days 5, 9, 13, 16 and 21. Pre-operatively, the blood flow ratio (ischaemic/non-ischaemic) was 1, and post-ligation the flow ratio demonstrated significant ischaemia (ratio of 0.25). At week 1, blood flow to the ischaemic limb increased in all the groups due to the expression of endogenous angiogenic growth factors. However, at week 2 to week 3, animals injected with doses of 1010 pu of AdBDNF had improved blood flow (ratio of 0.6-0.9).

To directly compare the efficacy of BDNF and VEGF121, I applied the optimal dose to the mouse model where immunohistochemical analysis could be undertaken.

Results: Hemodynamic measurements in each group confirmed a statistically significant increase in the blood flow in the group of animals treated with either AdBDNF or AdVEGF121, compared to control groups treated with AdNull or PBS ($p = 0.001$). Interestingly at week 2 BDNF treated animals have a statistically significantly greater flow than VEGF treated animals ($p = 0.009$).

Conclusion: This shows that in the mouse hind limb ischaemia model, BDNF can produce a restoration of flow at 21 days equivalent to that achieved by treatment with VEGF121. Thus I have identified a novel angiogenic growth factor with potentially important clinical applications in the setting of the treatment of ischaemic heart disease.



004 Cardiac Tumours May Provide an Intriguing Insight into Cardiac Stem Cell Biology.

Authors: Barker, T.A.¹; Clarke, M.L.²; Evans, J.D.W.²; Rooney, S.J.³; Graham, T.R.³; Mascaro, J.G.³; Wilson, I.C.³; Frampton, J.²; Pagano, D.¹

¹University of Birmingham/Queen Elizabeth Hospital, United Kingdom; ²University of Birmingham, United Kingdom; ³Queen Elizabeth Hospital, United Kingdom

Objectives: The heart has long been considered a terminally differentiated organ but recently this concept has changed: Cardiac stem cells (CSC) have been shown to slowly replace dying myocytes. Unfortunately CSC are present in extremely small numbers within normal heart making research in this field difficult. We aimed to ascertain if CSC numbers were increased in cardiac tumours. This would provide information about tumour pathophysiology and establish whether cardiac tumours could provide an easier method of studying CSC.

Methods: A myxoma was excised from a female and comparisons made to non-tumour left atrial tissue taken from a female undergoing AF ablation surgery. Minced tumour or cardiac tissue were digested with collagenase. Cells were stained for side population (SP), one form of CSC, and also for stem cell surface markers (c-Kit/CD34/CD45). Following fluorescence activated cell sorting, purified subpopulations were cultured to assess whether these cells could be maintained in vitro.

Results: SP comprised 4.7% of the cells from the myxoma compared with 0.02% from non-tumour tissue. The myxoma also displayed a separate distinct CSC population (not present in non-tumour atrial tissue) that were c-Kit⁺. These were cardiac specific as they were negative for endothelial and haemopoietic markers (CD34/CD45). This second subpopulation was separate from the SP indicating that several CSC populations may be present in tumour tissue. The SP cells were successfully maintained in culture for 7 days.

Conclusion: Cardiac tumour tissue may provide a unique method of studying CSC by allowing access to large numbers of these cells. We show that myxoma tissue contains several potential CSC populations. Future characterisation of CSC isolated from myxomas, should provide insight into cardiac tumour pathophysiology. As the understanding of CSC biology and how these cells can be manipulated increases, cardiac regeneration may also become a viable treatment option in the future.

005 Treatment of Ischaemia is Improved Using Multiple Isoforms of Vascular Endothelial Growth Factor (VEGF).

Authors: Whitlock, P.¹; Hackett, N.²; Crystal, R.G.²

¹Royal Victoria Hospital Belfast, United Kingdom; ²Cornell University New York, USA

Objectives: VEGF has been used in trials for revascularisation coronary artery disease. However, only single cDNAs for the 121 and 165 isoforms have been used.

Methods: Three major VEGF isoforms with 121, 165 or 189 amino acids are produced following alternate splicing of the primary gene transcript. The mRNAs for all isoforms differ by the presence of various combinations of exons 6A and 7. VEGF isoforms differ in their effect on binding to the extracellular matrix and to secondary VEGF receptors. Tissues express the three major isoforms at different ratios; for example heart expresses relatively more of the 189 isoform. I show that a mixture of VEGF isoforms, is the most potent signal for angiogenesis. Successful angiogenesis may require an initial burst of VEGF121 to induce vascular permeability, with the angiogenic response more robust if VEGF189 is also present in a tissue reservoir from which it is slowly released by proteolytic action.

Results: I characterize the action of a new vector, AdVEGF-All, producing all the major VEGF isoforms. The AdVEGF-All vector was given by intramuscular injection, in a model of mouse hind limb ischaemia, involving excision of a 0.5cm portion of the external iliac artery. Assessment of blood flow recovery was then monitored up to 21 days using a Lisca PIM II laser doppler scanner. Initial post operative scans showed blood flow in the ischaemic limb to be 15% (mean) +/-5% (SD) of that in the contralateral non-ischaemic limb. This recovered to 95% (+/-5%) in AdVEGF-All treated animals by 21 days, compared with recovery to 40% (+/-5%) in control animals. It is have demonstrated that the AdVEGF-All vector continues to promote angiogenesis at 2 log doses lower than by treatment of ischaemic limbs using vectors expressing a single VEGF isoform.

Conclusion: I show angiogenesis is possible in vivo using a VEGF mini-gene which is expressed from a single gene therapy vector, and produces multiple isoforms of the same protein in an adaptable cell dependant manner.



006 Dexamethasone Arterializes Venous Endothelial Cells by Inducing MAP Kinase Phosphatase-1 (MKP-1). A Novel Anti-Inflammatory Treatment for Vein Grafts.

Authors: Zakkar, M.¹; Punjabi, RP²; Anderson, J.R.¹; Smith, PL.¹; Haskard, D.O.²; Evans, P²

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Objectives: Vein grafting in coronary artery surgery is complicated by a high restenosis rate due to the development of vascular inflammation, intimal hyperplasia and accelerated atherosclerosis. In contrast, arterial grafts are relatively resistant to these processes. Vascular inflammation is regulated by signalling intermediaries including p38 mitogen-activated protein (MAP) kinase, which trigger endothelial cell (EC) expression of chemokines (e.g. interleukin (IL)-8, monocyte chemoattractant protein (MCP-1) and other pro-inflammatory molecules. Here we have tested the hypothesis that p38 MAP kinase activation in response to arterial shear stress (flow) may occur more readily in venous EC, leading to greater pro-inflammatory activation.

Methods: Comparative reverse transcriptase (RT)-PCR and Western blotting revealed that arterial shear stress induced p38-dependent expression of MCP-1 and IL-8 in porcine jugular vein endothelial cells (PJVEC). In contrast, porcine aortic endothelial cells (PAEC) were protected from shear stress-induced expression of p38-dependent chemokines, due to rapid induction of MAP kinase phosphatase-1 (MKP-1) which is a negative regulator of p38.

Results: We observed using cultured PJVEC or perfused jugular veins that venous EC can be protected from the effects of arterial shear by brief treatment with dexamethasone, which induced MKP-1 to suppress pro-inflammatory activation.

Conclusion: Arterial but not venous EC are protected from pro-inflammatory activation in response to high shear stress by the induction of MKP-1. Dexamethasone pre-treatment arterializes venous EC by inducing MKP-1 and may protect veins from inflammation.

007 Epicardial Adipose Tissue Products Induce Atherogenic Changes in Coronary Artery Endothelial Cells.

Authors: Karastergiou, K.¹; Evans, I.²; Ogston, N.C.²; Kaski, J.C.¹; Mohamed-Ali, V.²; Jahangiri, M.¹

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Objectives: Adipokines represent a novel and causal link between adipose tissue and atherosclerosis. Epicardial adipose tissue (EAT) is increased in obesity and coronary artery disease (CAD), however, its role in CAD is poorly defined. We aimed to assess whether epicardial adipokines are altered in obesity/CAD and whether they are capable of inducing pathophysiological changes in the adjacent coronary arteries.

Methods: Thirteen proinflammatory cytokines were identified by a protein array as EAT products in a population of Caucasian, non-diabetic patients, with CAD (n=44) or without (control group, n=23), subdivided to those with BMI<27 kg.m² and BMI>27 kg.m². Of these, IL-6, IL-8, MCP-1, PAI-1, GRO β and MIF were abundantly secreted. On further investigation, release of adiponectin, an anti-inflammatory adipokine, was found to be suppressed in the presence of obesity and CAD, and release of RANTES, a pro-inflammatory adipokine increased in CAD.

Results: EAT-conditioned media from CAD patients with BMI>27 kg.m² significantly increased adhesion of monocytic THP-1 cells to human coronary artery endothelial cells by 15.1% (P=0.002). This effect was associated with increased ICAM-1 expression (by 2.8-fold, P=0.002) and was reversed upon addition of recombinant adiponectin (1500 ng/mL).

Conclusion: We have shown for the first time that the secretory profile of EAT is altered in the presence of both obesity and CAD and that it can induce atherogenic changes in human coronary artery endothelial cells.



008 Bone Marrow Resident and Circulating Progenitor Cells in Patients with Coronary Artery Disease Undergoing Surgical Revascularisation.

Authors: Dotsenko, O.¹; Xiao, Q.²; Xu, Q.²; Jahangiri, M.¹

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Objectives: Progenitor cells expressing CXCR4 could home to ischaemic tissues. Vascular trauma induced by surgical revascularisation mobilises progenitor cells. It is not clear whether mobilized progenitors are functionally active and could migrate to damaged tissues.

Methods: 76 patients undergoing elective CABG were studied. BM aspirates and blood samples were collected at baseline, at the end of surgery and 24 hours postoperatively (blood samples only). CD34+, CD34+CXCR4+ cell counts and CXCR4 expression on CD34+ cells were measured by flow cytometry. Clonogenic (haematopoietic colony-forming units [CFUs]) and in vitro migration abilities of resident BM and circulating cells were evaluated by methylcellulose and stromal derived factor 1-induced chemotaxis assays.

Results: At the end of surgery circulating CD34+ cell numbers and their in vitro migration and CFUs increased ($P=0.038$, $P<0.0001$, $P<0.0001$, respectively). Positive correlation between circulating progenitor counts and BM cell in vitro migration ($r=0.59$, $P=0.021$) was shown.

CD34+CXCR4+ subset increased in peripheral blood 24 hours after surgery ($P<0.0001$) and positively correlated with baseline BM cell counts ($r=0.34$, $P=0.039$). No significant changes in circulating progenitor cell migration and CFUs were detected 24 hours after surgery.

At 24 hours after surgery expression of CXCR4 on mobilized CD34+ cells increased ($P=0.05$) and was associated with CXCR4 expression on preoperative BM cells ($r=0.44$, $P=0.007$), duration of bypass ($r=0.53$, $P=0.006$), number of grafts ($r=0.36$, $P=0.041$) and postoperative hematocrit ($r=-0.38$, $R=0.021$).

In response to CABG, there was a rise in BM resident cells ($P=0.018$), whereas CXCR4 expression on BM cells significantly fell ($P<0.0001$), suggesting that CXCR4-expressing progenitors have been mobilised.

Conclusion: Coronary revascularisation has an impact on bone marrow resident progenitor cells, stimulating egress of functionally competent cells with potential of peripheral migration.

009 Pre-Flight Check List for Cardiac Surgery. 100,000 Lives Campaign. Has it Improved our Safety Record?

Authors: Efthymiou, C.A.; Papaspyrou, S.; O'Regan, D.J.

Yorkshire Heart Centre, United Kingdom

Objectives: Standards of medical health care must be improved. In 2006 the Institute for Healthcare Improvement launched a campaign to prevent 100000 hospital deaths, a goal which was achieved. The WHO ruled that a 'pre-flight' check list must be performed prior to commencing surgical intervention. Our unit is the first UK department to instigate these changes. Over one year all cardiac cases performed in the public and private sector were analysed using a 'pre and post flight' check list.

Methods: Since September 2008 all cardiac cases have been briefed and de-briefed. Compulsory attendance of all disciplines involved with the case was required. A safety check list was performed verifying essential patient data. Details of the procedure were then briefed followed by written confirmation of antibiotic prophylaxis, special precautions and correct positioning, debrief was performed at the end of every operation and a plan for transition of post-op care was formulated. All concerns and complications were recorded. Severe and frequently recorded complications were reported using the trust clinical incidence reporting system.

Results: Analysis of 184 cases revealed that only 23% of procedures were performed with out complications. In 32% of procedures multiple complications were recorded. Equipment failure (45.7%), communication (13.5%) and anaesthetic complications (11.8%) were most frequently reported. Sub group analysis revealed that adverse events were significantly less frequent in the private sector and a significant reduction in complications occurred a year after the implementation of the check list.

Conclusion: Despite stringent analysis of cardiac surgery a complication arose in 77% of operations. The implementation of a pre and post flight check list has led to a significant reduction in errors and adverse effects. This has resulted in safer and more efficient operations reducing critical incidences and allowing the efficient auditing of intra-operative events.



010 The UK Experience of Pulmonary Endarterectomy Surgery, a Report of the First 500 Patients.

Authors: Berman, M.¹; Dunning, J.¹; Tsui, S.¹; Arrowsmith, J.²; Hall, R.²; Klein, A. A.²; Kneeshaw, J.²; Sheares, K.³; Pepke-Zaba, J.³; Jenkins, D.P.¹

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Objectives: Pulmonary endarterectomy (PTE) is the treatment of choice for patients with chronic thromboembolic pulmonary hypertension (CTEPH). In 2000, a single centre was commissioned to provide this service for UK patients to concentrate experience and optimize outcome by accelerating the learning curve for a complex procedure. At the same time specific PH centers were designated. We review the first 500 national patients. This experience represents the third largest world series of PTE operations.

Methods: Patients were discussed in a multi disciplinary meeting and all patient details were prospectively entered into a comprehensive database. Analysis was retrospective.

Results: Between January 2000 and November 2009, 500 PTE operations were performed in a single hospital. The number of procedures increased from 22 in 2000, to 80 in 2008. Median age of patients was 59 years (17 to 81). All patients underwent PTE with hypothermic bypass at 20°C. Mean in-hospital stay was 24 days. Eleven patients had sarcoma in the pulmonary artery rather than CTEPH, and 5 had other pathology. Concomitant procedures were performed in 45 patients. Two patients underwent Redo PTE. Twelve patients were supported by ECMO in the immediate postoperative period. In hospital mortality was 12% for the whole series, with 49 (19.6%) deaths in the first 250 patients and only 12 in the second (4.8%).

Conclusion: Concentration of resources and experience has allowed institutional learning to dramatically improve results. More patients are benefiting from PTE surgery in the UK.

011 Should Lung Resection Patients with COPD and/or Over the Age of 75 Receive Prophylactic Minitracheostomy?

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Objectives: Prophylactic minitracheostomy (PM) reduces postoperative pulmonary complications (PPC). The objective of this study was to determine independent factors associated with the need for rescue minitracheostomy (RM) in order to determine benefit of PM.

Methods: Data was collected prospectively regarding MT insertion, PPC, length of stay (LOS) and HDU admission on lung resection patients. Univariate analysis was used to test differences in outcome, and binary logistic regression to determine independent risk factors associated with RM and PM (p<0.05).

Results: 271 consecutive patients [150 males (55%), mean age 65 (±12) years and mean FEV1 77% (±19)] underwent lung resection. 44 underwent MT (16%) of which 24 had PM, based on the surgeon's peri-operative clinical assessment, and 21 had RM following postoperative sputum retention. Age >75 years (OR 2.9, CI 1.0 - 9.0) and COPD (OR 4.1, CI 1.2 - 13.3) were independently associated with need for RM on multivariate analysis, and characterised 75% of the RM group.

There was a significantly increased length of stay (LOS), HDU stay, and rate of PPC in the RM group compared to PM patients and those not requiring MT (p<0.05). Age >75 years (OR 4.6 CI 1.7 - 12.3) and COPD (OR 3.7 CI 1.3 - 10.5) were also independently associated with PM. If all COPD patients and/or those over the age of 75 (n=95) received PM, 75% of RM (n=15) could have been avoided in this patient population. Only minor complications of MT were noted in 2 patients (surgical emphysema, hoarseness of voice).

Conclusion: Age >75 years and COPD were independently associated with the need for minitracheostomy. Rescue mini-tracheostomy is associated with significantly worse outcome but prophylactic minitracheostomy in high risk patients has been shown to improve outcome. In our study, if all patients >75 years and/or with COPD received a prophylactic minitracheostomy 6 would have been performed to prevent 1 rescue minitracheostomy.

012 Intravenous Omega-3 Pre-Operatively Attenuates the Systemic Inflammatory Response Following Paediatric Cardiac Surgery.

Authors: Keenan, N.; McGuinness, J.; McLoughlin, D.; Byrne, J.S.; Redmond, J.M.

Royal College of Surgeons in Ireland, Ireland

Objectives: Cardiac surgery induces a significant systemic inflammatory response (SIR), which can lead to multiple organ dysfunction (MOD) post-operatively. Omega-3 fatty acids have been shown to have beneficial immunomodulatory effects. We aimed to determine if pre-operative infusion of omega-3 could attenuate the SIR, and the subsequently induced early organ dysfunction following paediatric cardiac surgery.

Methods: We used a juvenile piglet model of cardiopulmonary bypass and deep hypothermic circulatory arrest followed by a 24hr recovery period. Five animals received two 4hr infusions of omega-3 pre-operatively; five received normal saline infusions serving as controls. Results are reported as mean \pm standard error of mean, analysis was with repeated measures ANOVA.

Results: Omega-3 pre-treatment resulted in a significant attenuation of the SIR. This was seen as a reduction in the level of the pro-inflammatory cytokines IL-8 at two hours (controls: 183.7 \pm 32.7; omega-3: 67.9 \pm 19.7; $p=0.016$), and an increase in the anti-inflammatory cytokine IL-10 over the 24hour period (group effect: $p=0.017$). In addition, a decrease in the level of leukotriene B4, a pro-inflammatory eicosanoid, was observed at all time points over the 24 hour period (group effect: $p<0.0001$).

Although trends towards an improvement in measured clinical parameters of hemodynamic, cardiac, pulmonary and renal function were observed, these differences were not statistically significant. However, an increase in cerebral regional oxygen saturations, as measured by near infrared spectroscopy (NIRS), was observed in the omega-3 group (group effect: $p=0.05$).

Conclusion: We demonstrated significant beneficial immunomodulation with a pre-operative infusion of omega-3 fatty acids. Although a statistically significant improvement in clinical parameters was not demonstrated in this study, further work may lead to the translation of this immunomodulation into definite clinical benefit.

013 GRACE Score as Novel Triage Strategy for CABG Following ACS.

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Objectives: Patients referred for coronary artery bypass grafting (CABG) post-Acute Coronary Syndrome (ACS) endure prolonged wait due to resource constraints. Any delay not only increases the risk of major adverse cardiovascular events (MACE) but also drains resources. A novel triaging tool to manage such patients based on their MACE risk is needed: the Global Registry of Acute Coronary Events (GRACE) score may be ideally suited. We evaluated the feasibility of GRACE score as a triage tool focussing on its impact on surgical waiting times & pre-CABG MACE rate.

Methods: 51/238 consecutive ACS patients referred for CABG over 3 months in 2008 were enrolled with prospective data collection. GRACE score calculated instantly following angiogram categorized patients into low (LR), medium (MR) and high risk (HR) groups for in-hospital death. HR patients remained inpatient (IP) until CABG, MR patients were discharged with surgical outpatients (OP) review within 2 weeks and LR patients were referred as routine elective OP.

Results: 6 were patients excluded due to protocol breach or surgery refusal. The cohort's mean age was 67 years, 9% had unstable angina, 13% ST Elevation Myocardial Infarction (STEMI) and 78% Non-STEMI. As per the GRACE score 47% (21/45) were HR, 49% (22/45) MR & 2% (2/45) LR. 19/21 HR patients had IP surgery with mean wait of 14 days. Despite 12/22 MR patients having IP surgery, the mean wait for the group was 46 days. 1/2 LR patients had IP surgery in 5 days while the OP waited for 17 days. Before using GRACE triage our mean waiting times for CABG were 17 days for IP and 159 days for OP. Pre-CABG MACE was not observed in MR or LR groups. 3 HR patients had a non-fatal MI linked with preop antiplatelet withdrawal.

Conclusion: Approximately half the ACS patients can be discharged safely for early elective surgery thus releasing vital resources for urgent cases. GRACE score as a novel triage tool is safe, user-friendly and effective in reducing surgical wait.



014 The Effect of Ex-Vivo Perfusion on the Inflammatory Cytokine Profile of the Donor Lung.

Authors: Karamanou, D.M.¹; Walden, H.R.¹; Bean, S.²; Pauli, H.²; Clark, S.²; Simpson, A.J.³; Corris, P.A.¹; Fisher, A.J.¹; Dark, J.H.¹

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Objectives: Ex-vivo lung perfusion (EVLP) may allow reconditioning of borderline donor lungs prior to transplantation. Although studies have demonstrated an improvement in physiological function, the effect of EVLP on lung inflammation is not yet established. We hypothesised that EVLP might contribute to reconditioning by decreasing pro-inflammatory cytokine levels in the donor lung.

Methods: Five human donor lungs, deemed clinically unacceptable for transplantation were studied. Three underwent cellular and two acellular normothermic ex-vivo perfusion for 6 hours. Circulating perfusate was sampled hourly and a standardised bronchoalveolar lavage (BAL) was performed before and after 6 hours perfusion. Concentrations of IL-6, IL-8 and IL-10 were measured in BAL and perfusate using a sandwich ELISA technique.

Results: The concentrations of IL-6, IL-8 and IL-10 in the perfusate increased significantly in a time dependent manner between 1 and 6 hours after perfusion was commenced (IL-6 13-fold, $p=0.0062$; IL-8 33-fold, $p=0.0012$; IL-10 2-fold, $p=0.0068$). Assessment of BAL showed no statistically significant changes in cytokine concentrations before or after EVLP, however BAL IL-8 concentrations showed a decreasing trend after perfusion (49.6ng/ml pre-perfusion and 34.3ng/ml post-perfusion $p>0.05$). IL-10 and IL-6 were not detectable in the pre-perfusion BAL samples but became detectable post-perfusion only in the acellularly perfused lungs.

Conclusion: EVLP in clinically unacceptable donor lungs is associated with increases in pro-inflammatory and anti-inflammatory cytokines in the perfusate fluid over time. This effect may be attributable to a cytokine 'wash-out' from the lung into the perfusate fluid (Steen Solution, Vitrolife). The trends in BAL of increasing anti-inflammatory IL-10 and decreasing pro-inflammatory IL-8 cytokine concentrations, require further evaluation in more donors but may prove beneficial in improving donor lung function after transplantation.

015 A Multi-Modal National Approach for Selection of Trainees into Cardiothoracic Surgery.

Authors: Aggarwal, R.¹; Miles, K.¹; Ahmed, K.¹; Arora, S.¹; Lewis, T.¹; Sugden, C.¹; Darzi, A.¹; Barnard, S.²; Hunter, S.³; Pepper, J.⁴

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Objectives: Selection into surgical training programs has historically relied upon short-listing of application forms, followed by candidate performance at interview. This approach has been criticised, especially for the lack of clinically-grounded and objective assessment strategies. The aim of this study was to design, develop and implement a multi-modal national approach to assessment for selection into a surgical specialty.

Methods: Forty-seven aspiring cardiothoracic surgeons underwent a three-day national selection exercise. This consisted of marks derived from their structured application form, interview performance, audit presentation and a three station bench-top technical skills assessment. The latter involved knot tying, venous dissection and endoscopic skills tests on synthetic models. All technical skills stations were marked by two live observers, followed by post-hoc blinded scores utilising motion analysis, video-based assessment and virtual reality respectively.

Results: Sixteen subjects were appointed, and were significantly superior to those not appointed on their original application form (180 vs 136, $p<0.001$), interview (178 vs. 164, $p=0.002$) and presentation (214 vs. 162, $p<0.001$). In terms of technical skills, those appointed achieved significantly greater scores for knot tying (41 vs. 34, $p=0.008$) and venous dissection (41 vs. 34, $p=0.008$), though not for endoscopic skills (49.5 vs. 45, $p=0.053$). Blinded post-hoc ratings of technical skills stations revealed significant correlations to live assessments for all three stations.

Conclusion: Multi-modal assessment of skills for entry into a national cardiothoracic surgical training program is feasible in a three-day selection exercise. Live technical skill ratings are appropriate and do not suffer from observer bias. This selection methodology may be appropriate for other surgical specialties, though ultimate validation of this approach will derive from longitudinal follow-up of subjects.



016 Transcatheter Aortic Valve Implantation in Patients after Previous Coronary Artery Bypass Grafting: Feasibility and Outcome.

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Objectives: Patients with aortic stenosis (AS) who have undergone previous CABG represent a potentially high risk group for aortic valve replacement (AVR). Transcatheter Aortic Valve Implantation (TAVI) is a new and innovative treatment for high risk patients with aortic stenosis (AS) and can be performed through a transapical (TA) or transfemoral (TF) approach. We present our experience with TAVI in patients with AS who previously underwent CABG.

Methods: A total of 158 patients underwent TAVI using the Edwards Lifesciences Sapien™ valve in our institution, of which 35 patients (22%) had undergone CABG previously. All patients were discussed in a multidisciplinary meeting and the decision for TAVI was based on high predictive risk for AVR. Patients with poor vascular access were considered for the TA approach.

Results: Mean age was 80±6y and 37% were female (n=13). The TA approach was used in 23 patients (66%) and TF in 12 patients (34%). Mean logistic EuroSCORE was 32.5±18 and STS score 8.2±0.4. The mean ejection fraction was 42±12%, valve area 0.6±0.2cm² and peak gradient 63±21mmHg. All procedures were performed under general anaesthesia. Valve sizes used were 23mm (n=9, 26%) and 26mm (n=26, 74%).

Procedural success was achieved in all patients (100%). Post procedural mean and peak gradients were 6 and 15mmHg respectively. None of the patients had ≥ Grade 2 AR at discharge. Postoperative complications were stroke (1/35), renal failure requiring dialysis (2/35) and persistent AV block (1/35). The overall 30 day mortality was 14% (5/35).

Conclusion: TAVI is a feasible approach in the treatment of aortic stenosis in this subgroup of patients with excellent short term results. This modality may be of specific benefit in high risk elderly patients requiring redo surgical intervention for AS but in the future it may also become an option for lower risk patients with patent grafts.

017 Transcatheter Aortic Valve Implantation for High Risk Aortic Valve Stenosis. A Viable Alternative to Conventional Surgery?

Authors: Calvert, P.A.¹; Ozdemir, B.A.²; Sudarshan, C.²; Tsui, S.²; Dunning, J.²; Rafiq, I.²; Watson, W.¹; Klein, A.A.²; Shapiro, L.M.²; Densem, C.G.²

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Objectives: The objective is to determine the outcome of all high risk patients with severe aortic valve stenosis referred to the Transcatheter Aortic Valve Implantation (TAVI) multi-disciplinary team (MDT) for TAVI.

Methods: All patients (n=111) referred to the MDT for TAVI were prospectively enrolled and followed up for outcome. Results are median (interquartile range) unless stated.

Results: Patients (n=26) awaiting treatment/final MDT decision were excluded. 19 patients were treated by TAVI (7 transfemoral, 12 transapical), 27 by conventional surgical AVR (csAVR), 9 with balloon valvuloplasty (BAV) and 30 medically. There were no differences in baseline characteristics (except an excess of prior CABG surgery in the TAVI group vs. csAVR (15/19 vs. 3/27; p<0.001)) nor in logistic EuroSCORE (ES): TAVI: 18.5% (8.4-25.3%); csAVR: 12.1% (7.5-27.1%); BAV: 30.0% (12.8-39.0%); medical: 20.4% (10.6-40.0%); p=0.35. Thirty day mortalities were: TAVI: 0/17; csAVR: 1/25; BAV: 1/9; medical: 8/30. Adjusting for ES, the observed/expected 30 day mortality indices were: TAVI: 0; csAVR: 0.33; BAV: 0.37; medical: 1.31.

Valve replacement patients (TAVI & csAVR) had a lower 30 day mortality than palliative treatment patients (BAV & medical): 2.38% vs. 25.6%, p = 0.003. This survival benefit persisted upon medium term follow up (400 days, log rank p<0.001).

TAVI patients had shorter tracheal intubation than csAVR patients: 2.1 (1.9-5.8) hours vs. 11.9 (8.6-20.1) hours, p<0.001. TAVI patients had shorter ICU stays than csAVR patients: 0.97 (0.72-1.16) days vs. 1.23 (0.95-3.55) days, p=0.046; and shorter hospital stays than csAVR patients: 7.0 (5.0-8.3) days vs. 9.0 (6.3-17.3) days, p=0.016.

Conclusion: MDT assessment of high risk patients with severe aortic valve stenosis combined with multi-modality treatment options results in lower than predicted mortality. Patients selected for TAVI have shorter ICU and hospital stays than patients selected for csAVR despite equivalent co-morbidities.

018 Cardiac Surgery in Octogenarians is Associated with Acceptable Mortality and Above Average Quality of Life.

Authors: Dandekar, U.; Rogers, V.; Howell, N.; Bonser, R.; Graham, T.; Mascaro, J.; Rooney, S.; Wilson, I.; Pagano, D.

University Hospital Birmingham, United Kingdom

Objectives: Increasing numbers of elderly patients are undergoing surgery for advanced cardiac disease. Although operative mortality in this group is improving, quality of life is becoming an important measure of surgical outcome. We aimed to quantify the quality of life of octogenarians undergoing cardiac surgery at our institution.

Methods: Prospectively collected data for patients aged 80 and above who underwent cardiac surgery in our institution between 1.1.02-31.12.07 were analysed. Late survival data was obtained from the Office of National Statistics. The SF36 questionnaire was used to assess quality of life and a single value for Quality of Well Being Index (QWB) was calculated using the Fryback regression equation.

Results: 201 patients were identified with a mean age of 82.14 ± 1.94 years. There were 13 in hospital deaths (6.5%). The predicted in-hospital mortality based upon the logistic EuroSCORE was 14.6%. The observed versus predicted mortality for patients undergoing isolated CABG was 5.5% vs. 9.5% for valve procedures 1.7% vs. 13.7%; for combined CABG and valve procedures was 11% vs. 19.6%.

There were 38 late deaths, median follow up was 37 months (IQR range 27-49). Quality of life data was obtained for 104/150 remaining patients. 71 (67%) patients had a QWB > 0.6 which is associated with above average quality of life. There was no difference in QWB scores between patients undergoing CABG (0.6964 ± 0.0935) valve procedures (0.66 ± 0.0926) combined procedures (0.6624 ± 0.0858) or other (0.6802 ± 0.0165) $p=0.008$.

Conclusion: In a carefully selected cohort of octogenarians, cardiac surgery can be performed with acceptable in-hospital mortality and late survival and is associated with above average quality of life.

019 Early and Late Outcome after Aortic Valve Replacement in 96 Consecutive Patients with Previous Coronary Artery Bypass Grafting and Patent Grafts.

Authors: Pousios, D.; Vohra, H.; Barlow, C.W.; Haw, M.P.; Livesey, S.A.; Ohri, S.K.; Tsang, G.M.

Southampton General Hospital, United Kingdom

Objectives: We set out to study the early and late outcome in patients undergoing aortic valve replacement (AVR) with previous coronary artery bypass grafting (CABG) plus patent grafts.

Methods: Between January 2001 and October 2009, 96 patients (80 male) with previous CABG (79 patients) \pm concomitant surgery and patent grafts underwent AVR. The median age of the patients was 75 years (37-90) and the mean logistic EuroSCORE was 25.56 ± 1.77 . Median time since the previous operation was 9 years (1-25). The left internal mammary artery (LIMA) had been used in 68 patients (70.8%) and remained patent in 67 cases (98.5%).

Results: In-hospital mortality was 8.3% (n=8) less than predicted by either mean EuroSCORE or mean logistic EuroSCORE. Isolated AVR was performed in 59 patients (61.45%). The LIMA was dissected and isolated (clamped or blocked with balloon) in 58 patients. The median hospital stay was 10 days (0-183). Seventeen patients (17.7%) had pulmonary complications, while 12 patients (13.6%) had deterioration of renal function.

Seven patients (7.3%) required permanent pacemaker. Six LIMAs were injured and repaired. On multivariate analysis, cardio-pulmonary bypass ($p=0.03$) and aortic cross-clamp time ($p=0.02$) were identified as independent predictors of hospital mortality. Actuarial survival at 1 year was 86.6 ± 0.04 % and at 5 years was 72.7 ± 0.06 %.

Conclusion: AVR following CABG with patent grafts can be performed with excellent early and late outcome. Medium term mortality could compare to results achieved and published for catheter-based approaches. Open surgery for redo aortic valve replacement should still be considered the standard even in this group of high risk patients.



020 Has Microsoft® Left Risk Modelling In Cardiac and Thoracic Surgery Behind?

Authors: Poullis, M.; Pullan, M.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: To develop a risk prediction tool in cardiac and thoracic surgery, based on Microsoft technology. The Parsonnet, EuroSCORE, and Southern Thoracic Society (STS) risk models all have limitations and require periodic updating. Since the introduction of the STS and CCAD adult cardiac surgery databases over one million cardiac operation procedures have been logged. The best predictor of what will happen in the future is what has happened in the past. By matching a given patient's risk factors with previous patients undergoing a given procedure it is possible to estimate a patient's risk of mortality and morbidity, with confidence intervals.

Methods: Using Microsoft Structured Query Language (SQL), active server pages and the techniques of interpolation and stratification, mortality and morbidity with confidence intervals can be calculated.

Results: Advantages over current risk models: No modelling or estimations, Automatically updates as cases are continually added so does not require updating, Medico legal record that appropriate risk assessment has been carried out, Predict who potentially will have a long length of stay, chance of a short length of stay, permanent stroke, prolonged ventilation, deep sternal wound infection, renal failure, reoperation for bleeding, Predict poor one, three and five year survival, Adding or removal of risk factors is easy and involves no remodelling, Unit benchmarking by matched case selection with national / international data, and It is a very cheap solution to an ongoing problem.

Conclusion: Embracing information technology may enable a better, cheaper and more versatile risk assessment system to be introduced. Limitations exist in any system. This potentially new technique still needs clinical judgement in its use. The same principles of using SQL to analyse a surgical database, such as the European Thoracic Surgery database, to calculate a patient's risk of death and complications can be easily transferred to thoracic surgery.

021 A New Model for Performance Monitoring in Cardiac Surgery.

Authors: Nowell, J.; Kourliouros, A.; Valencia, O.; Chandrasekaran, V.; Sarsam, M.; Smith, E.E.J.; Kanagasabay, R.K.; Jahangiri, M.

St George's Hospital, United Kingdom

Objectives: Performance monitoring is widely used in cardiac surgery. Assessment of outcomes at arbitrary timeframes may interfere with accurate and timely detection of deviations from acceptable performance. We present a novel but simple and tool for continuous monitoring of mortality following cardiac surgery.

Methods: Data was prospectively collected from 5722 patients undergoing cardiac surgery in a single unit between 2002 and 2007. The outcome of interest, which was in-hospital mortality, was examined in continuous 'runs' of 100 consecutive operations, so that 'run 1' contained cases 1 to 100, 'run 2' contained 2 to 101, etc. The cumulative distribution of mortalities per run was developed according to Poisson distribution and compared to normal and binomial distributions. Mean and standard deviations (SD) were identified with appropriate control borders. Cumulative performance is displayed graphically.

Results: Overall mortality was 2.8% (95% CI 2.4 to 3.3). The distribution arising from our model closely approximated normal, binomial and Poisson distributions. The mean number of mortalities per run was 3. Six deaths per run corresponded to >0.95 (+2SD) for cumulative distribution function and <0.05 for probability function. Four mortalities corresponded to 1 SD above the mean and was set as 'alert', whereas 5 mortalities indicated 'alarm'.

Conclusion: We have developed a simple model for performance monitoring in cardiac surgery based on rolling runs of consecutive cases. Graphical application of this model allows for ongoing recognition of deviations from acceptable institutional standards of performance.



022 The Development of a Web-Based Electronic Integrated Care Pathway for Adult Cardiac Surgery.

Authors: Kimberley, P.¹; Goodman, H.¹; Cowell, G.¹; Simkiene, B.²; Haskins, O.²; Trimlett, R.¹; Farrow, K.¹; Boldry, R.¹; Morris, A.¹; Anscombe, A.¹

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Objectives: In the 2008 NCEPOD report, "Heart of the Matter", 34 out of 49 centres used Integrated Care Pathways (ICPs) to document the care they give to patients, but these were paper based. The aim of this project was to collect ICP data electronically, producing an electronic patient record (EPR) documenting the care patient's have received, and its outcomes.

Methods: ICPs have been in development at the Royal Brompton Hospital for the last four years, and a dedicated ICP team are responsible for liaising with various staff to facilitate their design within clinical specialties. ICPs are firstly written and piloted in a paper version, in the last year Clinical Audit have developed and built a modular electronic web database within the Dendrite Intellect software based on the paper template, to collect data in real-time on the wards, from first referral to post-discharge.

Results: This allows data to be collected from Fit for Surgery assessments through to post-operative care, including the recording of MDTs. Modules include those for both nursing care where variations from normal practice can be documented and measured, and those to enable surgeons to document daily ward rounds, each module produces a document that is published into the Trust's EPR as a permanent record of the care. Pre-operative data capture is maximised by feeding data such as EuroSCORE fields directly into the SCTS audit database. By ensuring that all questions that are collecting the same data ask for it in the same way data only needs to be entered once in order for it to pass electronically through to other modules.

Conclusion: This is a new and innovative way of using current technology to solve the difficult problem of collecting ICP and audit data concurrently in a clear and logical way where care can be measured against stated goals and time-lines, where the products such a clinical documents are published in the patient's EPR, and data can be shared between specialties and systems.

023 A Randomised Prospective Study Comparing Three Different Vein Harvesting Techniques in the Donor Leg for Coronary Artery Bypass Grafting.

Authors: Krishnamoorthy, B.¹; Khan, U.A.¹; Al-Janabi, S.¹; Jones, M.T.¹; Hooper, T.L.¹; Waterworth, P.D.¹; Fildes, J.²; Yonan, N.¹

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Objectives: The use of continuous skin incision (or total open technique, TOT) for saphenous vein harvesting (SVH) is associated with wound complications and delayed patient mobilisation. This has led to the development of less invasive techniques, such as standard bridging and endoscopic SVH (EVH), both of which are now validated and commonly used internationally. Yet there still remains confusion as to which technique offers the best therapeutic benefit. This randomised trial was established to assess clinical outcome and patient satisfaction in our centre.

Methods: 150 consecutive patients were prospectively randomised into 3 groups. Group 1 consisted of 50 patients who underwent continuous skin incision, Group 2 consisted of 50 patients who underwent the bridging technique and group 3 consisted of 50 patients who underwent endoscopic vein harvesting. Each group was assessed for the number of vein repairs, incidence of wound infection, post operative pain and satisfaction using previously validated scoring systems.

Results: There were significant differences in the number of vein repairs between groups (0% in TOT, 18% in bridging and 36% in EVH, $p=0.04$). However, in all other categories, outcome was better in EVH, then bridging, then TOT. These included wound exudates ($p<0.001$), total hospital stay ($P<0.017$), number of GP visits following hospital discharge ($p<0.049$), overall patient satisfaction ($p<0.001$) and less pain at rest ($P<0.001$) and with movement ($p<0.001$). Overall appearance of the wound was determined via Vancouver & Hollander scale and again EVH was ranked highest followed by bridging ($p<0.001$).

Conclusion: Less invasive techniques are associated with improved therapeutic outcome following SVH, in comparison to TOT. However, the former techniques resulted in increased damage to the vein graft. Clearly, long term follow up of these patients would be advantageous, to ensure vein integrity is preserved.

024 Thoracic Epidural Anaesthesia Improves Early Outcomes in Patients Undergoing OPCAB Surgery: A Prospective Randomised Controlled Trial.

Authors: Caputo, M.¹; Alwair, H.²; Rogers, C.²; Cohen, A.²; Monk, C.²; Tomkins, S.²; Ryder, I.²; Moscariello, C.³; Lucchetti, V.³; Angelini, G.D.²

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Objectives: The use of epidural anaesthesia in coronary artery bypass surgery remained controversial. The aim of this randomised controlled trial was, to evaluate the impact of this technique on early clinical outcomes in patients undergoing off-pump coronary artery bypass (OPCAB) surgery.

Methods: Two hundred and twenty-six patients (204 (90%) male, mean age 65.7 years (SD 8.7)) undergoing OPCAB surgery were randomised to receive either general anaesthesia plus epidural (GAE) (n=109) or general anaesthesia only (GA) (n=117). The primary outcome was length of postoperative hospital stay. Secondary outcomes were: new arrhythmia, requirements for inotropic or vasodilator support, blood loss and transfusion requirement, intubation time, perioperative myocardial infarction, chest or wound infection, neurological events, intensive care stay, pain scores and analgesia requirement.

Results: Baseline characteristics were similar in the two groups. One patient died in the GAE group. Median postoperative stay was significantly reduced by one day in the GAE compared to the GA group [5 days, IQR [4 to 6] versus 6 days, IQR [5 to 7, p=0.01]. The incidence of new arrhythmias and the median intubation time were both significantly lower in the GAE compared with the GA group (OR =0.41, 95% CI [0.22 to 0.78], p=0.01 and HR 1.73, 95% CI [1.31 to 2.27], p<0.001 respectively).

Patients in the GAE group were 2.5 times more likely to need vasoconstrictors intra-operatively (OR=2.50, 95% CI [1.22, 5.12], p=0.01). The GAE compared with the GA group reported significantly lower levels of impairment/pain for all six domains of mobility, sedation, pain, upper limb motor, lower limb motor and vomit and reduced morphine usage (OR 0.07, 95% CI [0.03, 0.17], p<0.001).

Conclusion: Thoracic epidural anaesthesia significantly reduces the incidence of post-operative arrhythmias, improves pain control and overall quality of recovery, allowing earlier tracheal extubation and hospital discharge.

025 Left Main Coronary Artery Stenosis Following Percutaneous Intervention Of Left Sided Coronary Vessels.

Authors: Poullis, M.; Ghotkar, S.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: To evaluate the incidence of left main coronary artery stenosis (LMS) after percutaneous intervention (PCI) of left sided coronary arteries, with no evidence of LMS at the time of the original angioplasty.

Methods: We retrospectively queried a prospective validated cardiac surgery database of 17,887 patients, that recorded the presence of LMS, previous angioplasty, and the date of the angioplasty. Previously normality, via angiogram or notes, of the left main stem was verified prior to inclusion in this study.

Results: Between April 1998 and March 2007, 14237 PCI procedures were carried out at our centre. Of these, 51 (0.36%) patients with a history of PCI to left sided coronary arteries developed LMS and underwent coronary artery bypass graft surgery (CABG) at our centre. Out of these 51 patients, 11 (22%) developed symptoms within 6 months of PCI, and 27 patients developed recurrent symptoms within 12 months of PCI intervention. In these patients angina was the commonest presenting symptom (80%) leading to CABG, 8 patients (16%) presented with dyspnoea on exertion and 3 (6%) had a myocardial infarction.

Conclusion: We attribute the development of stenosis in the left main coronary artery early after PCI to mechanical injury to the arterial intima by the catheters and guide wires leading to LMS stenosis. Left main coronary artery stenosis is a very rare but important complication following PCI to left coronary arteries. Early recurrence of symptoms following a PCI to left coronary artery may indicate development of left main coronary artery stenosis and may mandate early investigation and intervention.



026 Does Off-Pump Coronary Artery Revascularisation Improve Long-Term Survival in Patients with Left Ventricular Dysfunction?

Authors: Attaran, S.; Shaw, M.; Bond, L.; Pullan, D.M.; Fabri, B.M.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Coronary artery revascularisation with cardiopulmonary bypass (ONCAB) has been reported to carry several risks for patients with poor left ventricular function (ejection fraction <30%). Off-pump CABG (OPCAB) has been proposed to result in a better outcome, but mid- and long-term survival rates have never been compared. The aim of this study is to assess the effect of cardiopulmonary bypass on this group of patients.

Methods: In a ten-year period, a total of 979 patients with poor left ventricular function undergoing isolated first-time CABG were studied. They were divided into two groups, the ONCAB group, with 561 patients, and the OPCAB group, with 431 patients. The EuroSCORE was significantly higher in the OPCAB group than in the ONCAB group ($p=0.02$). After adjusting for the pre-operative characteristics, post-operative complications, in-hospital mortality, mid-term survival rate (5 years), and long-term survival rate (10 years) were compared.

Results: The average number of grafts was 3.1 in the OPCAB group and 3.8 in the ONCAB group ($p<0.001$). Post-operative complications, such as AF (29%), renal failure (9%), stroke (1.9%), and infection (6.2%), were comparable between groups. Length of ICU stay and hospital stay, as well as ventilation time, were considerably shorter in the OPCAB group (p value <0.05). In-hospital mortality was higher in ONCAB compared to OPCAB (7% vs. 5.3%), but this difference did not reach statistical significance (p value = 0.28). Likewise, mid-term and long-term survival rates were similar even with matched pre-operative characteristics (Tab.).

Conclusion: Despite the reported benefits of OPCAB, it does not influence in-hospital mortality, mid-term or long-term survival in patients with LV dysfunction. With adequate myocardial protection in ONCAB and complete revascularisation in OPCAB, similar results are achievable.

	OPCAB (n=418)	ONCAB (n=561)	P value
30 Day Survival %(n)	94.7 (396)	93 (522)	0.28
5 Year Survival %(n)	75.4 (315)	76.5 (429)	0.69
10 Year Survival %(n)	71.8 (300)	69.5 (390)	0.45

027 Young Patients with Coronary Artery Disease have Better Outcomes after Coronary Artery Bypass Surgery Compared to Percutaneous Coronary Intervention.

Authors: Dhanji, A.A.; Habib, A.M.; Awad, W.I.

Barts and The London NHS Trust, United Kingdom

Objectives: Coronary artery bypass graft surgery (CABG) has historically been the treatment of choice for patients with 3 vessel and/or left main stem (LMS) disease. Percutaneous coronary intervention (PCI) with stenting is usually reserved for patients unfit for surgery or those presenting with acute coronary events. With advances in PCI and the introduction of drug-eluting stents, an increasing number of patients are offered PCI primarily. The aims of this study were to determine and compare the procedural and 5 year clinical outcomes of young patients (≤ 50 years) undergoing CABG or PCI in a single cardiac centre.

Methods: A total of 200 patients ≤ 50 years of age (100 consecutive patients undergoing PCI and 100 consecutive patients undergoing CABG, between Jan 2004 and Dec 2004) were retrospectively studied. Data was collected from the patients clinical notes and telephone survey with patients or their general practitioners in Nov 2009, to allow for a 5 year follow-up. A comparison of the two groups was performed for the primary end point of major adverse cardiac or cerebrovascular event, MACCE: death from any cause, stroke, myocardial infarction or repeat revascularisation.

Results: Patient characteristics, procedure details, in-hospital and 5 year outcomes are shown in the table below:

	CABG	PCI	p =
Male (%)	88	81	0.24
Mean age in years (range)	46 (32-50)	45 (32-50)	0.14
Diabetes (%)	35	22	0.06
Previous MI (%)	64	58	0.47
Number of coronary arteries diseased	(6), (1), (2), (3)	(37), (41), (22)	<0.0001 (for each)
Impaired LVEF < 50 %	34	17	0.009
Complete revascularization (%)	90	47	0.001
In Hospital Mortality (%)	2*	1*	1.0
Total 5 year MACCE	11	44	<0.0001

* includes 1 patient undergoing salvage CABG following LMS dissection during PCI.

Conclusion: MACCE was significantly lower in young patients undergoing CABG vs PCI at 5 years follow-up; CABG should remain the preferred method of revascularisation in the majority of young patients with severe coronary artery disease.

028 Day-of-Surgery Admission is Associated with a Reduced Post-Operative Length of Stay Following Lung Resection.

Authors: Nwaejike, N.; Evans, C.L.; Paoloni, C.C.; Batchelor, T.J.P

Bristol Royal Infirmary, United Kingdom

Objectives: Day-of-surgery admission (DOSA) was introduced to improve patient flow in a thoracic surgical unit. We sought to compare post-operative outcomes in elective patients undergoing lung resection prior to and following the institution of DOSA in our hospital.

Methods: Consecutive patients who required lung resection from November 2007 to August 2009 were identified from a prospectively maintained database. Halfway through the study period a one-stop pre-assessment clinic was introduced. All new patients were assessed by a surgeon, an anaesthetist, a specialist nurse and a physiotherapist, thus enabling subsequent elective admission on the morning of surgery. Prior to this point, patients were admitted to the ward the day before surgery for their routine pre-operative investigations. All patients were operated on by the same surgeon and underwent a posterolateral thoracotomy.

Results: 100 patients were identified (56 DOSA and 44 non-DOSA). There was no significant difference in age (67 +/- 10.5 years vs. 65 +/- 11.5 years), thoracotomy or sex distribution between the two groups. Similarly, there was no difference in the type of operation performed or post-operative mortality. However, DOSA was associated with a significant reduction in the median post-operative length of stay (5 days [range 2-21] vs. 6 days [2-26]; $p=0.003$) and total length of stay (5 days [range 2-21] vs. 7 days [3-27]; $p=0.001$). In those patients undergoing lobectomy (35 DOSA, 28 non-DOSA), there was again a significant reduction in median post-operative length of stay (5 days [range 3-13] vs. 6 days [4-18]; $p=0.017$) and total length of stay (5 days [range 3-13] vs. 7 days [5-19]; $p=0.001$).

Conclusion: DOSA is associated with both a reduced post-operative length of stay and a reduced total length of stay in patients undergoing a thoracotomy for lung resection. Patients should be seen by a multi-disciplinary team in a one-stop pre-operative assessment clinic if DOSA is to function effectively.

029 Patient Preference For Coronary Artery Bypass Graft Surgery Performed On or Off-Bypass: A Questionnaire Study.

Authors: Patel, N.; Akowuah, E.; Hutter, J.A.

Bristol Heart Institute, University of Bristol, United Kingdom

Objectives: Patient choice is now a major facet of health care policy within the National Health Service. Our objective was to determine whether cardiac surgical patients would like to choose the technique employed for coronary artery bypass graft (CABG) surgery.

Methods: We undertook a cross-sectional, self-reported survey of patients referred to a regional cardiac surgical unit for elective coronary artery surgery between October 2008 and July 2009. The questionnaire was split into five sections as follows: 1) Awareness of on and off pump techniques for CABG surgery, 2) Information sheet detailing both techniques, 3) Preference of technique used for CABG surgery, 4) Whether patients want a choice of technique, 5) Demographics, including age, sex, and educational qualifications. Data are expressed as counts (percentages).

Results: Of 120 people invited to participate, 88 returned a completed questionnaire, representing a response rate of 73%. Table 1 shows the characteristics of the 88 respondents.

Awareness of on and off-pump techniques for CABG surgery was reported by 35 respondents (39.8%). Of these, 74% of respondents had no preference of technique used for CABG surgery.

After reading the information sheet, 78 (88.6%) respondents reported no preference of technique used for CABG surgery. 71 (80.7%) respondents reported that they did not want to be given an opportunity to choose the technique used for CABG surgery and all respondents preferred to let the surgeon decide the appropriate technique. Gender, age and level of education were not significant predictors of whether patients wanted to be given a choice of type of procedure used for CABG surgery on binary logistic regression.

Conclusion: Cardiac surgical patients do not want a choice of procedure and would prefer the surgeon to decide the surgical technique. Patient choice, although laudable, is not applicable for all surgical procedures.

Data expressed as counts (percentages) unless otherwise stated	Respondents (n=88)
Men	79 (89.8)
Age Mean (SD)	66.9 (8.3)
Education	
Higher degree	6 (6.8)
Bachelors degree	19 (21.6)
A-levels	9 (10.2)
GCSEs/O-levels	17 (19.3)
Vocational	9 (10.2)
Primary/No qualification	28 (31.8)

030 Post Discharge Complications: What happens When the Patient Goes Home?

Authors: Efthymiou, C.A.; O'Regan, D.J.

Yorkshire Heart Centre, United Kingdom

Objectives: Economic implications favouring early discharge have led to an increasing demand to send patients home for recuperation. Patients are now routinely discharged on the fourth post operative day. Post operative complications become harder to record preventing 'closing of the audit loop'. We set about the use of a structured questionnaire to evaluate the incidence of post operative events.

Methods: Following cardiac surgery all patients were seen at six weeks following discharge. Patients were required to complete a standardised questionnaire recording any complication requiring medical intervention.

Results: 299 patients were questioned over an 18 month period following cardiac surgery. The mean EuroSCORE was 4.2. Of these patients 59% had an uneventful post operative recovery. 18 % required further treatment following discharge. 4% required hospitalisation 10% required G.P treatment 6% developed leg wound infections 3% developed sternal wound infection 20% developed other complications

Our questionnaire revealed that 41% of patients developed significant post operative complications. Medical intervention was required in a fifth of discharges. Despite the fact that patients had undergone heart surgery in the majority of cases cardiothoracic clinicians were not aware of complications requiring treatment. Liaising with the cardiothoracic surgeon may be essential to enable appropriate therapy to be instituted.

Conclusion: A distinct lack of communication with the surgical team occurs following discharge despite 18% of patients requiring medical intervention. The use of a structured questionnaire has highlighted frequently occurring complications. By auditing these complications changes in our surgical practice have resulted in a reduction in post operative complications. Structured questionnaires are not only a useful tool in allowing improvement in surgical practice but enable a structured and reproducible assessment of all post operative patients.

031 Mathematical Modelling to Obtain an Upper Estimate of the Survival Benefit Associated with Radical Surgery for Mesothelioma.

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Clinical Operational Research Unit, United Kingdom

Objectives: To obtain an upper estimate from published data of any survival benefit conferred by radical surgery on patients with a diagnosis of malignant pleural mesothelioma.

Methods: We analysed published data concerning survival from diagnosis of 945 patients with mesothelioma from a single institution. We identified amongst them four groups based on ascending level of intervention: A no surgery, B thoracotomy but no resection, C resection but no adjuvant treatment, and D resection as part of multimodality treatment. Average survival was estimated for each of these four groups from the published survival curves using the software tool "UN-SCAN-IT" (Silk Scientific, Inc, Orem, Utah, USA). Average survival was also estimated for all those not having or having a resection (groups A + B and C + D).

Results: Average survival was similar at about 17-18 months for those having no surgery, thoracotomy alone and resection with no adjuvant treatment respectively (groups A, B and C) and longer for those having multimodality treatment at 32.9 months (group D). Survival was 25.6 months for all patients having a resection and 17.1 months for those not resected. The survival advantage of any treatment programme which included surgical resection has an upper bound of about 9 months. This is the most optimistic estimate and requires all observed differences in survival to be attributed to the effect of treatment and none to selection for treatment or fitness to complete treatment. Furthermore within that difference is included any benefit from other components of multimodality treatment.

Conclusion: Given the burden of morbidity of radical surgery within multimodality treatment of pleural mesothelioma, this most optimistic estimate of any additional survival must be taken into account in any policy or clinical decisions for individual patients.

	Group	N		Survival (months)
No surgery	A	387	41%	16.8
Thoracotomy but no resection	B	174	18%	17.8
Resection alone	C	177	19%	17.0
Multimodality therapy	D	207	22%	32.9
Total patients		945		
All patients who had no resection	A+B	561	59%	17.1
All patients who had a resection	C+D	384	41%	25.6
Total patients		945		

032 The Mesothelioma and Radical Surgery (MARS) Trial.

Authors: Tan, C.¹; Waller, D.²; Lang-Lazdunski, L.³; Papagiannopoulos, K.⁴; Dusmet, M.⁵; Edwards, J.G.⁶; Treasure, T.⁷

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Objectives: On evidence from a systematic literature review in 2004, extrapleural pneumonectomy (EPP) within multimodality therapy was possibly associated with longer survival for patients with malignant pleural mesothelioma. The benefit attributable to the surgery itself could not be identified within multimodality treatment packages and longer survival in patients completing three treatments might have been a feature of sequential selection. An RCT was needed but the first challenge was to find out if randomisation was even feasible.

Methods: Patients were recruited through 11 collaborating centres either from screening logs or by direct referral (Table). MARS had a two stage consent process. After 1st consent all patients had 3 cycles of platinum based chemotherapy and were restaged and reviewed by a virtual multidisciplinary team (vMDT) which met by teleconference. If deemed still eligible they were invited to sign a 2nd consent for randomisation to either EPP at one of four surgical centres, followed by radical hemithorax radiotherapy, or to a non surgical arm which could include any of all available treatments.

Results: 112 potentially eligible patients gave informed consent to enter the registration phase and undergo chemotherapy. One died, 27 progressed, 5 were inoperable, 4 were treated off trial and 18 withdrew either during or after chemotherapy but before final review. A further 6 were deemed inoperable at vMDT review and one further patient withdrew. The remaining 50 were randomised (24 to EPP and 26 to no EPP).

Conclusion: MARS has shown that randomisation to surgery versus no surgery is possible, albeit difficult. This was the primary aim of the feasibility trial. However, in the interim, there has been a drift away from EPP towards lung sparing forms of surgery. The protocol of MARS-2 trial relies on practice trends as well as MARS trial results.

Screening logs	261	
Patients approached	110	
Screened patients eligible	67	
Direct MARS referrals	45	
Registered by 1st consent	112	
Chemotherapy and restaging		
Reviewed by vMDT after 2nd consent	57	
Patients randomised	50	
EPP		24
No EPP		26

033 Chest Drain Insertion - Are BTS Guidelines Being Followed?

Authors: Rao, S.; Roberts, N.; Beddow, E.

Harefield Hospital, United Kingdom

Objectives: Chest drain insertion is a commonly performed procedure by junior doctors of various specialities. BTS guidelines published in 2003 suggest that the chest drain should be inserted in the safe triangle and all personnel involved with insertion of chest drains should be adequately trained and supervised. Despite this, the rapid response report issued by National patient safety agency, UK in May 2008 reported 12 deaths and 15 cases of serious harm related to chest drain insertion between January 2005 and March 2008. We sought to investigate current knowledge of BTS guidelines amongst junior doctors.

Methods: 43 junior doctors working in a district general hospital were asked to indicate on a photograph the safe site to insert a non-emergency chest drain for a pneumothorax. Their speciality, level of training and previous experience in insertion of chest drains were noted. They were also asked whether they knew the British thoracic society guidelines and if they had any structured teaching regarding the chest drain insertion.

Results: 44% of the junior doctors (19/43) marked the site outside the triangle of safety. The vast majority of them (14/19) marked the diagram too inferior. 35 (72%) were unaware of the BTS guidelines and only 19 (44%) of them had structured teaching in chest drain insertion. Many quoted training via ATLS courses. Of significant concern, 19 juniors stated they had inserted drains without supervision, 12 of these (63%) marked the insertion site outside the safe triangle.

Conclusion: Despite well documented adverse events associated with chest drain insertion and clearly published guidelines from the BTS many junior doctors are still unaware of safe drain insertion sites. The common mistake is to identify a site too inferior. There may be a need to re publicise the BTS guidelines or engage further with training agencies.



034 Chest Drain Insertion is Not a Harmless Procedure: Are We Performing it Safely?

Authors: Elsayed, H.; Roberts, R.; Emadi, M.; Fontaine, E.; Shackcloth, M.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: The incorrect insertion of a chest drain can cause serious harm or even death. Drains are inserted by doctors from many specialties for drainage of pleural air or fluid. All elective drains should be inserted in the “triangle of safety” in line with British Thoracic Society guidelines to minimise the risk of complications to the patient.

Methods: Fifty junior doctors working in medicine, surgery, A&E and anaesthetics were questioned. Participants were asked to grade their experience of chest drain insertion and mark on a diagram where they felt was the optimum site for inserting the drain. The site marked was analysed to determine whether it was within the triangle of safety.

Results: Only 44% (n=22) of all doctors demonstrated knowledge of inserting a chest drain within the safe triangle. Level of experience, different specialties and level of seniority all had an effect on knowledge of the correct site. Of those who had inserted drains unsupervised, 48% (n=16) would site the drain outside the safe triangle as would 75% (n=6) of those who had performed the procedure supervised. Only 25% from the medical sector knew where to insert a drain, compared with 58% of doctors working in surgery. Only 31% of the SHOs identified the safe triangle while 59% of registrars marked the site correctly.

Conclusion: The majority of junior doctors do not have the basic knowledge to insert a chest drain safely. This has serious implications for the safety of patients. Urgent proposal for further training plans in this procedure is needed for junior doctors.

035 An Audit of Single Versus Double Chest Drains for Lobectomies.

Authors: Nagarajan, K.; Kapsomenakis, P.; West, S.M.; Kirk, A.J.B.; Jilaihawi, A.

Golden Jubilee National Hospital, United Kingdom

Objectives: Placement of two chest drains after lobectomy is standard practice in our institution. We wanted to evaluate the results of single chest drain against two chest drains.

Methods: Data was collected prospectively for the single chest drain group (28fr) from March 2009-August 2009 n=30. It was compared with data collected retrospectively from August 2008-February 2009 involving double chest drain (28fr) of the same surgeon. Preoperative, Intraoperative and postoperative variables were analysed. Exclusion criteria was preoperative radiotherapy, Chest wall invasion and previous thoracic or cardiac surgery

Results: There were no significant differences in preoperative, intraoperative variables. In postoperative variables, the single-tube was found to have a considerably lesser amount of total pleural drainage than the double-tube [800 ± 40 cc Vs 1490 ± 50 cc] p<0.001. Patients having single-tube experienced less pain in 1st, 2nd and 6th POD.

The mean VAS score on the first POD was 4.48 ± 0.22 in the single-tube Vs 7.10 ± 0.23 in the double-tube (p = 0.022). The mean VAS score on the second POD was 3.10 ± 0.44 in the single-tube Vs 6.02 ± 0.31 in the double-tube (p = 0.012). The mean VAS score in the sixth POD was 1.48 ± 0.13 in the single-tube Vs 2.00 ± 0.17 in the double-tube (p = 0.01). The durations of hospital stay was 5.10 ± 0.17 in single-tube Vs 7.06 ± 0.24 in double-tube (p = 0.031). We found no difference between the two groups in complication rates.

Conclusion: In an Era of growing technological advances lung resection is greatly facilitated by the availability of instruments and adjuvant materials, such as stapler for incomplete fissures, sealing materials for parenchymal air leaks and haemostasis. We inferred using a single tube is more effective than using two tubes in that it causes less postoperative pain, less pleural fluid loss and shorter hospital stay without a change in the postoperative complication rate.



036 Air Leaks Following Pulmonary Resections: Is it a Patient or Surgeon Related Problem?

Authors: Elsayed, H.; McShane, J.; Fontaine, E.; Shackcloth, M.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Air leak is the most complication after partial lung resection and the most important determinant of hospital length of stay for patients postoperatively. We aimed at determining the risk factors involved in developing air leaks and the possible preventable mechanisms.

Methods: We retrospectively studied all patients undergoing lung resection between January 2002 and December 2007 in our hospital. Univariate analysis to predict risk factors for developing postoperative air leak included Patient demographics, smoking status (Packs per year), Pulmonary function tests (FEV1%, FVC, FEV1/FVC ratio and DLCO), disease aetiology (benign, malignant), neo-adjuvant therapy (Preoperative radio/chemotherapy), extent and type of resection and different Consultant surgeons practice. A logistic regression model was used for multivariate analysis.

Results: 2144 lung resections were performed over this 6-year period. Air leak more than six days postoperatively was present in 129 patients (6%). This included 100 out of 1150 patients from the lobectomy group (8%) and 29 out of 638 patients from the wedge/Segmentectomy group (4.4%). There was no air leak from the Pneumonectomy group. Using the multivariate analysis the risk factors for developing an air leak was performing an upper lobectomy ($p=0.005$), different consultant practice ($p=0.02$) and $pFEV1\%$ ($p<0.001$).

Conclusion: Air Leaks after pulmonary resections were at an acceptable rate in our series. Particular patients are at a higher risk but meticulous surgical technique is vital in reducing their incidence. Our study shows that $pFEV1\%$ is the strongest predictor of postoperative air leaks.

037 Predicting Prolonged Air Leak After Standard Pulmonary Lobectomy: Computed Tomography Assessment and Risk Factor Stratification.

Authors: Petrella, F.; Rizzo, S.; Radice, D.; Borri, A.; Galetta, D.; Gasparri, R.; Solli, P.; Veronesi, G.; Bellomi, M.; Spaggiari, L.

European Institute of Oncology, Italy

Objectives: Prolonged air leak after pulmonary lobectomy is a common time- and cost-consuming complication. Its prevention may significantly reduce hospitalization length and costs offering patients a standard uneventful postoperative course. The aim of the present study is to identify predictors of prolonged postoperative air leak and to stratify preoperative risk factors.

Methods: From July 2004 to December 2007 241 consecutive standard lobectomies were performed with curative intent for lung cancer. After excluding patients not fulfilling the inclusion criterion, 58 patients were enrolled in the "prolonged air leak" group and 63 patients were enrolled in the "standard outcome" group.

Results: Total lung capacity ($p = 0.0038$) and percentage emphysema ($p = 0.0050$) calculated by computed tomography were both significantly related to prolonged postoperative air leak; the values of 4773 cc and 0.4% showed the highest predictive value in terms of sensitivity (84.5% and 75.9% respectively). Multivariate logistic regression disclosed that male sex ($p = 0.0006$), right side of operation ($p = 0.0010$) and age ($p = 0.0082$) were significantly related to prolonged post operative air leak. Preoperative chemotherapy ($p = 0.0940$) did not affect air leak status.

Conclusion: Computed tomography quantification of emphysema is the best predictor of prolonged air leak. Age, male sex and right side lobectomy are correlated to this complication. Preoperative chemotherapy is not an additional risk factor.



038 A Prospective, Randomised Trial Comparing BioGlue and Vivostat for the Control of Alveolar Air Leak.

Authors: Belcher, E.; Dusmet, M.; Jordan, S.; Ladas, G.; Lim, E.; Goldstraw, P

Royal Brompton Hospital, United Kingdom

Objectives: BioGlue (CryoLife, Europa Ltd, Surrey, UK) is effective in reducing airleak following pulmonary resection. However, concerns exist regarding bovine derived products. Vivostat (Vivostat A/S, Denmark) is an autologous fibrin sealant without risk of transmission of blood-borne diseases which may be produced within 30 minutes at the time of operation.

Methods: We conducted a randomised, single blind controlled study to compare BioGlue and Vivostat in the control of post-operative airleak. Primary end-point was proportion of patients with drains removed on or before post-operative day (POD) 3.

Results: 103 patients were randomised (December 2005-December 2007). Analysis included 102 patients. 67% were male. Median age was 56+/-19 years. Indications for surgery were primary lung cancer in 41 patients (40%), secondary malignancy in 48 patients (47%), carcinoid in 6 patients (6%) and 7 patients underwent surgery for benign disease (7%).

Bilobectomy was performed in 2 patients (2%), lobectomy in 41 patients (40%), lobectomy with lesser resection in 3 patients (3%), segmentectomy in 16 patients (16%), precision excision in 34 patients (33%) and 6 patients underwent other resections (6%). Proportion of patients with drains removed on or before POD 3 was 11 of 50 patients (22%) in the BioGlue arm vs 15 of 52 patients (29%) in the Vivostat arm (p=0.5).

Median duration of airleak was 3 (range 0-32) days vs 2 (range 0-33) days for patients who received BioGlue and Vivostat respectively (p=0.677). Time to intercostal drain removal was 5 (range 1-32) days in the BioGlue group vs 5 (range 1-34) days for the Vivostat group (p=0.473).

Median hospital stay was 8 (range 3-22) days vs 7 (range 2-29) days for the BioGlue and Vivostat groups respectively (p=0.382). Complications between the groups were comparable (20 patients receiving BioGlue vs 19 receiving Vivostat, p=0.839).

Conclusion: Vivostat is not inferior to Bioglue in the prevention of post-operative airleak.

039 A Prospective Randomized Controlled Study to Assess the Effectiveness of CoSeal(r) to Seal Air Leaks in Lung Surgery.

Authors: Tan, C.¹; Utley, M.²; Pilling, J.³; Robb, J.D.⁴; Hon, J.K.F.³; Harrison-Phipps, K.M.³; Lang-Lazdunski, L.³; Routledge, T.³; King, J.E.³; Treasure, T.²

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Objectives: Prolonged alveolar air leak is the most common complication after pulmonary surgery. We conducted an investigator led randomized trial to evaluate the effectiveness of CoSeal(r) surgical sealant (Cohesion Technologies Inc; manufactured and distributed by Baxter Healthcare) for the closure of alveolar air leak after anatomical pulmonary resection.

Methods: Patients undergoing primary open lobectomy, bilobectomy or segmentectomy with a demonstrable air leak on intra-operative testing were randomised to either standard care or standard care plus application of CoSeal(r) surgical sealant to areas of air leak. A second application of CoSeal(r) was used in the treatment group if air leak persisted. Patients were allocated at the point of entry to the trial by unbiased allocation with minimization to ensure balance between the two arms with respect to age, sex, surgeon, number of segments resected, pre-operative FEV1 and grade of air leak. Kaplan-Meier analysis of air leak duration and a log rank test were performed on an intention-to-treat basis, with observations censored at death, transfer to ICU or discharge.

Results: Of the 200 patients who entered the trial over a 24-month period, 121 with demonstrable intra-operative air leak were randomly allocated to the two groups. Data were missing for 1 patient in each group. In 57% the air leak was stopped at the first application; a quarter continued to leak after the second. At 24 hours there was no difference in air leak (Table) and fewer patients in the control group were leaking at 48 hours post operatively. By log rank test the difference was not significant (p=0.09).

Conclusion: In this study, the application of CoSeal(r) following anatomical lung resection was associated with longer duration of air leak, time to drain removal and length of stay so we cannot recommend changing from the present (control group) practice.

	Control	CoSeal®
Number allocated	60	61
Proportion with persisting air leak at 24hr (Kaplan-Meier)	63%	61%
Proportion with persisting air leak at 48hr (Kaplan-Meier)	39%	49%
Total fluid accumulation in litres (SD)	1.2 (0.7)	1.4 (0.8)
Median time to drain removal in days (IQR)	3 (2.8-5.0)	4 (2.8-7.2)
Median length of stay in days (IQR)	6 (5.0-9.0)	7 (4.9-9.6)

040 Pleuropulmonary Sepsis in a Tertiary Thoracic Centre: Impact of British Thoracic Society (BTS) Guidelines and MRSA Prevention on Antibiotic Choice.

Authors: Rathinam, S.; Cuell, J.C.W.; Cornejo, P; Sivalingam, S.; Kalkat, M.S.; Rajesh, RB.

Birmingham Heartlands Hospital, United Kingdom

Objectives: Empyema Thoracis forms part of mainstay thoracic practice. The introduction of British Thoracic Society (BTS) Guidelines for empyema and MRSA and Clostridium difficile reduction strategies have led to changes in antibiotic therapies. Our objective was to review the antibiotic prescribing practice in a tertiary hospital in managing pleural infection and comparing it with a historic cohort prior to the implementation of these changes.

Methods: A retrospective review of patients who underwent surgery for empyema between January 2006 to December 2008 was performed. Data was collected in a standardised format similar to a previous study from 1996-2001 from hospital online results service and electronic prescribing records (EP). The results were compared to the previous study.

Results: 180 patients were analysed [table1]. 40 different combinations of antibiotics with 76.6% of sensitivities were utilized. There was a reduction in MRSA and presence of organisms in the pus. Bacterial pathogens identified in pleural infection have remained relatively similar over a 7 year period however there has been a change in antibiotic prescribing between 2001 and 2008. The use of Cephalosporins has reduced markedly with a modest reduction in Aminoglycoside with an increase in Penicillins and Carbapenems use. There is a need for broad spectrum antibiotic cover to aid prescribing for patients without culture positive bacteriology.

Bacterial pathogens identified in empyemas have remained relatively similar however there has been a change in antibiotic choice.

	1996-01	2006-08	Antibiotics		
Number of Patients	231	180			
Male	176(76%)	116 (64%)	Cephalosporin	48%	9%
Mean Age(range)	53.2(16-87)	51.65(16-83)	Penicillin	16%	28%
Staphylococcus	10%	8%	Aminoglycoside	13%	1%
Streptococcus	4%	4%	Quinolone	8%	3%

There has been no reduction in number of decortications despite these changes.

Conclusion: The Guidelines and changes in antibiotic policies have reduced MRSA infections and increased the number of culture negative empyemas. There is a need to provide a broader spectrum antibiotic cover for empyemas rather than use standard antibiotic prophylaxis regimen.

041 Debridement Alone without Decortication can Achieve Lung Re-expansion in Patients with Empyema: An Observational Study.

Authors: Kho, P. H. C.; Karunanantham, J.; Leung, M.; Lim, E.

Royal Brompton Hospital, United Kingdom

Objectives: Decortication is widely performed for empyema, but the effectiveness in achieving lung re-expansion has never been formally reported. The aim of this study is to quantify the degree of lung re-expansion in comparison to that achieved naturally after debridement alone.

Methods: A retrospective review of patients who underwent either decortication or debridement for empyema between 2007 and 2009. The change of the cavity size with time were standardized and recorded before, immediately after surgery and on follow up. Differences were expressed as mean percentage change and multivariable regression used to compare the adjusted differences with time.

Results: Of 25 patients who underwent surgical management of empyema, 16 (64%) underwent debridement alone and 9 (36%) underwent decortication. The mean age (SD) was 58 (19) years and 15 (60%) were men. There was immediate reduction in cavity depth in the debridement alone group by 36% and a further 18% reduction achieved in the decortication group. On radiological follow up at a median (IQR) of 45 (36 to 116) days, further reduction of 36% and 34% was achieved leaving 27% and 12% of the original cavity size in the debridement and decortication groups respectively. Procedure (debridement or decortication) was not associated any difference to the eventual follow-up cavity size (P=0.937).

Conclusion: Resolution of an empyema collection and cavity occurs immediately after surgery, and continues in the post-operative period. Similar follow up results were achieved by debridement alone without decortication in patients presenting with empyema despite the presence of an underlying trapped lung.



042 Role and Value of a Dedicated Thoracic HDU: Experience of a Tertiary Centre.

Authors: Cahill, J.; Rathinam, S.; Jan, M.; Cantlin, T.; Steyn, R.; Rajesh, PB.

Birmingham Heartlands Hospital, United Kingdom

Objectives: There is a strong drive to improve postoperative management in a cost-effective way. However there are efforts to amalgamate thoracic high dependency units into mega critical care areas. The specialist thoracic HDU is an effective weapon in the armoury of thoracic surgeons to treat patients effectively without the need for managing in the extreme environment of expensive critical care area. Our objective is to assess the value and effectiveness of high dependency unit (HDU) in the management of high-risk thoracic surgical cases at a single dedicated thoracic surgical unit and the impact of use of noradrenaline and non invasive ventilation.

Methods: Retrospective review of the HDU throughput between April 2008 and March 2009.

Results: 659 patients were nursed in the specialist thoracic HDU in a financial year offering standard level 2 care with non invasive ventilation and vasoconstrictor support (Noradrenaline). Our patients had earlier mobilization in comparison to ITU critical care. There was no significant drop in activity in spite of reduction in number of Thoracic beds.

The ITU admission rates had decreased. The time for re-admission into the thoracic HDU was significantly lesser than transfer to ITU. The activity of the thoracic HDU was sustained in a regular fashion. The use of mobile suction units, NIV and noradrenaline have reduced ITU admission rates. The proximity of thoracic HDU and wards improves skill mix and transfer of skills as well as enables quick transfer of patients.

Conclusion: Dedicated specialist thoracic units are valuable in the care of thoracic patients. This model reduces the need for expensive critical care beds. It also improves nursing standards and delivers better patient care.

043 Impact 5 Day Versus 7 Day Physiotherapy on Length of Stay (LOS) following Coronary Artery Bypass Graft (CABG): A Service Evaluation.

Authors: Paradza, B.

James Cook University Hospital, United Kingdom

Objectives: Physiotherapy is routinely prescribed for CABG patients to facilitate postop recovery & timely discharges. However, its provision is not standardised across UK centres. This evaluative study compares 5 day only service, to 7 day strategy introduced in April 2006. The objective was to examine whether 7 day input reduced hospitalisation, while increasing efficiency and hospital capacity.

Methods: Patient data was retrospectively extracted from the cardiothoracic electronic database. After gaining all necessary ethical approvals, access was gained through hospital numbers. To analyse post CABG LOS for patients; collected data included patient age, diagnosis, smoking status, EuroSCORE, BMI, pre&postop complications and admission, Op&discharge dates. Patient data was collated, anonymised with patient identifiers, concealment was achieved by coding. Comparative descriptive analysis was carried out to determine changes in LOS for the 12 months before&after April 2006.

Results: 1361 patients aged between 36-86yrs, consisting of 1109 (81.5%) male and 252 (18.5%) female. Multiple regression analysis SPSSv16 was conducted for 'type of service' & 6 predictor variables on LOS post CABG at 80% power and level of $\alpha(0.05)$ Primary outcome: mean LOS decreased from 7.46 days (CI: 7.21-7.72) to 6.93 days (CI: 6.70-7.17), $p=0.0005$; Effect size of $-0.603(p=0.0005)$ LOS associated with 7-day service ($R^2=0.144$). Variables with significant effect on LOS were BMI ($p=0.011$); Euro-score ($p=0.000$); and Age ($p=0.001$). Gender ($p=0.931$); Smoking status ($p=0.0610$) & No. of grafts ($p=0.465$) had no significant effect on LOS. Patient throughput improved by 8.6% (n81) measured against the standard (LOS<7) Estimated savings was 374 bed days & costing savings £74800 over 12 months (nat. tariff £200/bed day for inpatient bed). Mortality rate was 1.7% v 2.1% and 76 outliers (36v39) were excluded.

Conclusion: This evaluation suggests that a 7 day service delivery model potentially reduce post CABG LOS through standardised, continuous care, whilst making significant contributions to efficiency savings.



044 To Tie Them Down or Set Them Free: Thopaz Portable Suction Systems.

Authors: Bradley, A.; Rathinam, S.; Mondel, D.; Keogh, P.; Cantlin, T.; Rajesh, P.B.

Birmingham Heartlands Hospital, United Kingdom

Objectives: Thoracic surgical patients have chest drains to enable re-expansion of lungs, to clear fluid and air from the pleural cavity. Currently this is performed by connecting the chest drains to the low pressure wall suction. Suction impedes mobility, may have variable suction delivery and increases infection. Assessment of air-leak is again not scientific. Thopaz chest drain system is a portable suction unit which allows mobilization of the patient, scientific digital flow recordings with an in built alarm system. It enables decision making in a scientific manner.

We evaluated the utility, staff and patient feedback of this device.

Methods: A pilot evaluation was performed in a regional thoracic unit in a structured format over a period of two months. Staff responses were graded on a scale of 1-6 [1 Excellent 6:poor]

Results: 120 patients were evaluated under the trial period between August and October 2008. Thopaz was used on all elective bullectomy/pleurectomy, VATS lung biopsies, VATS metastectomy and elective lung resections subject to availability of the system. Departmental decision was not to use it on decortication patients. The staff feedback forms, from the trial period was very positive, in spite of the glitches of the learning curve and a completely new system [Table 1]. The staff liked the system as it was more scientific and more accurately recordable. It made the nursing and physiotherapy both easier as they could readily mobilise the patients early.

The patients, particularly the ones that were transferred with pneumothoraces on the standard under water seal bottle on continuous wall suction felt the portable section unit was much preferable as it enabled them to mobilize. They liked the compact design, weightlessness and the silence.

Conclusion: Thopaz digital suction units were found to be user friendly and were liked by the staff and patients. It enabled mobilisation of the patients and scientific early removal of chest drain.

045 Clopidogrel and Aspirin Treatment up to Surgery Increases the Risk of Postoperative Myocardial Infarction, Bleeding and Reoperation in Patients Undergoing Isolated Coronary Bypass Grafting.

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Objectives: Recent guidelines suggest that patients undergoing coronary artery bypass graft (CABG) should discontinue clopidogrel and aspirin (ASA) respectively 5 and 2-10 days before surgery in order to reduce postoperative bleeding and its complications. The aim of our study was to evaluate the relation between timing of discontinuing clopidogrel and ASA and early clinical outcomes in patients undergoing CABG.

Methods: This was a retrospective, observational, cohort study of prospectively collected data on 4,330 consecutive patients undergoing isolated CABG from April 2004 to February 2009. Of these, 926 patients were receiving double antiplatelet therapy in the 14 days prior to surgery.

Patients were stratified into three groups: clopidogrel+ASA within 5 and 2 days respectively before surgery (group A, n=287); clopidogrel within 5 days before surgery +ASA stopped 2-10 days before surgery or clopidogrel stopped 5 days prior to surgery + ASA within 2 days of surgery (group B, n=308) and clopidogrel+ASA discontinued more than 5 and 10 days respectively before surgery (control group, n=331).

Results: Overall mortality was 0.8%. The incidence of postoperative myocardial infarction (MI) was 5.2%, 1%, 1.8%, in group A, B and control respectively (p=0.003). Reoperation for bleeding occurred in 4.5%, 2.9 % and 1.2% (p=0.04) and total chest drainage was 761 ± 473 ml, 720±421 ml and 687±302 ml in group A, B and control respectively (p=0.39).

Multivariate analysis revealed that group A was an independent predictor of postoperative MI (OR 2.81, 95% CI 1.1-7.4), reoperation for bleeding (OR 3.98, 95% CI 1.28-12.37, p=0.017) and blood losses ($\hat{\alpha}$ =0.07, p=0.035).

Conclusion: Clopidogrel in combination with aspirin up to surgery is associated with an increased risk of postoperative MI, bleeding and reoperation in patients undergoing CABG.

046 A Novel Blood Transfusion Index (TI) for Predicting Transfusion Risk during Cardiac Surgery.

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Objectives: Formulate and validate a clinically useful Risk Index for transfusion during cardiac surgery to inform blood transfusion policies, organisational benchmarking and patient consent processes.

Methods: Following multivariate analysis on 323 patients the following blood Transfusion Index (TI) formula was developed:

$$TI = (\text{Preop Hb} \times \text{Weight in kg}) \div \text{Age}$$

It was hypothesized that the patients with TI >20 have least risk of transfusion.

2321 patients undergoing CABG from 2002 to 2009 were retrospectively studied. These were grouped according to operation pre or post Sept 2006 because of change in surgical practice - specifically thromboelastography use, transfusion threshold use at Hb <8g/dl and new bypass circuits with lower prime.

Patients developing bleeding complications, re-opened, Jehovah witnesses or over-transfused were excluded. The patients needing perioperative blood transfusion were classified according to TI.

Results: Mean(SD): Age 64.8 yrs (± 10.4), Wt 79.3 kg (± 15.1), preoperative Hb 13.7g/dl (± 2.9).

Transfusion index	Pre Sept 2006	Post Sept 2006	All
<10TI	55.3%	19.04%	43%
TI 10 \geq	23.7%	11.93%	20.2%
TI ≥ 15	18.15%	7.7%	10.1%
TI ≥ 20	14.94%	6.5%	3.7%
All	24.9%	12.36%	22.44%

Patients with TI >20 had the lowest incidence of transfusion. The post intervention patients required less transfusion and had a greater difference within the group with different TI. The effect of TI in the whole cohort was also significant for transfusion.

Conclusion: Use of TI can be used as an effective tool to inform blood transfusion policies, organisational benchmarking and the evaluation of perioperative interventions for reducing transfusions. It could play an important role in consenting and optimising high risk or special patient groups (Jehovah's witness) preoperatively.

047 Mini-Cardiopulmonary Bypass Impact on Blood Conservation Strategy in Coronary artery bypass grafting.

Authors: Abdel Aal, M.; EINahal, N.; Al-Rahman, Y.A.; Bakir, B.M.; Alsaddique, A.; Fouda, M.; Alshaer, A.A.

King Fahad Cardiac Center, Saudi Arabia

Objective: Cardiopulmonary bypass (CPB) utilized by close circuit system with minimized priming volume can be a solution to reduce adverse effects of CPB. We demonstrate that the use of mini-bypass in routine coronary artery bypass grafting (CABG) reduces homologous blood product use and postoperative bleeding. The study was designed to determine differences in blood loss and transfusion associated with a minimized cardiopulmonary bypass circuit versus a standard bypass circuit.

Methods: From February 2009 through August 2009, 80 patients were prospectively randomized to undergo coronary artery bypass grafting, group A included 40 patients with minimized bypass circuit, (Medtronic Resting Heart Circuit) and 40 patients with a standard cardiopulmonary bypass circuit (Stockert \emptyset , SEC.BM), group B. Laboratory perimeters (hemoglobin, hematocrit and platelet count), were measured at baseline, after initiation of cardiopulmonary bypass and after bypass. Blood administration was controlled by study-specific protocol (transfusion for hemoglobin <8mg %). Blood product administration was recorded and chest tube drainage as total output collected from operating room to discontinuation.

Results: There were no statistical differences in terms of patients' demographics. Statistically significant differences were seen in transfused RBCs volume (1.47 ± 1.13 units in group A versus 2.05 ± 1.19 in group B, $p < 0.05$), fresh frozen plasma (2.8 ± 1.62 unit versus 3.55 ± 2.58 units, $p < 0.001$), platelets (1.95 ± 2.95 units versus 3.23 ± 3.85), and postoperative bleeding in 24hours (531.62 ± 220.1 ml versus 729 ± 294.9 ml, $p < 0.05$). With regards to hematocrit, it was 33 ± 5 in group A, while it was 27 ± 1 in group B. There was statistical differences seen in hemoglobin level which was 10 ± 0.65 gm but it was 9.4 ± 0.68 gm.

Conclusion: The adoption of mini-bypass significantly reduces donor blood usage, postoperative bleeding in routine CABG patients.

048 Duration of Red-Cell Storage is Associated with Post-Operative Length of Stay and New Renal Complications Following Cardiac Surgery.

Authors: Sanders, J.¹; Patel, S.²; Cooper, J.¹; Berryman, J.²; Farrar, D.²; Mythen, M.³; Montgomery, H.E.¹

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Objectives: Red blood cells undergo progressive biochemical and biomechanical changes during storage. The effect of such storage on morbidity following cardiac surgery is debated. We sought to clarify the association of the age of transfused blood with outcome in patients undergoing cardiac surgery.

Methods: Data were drawn from a prospective, single-site, observational cohort study of morbidity outcome in patients undergoing cardiac surgery. Blood transfusion data not collected routinely within this study was obtained retrospectively via the National Health Service Trust blood bank electronic records. Old blood was defined as >14 days old. The primary outcome measures were post-operative length of stay and renal failure. Secondary outcome measures were in-hospital death, myocardial infarction, ventricular arrhythmias, mechanical ventilation >72 hours, cerebrovascular accident, a composite endpoint and morbidity as defined within the Post-Operative Morbidity Survey.

Results: 176 (39.6%) of 444 participants received a blood transfusion. Patients transfused with new blood had a reduced length of stay compared with patients receiving exclusively old or any old blood (old blood ± new blood) (7 days v 8 days, $p=0.04$ and v 10 days, $p=0.002$ respectively). In patients who only had one unit transfused, post-operative length of stay was longer in those receiving only old blood compared with those receiving only new blood (8 days v 6 days, $p=0.02$). Compared with patients receiving exclusively new blood, patients receiving any old blood had a higher incidence of new renal complications (65.7% v 43.9%, $p=0.008$).

Conclusion: Our study suggests that outcome following cardiac surgery is dependent on the age of blood at the time of transfusion

049 The Effect and Interaction of Red Cell Unit Storage Duration and Cardiopulmonary Bypass on Post Cardiac Surgery Acute Lung Injury in Swine.

Authors: Patel, N.¹; Jones, C.¹; Ray, P.²; Lin, H.¹; Toth, T.²; Cardigan, R.³; Sleeman, P.A.¹; Angelini, G.D.¹; Murphy, G.J.¹

¹Bristol Heart Institute, University of Bristol, United Kingdom; ²North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom; ³NHS Blood and Transplant Centre, Cambridge, United Kingdom

Objectives: To determine whether RBC transfusion has a causal effect on the development of Transfusion Associated Lung Injury (TRALI) in a swine model of post cardiopulmonary bypass (CPB) organ injury.

Methods: Allogenic leucodepleted porcine RBC were harvested, processed and stored as for human RBC for up to 42 days at 4°C. 500mls of cross-matched allogenic RBC were transfused per pig. The interaction between transfusion of RBC and 2.5 hours of CPB was assessed in a factorial model design (adult landrace pigs(50-70kg, n=35)). Serial functional and biochemical measures of pulmonary injury were measured. Pigs were recovered for 24 hours prior to organ harvest and histological assessment.

Results: The RBC 'storage lesion' was characterised by accumulation of toxic metabolites within the supernatant as well as changes in RBC morphology and nucleotide content. Transfusion resulted in reduced lung compliance and an increase in airway resistance, an increase in serum lactate and a reduction in mixed venous oxygen saturations (ScvO₂) and nitric oxide bioavailability when compared to control pigs (saline infusion). Transfusion also caused a previously unreported increase in partial pressure of oxygen in arterial blood that resulted in a paradoxical increase in calculated PaO₂/FiO₂ gradient.

There was no difference between the degree of pulmonary injury and dysfunction following transfusion of RBC stored for either 14 or 42 days (Table 1). There was a significant interaction between RBC transfusion and CPB, resulting in significant pulmonary injury and dysfunction. Histological analysis demonstrated that this was associated with marked atelectasis and inflammatory cell infiltrate.

Conclusion: Storage duration was not a factor in the development of acute lung injury in this model. RBC transfusion interacts with CPB to produce acute lung injury. Modification of stored RBC units prior to transfusion may reduce the incidence of pulmonary dysfunction post cardiac surgery.

050 Prevention of Post-Cardiopulmonary Bypass Acute Kidney Injury and Endothelial Dysfunction Using Sitaxsentan Sodium, an Endothelin-A Receptor Antagonist.

Authors: Patel, N.¹; Lin, H.¹; Jones, C.¹; Toth, T.²; Ray, P.²; Sleeman, P.A.¹; Angelini, G.D.¹; Murphy, G.J.¹

¹Bristol Heart Institute, University of Bristol, United Kingdom; ²North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom

Objectives: Acute kidney injury (AKI) post cardiac surgery is associated with mortality rates approaching 20%. Our objective was to characterise post cardiopulmonary bypass (CPB) AKI in an animal model with significant homology to cardiac surgery patients and to assess the effect of Sitaxsentan Sodium, an endothelin-A receptor antagonist on these changes.

Methods: Adult White-Landrace pigs(50-70kg, n=21) were randomised to undergo either: a)sham procedure, b)2.5 hours of CPB, or c)2.5 hours of CPB + sitaxsentan sodium (0.7 mg/kg). Perfusion pressure and hydration were standardised. Endpoints included serial functional and biochemical measures of AKI. All pigs were recovered for 24 hours prior to in-vivo measurement of renal endothelial function, nephrectomy and histological assessment.

Results: CPB caused significant renal dysfunction and an increase in urinary IL-18 excretion when compared to sham controls at 24 hours(table 1), similar to cardiac surgical patients. CPB resulted in significant changes in renal tubular morphology with marked tubular dilatation, medullary hypoxia and a reduction in intra-renal high energy phosphates(ATP/ADP ratio).

This was associated with endothelial injury characterised by a reduction in nitric oxide bioavailability, and eNOS and dBA lectin staining(disruption of the endothelial glycocalyx), endothelial dysfunction characterised by renal vasoconstriction in response to acetylcholine, and endothelial activation characterised by upregulation of endothelin-1, iNOS and the vasoconstrictor adenosine.

When compared to CPB, Sitaxsentan prevented AKI by preserving creatinine clearance, reducing proteinuria and IL-18 excretion, and preserving intra-renal high energy phosphates. It achieved this by preserving endothelial function, nitric oxide bioavailability, and preventing endothelial injury and activation.

Conclusion: Sitaxsentan sodium represents a novel renoprotective intervention and warrants evaluation in a randomised controlled trial.

051 A Randomized Trial Comparing Antegrade Cerebral Perfusion and Deep Hypothermic Circulatory Arrest in Pulmonary Endarterectomy - PEACOG Study

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Objectives: Pulmonary endarterectomy (PTE) is the treatment of choice for patients with chronic thromboembolic pulmonary hypertension. A bloodless field is necessary to perform the endarterectomy, traditionally obtained by deep hypothermic circulatory arrest (DHCA). There is evidence from aortic surgery that maintaining antegrade cerebral perfusion (ACP) is superior. We compared these techniques prospectively in a uniform group of patients undergoing PTE.

Methods: Consecutive eligible patients giving consent were randomized to ACP or DHCA between 2007-2009 in a single centre. Surgery was otherwise identical following a standard protocol, all patients were cooled to 20°C. Post operative carers and researchers were blinded to randomization. Clinical results to 3 month follow up are reported. Patients were analyzed on intention to treat basis. Values are mean ± SE.

Results: 196 patients were assessed, 74 were eligible, randomized 39 ACP and 35 DHCA. Baseline characteristics were not different; mean age 51 and 54 years, females 59% and 46%, mean pulmonary artery pressure (mPA) 46 and 49 mmHg respectively. Cardiopulmonary bypass times were 327 ± 8.1 and 325 ± 8.4 mins. ACP times 22.4 ± 3.0 plus 17.5 ± 2.2 mins and DHCA times 19.7 ± 1.4 plus 16.3 ± 1.4 mins and for R and L sides. 7 patients crossed over to DHCA group.

Lowest cerebral saturation (near infra red spectroscopy) was 54% and 37% respectively. There was no difference in time to extubation (53.5 vs. 40.2 hours), ICU (6.0 vs. 4.9 days), in-hospital stay (19 vs. 18 days), nor neurological adverse events. There was 1 in-hospital death and 1 further death by 3 months (2.7% mortality). There was no difference in mPA at 3 months. All p> 0.05.

Conclusion: Clinical outcome to 3 months is not influenced by the method of performing PTE. Circulatory arrest times up to 20 mins (cumulative 36 mins) are tolerated as well as maintained cerebral perfusion. Cognitive function results and follow up to 1 year are awaited.

052 Does Varying Atrio-Ventricular Delay Influence the Haemodynamics Post Coronary Artery Bypass Grafting (CABG)?

Authors: Doddakula, K.K.; Anjum, M.N.; Hargrove, M.; O'Callaghan, S.; Hinchion, J.; O'Donnell, A.; Aherne, T.

Cork University Hospital, Ireland

Objectives: The haemodynamic effect of varying Atrial to Ventricular (A-V) delay has not been fully investigated in patients undergoing Coronary Artery Bypass Grafts (CABG). We studied the effect varying A-V delay on cardiac output (CO) and mean arterial pressure (MAP) in patients who were paced post CABG.

Methods: 20 consecutive patients in sinus bradycardia <60 beats/minute were studied after acquiring ethical approval from the Hospital Ethics Committee. CO and MAP were measured in the patients own rhythm, VVI, AAI and DDD pacing modes with varying A-V delays (50,100,150,200,250 milliseconds) at a constant rate of 90 post protamine administration. Atrial pacing wires were placed close to the SA node, mid Right Atrium and Ventricular wires on the anterior and diaphragmatic surface of the right ventricle. Statistical analysis was performed using one way ANOVA with the help of Prism Graph pad version 3.0 software. A $p < 0.05$ was considered as statistically significant.

Results:

Pacing Mode	Own Rythm	VVI	DDD-50	DDD-100	DDD-150	DDD-200	DDD-250	AAI
Cardiac Output	3.9±1.3	4.7±1.4	4.8±1.1	5.4±1.2	5.9±1.0°	5.9±0.9°	5.9±0.9°	6.1±1.0°
Mean Arterial Pressure	63.8±8.3	67.1±9.4	66.4±9.4	71.6±9.1°	74.8±8.5°	75.2±8.5°	75.8±8.8°	76.2±9.1°

CO and MAP values were significantly higher with AAI and DDD pacing modes with longer A-V delay (<150 mSecs) compared to patients own rate, VVI and DDD modes with shorter A-V delay (<150 mSecs).

Conclusion: This study demonstrates the potential beneficial effects of AAI or DDD pacing modes with an A-V delay <150 mSecs in patients with sinus bradycardia post CABG.

053 Management of Acute Cardiac Failure by Intracoronary Administration of Levosimendan: Results from the First Clinical Series.

Authors: Kapetanakis, E.I.¹; Grossini, E.²; Molinari, C.³; Vacca, G.³; Caimmi, PP³

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Objectives: Acute cardiac failure caused by myocardial infarction or inadequate cardioprotection during heart surgery is associated with increased mortality and morbidity. Levosimendan is a new pharmacologic agent used in heart failure however it's limited by systemic hypotension which develops with intravenous administration. We hypothesised that intracoronary (IC) administration alternatively, would affect systemic circulation less while maintaining the drug's beneficial cardiac effects. We herewith report the results from the first such clinical series.

Methods: Levosimendan was administered IC in 28 consecutive patients who developed cardiogenic shock during heart surgery and were unable to wean off cardiopulmonary bypass despite maximal support. Pre and post administration coronary graft flows, hemodynamic parameters, left ventricular function and metabolic requirements were measured and compared.

Results: Levosimendan administration produced a significant increase in coronary graft flows and an improvement in hemodynamic parameters. Systolic blood pressure (93±26.4 vs. 106±18.2 mmHg, $p < 0.05$) and cardiac index (2.0±0.5 vs. 3.1±0.2, $p < 0.01$) were increased while pulmonary wedge pressure (25±4.3 mmHg vs. 20±3.2 mmHg, $p < 0.05$) and systemic vascular resistance (1470.5±114 vs. 1195.8±112, $p < 0.01$) were reduced. Better myocardial perfusion improved metabolic requirements, with myocardial oxygen extraction and glucose uptake increasing by 72% and 74% respectively, while reducing lactate production by 64%. Finally, echocardiography demonstrated additional segment recruitment with an associated improvement in diastolic and systolic ventricular function.

Conclusion: Intracoronary administration of Levosimendan in acute heart failure is safe and efficacious producing improved cardiac function without any detrimental hypotension. Considering this, IC administration may be used effectively to treat heart failure in an operating room and/or catheterization laboratory setting.

054 Left Ventricular Hypertrophy (LVH) Secondary to Aortic Stenosis (AS) Manifests Impaired Cardiac Metabolism: Implications for Surgical Intervention.

Authors: Howell, N.J.¹; Drury, N.E.¹; Viant, M.²; Ashrafian, H.³; Pagano, D.¹

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Objectives: To delineate the mechanisms contributing to (a) the development of left ventricular dysfunction in patients with symptomatic aortic stenosis requiring aortic valve replacement (AVR) (b) the adverse prognosis of left ventricular hypertrophy (LVH) with HF in advanced aortic stenosis (AS) and (c) the increased risk and severity of post-ischemic myocardial injury and contractile dysfunction in patients with LVH undergoing cardiac surgery, the cardiac metabolic gene expression profile and metabolome were studied in patients with AS undergoing AVR.

Methods: The expression of master metabolic transcription factors (e.g. PGC-1 α PPAR- α) and their downstream metabolic pathways were assessed in patients with LVH and compared to control samples of patients with no evidence of infarction or hypertrophy. To complement the transcriptome data, a novel method of mass spectrometry was used to assess the metabolome in these two groups.

Results: LVH was associated with a significant down-regulation of the master transcriptional regulators controlling mitochondrial biogenesis/fatty acid metabolism (e.g. PGC-1 α , PPAR- α) and their downstream pathways (e.g. CPT-1). The metabolomic data clearly distinguished LVH and non-LVH hearts and as a corollary to the expression studies, energetic compromise including a reduced PCr/ATP ratio and increased AMP was observed in patients with LVH.

Conclusion: Our findings suggest that an impairment of cardiac metabolism, resulting at least in part from the observed progressive down-regulation of the cardiac metabolic transcriptome, characterises the transition from LVH to HF and may contribute to the pathogenesis of ventricular dysfunction. These defects may predispose patients with LVH to adverse surgical outcomes and suggest that a combination of timely surgery coupled with interventions that augment myocardial metabolism and energetics may be beneficial.

055 Administration of the Flu Vaccine Prior to Cardiopulmonary Bypass does not Alter the Inflammatory Response.

Authors: McGonigle, N.C.R.¹; McBride, W.T.¹; Brennan, A.¹; Armstrong, M.A.²

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Objectives: Concerns have been raised that administration of the flu vaccine prior to cardiac surgery utilising cardiopulmonary bypass (CPB) might detrimentally prime the inflammatory system, thereby generating a greater magnitude inflammatory response and also potentially suppressing peripheral blood immune cells. We wished to establish if this might occur.

Methods: Twenty healthy volunteers, age and sex matched, were randomized to receive either the flu vaccine (Inflexal V) or placebo. Three days later each volunteer donated blood which was circulated for 90 minutes in an isolated CPB circuit under standard operating conditions. Throughout, samples were taken to measure the plasma levels of Interleukin-8 (IL-8), Interleukin-10 (IL-10) and Macrophage-Colony Stimulating Factor (M-CSF), as well as for flow cytometric analysis of peripheral blood mononuclear cells and lymphocytes involved in the immune response.

Results: IL-8 increased with the duration of CPB in both groups, with a slightly earlier rise in the vaccinated volunteers. There were no differences in IL-10 or M-CSF production between the two groups, furthermore there were no between group differences in alterations to the phenotype of mononuclear cells or the lymphocyte population.

Conclusion: Administration of the flu vaccine prior to isolated CPB did not alter the associated inflammatory response, and it would support that the administration of the flu vaccine prior to cardiac surgery is safe.



056 Does Remote Ischaemic Preconditioning Protect the Heart and Kidneys in Human Coronary Artery Bypass Surgery - a Randomised Controlled Trial.

Authors: Rahman, I.A.¹; Mascaro, J.G.¹; Steeds, R.P.²; Frenneaux, M.P.²; Nightingale, P.³; Gosling, P.¹; Townsend, P.¹; Townend, J.N.¹; Green, D.¹; Bonser, R.S.¹

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Objectives: Does remote ischaemic pre-conditioning (RIPC) improve myocardial and renal protection in non-diabetic patients undergoing on-pump multi-vessel coronary artery surgery(CABG)?

Methods: Prospective, single centre, double-blind (patients, clinicians, investigators), randomized, placebo controlled trial(placebo n=82; RIPC n=80) in non-diabetic patients undergoing first time multivessel elective or urgent(angina-free for >48 hours) CABG. The RIPC or placebo stimulus comprised 3 x 5 minute cycles of 200mmHg cuff inflation/deflation on an upper arm or dummy limb during conduit procurement. RIPC cuff inflation was verified by pulse oximetry. Anaesthesia, perfusion, cardioplegia and surgical techniques were standardised. The primary end point was 48hr area under the curve(AUC) troponin T (cTnT) release. Secondary end points included 6h and peak cTnT, haemodynamic measurements, low cardiac output episode(LCOE) and peri-operative ventricular tachyarrhythmia incidence, inotrope usage and peak creatinine.

Results: Demographic and operative variables were similar. Between placebo and RIPC, there was no significant difference in median(IQR) 48hAUC cTnT($\text{ng}\cdot\text{ml}^{-1}\cdot 48\text{h}^{-1}$); 28(19-39) vs. 30(22-38) $p=0.38$, 6hr-cTnT; $p=0.52$ or peak cTnT; $p=0.79$. Serial cardiac indices ($\text{L}\cdot\text{min}^{-1}\cdot\text{m}^{-2}$) were not significantly different on repeated measures ANOVA. IABP usage(8.5 vs. 7.5%), LCOE incidence(24 vs. 34%), inotrope(39 v 50%) and vasoconstrictor usage(66 v 64%) and the incidence of peri-operative ventricular tachyarrhythmias were not different. Dialysis requirement(1.2 vs. 3.8%) and peak creatinine (median(IQR) $106\mu\text{mol}\cdot\text{L}^{-1}$ (96-123) vs. 110 (95-131)) were similar. Case urgency did not influence RIPC effect.

Conclusion: In contrast to recent smaller studies, RIPC did not reduce troponin release, improve post-operative haemodynamics or afford enhanced renal protection.

057 Randomised Controlled Trial of Intensive Atorvastatin Pretreatment for the Prevention of Atrial Fibrillation Following Cardiac Surgery.

Authors: Kourliouros, A.; Valencia, O.; Tavakkoli Hosseini, M.; Sarsam, M.; Camm, A.J.; Jahangiri, M.

St George's Hospital, United Kingdom

Objectives: The preventative effect of statins on postoperative AF has been hypothesised. However, all studies to date have examined patients who did not receive statins before their further allocation to treatment or no treatment groups. Since guidelines recommend the routine use of statins in patients with coronary artery disease, we set out to examine the effect of intensive statin pretreatment versus continuation of usual statin dose on AF following cardiac surgery.

Methods: Patients on routine statin treatment undergoing CABG and/or AVR with no history of AF or antiarrhythmic medication were randomised to receive either atorvastatin 80 mg or atorvastatin 10 mg for 7 days before surgery in a single-blind fashion. Primary endpoint was the development of postoperative AF during hospital stay.

Results: 104 consecutive patients were included. Postoperative AF occurred in 33 (32.4%). No significant differences were found in demographics, medical history or intraoperative variables between treatment groups with the exception of higher rate of β -blocker use in the atorvastatin 10 mg group (75% vs. 53%, $p=0.002$) and previous myocardial infarction (62% vs. 42%, $p=0.049$). The incidence of postoperative AF was lower in the atorvastatin 80 mg group when compared with atorvastatin 10 mg, but this difference did not reach statistical significance (29% vs. 36%, $p=0.43$). Following multivariate regression analysis, duration of cardiopulmonary bypass ($p=0.049$) and of aortic cross clamping ($p=0.049$), addition of AVR to CABG ($p=0.032$) and, finally, increased age ($p=0.002$) were independently associated with the development of postoperative AF.

Conclusion: High dose atorvastatin for 7 days before cardiac surgery conferred a non-significant reduction in postoperative AF when compared to low dose regimen. A larger study would be necessary to confirm the beneficial effect of high dose statins in this setting.



058 An Investigation of the Applicability of Rapid Molecular Amplification and Sequencing to Diagnose Patients with Suspected Infective Endocarditis.

Authors: Lim, K. ¹; Yap, J. ¹; Roger, G. ¹; Lee, S. ¹; Zumla, A. ²; Huggett, J. ²; Morris-Jones, S. ²

¹Heart Hospital, United Kingdom; ²University College London Hospital, United Kingdom

Objectives: To investigate quantitative polymerase chain reaction (qPCR) and pyrosequencing as a rapid alternative to conventional techniques in the diagnosis of infective endocarditis (IE).

Methods: Heart valves were collected from 78 cardiac valve operations (55 IE cases and 23 non-infective structural valve disease controls) at a cardiothoracic tertiary referral centre (August 2007 - April 2009). IE cases consisted of patients with suspected active IE (within 42 days/6 weeks of a positive blood culture or starting appropriate antibiotic therapy, n=39) and inactive (n=16) (classified according to the Duke criteria).

Controls underwent valve replacement surgery for other reasons, had no signs of infection or no previous history of IE. Valve samples were sent for routine microscopy, culture and (in some cases) histopathology, and were also analysed by molecular techniques: 1) qPCR using broad-range bacterial (targeting the 16S rDNA gene) and fungal (targeting the Internal Transcribed Spacer 2 region (ITS2)) primers; 2) high resolution melt curve analysis of the qPCR product; and 3) species identification by pyrosequencing.

Results: The overall assay sensitivity and specificity of 16S qPCR/pyrosequencing were 70 % and 100 % when compared to the Duke definite and possible on active IE cases versus controls. 16S qPCR/pyrosequencing identified *Gemella haemolysins* and *Aggregatibacter aphrophilus* where other tests were negative; and *Bartonella quintana* before the reference laboratory. ITS2 qPCR positively identified *Candida albicans*.

Conclusion: Molecular techniques could be used as an adjunct to routine blood cultures and replace standard valve microbiology and histology, by offering a rapid identification of the causative organism in IE.

059 The Effect of Mitral Valve Surgery on the Right Ventricle: A Ventricular Strain Study.

Authors: Pandis, D.; Grapsa, J.; Dawson, D.; Nihoyannopoulos, P.; Punjabi, PP
Imperial College Trust, Hammersmith Hospital, United Kingdom

Objectives: The aim of this study was the follow up of right ventricular remodeling with real time three dimensional echocardiography of patients undergoing mitral valve surgery.

Methods: 32 patients with severe mitral regurgitation who underwent mitral valve surgery constituted the study cohort. Mean age was 53 ± 11.2 years and 14 patients were women. 24 patients (72%) had degenerative disease while 8 patients (28%) endocarditis. 22 patients underwent mitral valve repair (MVrep) and 10 patients replacement (MVR). All patients had a baseline and a 6-month follow up scan with two and real time three-dimensional echocardiography. Right ventricular (RV) volumes (end-diastolic: EDV, end-systolic: ESV, stroke volume: SV), function (ejection fraction: EF) and mass (M) were measured with the method of summation of disks. Analysis was performed with SPSS 13.0.

Results: There was a significant RV reverse remodeling after mitral valve surgery in all patients, except RV mass: RV-EDVpre : 103.1 vs RV-EDVpost : 92.2 ml, $p < 0.05$, RV-ESVpre : 33.9 ml vs RV-ESVpost : 27.2 ml, $p < 0.05$, RV-EFpre : $71 \pm 8.2\%$ vs RV-EFpost : $73.4 \pm 6.2\%$, $p < 0.05$, RV-Mpre: 66.7 ± 18 gr vs RV-Mpost: 67.8 ± 18.4 g, $p = 0.28$. When patients were compared according to the type of operation, there was no significant difference in the RV reverse remodeling values between the two groups.

Conclusion: Mitral valve surgery induces significant reverse right ventricular remodeling, albeit an inconsequential difference between repair and replacement.



060 Independent Predictors of Recurrent Mitral Regurgitation Post Mitral Valve Surgery. Follow Up with Real time 3D Echocardiography and Speckle Tracking.

Authors: Pandis, D.; Grapsa, J.; Dawson, D.; Nihoyannopoulos, P; Punjabi, PP

Imperial College Trust, Hammersmith Hospital, United Kingdom

Objectives: Recurrence of mitral regurgitation (MR) following corrective surgery is a cause of concern, pertaining to preoperative LV/RV functional status and choice of procedure (repair or replacement). Real-Time 3D-Echocardiography (RT3DE) and Speckle Tracking (ST) have been recently proven important in disease quantitation, however current studies have not yet indicated predictive values for a successful surgical corrective procedure. The aim of this study is to ascertain whether echocardiographic interrogation could yield high predictive values for recurrent mitral regurgitation following surgery.

Methods: 40 patients with non-ischaemic mitral valve disease (mean age 56.2± 12.6 years) underwent RT3DE and ST interrogation of the left and the right ventricle pre- and 6 months postoperatively. Sensitivity and specificity of cut off points of the values measured were assessed in order to predict a recurrence of mitral regurgitation post-operatively, using ROC curves. The optimal cutoff value for each parameter was defined as the value giving the largest area under the curve (AUC). All values were inserted into a binary logistic analysis model to determine independent predictors for recurrent mitral regurgitation.

Results: Five patients (0.16%) from the repair group (0.78%) developed recurrent regurgitation. Preoperative values for: mid lateral wall systolic S wave (AUC: 0.769, $p < 0.01$), LV stroke volume (AUC: 0.723, $p < 0.01$), RV end-systolic volume (AUC: 0.719, $p = 0.02$), LV end-diastolic diameter (AUC: 0.692, $p < 0.01$) and RV systolic pressure (AUC: 0.667, $p < 0.01$), proved to be determinants of recurrent regurgitation post mitral valve surgery.

Conclusion: The preoperative performance of the lateral wall, the biventricular dilatation and the elevated pulmonary pressures seem to have an important role in surgical outcome following mitral valve surgery. These findings may lead to improved patient selection and choice of additional tricuspid valve correction for improved outcome.

061 Development of the (extra corporal membrane oxygenation) ECMO Specialist Nurse at Specialist Centre.

Authors: Maura Sreaton, Maura; Fowles, J.A.; Bracken, J.

Papworth Hospital, United Kingdom

Objectives: This initiative was a response to:

- the increasing use of ECMO in heart failure patients in addition to post bypass ECMO support.
- cost effective in comparison to perfusionist support.
- critical care practitioner provides 24 hr care in the critical care area (CCA). By developing the skills of the CCP, ECMO patients on CCA would receive more timely intervention and thereby improve patient safety.

Methods: CCP's selected as at least 1 on unit at all times. Already very experienced cardiothoracic nurses > 10 yrs experience. Initial discussion with CCP's, perfusion department, Intensivist, and consultant surgeon to agree acceptance of responsibility. Agreement between all parties on specific guidelines and vicarious liability accepted by trust. Training programme devised which included practical and Theoretical assessment to level of expert practitioners.

Results: Continuous audit of ECMO data (survival, costs) Feedback from all parties. Further developments, training and assessment of bedside nurses at a lower level than CCP's in management of ECMO.

Conclusion: CCP's provide expert care and advanced troubleshooting for patients receiving ECMO on a cardiac critical care. Increased relevance due to use of ECMO for H1N1.



062 The Introduction of Outpatient Management for Ventricular Assist Device Recipients - A Single Centre Experience.

Authors: Wrightson, N.; Schueler, S.; Mac Gowan, G.; Butt, T.; Pillay, T.; O'Leary, D.
Freeman Hospital, United Kingdom

Objectives: Although the use of VAD's in patients with end stage heart failure has become more widespread, this therapy is still not established as a routine in many areas. A discharge program for patients to a safe and independent life is still a major organisational challenge.

Methods: We started our ambulatory VAD program in 03/ 2008 using the Berlin Heart Excor BVAD and LVAD. We embarked on an educational program for our hospital staff, community support teams including A&E departments, heart failure cardiologists, local heart failure nurses, GP's, district nurses and local rehabilitation facilitators. New out patient clinics were established, visits are weekly at first but decrease as independence and physical fitness improve. At discharge every patient is accompanied home by the VAD coordinator to ensure correct set up of equipment and the community support team were introduced to the patient, education relating to the device was completed. New out patient clinics were established, visits are weekly at first but decrease as independence and physical fitness improve.

Results: Since 2008 17 of 21 patients have been successfully discharged. 7 of 10 Berlin Heart patients (4 LVAD, 3 BVAD) and 10 of the 11 centrifugal pump recipients (6 Ventassist, 5 Heart Ware patients) were discharged and remained home, one patient was transplanted while still in hospital. Time to discharge ranged from 21 - 90 days, there have been no deaths, thrombo-embolic or bleeding complications in the discharged patients and re-admission rates have been low. Anti-coagulation protocol included Aspirin, Dipyridamole and Warfarin, and the patients INR was monitored at home using a self testing device.

Conclusion: Discharge of LVAD and BVAD patients can successfully and safely be achieved. With meticulous education of community support teams it is possible facilitate patients independence with excellent quality of life while awaiting cardiac transplant.

063 Releasing Time To Care - The Productive Ward: The impact of the Process at Papworth.

Authors: Davis, J.

Papworth Hospital NHS Foundation Trust, United Kingdom

Objectives: The Productive Ward project is yet another change that staff in the NHS have been asked to embrace. Research carried out by Warwick University concluded that less than 35% of a trained nurse's time was spent directly caring for patients, a damning figure for the nursing profession. Thus the NHS Institute of Innovation and Improvement (Institute) along with various hospitals as learning partners have devised a toolkit to guide wards through a group of modules that should result in nurses having more time to care (Institute 2008).

Methods: At Papworth we have initial data that would suggest that this change process does indeed release nurses time to care; quality of care is also increasing based on data regarding nurses following policies when completing assessments; all teams have a vision all members have had input in to; educationalists in the Trust can also base their education strategies on evidence from this data; all this data is available for patients and visitors to view leading to more transparent health care; and teams are working in a more cohesive fashion which is hoped will lead to an increase in recruitment and retention of quality staff. The list of apparent benefits is extensive and over the next year or so there is opportunity for extensive research projects. We have taken the productive ward one step further and our transplant team are involved as are our physiotherapists, ensuring a whole team approach to the changes will in turn assure sustainability.

Conclusion: In summary, it is a bottom up change process which is inclusive, thus successful, ultimately improving patient care for all our patients. Reference: NHS Institute of Innovation and Improvement. 2008. Releasing Time to Care: The Productive Ward. Online. Available at:
http://www.institute.nhs.uk/quality_and_value/productivity_series/productive_ward.html



064 The Importance of Blood Lactate Profile as a Predictor of Very Early Perioperative Mortality Following the Modified Norwood Stage I Procedure.

Authors: Murtuza, B.; Wall, D.; Jones, T.; Stickley, J.; Barron, D.J.; Brawn, W.J.

Birmingham Children's Hospital, United Kingdom

Objectives: Good systemic perfusion and optimization of Norwood physiology have a beneficial effect on early haemodynamic stability following the stage I procedure for hypoplastic left heart syndrome (HLHS). We sought to determine whether blood lactate profile, as a surrogate for systemic perfusion, would be a good predictor of early perioperative mortality following the Norwood procedure.

Methods: We retrospectively analysed all patients at our institution who had undergone modified Norwood stage I procedures for HLHS variants between March 2002 and May 2008. All patients had received RV-PA conduits to either right or left main branch pulmonary arteries. Patients with modified Blalock-Taussig shunts were excluded. The main outcome measure was 7-day ICU mortality. We examined both pre- and early post-operative parameters as possible predictors of this outcome. These comprised: patient weight, size of ascending aorta, cardiac morphology; early postoperative arterial blood lactate levels (LAC).

Results: 221 patients were included (135 male). Of these, 2 died in the operating room and were excluded from further analysis. For the remaining 219 patients, 7-day ICU mortality was 24/219 patients (11.0%), with total 30-day mortality of 33/219 (15.1%). We used Conditional Inference Tree Modeling to determine the predictors of outcome. The most specific predictor of 7-day ICU mortality was an inability to clear LAC levels to <3.23 within the first 6 hours after surgery ($p<0.001$). Notably, all patients ($n=9$) in this group died.

Conclusion: We have identified minimum LAC within the first 6 hours after surgery as a specific predictor of early perioperative mortality following the Norwood stage I procedure. The specificity of this parameter as a predictor raises the question as to whether one might consider early, elective extra-corporeal life support in this group of patients.

065 Prediction of Serious Morbidity after Revision Fontan Surgery- A Scoring System.

Authors: Vohra, H.A.; Veldtman, G.R.; DeSilva, R.; Ahmad, Z.; Badle, S.; Cope, R.; Salmon, A.P.; Haw, M.P

University Hospitals Southampton, United Kingdom

Objectives: We sought to identify the predictors of serious morbidity [renal replacement therapy (RRT), prolonged ICU stay >10 days] and a composite endpoint (CE) [death, ECMO, RRT, prolonged ICU stay and ventilation >3 days], in this group.

Methods: Hospital records were retrospectively reviewed. Logistic regression analysis was performed using pre- and intra-operative variables and scoring equations were produced to predict each complication. To determine how well the scoring systems performed, ROC curves were produced.

Results: Forty patients (19 female, mean age 24 ± 9 years, range: 9-48years) had Fontan revision surgery from January 1997 to December 2008. Indications included: arrhythmia ($n=29$), pathway obstruction ($n=2$), arrhythmia and pathway obstruction ($n=5$) and effort intolerance ($n=3$). In-hospital mortality was 12% ($n=5$) and the 5-year and 10-year actuarial survival was $76\pm 7\%$ and $65\pm 11\%$, respectively. Serious morbidity included: RRT ($n=7, 17.5\%$), prolonged ICU stay ($n=8, 20\%$), ECMO ($n=1, 2.5\%$) and CE ($n=13, 32\%$). Left ventricular dysfunction was an independent predictor of RRT, prolonged ICU stay and the composite end point ($p<0.01$). The use of circulatory arrest was associated with prolonged ICU stay and prolonged ventilation ($p<0.05$). Scoring equations for serious morbidity and CE are described.

Conclusion: The scoring equations generated can estimate the risk of serious morbidity and CE for individual patients after Revision Fontan surgery. This may aid in risk-stratification and planning for operation.



066 Early Experience of Temporary Restriction of RV-PA Conduit Flow on Early Outcomes Following Modified Norwood Stage I Reconstruction.

Authors: Murtuza, B.; Jones, T.; Stickley, J.; Barron, D.J.; Brawn, W.J.

Birmingham Children's Hospital, United Kingdom

Objectives: Improved outcomes of the Norwood procedure in hypoplastic left heart syndrome have been achieved by manipulating pulmonary:systemic flow ratio (Qp:Qs) in the early post-operative period, with focus on improving systemic perfusion. As an extension of this Qp:Qs-limiting strategy, we partially clipped the RV-PA conduit for the first 48 hours in a cohort of patients and compared the early outcomes with a non-clipped cohort.

Methods: We included all patients from January 2009 to September 2009 who had undergone Norwood procedures with RV-PA conduit to the right pulmonary artery with conduits partially clipped during surgery. 5mm conduits were clipped to 4mm and 4mm conduits clipped to 3.5mm. Ligaclips were subsequently removed at 48 hours. A comparison group comprising paired-matched controls (non-clipped) were selected from patients within the last 2 years. Matching criteria were: weight; ascending aorta size; cardiac morphology; circulatory arrest time. Outcomes studied were: ICU length of stay, ICU mortality and 30-day mortality.

Results: We identified 18 patients with clipped RV-PA conduits and 18 pair-matched controls. The median weight for both groups was 3.19kg. Results showed a shorter ICU length of stay for the clipped group as well as lower ICU and 30-day mortality (Table 1; data shown as median values).

Conclusion: These preliminary data suggest that limiting Qp:Qs in the early post-operative period following the Norwood procedure is associated with favourable outcomes compared with a conventional strategy and further, that this transient flow restriction in the RV-PA conduit may lead to better outcomes. These results warrant further study.

Parameter	Unclipped group	Clipped Group
Weight (kg)	3.19	3.19
Ascending Aorta size (mm)	2.71	2.76
Bypass time (mins)	110.9	115.8
Circulatory arrest time (mins)	11.4	12.3
cross-clamp time (mins)	46.1	53.4
ICU stay (hours)	239.7	228.3
ICU mortality (n)	2	0
30-day mortality (n)	3	0

067 Assisted Fontan Procedure: Animal and In Vitro Models and Computational Fluid Dynamics Study.

Authors: Corno, A.¹; Subramanian, C.¹; Alphonso, N.¹; Venugopal, P.²; Jarvis, J.C.²

¹Alder Hey Children NHS Foundation Trust, United Kingdom; ²University of Liverpool, United Kingdom

Objectives: Fontan connection with uni-directional valve and intermittent compression by wrapped latissimus dorsi (LD) was tested in vivo, in vitro and with computational fluid dynamics (CFD).

Methods: Experimental study. LD was conditioned in 4 pigs with 3 weeks stimulation (210µs pulses, 30Hz, amplitude 1.5-2.5V, on 0.19seconds/off 6seconds), before inferior vena cava to pulmonary artery (PA) connection by valved conduit wrapped with LD.

Mock circuit. An inflatable cuff wrapped around a valved conduit provided intermittent external compression 25 times/minute, duration 0.6 seconds. Pressure and flow were measured at driving pressure of 8 or 16mmHg, and static outflow pressure (=resistance) at 6mmHg.

CFD study. A circuit was tested for possible increase in basal flow of 4L/min with intermittent (25 times/minute) muscle contraction (0.6sec duration) exerting a pressure from 10.7 to 13.0 mmHg.

Results: Experimental study. Intermittent conduit compression by LD provided mean 7% (range 3.7-10.0%) decrease of PA pressure, with flow increase of 2% (range -6 to +12.5%).

Mock circuit. By raising the driving pressure from 8 to 16mmHg the flow increased with baseline PVR (56%) and with elevated PVR (80%). Mean distal PA pressure decreased and peak distal PA flow increased during intermittent external compression, while total pulmonary flow was reduced during intermittent external compression.

CFD study. Compression with 13.0 mmHg provided 4.9% increase of total pulmonary flow, despite two negative peaks immediately before and after external compression, and substantial increase of the peak flow (92%).

Conclusion: In vivo and in vitro the increased flow produced by compressing a conduit was confounded by the inevitable intermittent flow restriction. CFD using lower pressure for intermittent external compression showed potential for increase in pulmonary flow. Further studies will examine the best method to generate net increase in flow using the muscle graft.

068 Aortic Valve Repair in the Congenital Population

Authors: Pozzi, M; Quarti, A.; Colaneri, M.; Oggianu, A.

Ospedali Riuniti Ancona, Italy

Objectives: Many surgical techniques have been described either to repair or to replace the aortic valve. Among the paediatric population the potential for growth has to be preserved and valve reconstruction is therefore of great importance.

Methods: Between January 2008 to October 2009, 26 consecutive patients with congenital aortic valve disease underwent surgery at our institution. Median age was 8.6 years (range 2 months to 29 years). Indications for surgery were: 1) aortic regurgitation (n = 10), 2) aortic valve stenosis (n =7); 3) aortic regurgitation associated to aortic stenosis (n=11). The mean left ventricular end diastolic dimension z score was 3.9 +/- 1.9 and the mean left ventricular end systolic dimension z score was 1.9 +/- 1.2. The mean left ventricular ejection fraction was 55% +/- 10. 2 pts had left ventricular ejection <40%.

Results: None of the patient died neither during hospitalization nor at follow up. Median follow-up was 9.25 months (interquartile range 4.90-13,6). In the aortic stenosis group (5 pts), one patient required reoperation (re-repair). None of the patients in the aortic regurgitation group (10 pts) developed more than mild aortic stenosis and mild aortic regurgitation during follow-up. 10 out of 11 pts of the mixed lesion group had no or trivial aortic regurgitation at the follow-up. Left ventricular dimension decreased in all patients after repair.

Conclusion: Aortic valve repair is potentially of great importance in the paediatric population to fully preserve the growth potential of the valve. With a better understanding of the causes of aortic stenosis or regurgitation and the adoption of different techniques, often used in multiple association, we have managed to repair the aortic valve in most patients with a normal left ventricular outflow tract. We had no mortality and a low incidence of re-operations. Early results are quite encouraging.

069 Cardiac Surgery for Adults with Congenital Heart Disease. Have we Underestimated the Demand?

Authors: Nikolaidis, N.; Veldtman, G.; Carroll, A.; Salmon, T.; Viola, N.; Kaarne, M.; Haw, M.

Southampton University Hospital, United Kingdom

Objectives: The aim of this study was to report the change in incidence of cardiac surgery for adults with congenital heart disease over the last 4 decades.

Methods: The clinical data has been retrospectively collected from 772 patients who underwent surgical intervention for congenital heart disease at age greater or equal to 16 years old. Retrieval of the information was made from patient's notes and the electronic database (HeartSuite) for the last 47 years. The age at operation ranged from 16 to 77 years old.

We included all reoperations, palliative and repair procedures recorded as primary operations. The number of operations was calculated for each decade. The Kaplan-Meier method was used to calculate estimates for long-term survival and freedom from late reoperation.

Results: There were 829 procedures performed in 772 patients (1.07 procedures per patient). It was the 1st sternotomy for 648 patients, the 2nd sternotomy for 89, the 3rd sternotomy for 27 and the 4th sternotomy for 8 patients. There were 2 operations in 1960s, 14 in 1970s, 77 in 1980s, 233 in 1990s and 503 from 2000 until now.

The 30 day mortality was 2.2%. The late survival rates in 5, 10 and 20 years were 94.4±0.9%, 93.1±1% and 88.1±2.2% respectively. 45 (5.8%) patients required reoperation with the most common reason the need for replacement of valve+conduit in the pulmonary and aortic position.

The overall freedom from re operation in 5, 10 and 20 years was 96.5±0.7%, 94.7±1% and 90.5±1.9%. The actuarial survival for the patients operated in the last decade was 95.9±0.9%, 94.5±1.2% and 93.2±1.8% for 1, 5 and 7 years respectively. The freedom from reoperation was 97±0.8%, 94.4±1.4% and 92.1±2.1% for 1,5 and 7 years respectively.

Conclusion: Surgical intervention for congenital heart disease in adults is a safe and low-risk treatment when performed in a specialized centre. It is not clear what the final incidence of surgery will be for this expanding and increasingly complex group of patients.

070 Does PET Scanning Improve Survival In Patients Undergoing Potentially Curative Lung Resections For Non Small Cell Lung Cancer?

Authors: Poullis, M.; Shackcloth, M.; Page, R.; Mediratta, N.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: To determine if PET scanning has resulted in an improvement in short and long term survival of patients undergoing potentially curative resections for non small cell lung cancer. PET scanning is currently thought to be very accurate in assessing nodal and systemic metastasis, and thus the prevention of non curative resections. No publications exists to demonstrate an increased survival of patients in lung cancer due to the use of PET scanning. If PET scanning reduces unnecessary resections the results from surgery should be improved with its introduction.

Method: A prospective thoracic surgery database was retrospectively analysed. Patients who had undergone potentially curative resections for non small cell lung cancer, N=1,883, who had a PET scan pre operatively, N=665, were compared to patients who had not undergone PET scanning, N=1218, prior to surgical resection. PET scanning became routine for all patients 4 years ago in our unit. Staging was defined as pathological staging to eliminate bias by “better” pre operative staging due to PET scanning. Routine intra operative mediastinal lymph node sampling is undertaken in our unit.

Results: The introduction of routine PET scanning has not resulted in improved survival short or long term, for patients undergoing resections for stage I (PET N=439, no PET N=852), $p=0.46$, II (PET N=145, no PET N=273), $p=0.37$ or IIIa (PET N=9, no PET N=17), $p=0.69$ non small cell lung cancer. PET has however resulted in a significant increased survival for patients undergoing wedge resections for primary lung cancer (PET N=72, no PET N=76), $p=0.03$, figure 1.

Conclusion: Patients undergoing wedge resections for non small cell lung cancer should have PET scans performed. Our data confirms the recent much smaller study findings of Maziak et al. For patients with stage I, II, and IIIa non small cell lung cancer the role of PET scanning needs to be further evaluated.

071 Does Routine Preoperative CT-PET Improve on an Aggressive Surgical Approach to the Suspicious Solitary Pulmonary Nodule?

Authors: Peng, E.W.K.; Deacon, S.; Muller, S.; Nakas, A.; Martin-Ucar, A.E.; Waller, D. Glenfield Hospital, United Kingdom

Objectives: We aimed to assess whether the use of CT-PET improves the accuracy of an aggressive surgical biopsy strategy for solitary pulmonary nodules (SPN) referred for surgery through a multidisciplinary team.

Methods: We analyzed 100 consecutive patients with suspicious SPN referred for surgery. All had excision biopsy and one-stop resection based on intra-operative frozen section (FS) analysis. We compared the perioperative course of 50 patients who had preoperative CT- PET (group P) with 50 patients who had no PET (group No P).

Results: There was no significant difference in patient demographics; tumour histology; hospital stay (median 6.0 vs 8.0 days) or in-hospital mortality (0 vs 3, 6%) between the two groups. There was no difference in the incidence of resected malignant SPN: 74% group P vs 78% group No P ($p=0.64$). In group P 36(72%) patients were PET-positive. PET positivity was associated with malignant histology (83% vs 43% in PET-negative; $p=0.01$). There were no false-positive FS results but 4(8%) in group P had false-negative results and 2(4%) in group No P had inconclusive FS analysis. In the 24 patients with benign histology: 67%(16) had VATS biopsy; 33%(8) open biopsy with no mortality. CT-PET did not alter their management.

Conclusion: Routine preoperative PET-CT in the management of SPN has not improved the accuracy of our policy of excision biopsy and intraoperative frozen section analysis based on clinicoradiological criteria. A significant proportion of PET negative SPN have been found to be malignant.



072 The Rise of EBUS: Is this the end of Mediastinoscopy?

Authors: Fontaine, E.J.; Menakaya, C.; Elsayed, H.; Binukrishnan, S.; Walshaw, M.; Ledson, M.; Page, R.D.; Mohan, K.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Mediastinoscopy has long been regarded as the “gold standard” for staging the mediastinum. We wanted to assess the efficacy and impact of a recently introduced endobronchial ultrasound (EBUS) guided lymph node biopsy at our institution.

Methods: We analysed a prospectively recorded database of patients undergoing EBUS and mediastinoscopy between 1/6/2009 and 31/10/2009. We also compared the number of mediastinoscopy procedures performed over the same period in the previous year.

Results: 66 patients underwent EBUS guided biopsy of 104 lymph node stations/peribronchial tumours. Of these 19 were for diagnostic reasons, 11 staging and 36 for combined diagnostic and staging purposes. The average time from referral to procedure was 4 days and the mean size of lymph nodes sampled was 1.5 cm (0.5 - 6 cm). 18 patients underwent mediastinoscopy during this period, which was a 50% reduction for the same period last year.

EBUS resulted in positive cytology in 63 patients (95 %): carcinoma 31, sarcoid 10, tuberculosis 1 and benign lymphoid tissue in 21. Of the 21 benign lymph nodes: 6 were confirmed to be benign by mediastinoscopy or by lymph node sampling at lung resection, 6 are under clinical follow up and 7 are awaiting mediastinoscopy/ resection. 2 patients with benign nodes at EBUS were subsequently diagnosed as lymphoma at mediastinoscopy (false negative rate 3 %).

Of the 3 inadequate specimens (5 %): one proved to be benign, one lymphoma and the other patient is awaiting mediastinoscopy. There were no complications.

Conclusion: Our initial experience demonstrates EBUS to be safe and reliable in the diagnosis and staging of patients with lung lesions. With the initial reduction in our mediastinoscopy rates due to EBUS we predict a steady decline. If there is a clinical doubt about a benign lymph node from EBUS, mediastinoscopy should be the next step.

073 Intra-Tumoural Vascular Invasion as a Prognostic Factor for Overall and Disease Free Survival in Early Stage Non-Small Cell Lung Cancer.

Authors: Al-Alao, B.; McGovern, E.; O'Byrne, K.; Young, V.

St.James's Hospital, Ireland

Objectives: The prognostic significance of vascular invasion in non-small cell lung (NSCLC) cancer is under continuous debate. We analysed the effect of tumour aggressiveness (lymphatic and/or vessel invasion/permeation) on survival and relapse in stage I and II NSCLC.

Methods: This is a retrospective single institution analysis of prospectively collected data. Specimens were analysed for intra-tumoural vascular and lymphatic space invasion. Overall mortality and disease-free survival were determined and for each stage, a Cox regression analysis of selected variables was performed.

Results: From 1998 to 2007, 452 patients with stage I and II NSCLC were identified. Of these, 119 with p stage IA (26.3%), 203 with p stage IB (44.9%), 24 with p stage IIA (5.3%) and 106 with p stage IIB (23.5%) underwent surgery with complete resection, for a complete resection rate of 452/476 (95%). The incidence of intra-tumoural vascular invasion was 24.1%, and this significantly correlated with visceral pleural involvement ($p=0.023$), lympho-vascular space invasion ($p<0.001$), T status ($p=0.023$), N status ($p=0.045$) and stage ($p=0.006$). The incidence of lymphatic space invasion was 5.5 %, and significantly correlated with grade of differentiation ($P=0.004$). Median survival and overall 5-year survival for patients with and without permeation were 28.2 months (95%CI [18.7-37.7]) and 51.8 months (95%CI [41.2-62.4]), respectively; and 37% and 46%, respectively ($p=0.023$). Cox regression revealed intra-tumoural vascular invasion as a significant predictor for overall death (HR 1.5 [95%CI=1.09 - 2.1]), and disease free survival (HR 1.6 [95%CI=1.09-2.5]).

Conclusion: In this large institutional study of early stage NSCLC, the presence of intra-tumoural vascular invasion was significantly related to TNM status, stage and lymphatic space invasion and in consistent with previous reports, it was a strong predictor of prognosis and tumour recurrence.



074 Day-Case Thoracic Surgery. A New Concept in the UK.

Authors: Ghosh-Dastidar, M.; Deshpande, R.; Rajagopal, K.; Andersen, D.; Marrinan, M.
King's College Hospital, United Kingdom

Objectives: Day-case thoracic surgery is rarely performed in the UK in dedicated Day Surgery Units (DSU's) despite potential benefits including lower risk of cancellation, reduced infection rates, cost-effectiveness and increased patient satisfaction. There is emerging evidence to suggest that certain diagnostic and therapeutic thoracic interventions can safely be performed on an outpatient basis, particularly with the advent of less invasive techniques such as Video-Assisted Thoracoscopic Surgery (VATS). We describe our experience to date.

Methods: Data was collected prospectively on all patients who underwent thoracic surgery in the DSU from the 1st September 2007 to the 1st September 2009. Patients were admitted to the DSU 1-2 hours prior to their procedure. Following surgery, they were observed in the recovery area for up to 1 hour before transfer back to the short-stay ward. When chest drains were used, they were removed in the theatre/recovery area, or were attached to a Heimlich valve for the patient to be discharged with. Both the anaesthetist and surgeon decided on the post-operative analgesic regimen depending on the procedure. A member of the operating team reviewed all patients post-operatively, and they were discharged home within 4 to 6 hours if appropriate.

Results: During this period, 83 patients underwent thoracic surgery in our DSU under the care of 2 Consultant Surgeons. There were 51 male (61.4%) and 32 female (38.6%) patients. The mean age of the patients was 52.6 with a range of 17 to 83 years. There were no deaths. The breakdown of activity is summarised in the table below;

PROCEDURE	NUMBER
VATS	27
Chest wall surgery	21
Mediastin-otomy	20
Sternal wire removal	13
Rigid bronchoscopy	2

Out of the cohort, 4 (4.8%) patients required admission directly from the DSU, and 2 (2.4%) were admitted late after discharge with problems relating to their surgery.

Conclusion: With good patient selection thoracic surgery can be performed safely and effectively in DSU's. We have begun to increase the number of cases we perform, and have also expanded the variety of procedures we offer.

075 Extra-Pulmonary Bypass for the Treatment of Homogenous Emphysema.

Authors: Jordan, S.; Polkey, M.; Goldstraw, P.
Royal Brompton Hospital, United Kingdom

Objectives: In emphysema gas trapping leads to resting and dynamic hyperinflation and through the mechanism of dyspnea to exercise limitation. We tested the hypothesis that a direct connection between the lung parenchyma and the atmosphere could increase expiratory flow.

Methods: Following ex-vivo work in explanted lungs (ATS 2006) we conducted a pilot study in vivo in 6 patients with advanced homogenous emphysema using a size 9 endotracheal tube as a bypass surgically placed through the chest wall into the upper lobe.

Results: Only 4 patients could retain this tube for 3 months or more but at 3 months, total lung capacity (TLC) was reduced and FEV1 was greater in all 4 patients; mean FEV1 at baseline was 24.4% predicted and at 3 months was 29.5% predicted, an increase of 23%. In 3 of 4 patients incremental shuttle walking distance was reduced (278m at baseline and 238m at 3 months; -13.6%)

Conclusion: An extrapulmonary airway bypass can increase expiratory flow in emphysema. We speculate that this may be a useful approach in hyperinflated patients with homogenous emphysema, but it will likely be most effective when combined with post procedure rehabilitation.



076 Pulmonary Metastasectomy in Colorectal Cancer: Quantitative Data Synthesis of 3,504 Patients in 51 Case Series Covering 40 Years of Practice.

Authors: Hunt, I.³; Treasure, T.¹; Teoh, K.²; Fiorentino, F.¹; Utley, M.¹

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Objectives: Surgical removal of pulmonary metastases from colorectal cancer is undertaken increasingly but practice is variable. There have been no randomised trials of effectiveness. We need evidence from systematic reviews to plan further research.

Methods: A formal search for all studies concerning the practice of pulmonary metastasectomy was undertaken. Abstracts were screened, reviewed, and data extracted by at least two of the authors. Information across studies was collated in a quantitative synthesis.

Results: Sufficient quantitative information to be included in the synthesis was present in 51 articles. The reports were published between 1971 and 2007 and included data on 3504 patients. There was little change over time in patient characteristics such as age, sex, the time elapsed since resection of the primary cancer, its site or stage. The proportion with multiple metastases or elevated carcinoma embryonic antigen (CEA) did not change over time but there was an apparent increase in the proportion of patients who also had hepatic metastasectomy. (Table) Differences in 5-year survival between groups defined by CEA or by single versus multiple metastases persisted over time. Few data were available concerning post-operative morbidity, post-operative lung function, or change in symptoms.

Conclusion: The quality of evidence available concerning pulmonary metastasectomy in colorectal cancer is not sufficient to draw inferences concerning the effectiveness of this surgery. There is great variation in what was reported and its utility. Given the potentially burdensome nature of the surgery involved, better evidence, ideally in the form of randomised trials, is required to justify continuance of this practice.

Case mix	Reports	Patients	Epoch1	Epoch2	Epoch3	Epoch4	Epoch5
Multiple metastases	38/51	2676	33%	35%	27%	40%	39%
Previous metastasectomy	21/51	1608	15%	22%	16%	14%	19%
With hepatic metastases	34/51	2356	15%	16%	19%	19%	22%
Elevated CEA	18/51	1409	46%	51%	41%	49%	32%
% five year survival							
Multiple metastases	15/51	1516	30%	29%	31%	22%	37%
Solitary metastasis	25/51	2227	46%	45%	48%	49%	54%
CEA normal	11/51	1159	47%	38%	42%	53%	43%
CEA elevated	11/51	1159	16%	22%	33%	22%	0%

077 Aortic Root Support in Marfan syndrome: Technical Results in the First 10 Consecutive Patients.

Authors: Pepper, J.¹; Treasure, T.²; Golesworthy, T.³; Ganeshalingam, S.⁴; Chan, K.M.J.¹; Mohiaddin, R.¹; Utley, M.²

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Objectives: The feasibility of using MRI data in computer assisted design to create a physical 3D model of the ascending aorta has been established. Bespoke external aortic root supports manufactured using this technology have been implanted in 19 patients with Marfan syndrome. The area covered extends from the ventriculo-arterial junction proximally to the origin of the innominate artery. We sought to establish if the immediate objective of ensuring the stability of the aortic root diameter was consistently achieved.

Methods: In the first 10 consecutive patients having this surgery measurements were made of the ascending aorta at the level of closure of the aortic valve cusps from MRI studies taken preoperatively and at fixed intervals thereafter. The anonymised MRI studies were presented to the radiologist in a random sequence, interspersed with 40 sets of duplicated studies from non-operated patients, the measurements from which were used to assess intra-observer measurement reproducibility. The largest difference between the preoperative and the most recent measurement of the three aortic root diameter measurements was calculated. Perioperative factors were compared with root replacement in Marfan patients (7) and other pathologies (21) operated in the same time window (Table).

Results: All 10 consecutive patients aged 15-58 years with preoperative aortic diameter 3.5 to 5 cms had surgery as planned without complications and were alive at one year. Intra-operative TEE imaging confirmed that laminar flow in the coronary ostia was preserved. In all patients the objective was achieved and in 8 of 10 patients the largest observed change was a marked reduction in aortic root diameter.

Conclusion: The primary objective of this surgery - to reinforce the ascending aorta whilst leaving the native aortic valve intact and conserving the blood/endothelium interface - was achieved in every case. Cardiopulmonary bypass and myocardial ischaemia can be avoided.

Group	Marfan EARS	Marfan root replacement	Other root replacement
Number	10	7	21
Male:Female	6:4	6:1	17:14
Age (year median and range)	31 (18-58)	32 (17-60)	57 (19-80)
Operation time (mins med and range)	150 (91-200)	374 (240-493)	340 (165-562)
Bypass time (mins med and range)	0 (0-20) one patient	149 (139-323)	210 (118-275)
Cross clamp time	N/A	106 (100-243)	143 (97-195)
Arrhythmia	2	5	10
Days in hospital post surgery	7 (4-16)	8 (4-119)	8 (1-57)
Warfarin for life	0	3	7

078 Effective Cerebral Protection Using Near-Infrared Spectroscopy Monitoring with Antegrade Selective Cerebral Perfusion During Aortic Surgery

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Objectives: Antegrade selective cerebral perfusion (ASCP) under moderate hypothermia, may improve cerebral protection during aortic surgery. Intraoperative non-invasive measurement of cerebral regional oxygen saturations (rSO₂) using near-infrared spectroscopy (NIRS) can provide accurate monitoring of cerebral oxygenation and hence adequate cerebral perfusion during ASCP. We evaluated the outcome of using NIRS in providing effective cerebral protection with ASCP during aortic surgery.

Methods: Between May 2006 and March 2009, 27 patients (mean age 60 [SD] ± 12 years; 59.3% male, 93% elective) underwent repair of an aneurysmal ascending aorta with ASCP monitored by NIRS (Table 1). ASCP was established through the right axillary (n=26) and subclavian artery (n=1). All patients had continuous intra-operative measurement of both anterior cerebral rSO₂ using NIRS. Continuous left radial artery pressures were measured to assess adequate posterior cerebral perfusion. Quality of life (QoL) was assessed using a Short Form health survey (SF-36).

Results: Mean ASCP rate of 1.27±0.35L/min provided a mean left radial artery pressure of at least 60mmHg. All patients' cerebral rSO₂ were maintained above their baseline using NIRS. Mean ASCP time was 14.3±2.6 minutes at a mean core temperature of 23.4±2.0°C. Temporary neurological deficit occurred in 1 patient (3.7%), who developed diplopia and amaurosis fugax. Permanent neurological dysfunction occurred in 1 patient (3.7%) who developed confusion with new cerebral infarction on CT. 30-day mortality rate was 3.7%. At median follow up of 18.3 months (inter-quartile range 10.8-23.3) survival was 92%. Overall mean norm-based QoL score was above average at 52.5±6.5 (n=17).

Conclusion: Continuous cerebral rSO₂ and left radial artery pressure monitoring with ASCP during aortic surgery provides accurate measurement of cerebral perfusion, resulting in minimal neurological and perioperative complications with good mid-term QoL outcomes.

Extent of repair/replacement	Number
Aortic root and ascending aorta replacement	12
Aortic valve and ascending aorta replacement	11
Aortic root and proximal arch replacement	1
Ascending aorta replacement	3

079 The Time-Delay to Treatment in Type A Aortic Dissection: The Black-Hole of Dissection Management.

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Objectives: Acute type A aortic dissection(AD) is a lethal condition and emergency surgical repair is the recommended treatment. We investigated how emergently treatment actually occurs.

Methods: AD patients operated on between 06/98 and 01/09 were identified from a prospectively maintained database and additional data obtained from casenote review. Follow-up data(06/09) was obtained from CCAD(100% complete).

Results: We identified 77 AD patients; age 57±15yrs; 54(70%) males. Median(IQR) time from first symptom to hospital assessment was 1.5(1.0-2.6)h, time to cardiac surgical admission 8(5-24)h and time to operation from first symptom 21(10-49)h. Twenty(39%) patients had a delay to operation >24h. Division of patients into three eras (98-02, 03-05 and 06-09) demonstrated trends to reducing time to surgical admission (10(6-45)h, 7(4-20)h and 5(4-20)h; p=0.077) and time to treatment (22(13-47)h, 23(11-53)h, and 10(7-48)h; p=0.127). We subdivided patients according to 3 time periods of symptom onset to operation, to investigate possible reasons for treatment delay

	<12h	12-24h	>24h	p-value
Base-hospital non-surgical (%)	89	85	79	0.710
Symptoms 1400-0700 (%)	50	77	53	0.271
Chest pain (%)	72	64	84	0.223
Mediastinal widening±effusion (%)	39	61	42	0.418
Ischaemic ECG (%)	29	8	53	0.043
Hypertension (%)	62	67	74	0.773
NYHA III/IV	50	25	28	0.259
Non-thoracic presentation, no chest pain (%)	6	8	11	0.858
Non-thoracic presentation + chest pain (%)	50	25	21	0.139

Ischaemic ECG changes increased time to treatment, while NYHA III/IV, mediastinal widening and non-thoracic presentation with chest pain showed a trend to accelerating surgery. In-hospital mortality was 21%. Median follow-up for survivors was 4.3(1.1-7.3)yrs and 4-year post-discharge survival was 85%.

Results: Contrary to belief, there is a considerable delay in type A dissection treatment which is partly dependent of presentational features. The delay represents a focus for investigation in the likelihood that this could be appreciably shortened.

080 Specialist Nurse Consenting in Thoracic Surgery: is it Satisfactory?

Authors: Hewitt, K.; Devbhandari, M.; Shah, R.

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Objectives: Specialist nurse consenting in thoracic surgery is not widely practised. There is no published literature on safety and patient satisfaction on consenting by nurses. This study was carried out to review the training process for nurse consenting and establish the safety and feasibility of such procedure.

Method: A qualified thoracic nurse specialist with several years of specialty experience was trained to obtain informed consent from patients undergoing routine thoracic surgical procedure. For this purpose a multistage structured training program was developed. First stage consisted of theoretical discussion of General Medical Council guidance on informed consent followed by trust consent policy. Second stage consisted of gradual progression from direct observation to supervised consenting and finally independent consenting. A prospective detailed questionnaire satisfaction survey (n=50) was designed to compare the satisfaction level on a scale of 1 (very satisfied) to 5 (very unsatisfied) between nurse consenting (n=25) and physician consenting (n=25).

Results: Consent training was implemented to a satisfactory level to be approved by trust board. A total of 50 patients were interviewed on the evening prior to surgery consisting of 25 patients in both nurse consenting and physician consenting. There was no difference between the two groups in terms of adequacy of explanation of surgical procedures, risks, benefits, and opportunities to ask questions. Overall, both the groups achieved similar level of satisfaction with a median score of 1 ($p=0.89$). However nurse practitioner was significantly more likely to give out the information leaflets to the patient ($p<0.05$).

Conclusion: Thoracic surgery nurse specialist can be trained to obtain informed consent. Patient satisfaction with nurse specialist consenting is equivalent to medical staff consenting

081 To Understand the Role of Nurse Practitioners as Non Medical Prescribers in a Cardiothoracic unit.

Authors: Sandeman, D.

Edinburgh Royal Infirmary, United Kingdom

Objectives: Nurse prescribing is a new role within our Cardiothoracic unit brought about by the need to optimise patient care and offer a more accessible service in an environment with reduced junior doctors (European Working Time Directive). Green 2004 identified that the implementation of Nurse Prescribing has enabled patient care to be improved, particularly at times when doctors are not readily available. The Crown Report (1989) brought about widespread agreement that action is needed to align prescribing practice with professional responsibilities. Legislation was implemented in 1994 in the UK and NMC approved courses in 2001. These courses have been popular in Scotland with 1310 qualified Nurse Prescribers by 2006 (Boreham & Doyle 2006). The objectives of Nurse Prescribing include maintaining Patient care continuity, improving service quality without compromising on safety, make better use of skills of health professionals, increase patient choice in accessing medicines and contribute more flexible team working across the NHS (Scottish Executive 2006). A study by Latter S et al (2005) demonstrated that Prescribers are operating safely, clinically appropriately and effectively in practice. Nurses are satisfied with their training for their prescribing role. Doctors are working well with the prescribers in mentorships and support roles. Patients, Nurses and Doctors viewed the processes and outcomes of independent nurse prescribing largely positively.

Conclusion: Key points from our experience in establishing a non medical prescriber role is varied expectations from multidisciplinary groups, increased accountability, clarification of Insurance and last but not least, change in team dynamics. Future plans include an imminent need to outline Nurse Prescribing policies within the unit, develop mentorship roles for training non medical prescribers and organise an Audit of Practice to examine the impact of this expanded role on service delivery within the Cardiothoracic unit



082 Clinical Decision Making by Cardiac Intensive Care Nurses in the First Two Hours Following Cardiac Surgery.

Authors: Nolan, E.

Morrison Hospital, United Kingdom

Objectives: Cardiac intensive care nurses make clinical decisions in order to manage haemodynamically unstable post operative cardiac surgical patients in the first 2 hours following cardiac surgery. This study aims to explore clinical decisions made by CITU nurses and whether those decisions are made autonomously or in collaboration with colleagues, senior nurses or medical staff. A comparison is made between the most experienced and the inexperienced nurses and what they consider has influenced their decision making whether it is knowledge, experience or intuition.

An exploration of whether experience, knowledge and intuition effects clinical decision making. It is hoped this study will identify expert nurses who are able to make autonomous clinical decisions.

Methods: This is qualitative exploratory study using a purposive sample of 10 participants. 5 nurses with less than 3 years experience and 5 were greater than 6 years experience. Data collection is by semi-structured interviews and is analysed using content analysis. Content analysis uncovers possible themes from analysis of the interview content.

Results: 9 out of 10 participants recalled critical hypotension which required an immediate clinical decision and that decision was in all cases made by the bedside nurse. Junior nurses accessed local protocols to enact autonomous clinical decisions. Expert nurses were identifiable by their autonomous clinical decision making. All participants demonstrated satisfactory to excellent knowledge concerning colloid resuscitation.

Conclusion: Most Cardiac Intensive Care Nurses regardless of their experience are making autonomous decisions involving the management of haemodynamic instability following cardiac surgery.

083 Anatomical Repair for Congenitally Corrected Transposition of the Great Arteries (CCTGA): Midterm Results.

Authors: Eaton, D.; Murtuza, B.; Laker, S.; Stickley, J.; Miller, P; DeGiovanni, J.; Stumper, O.; Jones, T.; Barron, D.; Brawn, W.J.

Birmingham Children's Hospital, United Kingdom

Objectives: To analyse the outcomes (early and late mortality, mid-term survival, freedom from re-intervention and functional status) for patients with CCTGA who have undergone restoration of the morphological left ventricle to the systemic circulation

Methods: Over the last 18 years (December 1991 to August 2009) a total of 103 patients (median age 3.0 years, range 25 days-40 years) with a diagnosis of CCTGA underwent anatomical repair. Of these 56 underwent a double-switch procedure (with two of these having a staged double-switch, 37 underwent a Rastelli-Senning procedure, 3 a Senning-tunnel (Senning and intra-ventricular re-routing) and 3 Rastelli and extracardiac atrial switch repair.

PA banding was performed before the anatomical repair in 46 of the double-switch group and in the 3 patients who subsequently underwent Senning-tunnel repair.

Current follow-up data shows a median follow-up period of 3 years and 2 months and a total follow-up of 481 patient years.

Results: 30-day mortality was 4% (4 patients). At current follow-up there have been 5 late deaths therefore the overall mortality is 9%.

The most common significant early morbidity was complete heart block.

Re-interventions included both re-operation and catheter procedures. In the double-switch group the commonest surgical re-intervention was for aortic regurgitation or obstruction of the pulmonary venous baffle. The commonest surgical re-intervention in the Rastelli-Senning group was for conduit stenosis.

Conclusion: Anatomical repair with restoration of the morphological left ventricle to the systemic circulation can be carried out with low early morbidity and good long-term results for functional status and survival. Continued surveillance is required for these patients to identify any problems of conduit stenosis aortic valve regurgitation and morphological left ventricular function.



084 Should NICE Guidelines for Mediastinal Staging Continue to be Used?

Authors: Ahmed, I.; Stuart, R.; Muller, M.; Stamenkovic, S.

Freeman Hospital, United Kingdom

Objectives: Accurate preoperative mediastinal staging is vital and influences subsequent treatment, prognosis and outcome. Advances in imaging techniques including the use of PET/CT have allowed for greater precision in staging nodal disease in Non Small Cell Lung Cancer (NSCLC). Our aim was to assess the appropriateness of the NICE recommendations for PET/CT and mediastinoscopy in the light of developing staging strategies using exciting new technologies such as EBUS (endobronchial ultrasound).

Methods: A retrospective analysis was performed of patients undergoing staging for potentially resectable NSCLC. A 100% PET/CT followed by mediastinoscopy strategy was used in all patients in a single surgeon's practice. All PET/CT reports were correlated with histology from mediastinoscopy. In addition analysis was made of whether this strategy caused any breach in times for definitive treatment.

Results: A total of 106 patients were studied. 79 patients were PET /CT negative with a 9% false negative rate. 27 patients were PET/CT positive with a 40% false positive rate. Overall, once histology was available, 17% of patients followed a different management pathway that would have been initially suggested by PET/CT, if NICE guidelines had been adhered to. All these patients fell within the criteria which would have recommended mediastinoscopy by ESTS guidelines. No breaches in treatment dates were made by using the 100% mediastinoscopy strategy in this series.

Conclusion: In preparation of new national and international EBUS strategies being implemented, we examined the correlation between the pathology and PET/CT findings in a single surgeons data, with a 100% mediastinoscopy strategy. Correlation of these findings revealed that following NICE guidance may not always be appropriate and the ESTS guidelines appear to be a better strategy to follow.

085 Systematic Mediastinal Nodal Dissection and Stage Migration: Impact on Clinical Pathway.

Authors: Amer, K.; Khan, A.Z.

Southampton General Hospital, United Kingdom

Objectives: Stage migration could be a source of misleading statistics for survival in lung cancer. This study investigates the role of Systematic Mediastinal nodal dissection (SND) as a staging tool for lung cancer, compared to preoperative staging by conventional PET/CT.

Methods: Between 2007 and 2009 patients with primary NSCLC proceeded to SND during VATS resection. All patients were staged by CT/PET preoperatively. On the right side, stations 2-4, 7, 8, 9, 10 and 11 and on the left stations 4-6, 7, 8, 9, 10 and 11 were dissected. Pre and postoperative staging, stage migration and impact on clinical pathway were noted.

Results: 64 consecutive patients were operated by VATS, 62 lobectomies, 1 bilobectomy and 1 pneumonectomy. SND resulted in 12 stage migrations (18.8%), upstaged 7 patients (10.9%), and down staged 5 patients (7.8%). One PET negative patient had multilevel N2 positive nodes (#2-4 & #7) postoperatively. All upstaged patients had adenocarcinoma, whereas all downstaged patients had squamous cell carcinoma.

Conclusion: SND remains the best tool to stage lung cancer, decide on adjuvant chemotherapy, and reduce the chance of stage migration. PET sensitivity is reduced in adenocarcinoma and might result in significant stage migration.

Upstaging

Pt number	Stage	PET Migration	SND staging	Histology staging	Clinical Pathway
1	Ia to IIa	NO	N1 (#11)	Adeno ca	Completed chemo
2	Ia to IIa	NO	N1 (#11)	Adeno ca	Completed chemo
3	IIb (T3N0) to IIIa (T3N1)	NO	N1 (#10)	Adeno ca	Died in neutropenic sepsis after chemo
4	Ia to IIIa	NO	N2 (#R2-4)	Adeno ca	Referred for chemo
5	Ib to IIIa	NO	N2 (#R2-4)	Adeno ca	Completed chemo
6	Ib to IIIa	NO	N2 (#7)	Adeno ca	Completed chemo & Radiotherapy
7	Ib to IIIa	NO	Multilevel N2 (#R4 & #7)	Adeno ca	Completed chemo

Down staging

1	IIb to Ib	N1 (#10)	NO	Squamous	No adjuvant therapy
2	IIb to Ib	N1 (#10)	NO	Squamous	No adjuvant therapy
3	IIIb to IIb	N2 (#R2-4)	N1 #11	Squamous	Referred for chemo
4	IIIa to Ia	N2 (#R4)	NO	Squamous	No adjuvant therapy
5	IIIa to Ib	N2 (#R2-4)	NO	Squamous	No adjuvant therapy

086 Surgical Resection for Non-Small Cell Lung Cancer: Influence of Number of Lymph Nodes Dissected on Survival.

Authors: Al-Alao, B.; McGovern, E.; O'Byrne, K.; Young, V.

St.James's Hospital, Ireland

Objectives: This study was conducted to examine the influence of number of lymph nodes resected during surgery for T1-T3 N0 non-small cell lung cancer (NSCLC) on survival.

Methods: T1-T3 N0 NSCLC patients treated with surgical resection and lymph nodes dissection between 1998 and 2007 were analysed. The association between total number of lymph nodes removed and overall survival (OS) was investigated. Survival analysis and Cox regression analysis were used to identify independent predictors of outcome.

Results: Of 650 NSCLC surgical patients, 300 (46%) have been identified as pathologically proven N0. Within this group, T1 N0 (stage IA) comprised 99(33%), T2 N0 (stage IB) 175(58.3%) and T3 N0 (stage IIB) 26(8.7%). Median follow up was 26 (1.4 - 128.4) months and the 5-year OS was 44%. Patients were divided into quartiles on the basis of total number of lymph nodes dissected. Patients with more than 18 lymph nodes removed had superior OS compared to less than 7 lymph nodes; $p=0.041$. This difference maintained its significance on multivariate Cox regression after adjusting for confounding factors (hazard ratio of death (HR) 0.55; 95% confidence interval (CI) 0.32-0.94; $p=0.029$). In addition, T stage ($p<0.001$), intra-tumoural vascular invasion ($p<0.006$), age ($p<0.001$) and gender ($p<0.002$) have also been identified as independent risk factors for superior OS.

Conclusion: These results indicate that excising a greater number of lymph nodes in early stage NSCLC treated with resection improves survival. A minimum of 18 lymph nodes should be removed regardless of location or station. Early stage, absence of intra-tumoural vascular invasion, younger age and female gender were independent favourable risk factors.

087 Should We Operate on Microscopic N2 Non Small Cell Lung Cancer?

Authors: Poullis, M.; Mediratta, N.; Shackcloth, M.; Carr, M.; Page, R.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Traditionally non small cell lung cancer stage N2 is considered as a contraindication for curative resection. The introduction of multiplanar CT and PET-CT scanning has resulted in an increased detection of occult N2 disease prior to thoracotomy and potentially curative resection. We investigated the outcome of patients who had been assessed by CT and PET-CT as not having N2 disease, who underwent potentially curative resections, and mediastinal lymph node sampling that resulted in a pathological staging as N2.

Methods: We retrospectively analysed a prospective thoracic surgery database. Five year survival was obtained by utilising the UK strategic tracking service. We benchmarked our stage/survival data against the IASLC Lung Cancer Staging Project 7th edition outcome figures. Mediastinoscopy was utilised in all patients who had mediastinal lymph nodes enlarged by CT criteria, or were positive on PET scanning.

Results: Benchmarking revealed no discrepancies in our stage specific survival data. No patients underwent resection with a pre operative staging of N2 disease. Of 2,183 lung resections for primary lung cancer, from November 2000 to September 2009, 184 were pathologically staged as N2. Of the 184 patients with resected microscopic N2 disease the five survival was not significantly different from patients with stage T3N1 - Table 1.

Years	% Survival Microscopic N2	% Survival IIIa
0	100	100
1	60	50
2	40	48
3	32	33
4	25	25
5	17	20

Table 1 - Microscopic N2 disease survival compared to stage IIIa survival.

Conclusion: Resection of microscopic N2 disease in non small cell lung cancer may be appropriate. Reappraisal of the current practice of not operating on any N2 disease is required.

088 After Induction Treatment, Radiotherapy is not Superior to Surgery for N2 Disease: a Meta-Analysis of Randomised Trials.

Authors: Sadri, A.¹; Karunanantham, J.¹; Song, F.²; Lim, E.¹

¹Royal Brompton Hospital, United Kingdom; ²School of Medicine, Health Policy and Practice, University of East Anglia, United Kingdom

Objectives: Chemotherapy and radiotherapy is often considered to be the “standard of care” in the management of patients with N2 disease. The aim of this study is to ascertain the treatment effect on overall survival using meta-analysis.

Methods: A literature search was conducted from 1966-2009 for all studies of patients with N2 disease who received either induction chemotherapy or induction chemoradiotherapy and randomised to surgery or radiotherapy. Fixed and random effects meta-analysis were performed.

Results: In all, 4 randomised trials were identified (Johnstone, Shepherd, Van Meerbeek and Albain et al), consisting of 626 patients. The study groups were broadly comparable for age and gender. In three trials, patients received induction chemotherapy and in one trial, patients received induction chemo-radiotherapy. There was no evidence of heterogeneity with I² as 0% (P=0.614). The overall hazard ratio comparing patients randomised to post-induction surgery versus was 0.944 (95% CI 0.811 to 1.097) in favour of surgery, although this was not statistically significant (P=0.450).

Conclusion: In the randomised studies of N2 disease, after induction treatment, radiotherapy was not found to be superior to surgery. Published evidence does not support the premise that chemotherapy and radiotherapy should be considered the standard of care, surgery is an acceptable alternative.

089 Persistent N2 Disease after Neoadjuvant Chemoradiotherapy and Surgical Resection of NSCLC.

Authors: West, D.G.¹; Coate, L.²; Bezzak, A.²; Shepherd, F.²; Waddell, T.K.²

¹University Health Network, Toronto General Hospital, Canada; ²University Health Network, Canada

Objectives: Persistent N2 disease after neoadjuvant chemoradiotherapy is thought to be a predictor of poor outcome after surgical resection. The advent of EBUS-TBNA allows re-staging of the mediastinum to be incorporated into the management of locally advanced NSCLC. However, the significance of persistent N2 disease following induction therapy remains controversial. We undertook this study to assess the survival impact of persistent N2 disease following chemoradiation in our own recent experience.

Methods: Patients with biopsy-proven N2 node involvement (stage IIIa) undergoing neoadjuvant chemoradiotherapy and resection of NSCLC from 1997-2009 were studied. Patients were classified “persistent N2 positive” if they had viable tumour in mediastinal node stations, and “persistent N2 negative” if N2 nodes had no viable tumor at resection. Dual-agent platinum chemotherapy regimens were used in all cases. Radiation consisted of >45 Gy to the primary tumor and mediastinum (median 45, range 45-70).

Results: 74 patients were included. Demographics are shown in Table 1. Complete pathological response was seen in 9 patients (12%). Station 7 was most commonly involved (17 of 35, 48.6%). Adenocarcinomas were more likely to remain N2 positive after neoadjuvant therapy than squamous carcinomas (p=0.02).

Median follow up was 24.3 months. There were 3 deaths within 30 days (4%). There was a trend for better overall survival for patients who were N2 negative at the time of surgery (HR 0.63 (0.31, 1.20), P=0.15). However, despite persistent N2 involvement after neoadjuvant chemoradiotherapy, long-term survival was achieved by some patients in our series (62.4 % +/- 8.7% at 2 years and 29.7% +/- 10.7% at 5 years) compared to 77.7% +/- 7.0% and 45.2% +/-9.8% for N2 negative patients.

Conclusion: Mediastinal re-staging for the express purpose of excluding patients for surgical resection may not be necessary. Excluding these patients after restaging may not be appropriate.

	Persistent N2 positive	Persistent N2 negative	P value
Number	34	40	
Age (median)	57.6 (50.7, 61.5)	63.3 (59.7, 65.4)	0.01
Sex (male:female)	13/21	23/17	0.11
Pathological subtype			
Squamous	5 (15%)	17 (42%)	
Adenocarcinoma	23 (67%)	15 (37%)	
Mixed	1 (3%)	2 (5%)	
Large cell	1 (3%)	4 (10%)	
NSCLC unclassified	4 (12%)	2 (5%)	0.02
Median number of N2 node stations positive at initial mediastinoscopy	1 (1, 2)	1 (1, 1)	0.13
Median survival after resection (months)	31.4	54.6	0.15

090 Donor Heart Rate - a Marker of Myocardial Injury?

Authors: Dronavalli, V.B.¹; Townend, J.N.¹; Rogers, C.A.²; Banner, N.R.³; Bonser, R.S.⁴

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Objectives: The electrocardiogram (ECG) is a readily available and easily interpretable investigation and may play a potential role in the assessment of the donor heart. In subarachnoid haemorrhage prolonged QTc and T wave inversion are indicative of cardiac impairment

Methods: 263 ECGs of potential heart donors were examined, the frequency of abnormalities and their relationship with donor age, cause of death and cardiac troponin T (cTnT) levels. Key ECG abnormalities assessed were rate, rhythm, T wave inversion voltage criteria of left ventricular hypertrophy (LVH) and corrected QTc duration using Bazett formula (normal QTc <430msec). Analysis was performed by two independent observers (kappa 0.9)

Results: The mean donor age and heart rate was 43.6 (SD 13) and 95.9 (SD 23.2) respectively. Sinus rhythm was seen in 255/263 and 40 donors had sinus tachycardia >120min⁻¹. Bundle branch block and pathological Q waves were present in 51/263 but the frequency of elevated cTnT was not different in these donors vs those donor ECGs without q wave abnormality. Inverted T waves were present in 83/263 but were not indicative of cTnT release (p = 0.36). The QTc was calculable in 222 donors; 179 (36%) had a QTc ≥430msec and 36 of these had QTc prolongation >0.5.

The frequency of cTnT >0.1 g.ml⁻¹ was similar between those donors with and without long QTc (p=0.4). In donors with heart rate HR > 120min⁻¹, median cTnT values were higher 0.2 (0.07-0.6) vs 0.03 (<0.03-0.19) p<0.01 and there was a significantly higher incidence of cTnT >0.1 (p<0.01). Donor cause of death did not affect the incidence of prolonged QTc (p=0.5), or cTnT release (p=0.4).

Conclusion: Findings of T wave inversion and prolonged QTc are common but appear benign in the potential heart donor. However donor heart tachycardia is associated with increased myocardial injury and could alert transplant teams to the possibility of donor heart dysfunction.

091 The Effect of Ex-Vivo Perfusion on the Microbiological Profile of the Donor Lung.

Authors: Karamanou, D.M.¹; Perry, J.²; Walden, H.R.¹; Simpson, A.J.³; Corris, P.A.¹; Gould, K.²; Fisher, A.J.¹; Dark, J.H.¹

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Objectives: Ex-vivo lung perfusion (EVLP) is an emerging technique for re-conditioning of borderline donor lungs prior to transplantation. Evidence currently exists of the beneficial effect of EVLP on physiological function. We hypothesized that the use of EVLP might also have a role in reducing the microbial load of these lungs.

Methods: 6 human lungs rejected clinically for transplantation underwent normothermic EVLP and were treated empirically with 500mg of Meropenem circulated at the start of perfusion. Quantitative cultures for aerobic and anaerobic bacteria and fungi were performed on bronchoalveolar lavage (BAL) fluid taken from the donor lung prior to and after 6 hours of EVLP. Changes in the number of colony forming units (CFU) pre and post EVLP and the antimicrobial susceptibilities of organisms were assessed.

Results: All donor lungs grew aerobic bacteria from the BAL samples and one lung also grew fungi, as outlined in Table 1. All bacteria cultured were sensitive to Meropenem treatment.

Conclusion: The localized circulation of EVLP allows targeted high dose antimicrobial treatment without fear of systemic side-effects. Our study shows this approach is highly effective at reducing the bacterial burden of the borderline donor lung. Following the current microbiological analysis the need for antifungal agents became apparent and the perfusion protocol was altered accordingly. As these donor lungs are often exposed to prolonged ventilation prior to retrieval or are suspected of infection, we believe EVLP might provide a novel mechanism to protect the immunosuppressed recipient from donor acquired infection.

Table 1:

Species (no. of positives)	Mean CFU (log10) pre-treatment	Mean log10 reduction	Range
Staphylococcus aureus (4)	5.2	2.9 (p< 0.0001)	(1.7) - (4.2)
Haemophilus influenzae (3)	5.6	2.4 (p< 0.0001)	(0.3) - (3.8)
Streptococcus pneumoniae (1)	5.3	3	N/A
Escherichia coli (1)	4.7	> 2.7	N/A
Pseudomonas aeruginosa (1)	4.2	1.6	N/A
Candida albicans (2)	3.5	-1,1	(-0.8) - (-1.4)
Candida krusei (1)	2.0	-0.3	N/A

092 Time-related Changes in Inflammatory and Cardiac Stress Responses in the Human Heart Donor.

Authors: Dronavalli, V.B.¹; Normandale, A.¹; Gosling, P.¹; Rogers, C.A.²; Banner, N.R.³; Bonser, R.S.⁴

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Objectives: Cardiomyocyte injury, stress and pro-inflammatory response to brain death (BD) is well documented but it is not known whether these are transient or progressive phenomena. This could influence donor management and retrieval timing. Serial assessment in the individual potential organ donor is logistically difficult.

Methods: We analysed 177 plasma samples from potential heart donors for C-reactive protein (CRP; mg.ml⁻¹), interleukin-6 (IL-6; pg.ml⁻¹), tumour necrosis factor- α (TNF; pg.ml⁻¹), procalcitonin (PCT; ng.ml⁻¹), cardiac troponin T (cTnT; mg.ml⁻¹) and N-terminal pro-brain natriuretic peptide (NT-proBNP; pg.ml⁻¹). These biomarkers were correlated with document times from coning for each sample. We stratified donors into 5 groups according to time from coning (TFC) <6hrs, 6-12hrs, 12-18hrs, 18-24 hrs and >24 hrs. Plasma analyses were performed utilising commercial analysers.

Results: The mean donor age was 46.3years, with the overall median (IQR) time from coning to acquisition of the specimen (TFC) 13.3hrs (8-19.5). Spearman rank correlations were CRP $r=0.54$; $p<0.01$, IL-6 $r=0.36$; $p<0.01$, and NT-proBNP $r=0.22$ $p<0.01$; each correlated with increasing TFC but PCT $p=0.17$, TNF $p=0.4$ and cTnT $p=0.7$ showed no such effect. Stratification by TFC into the 5 categories (Jonckheere-Terpstra) demonstrated that CRP $p<0.001$, IL-6 ($p<0.01$) and NT-proBNP ($p<0.01$) increased progressively while TNF, PCT, and cTnT did not demonstrate a time dependant increase.

Conclusion: Indicators of pro-inflammatory response phenomenon and myocyte stress progressively increase following BD. Manouevres incorporated into donor management to restrain these responses may have potential therapeutic relevance and improve quality of donor organs.

093 Regulatory T Cell Immunomodulation In Patients Receiving Statins Following Cardiac Transplantation.

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Objectives: Hypercholesterolemia is a major complication following transplantation, and frequently requires treatment with statins. Statins have well reported pleiotropic effects, including effector and memory T cell immunomodulation. This pleiotropy contributes to the well reported benefit of statin use following cardiac transplantation. However, the effects of statin administration on Tregs has yet to be elucidated.

Methods: 85 stable adult heart transplant recipients were recruited into this comparative study. Statin use was determined according to clinical necessity and tolerability. Blood samples were collected via venapuncture and peripheral blood mononuclear cells (PBMC) were isolated using Ficoll paque gradient. Tregs were identified via cell surface expression of CD4 and CD25^{bright}, and intracellular FOXP3 expression.

Results: Following risk stratification, there were no demographic or therapeutic differences between the two groups. Patients who were treated with a statin ($n=72$) had significantly reduced numbers of circulating CD4+CD25^{bright} FOXP3+ Tregs compared to patients not treated with a statin ($n=13$, $p=0.01$). The percentage of Tregs in the T cell compartment was also significantly lower compared to the non statin group ($p=0.02$). There were no differences between groups with CD4+ FOXP3- T cells.

Conclusion: Statin treatment was associated with decreased CD4+CD25^{bright} FOXP3+ T cells in patients following heart transplantation. This may significantly affect recipient immune responses to graft tissue, as Tregs promote specific T cell unresponsiveness to alloantigen, via modulation of allospecific CD4 T cell responses.



094 Cardiac Resuscitation Following Circulatory Arrest in the Non-Heart Beating Donor is Associated with Excellent Functional and Metabolic Recovery.

Authors: Ali, A.¹; Xiang, B.²; White, P.²; Tsui, S.¹; Ashley, E.³; Large, S.R.¹; Lee, T.⁴; Arora, R.⁴; Tian, G.²; Freed, D.H.⁴

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Objectives: Concern over ischemic injury has precluded cardiac donation from non-heart beating donors (NHBD). We sought to compare contractility and energetics in the resuscitated NHBD heart to the brainstem dead (BSD) donor heart.

Methods: Pigs (60 kg) were randomised to BSD (n=7) or circulatory arrest (NHBD, n=7). NHBD hearts were subjected to 15 minutes of ischemia after circulatory arrest prior to resuscitation using ECMO. LV contractility was assessed using the end-systolic (ESPVR) pressure-volume relationship. Magnetic resonance spectroscopy and imaging (MRI) were used to investigate myocardial energetics and biventricular function in NHBD hearts (n=4).

Results: BSD was followed by a decline in LV contractility (ESPVR pre 1.09±0.54 vs. post 0.55±0.19, p=0.03). In contrast there was an increase in contractility after resuscitation of the NHBD heart (ESPVR pre 1.04 ±0.55 vs. post 2.45±1.18, p=0.006). Following circulatory arrest there was a significant increase in myocardial inorganic phosphate relative to phosphocreatinine (Pi/Pcr: pre 0.34±0.13 vs. arrest 2.14±0.91, p=0.002) and a decrease in phosphocreatinine relative to ATP (PCr/ATP: pre 3.53±1.3 vs arrest 2.04±0.79, p=0.06).

After resuscitation there was normalization of Pi/Pcr (pre 0.34±0.13 vs. post resusc 0.39±0.25, p=0.69) and an increase above baseline in PCr/ATP (pre 3.53±1.3 vs. post resusc 5.8±1.6, p=0.06). MRI of the NHBD heart demonstrated a non significant decrease in LVEF (pre 51±11 vs. post 34±15, p=0.11) and CO (pre 3.5±0.9 vs post 2.7±1.1, p=0.31) after resuscitation. There was a decrease in RVEF (pre 37±10 vs. post 18±4, p=0.03) and an increase in RV volume (pre 74±21 mL vs post.118±2 mL, p=0.02).

Conclusion: Resuscitation of hearts from NHBD's yields viable organs with excellent LV contractility. RV function deteriorates more, relative to LV function, which warrants further study of strategies to improve RV recovery prior to establishing NHBD's as a source of organs for cardiac transplantation.

095 Ventricular Assist Device (VAD) Therapy in Post Cardiectomy Cardiogenic Shock (PCCS): Current Practice in the United Kingdom and Republic of Ireland.

Authors: Nasir, A.¹; Beattie, G.¹; Bonde, P.²; Graham, A.N.J.¹

¹Royal Victoria Hospital, United Kingdom; ²John Hopkins University School of Medicine, USA

Objectives: Ventricular assist device therapy has been used successfully for a bridge to recovery, bridge to transplant and in the last decade as a destination therapy. The use of VAD for post-cardiectomy cardiogenic shock is not currently reported in national databases in the UK and Ireland.

Methods: Data was collected through a telephone survey of the chief perfusionists from all the cardiac surgery units in the UK and Republic of Ireland between October 2007 and October 2008.

Results: Approximately 28,000 adult cardiac surgical procedures were performed by 45 cardiac centers in that year; of which 33 (73%) reported using VAD for PCCS. Total number of patients supported was 66; of which 41% (n=27) survived to be discharged home. 42.5% (n=28) died during VAD in place, 16.5% died after successful wean from VAD. Staffing and training issues were the main concerns in the wide application of VAD therapy in this setting. 8 units were funded and only 13 units had written policy about their use. VAD was unavailable in 2 units and 10 units had reservation about their use. Preference for VAD type was Biomedicus (n=25), Levitronix (n=10), Sorin (n=3), roller pump (n=3) and Berlin heart (n=2).

Conclusion: Despite the reasonable survival rates after VAD's use in PCCS, there are significant differences in their availability and individual's attitude towards their use. Survival has improved in the last decade from 25% to 54% as reported by Hernandez et al in their series of 5735 patients(1). VAD therapy for PCCS should be prospectively documented in the audit returns of all the units, which will help in drafting national policy of use and also obtaining necessary funding. REFERENCE: 1) Hernandez AF, Grab JD, Gammie JS, O'Brien SM et al. A decade of short-term outcomes in post cardiac surgery ventricular assist device implantation: data from the Society of Thoracic Surgeons' National Cardiac Database. *Circulation*.2007 Aug7;116(6):606-12

096 Lung Transplantation from Donors over 70: Medium Term Outcomes.

Authors: West, D.G.; De Perrot, M.; Yasufuku, K.; Waddell, T.K.; Azad, S.; Hutcheon, M.; Singer, L.G.; Keshavjee, S.; Pierre, A.F.

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Objectives: Extending lung donation criteria to older donors could increase numbers available for transplantation. With increasing experience over time, we have expanded our criteria to include donors over 70 years old if otherwise suitable. We report the outcomes of patients receiving lung transplants from these donors.

Methods: Potential donors were evaluated by bronchoscopy, arterial blood gas analysis, x-ray and clinical evaluation. A pO₂ > 300mmHg on an FiO₂ 1.0 was considered the minimum for donation. The study period ran from 1999-2009.

Results: 22 donors over age 70 provided organs for 23 transplant procedures, 21(91%) double, 2 (9%) single. Mean donor age was 74.3(3.1) years. 6/23 (26%) were current or former smokers. Mean pO₂ pre-retrieval was 438 + 71 mmHg.

Mean recipient age was 57.0 (11.9). Mean PA pressure was 39.1(13.2) mmHg; 35% of patients had systolic PA pressure > 40mmg.

Primary diagnosis was pulmonary fibrosis in 13 (56%), COPD in 5 (22%), Cystic fibrosis in 4 (17%)-2 B cenocepacia positive, 2 negative- and bronchiolitis obliterans in 1(4%).

4 (17%) deaths occurred within 30 days; 2 were due to pneumonia/sepsis, 1 to B cenocepacia septicaemia and 1 to primary graft dysfunction. Of those surviving beyond 30 days, 1 patient died from a GI bleed, 1 from hepatic failure and 1 from bronchiolitis obliterans. 2 patients developed bronchiolitis obliterans syndrome within 5 years, both died. 1 patient developed a bronchial dehiscence at 2 months. Outcomes are shown in table 1.

Conclusion: Lung transplantation with appropriately selected donors over 70 years is feasible. While operative mortality was higher in this small sample size, the overall survival at 5 years was similar to ISHLT registry data, despite high recipient pre-operative risk in this series.

Outcome	Summary Data
Mean pO ₂ on ICU admission on FiO ₂ 100% (mmHg)	350.9 (126.6)*
Median hospital stay (nights)	24 (95%CI 13,34)
30-day mortality	4/23 (17%)
Survival	2years, 65% (12.3%)** 5 years 57% (13.2%)**

Figures in brackets; *standard deviation, **standard error

097 Is Lung Cancer Screening Justifiable?

Authors: Sheel, A.; Poullis, M.P

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Objectives: Five year survival rates in the U.K remain the lowest in Europe, suggesting potential for improvement. There is consensus that symptomatic presentation indicates more advanced tumours compared with an incidental finding in asymptomatic individuals.

Re-emergence of interest in lung cancer screening encouraged the authors to investigate survival between symptomatic and asymptomatic patients who receive surgery for non-small cell lung cancer. The study aimed to identify predictors of adverse outcome in these patients and to address the potential impact on lung cancer screening.

Methods: A Retrospective analysis of 1546 (826 males and 720 females) consecutive patients who received surgery for NSCLS in a tertiary centre between 08/11/2000 and 01/05/09. The study considered 17 variables including; age, sex, operation, histology and symptoms. SPSS software was used for all statistical analyses. Kaplan Meir and log-rank test was used for survival analysis; logistic regression and Cox's proportional analysis were used for multivariate analysis.

Results: The study recapitulated previously know prognostic factors such as age HR 1.03 (1.02 to 1.04), male sex HR 1.34 (1.15 to 1.56) and stage HR 3.99 (2.01 to 7.56). Interestingly, survival for wedge resection was found to be comparable to lobectomy. Most importantly there was no difference in survival between asymptomatic and symptomatic patients on univariate or multivariate analysis HR 1.06 (0.82 to 1.37; p=0.49).

Conclusion: There is no survival advantage in asymptomatic lung cancer patients who receive surgical resection. Comparable survival for wedge resection is encouraging and should advocate more detailed assessments of significantly co-morbid patients. Currently there is insufficient evidence to support lung cancer screening. The outcomes of ongoing trials will hopefully give more definitive answers. In the meantime, this study will provide an interesting addition to the heated lung cancer screening debate

098 Preoperative Body mass Index Greater than 25 kg/m² is Related to a Higher Incidence of Respiratory Complications After Pneumonectomy.

Authors: Petrella, F.; Radice, D.; Borri, A.; Galetta, D.; Gasparri, R.; Solli, P.; Veronesi, G.; Spaggiari, L.

European Institute of Oncology, United Kingdom

Objectives: To determine the influence of pre-operative body mass index (BMI) on post operative complications in patients undergoing pneumonectomy for non small cell lung cancer.

Methods: We enrolled 154 consecutive patients undergoing standard pneumonectomy for non small cell lung cancer from January 2004 to April 2008. Patients were classified into two groups: a high BMI group [BMI \geq 25 kg/m²; n = 93 (60.4%)] and a normal BMI group [BMI <25 kg/m²; n = 61 (39.6%)]. Data on sex, age, cigarette smoking, preoperative albumin, total proteins and creatinine values, FEV1 %, DLCO/AV %, histology and pathological stage were collected. Total postoperative complications, 30 day mortality rate, pulmonary and cardiac complications, ICU admission and hospital stay were collected and analysed for the BMI group.

Results: 30 patients (19.5%) were women; mean age was 63.4 years (36 \leq 82). 136 patients (88.3%) were smokers or former smokers; 80 patients (51.9%) received presurgical treatment. Sixty-four (41.6%) right pneumonectomy were performed. Mean \pm SD values for preoperative variables were: FEV1 %: 83.5 \pm 19.2, DLCO/AV: 85.4% \pm 20.3, albumin: 4.07 \pm 0.44 g/dL, total proteins: 7.23 \pm 0.59 g/dL, creatinine: 0.81 \pm 0.23 mg/dL. Ten patients died within the first 30 days (6.5%). The high BMI group had a higher incidence of respiratory complications (21.5% vs 4.9% P = 0.005, Odds Ratio = 5.3, 95% CI: 1.5,18.7). No significant differences were observed between the high and normal BMI groups regarding ICU admission, hospital stay, 30 day mortality, total and specific cardiac complications.

Conclusion: The risk of respiratory complications in patients with BMI higher than 25 Kg/m² undergoing pneumonectomy for lung cancer is 5.3 times higher than that of patients with normal BMI. Thoracic surgeons and anaesthesiologists should be aware of this information before planning elective pneumonectomy in overweight and obese patients.

099 The Effect of Morbid Obesity on Outcomes Following Oesophagectomy.

Authors: Bhamra, G.; Magee, C.J.; Howes, N.; Hartley, M.; Page, R.D.; Shackcloth, M.J.
Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Morbid obesity is a significant risk factor for oesophageal cancer and may contribute to poorer outcomes following oesophagectomy due to surgical and post-operative difficulties. We investigated whether morbid obesity was associated with poorer outcomes following oesophagectomy.

Methods: A prospective database of all oesophagectomies performed at a collaborative upper GI/thoracic cancer centre from 2002 was analysed. Endpoints were 5-year survival, length of stay, and in-hospital mortality. Statistical analysis was performed using the Kaplan-Meier, Chi squared and Mann-Whitney U(MWU) tests.

Results: 326 cases were identified. There was no difference in in-hospital mortality for the morbidly obese (7% vs 7% p=0.97 Chi Squared) or length of stay (median 13 days vs 13 days, p=0.87 MWU) in the morbidly obese. Similar findings were found with the obese (BMI>30) and overweight (BMI>25). However, in-hospital mortality and length of stay were significantly higher for those with a BMI<20.

Morbid obesity was not associated with poorer survival following oesophagectomy (p=0.963), however patients with BMI<20 did have poorer survival (p=0.016). Interestingly there was a trend towards longer survival in patients with BMI>25 (but this did not reach significance (p=0.07)).

Conclusions: Patients with morbid obesity who undergo oesophagectomy can expect similar results to their lighter counterparts. Obesity should not be considered a contraindication to oesophagectomy. Underweight patients have poorer outcomes probably related to nutritional compromise. The outcomes data in patients with BMI>25 are intriguing and require further investigation.

BMI	Median Survival (months)	Median Survival (control)	p value	Length of stay	Length of stay (control)	p value (MWU)	In Hospital Mortality (cases/%)	In Hospital Mortality (control)	p value (Chi squared)
>25	34	20	0.07	13(8-103)	14(8-87)	0.03	9(5%)	15(10%)	0.11
>30	38	23	0.09	13(8-79)	13(8-103)	0.82	3(5%)	21(8%)	0.5
>35	27	16	0.96	13(8-48)	13(8-103)	0.87	1(7%)	23(7%)	0.97
<20	18	29	0.02	16(8-84)	13(8-103)	0.04	5(16%)	19(6%)	0.049

100 Radical Oesophageal Resection and Ward Based Management

Authors: McGonigle, N.C.R.; Whitlock, P.; Graham, A.N.; McManus, K.G.; McGuigan, J.A
Royal Victoria Hospital, United Kingdom

Objectives: With intensive care beds in the United Kingdom at a premium we have established a standard of care for radical oesophageal resections that can safely be performed at ward based level. We wished to show that this does not increase the morbidity or mortality associated with oesophagectomy.

Methods: We have reviewed our results following the introduction of a protocol for patients, in general, to return to ward based care immediately following oesophagectomy.

Results: Ninety-two patients underwent oesophageal resection for malignancy. Immediately following surgery 67 patients returned to the ward with a further 14 returning to a high dependency unit (HDU) and 11 to intensive care unit (ICU). 14 major adverse events occurred in the patients returning to the ward and 23 minor complications. The mortality overall was 2.2%, with a mortality of 1.5% in the ward patients. Seven (10%) patients later required admission to the ICU for respiratory complications. All subsequently made a full recovery. Analysis of the known risk factors for morbidity and mortality following oesophagectomy demonstrated that this approach is safe in patients with a number of risk factors and does not have to be limited to lower risk patients.

Conclusion: We believe that ward based care by an experienced thoracic surgical team is safe in the majority of patients following oesophagectomy.

101 Carcinoma of the Middle and Lower Thirds of the Oesophagus Resected via the Left Thoracoabdominal Approach. Peri-Operative Outcomes in 678 Patients.

Authors: Clark, E.J.; Carnochan, F.M.; Walker, W.S.
Royal Infirmary of Edinburgh, United Kingdom

Objectives: Overall fewer oesophagectomies for cancer are being performed in UK cardiothoracic units. Low volume general surgical units have been shown to achieve poorer results but are undertaking a significant proportion of the workload in the UK. The aim of this study was to show that oesophagectomy can be performed with low mortality and morbidity and that there may be specific benefits for patients managed in a high volume cardiothoracic unit. This study also aimed to analyse peri-operative outcomes in sub-groups of patients with cancer of the middle and distal thirds of the oesophagus respectively.

Methods: Data were retrospectively collected for 678 patients who underwent potentially curative oesophagectomy for cancer performed via the left thoracoabdominal approach.

Results: Sixty-six percent of patients had stage III or IV disease and 3% underwent extended resection. Included were patients with severe ischaemic heart disease requiring an intra-operative intra-aortic balloon pump. The in-hospital mortality was 4.9%. Ninety-nine percent of patients were extubated immediately post-operatively with 10.6% requiring re-intubation.

Respiratory complications occurred in 12.6% of patients and the median in-hospital stay was 11 days. The re-operation rate for anastomotic leak was 1.1%, 2.1% for bleeding and 2.4% of patients suffered a chyle leak. Sub-group analysis showed that in patients with cancer of the middle third of the oesophagus versus the distal third there was a significantly higher mortality, a higher rate of chyle leak and a higher rate of re-intubation ($P < 0.05$).

Conclusion: Oesophagectomy for cancer should only be performed in experienced units. Patients with more advanced disease and co-morbid illness in particular are likely to benefit from resection being performed in units experienced in managing thoracic surgical complications. Peri-operative outcomes were worse in patients with cancer of the middle third of the oesophagus versus the distal third.



102 Short and Long Term Effects of Post-Operative Chest Infections and Unexpected Returns to the ITU Following Oesophagectomy for Cancer.

Authors: Hajdu, L.; Magee, C.J.; Khera, G.; Howes, N.; Hartley, M.; Page, R.D.; Shackcloth, M.J.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Oesophagectomy has significant post-operative morbidity and mortality. Work has demonstrated that post-operative complications (particularly chest infection) can reduce long-term survival. This has not been explored in a UK population. We investigated whether significant post-operative complications (signified by an unexpected return to the intensive care unit or documented chest infection) were associated with poorer survival following oesophagectomy.

Methods: The setting is a collaborative cardiac-thoracic-upper GI unit. All patients who underwent oesophageal resection for cancer were identified from a prospective database. Inclusions were all resections from 2002-2008 with at least one-year follow-up. Univariate survival analysis was performed using the Kaplan-Meier method; multivariate analysis was performed using the Cox method.

Results: 313 patients were identified with overall 5-year survival of 37%. On univariate analysis there was a trend for chest infection to be associated with poorer survival ($p=0.054$). Both increased T and N stage were associated with poorer survival ($p<0.001$). On multivariate analysis predictors of poorer survival were T stage, N stage ($p<0.001$) and also the presence of chest infection ($p=0.034$). Unsurprisingly, in-hospital mortality was greater in patients with chest infection and unexpected returns to ITU ($p<0.001$). However, following exclusion of in-patient deaths a difference in overall survival following a chest infection or unexpected return could not be demonstrated ($p=0.791$ and $p=0.465$).

Conclusion: The presence of chest infection and unexpected return to ITU following oesophagectomy reduce overall survival through short-term effects (i.e. in patient mortality). In contrast to published data we were unable to demonstrate any adverse survival effects following chest infection or return to ITU. There remains the possibility that our sample size is too small to demonstrate a difference.

103 The Impact of Neoadjuvant Chemotherapy on Mortality and Survival in Elderly Patients Undergoing Oesophagogastric Resections.

Authors: Elsayed, H.; Whittle, I.; Howes, N.; Hartley, M.; Shackcloth, M.; Fontaine, E.; Page, R.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: The aim of this study was to evaluate the effect of neoadjuvant chemotherapy on the outcome and survival of elderly patients undergoing oesophagectomy for oesophageal cancer at a single high-volume centre.

Methods: We retrospectively reviewed 326 patients in oesophagogastric resections (OGs) for resectable oesophageal cancer at the oesophagogastric junction in a period from May 2001 to April 2008. We divided the patients into two groups. Group A ($n=218$) consisted of patients younger than 70 years of age, while group B ($n=108$) consisted of patients 70 years of age or older.

Results: Using multivariate analysis, the two groups were comparable regarding preoperative body mass index, renal dysfunction, pulmonary functions, cardiac morbidity, tumour staging, type of operation and conduit used. From the younger group A 91% ($n=198$) received chemotherapy while 84% ($n=91$) had neoadjuvant chemotherapy from the elderly group B. In-hospital mortality for group A for patients who received chemotherapy and patients who didn't was 5% ($n=2$) and 11% ($n=9$) respectively ($p=0.30$), while in hospital mortality for Group B was 13% ($n=12$) and 13% ($n=2$) respectively for the 2 groups ($p=0.99$). One year survival for Group A was 74% for the patients who received chemotherapy and 60% for patients who did not receive chemotherapy ($p=0.17$), while for survival for Group B was 59% for patients who received chemotherapy and 30% for patients who didn't ($p<0.01$).

Conclusion: Neoadjuvant chemotherapy is not a significant risk factor for mortality after oesophageal resection. There is a positive impact on survival at one year which is more obvious in the elderly group of patients. These results should be more encouraging for administration of neoadjuvant chemotherapy particularly in the older group of patients.



104 The Impact of Systemic Fungal Infection in Patients with Rupture Oesophagus: Should we be Using Antifungal Therapy Empirically?

Authors: Elsayed, H.; Whittle, I.; Shaker, H.; Shackcloth, M.; Page, R.

Liverpool Heart and Chest Hospital, United Kingdom

Objectives: Rupture oesophagus is a surgical emergency with significant morbidity and mortality. Systemic Fungal infection represents an additional risk factor which significantly adds to the risk of morbidity and mortality in these patients. We reviewed our experience with this group of patients over a six-year period in a tertiary referral centre.

Methods: We conducted a retrospective clinical review of patients who were admitted following rupture oesophagus over a period of six years (2002-2008).

Results: We had 27 admissions following isolated rupture oesophagus to our unit. Out of which 18 were males and 9 were females. The median age was 65 years (range 22-87). 24(89%) presented with spontaneous perforations (Boerhaave's syndrome) and three (11%) were iatrogenic. Fungal organisms, predominantly *Candida Albicans*, were positively cultured in pleural or blood samples in 59% (n=16) of the 27 patients. Fourteen patients grew yeasts within the first 7 days while two showed a delayed growth after 10 days. Mortality was 5 out of 27 patients (18.5%).

There was no mortality among the group which did not grow yeasts in their blood while mortality was 31% (5 out of 16) in the group with systemic fungal infection ($p < 0.01$). A positive fungal culture was also associated with increase ventilation time, ITU stay and inpatient hospital stay but not an increased rate of complications.

Conclusion: Systemic Fungal infection in patients with rupture oesophagus affects a significant proportion of patients with rupture oesophagus and carries a poor prognosis despite advanced critical care interventions. It may be justified to add anti-fungal therapy empirically to antimicrobials in patients with the established diagnosis of rupture oesophagus.

105 'Three Tube Drainage' [TTD] of Oesophageal Perforations [OP].

Authors: Jujjavarapu, R.¹; Jujjavarapu, K.R.¹; Mcguigan, J.A.²; Muir, A.D.²

¹Royal Brompton Hospital, United Kingdom; ²Royal Victoria Hospital, United Kingdom

Objectives: Oesophageal perforation has a high mortality. We report 42 cases of OP treated with a simple drainage procedure in a regional thoracic unit.

Methods: Drain 1: Pleural chest drain An intercostal drain connected to an under-water-seal system [UWS] is inserted to reduce pleural and mediastinal contamination. Drain 2: Oesophageal chest drain An oesophageal drain to reduce mediastinal soiling is inserted at laparotomy through the anterior gastric body wall into the oesophagus and approximately five centimeters cephalad to the perforation site. Drain 3: Gastric Sump drain A large gastric drain used to aspirate acidic gastric fluid is inserted at laparotomy through the anterior gastric wall to lie within the gastric lumen. A feeding Jejunostomy should also be inserted.

Results: Thirty-five OP were intrathoracic and 5 intra-abdominal, 30 patients had laparotomy, 8 thoracotomy, with 21 having a 4th drain inserted into the mediastinum. Time to surgery: immediately in 3, within 24 hours in 17, 24-72 hours in 11, and >72 hours in 11. 28 were admitted to ICU. Median hospital stay was 24 days and there were 7 deaths [17%]. Mortality for early diagnosis [within one day] was 12% but after 3 days tripled to 36%

Conclusion: TTD is a useful technique in the management of oesophageal perforation. Early diagnosis is vital in reducing mortality.



106 Effect of European Working Time Directive on Training and Outcome Following Coronary Artery Bypass Grafting.

Authors: Bashir, M.¹; Field, M.²; Rashid, A.²; Oo, A.²

¹UHB-Queen Elizabeth Hospital, United Kingdom; ²Liverpool Heart & Chest Hospital, United Kingdom

Objectives: The European Work Time Directive (EWTD) started in August 2004. In August 2009, full EWTD implementation resulted in a 48 hour "Maximum Legal Average" working week. We have examined the effect of the 2004 (EWTD) (56 hours) on outcome (bleeding, prolonged ventilation, myocardial infarction and in-hospital mortality) of training-led cases following first time isolated coronary artery bypass surgery.

Methods: We searched the data base for trainee and consultant led cases, prior to, and after the implementation of the EWTD in July 2004. Multivariate logistic regression was used to assess the effect of training on adverse outcome (including bleeding, prolonged ventilation, myocardial infarction and in-hospital mortality), while adjusting for patient characteristics. Cox proportional hazard analysis was used to adjust the Kaplan-Meier curve. Treatment selection bias was controlled for by constructing a propensity score based on Euro score.

Results: Preoperative patient demographics and risk factors, based on EuroSCORE were not significantly different in trainee led cases before and after EWTD. Training opportunity i.e. trainee led cases against total number of trainee assisted cases before (0.96%) and after (1.29%) EWTD was not different.

There was no difference in chosen outcome measures pre and post EWTD in trainee/consultant led cases: in-hospital mortality (pre 1.2%/2.8%, post 1.6%/2.7% with p-Value pre/post 0.16/0.36 respectively), Myocardial infarction (pre 0.6%/2.0% post 3.5%/2.3% with p-Value pre/post 0.14/0.36 respectively), bleeding (pre 3.1%/3.8% post 4.6%/5.4% with p-Value pre/post 0.62/0.68 respectively), and ventilation (pre 2.6%/4.4% post 4.3%/4.2% with p-Value pre/post 0.28/0.90 respectively).

Conclusion: The European Working Time Directive had no significant adverse effect on in-hospital mortality of trainee led cases.

107 Clinical Audit on Early Aspirin Administration Following Coronary Artery Bypass Surgery.

Authors: Gukop, P.; Valencia, O.; Kuppuswamy, M.; Fincham, K.; Kourliouros, A.; Sarsam, M.; Chandrasekaran, V.

St George's Hospital, United Kingdom

Objectives: There is convincing evidence to suggest that early administration of aspirin following CABG is associated with optimised saphenous vein graft patency. Practice guidelines from both AHA and EACTS recommend early postoperative use of aspirin, preferably within the first 6 hours after CABG. We set out to examine compliance with these recommendations, followed by implementation of fail-safe mechanisms for adherence to standards.

Methods: Prospective audit of 200 consecutive patients undergoing CABG was carried out. The following main areas with a potential for service improvement were identified: appropriate prescription and timely administration of aspirin, as well as absolute justification of aspirin non-use.

Results: 137 patients (68.5%) received postoperative aspirin within the recommended 6-hour period and 63 (31.5%) did not. The commonest reason for this was untimely aspirin prescription (n=26, 41.3%). Inadequate handover between teams was responsible for non-administration of aspirin in 19 patients (30.2%) despite appropriate prescription. Postoperative bleeding (>200 ml/h) was observed in 18 patients (28.6%) who did not receive aspirin as per institutional protocol. There was no difference in the need for re-sternotomy between the two groups, however, total drain output (1130 vs. 880 ml) and blood product requirements (38.1% vs. 13.1%) were significantly increased in patients who did not receive aspirin, signifying the recommended non-prescription of aspirin in the presence of postoperative bleeding.

Conclusion: In line with published standards, the majority of patients undergoing CABG in our institution received aspirin within 6 hours following surgery. In approximately 20% of patients, however, aspirin was not administered despite being indicated. This deviation was highlighted, fail-safe mechanisms were devised and circulated, and implementation of change will be evaluated in forthcoming re-audit.



108 Risk Factors for Postoperative Pulmonary Complications Following Thoracic Surgery.

Authors: Agostini, P.¹; Cieslik, H.¹; Rathinam, S.¹; Singh, S.²; Rajesh, P.B.¹; Steyn, R.S.¹; Naidu, U.B.V.¹

¹Birmingham Heartlands Hospital, United Kingdom; ²Coventry University, United Kingdom

Objectives: Post-operative pulmonary complications (PPC) are the most frequently observed complications following lung resection. PPCs have significant clinical and economic impact with increased observed mortality, morbidity, length of stay and associated cost. Historical studies have demonstrated the impact of and risk factors contributing to the development of PPC after lung resection. Our aim was to re-assess this, with a view to identifying potentially modifiable factors. This is of importance in the UK with survival rates for lung cancer poor, resection rates at 11% compared with the rest of Europe (17%) and North America (21%).

Methods: A prospective observational study was performed on all patients following lung resection via thoracotomy in a regional thoracic centre over 13 months. PPC was assessed using a scoring system based on chest x-ray, elevated white cell count, pyrexia, microbiology, purulent sputum and oxygen saturations.

Results: Thirty four of 234 subjects (14.5%) had clinical evidence of PPC. The PPC patient group demonstrated a significantly longer length of stay (LOS), High Dependency Unit LOS and higher ITU admission and mortality (see below). Older patients, BMI \geq 30, activity level <400 metres, ASA \geq 3, smoking history, COPD, lower pre-operative FEV1 and predicted post-operative (PPO) FEV1 were all significantly ($p < 0.05$) associated with PPC on univariate analysis. Multivariate analysis confirms that age over 75, BMI above 30, ASA \geq 3, smoking history and COPD are significant independent risk factors in the development of PPC ($p < 0.05$).

Conclusion: The clinical and cost impact of developing a PPC is marked. Significant independent pre-operative risk factors have been reconfirmed in current clinical practice. Potentially modifiable risk factors include BMI, smoking status and COPD. The impact of targeted therapy requires further evaluation.

109 Variation in Current Physiotherapy Practice of Patients Undergoing Thoracic Surgery in the UK

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Objectives: Lung cancer postcode lottery healthcare inequality is under adverse public scrutiny (UKLCC 11/09) with UK resection rates varying 3-30%. Physiotherapy is associated with improved operability and outcomes (pulmonary complications and length of stay). The study evaluated physiotherapy practice for UK thoracic surgery patients.

Methods: A physiotherapy treatment survey was sent to 40 UK centres doing thoracic surgery. Follow-up surveys were sent at 2 and 5 months to non-responders.

Results: 31 responses were received (77.5%). All centres did lung resections, with 23 (74.2%) having a dedicated thoracic surgeon. In 4 centres (13%) physiotherapists did not see any patient preoperatively, in 3 (10%) all patients, and in 24 (77%) some. Preoperative pulmonary rehabilitation was undertaken in only 16% of centres. In 30 centres (96.7%) physiotherapists routinely assessed patients day 1 following thoracotomy. In 25 of these centres prophylactic physiotherapy interventions were applied routinely, and in 5 when a specific pulmonary problem was identified. Active breathing exercises, cough and mobilisation were used most often, whereas adjuncts such as incentive spirometry (20), minitracheostomy (22), exercise equipment (15) and non-invasive ventilation (7) were used less frequently. There was no significant difference in utilisation of these adjuncts between units based on size of patient throughput or having a dedicated surgeon.

Conclusion: Early postoperative prophylactic respiratory physiotherapy and mobilisation of patients are provided extensively throughout the UK, reflecting the higher risk nature of thoracic surgery. Use of adjuncts such as incentive spirometry, minitracheostomy, NIV and exercise regimes are used much more variably. This variation may be due to lack of experience, economic and environmental factors or reflect poor evidence base. Further direction for practice in the form of national guidelines are required.



110 Exploring the Impact of Lung Resection for Carcinoma on Health Related Quality of Life.

Authors: Deacon, S.E.; Beggs, L.; Beggs, F.D.; Duffy, J.P.; Majweski, A.M.; Martin-Ucar, A.E.

Nottingham University Hospitals NHS Trust, United Kingdom

Objectives: There is little evidence related to the impact that lung resection for carcinoma has on Health Related Quality of Life (HRQoL). Our study aims to investigate this impact, with further identification of how different sub-groups of the patient population are affected.

Methods: The EORTC questionnaire QLQ-C30 was completed by patients at pre-admission clinic before lung resection. Follow-up questionnaires were posted at 3, 6, 12 and 24 months after surgery.

171 patients (111 male: 60 female, median age 64 [range 33 - 80]) responded to postal post-operative questionnaires. Scores were scaled according to EORTC algorithms and analysed using Wilcoxon's signed rank test. The Unit's prospective surgical database provided clinical data for the results analysis in relation to the following: age, smoking status, predicted post-operative FEV1 (ppoFEV1) and post-operative pain control.

Results: Overall, at 3 months there was significant deterioration in participants' physical, cognitive, role and social functioning compared with pre-operative scores. Most symptom scales showed deterioration: fatigue, pain, dyspnoea, insomnia, constipation and financial difficulties, (all $p < 0.01$), as did scores for Global Health Status. These changes didn't reverse at 6, 12 or 24 months.

Advanced age (> 75 years), current smoking and poor post-operative pain control showed low impact on participants' scores. However, those with a ppoFEV1 below 40% had significantly less impact on their post-operative HRQoL, including no deterioration of Global Health Score.

Conclusion: The HRQoL impact of surgery for lung cancer is long lasting and significant even in younger patients and those with uneventful early postoperative progress. Analysis of sub-groups showed that contrary to expectations, those participants traditionally labelled as "high risk" (ppoFEV1 <40%) reported less deterioration in their HRQoL scores than "healthier" patients who may have been expected to cope with surgery better.

111 Diversity in the Surgical Care Practitioner Role - Reflection on the Experiences During Year One of Training.

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Objectives: To give an overview of the diversity of SCP practice at James Cook University Hospital

Methods: To reflect using John's (2000) Model on the challenges faced during year one on SCP training post. Meeting the demands of the role at James Cook University hospital presented a plethora of challenges as it involved numerous aspects of both the nursing and medical roles. SCP's in year one of training participated in all aspects of peri operative care of the cardio thoracic surgical patient; working in outpatient and pre operative assessment clinics, theatre and ward environments.

Results: There are many challenges, both personal and professional, faced during year. Personal challenges: fitting into a team which itself was still in development and subject to numerous changes, dealing with role ambiguity. The professional challenges were: achieving a level of competence in all aspects of the varied and complex role in order to fulfil service needs whilst competing with other colleagues for opportunities and experiences.

Conclusion: At the end of year 1, obstacles were overcome with support from consultant surgeon mentor and other SCP colleagues resulting in increased knowledge, skills and practical experience.



112 Patient Prosthesis Mismatch, Early Outcome of Aortic Valve Replacement for Isolated Aortic Stenosis.

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Objectives: The effect of patient-prosthesis mismatch (PPM) on short-term morbidity, mortality and functional recovery, following aortic valve replacement are conflicting. We evaluated the effect of PPM on early outcome in patients with pure aortic stenosis who underwent aortic valve replacement (AVR).

Methods: From June 2006 to June 2008, 90 patients underwent AVR for isolated AS. Patients were divided into two groups. Group I included 45 patients with no PPM, Group II had 45 patients with PPM following AVR. Assessment with transthoracic echocardiography (TTE) +/- transoesophageal echocardiography (TOE) was done preoperatively and six months postoperatively to assess Trans Aortic Gradient (TAG), Left Ventricular Ejection Fraction (LVEF), Effective Orifice Area (EOA) and Left Ventricular Mass Index (LVMI).

Results: Both had comparable preoperative demographics. ITU stay in group I, was 1.38 ± 0.89 day vs. group II; 2.27 ± 2.5 days ($P = 0.04$). There was no difference in post operative complications including reoperation for bleeding or tamponade, pulmonary complications, neurological deficits, post operative renal failure, low cardiac output state (LCOP), new postoperative arrhythmias and postoperative wound sepsis.

Early 30-days hospital mortality was, $n=1$ (2.2%) vs. $n=1$ (2.2%). At 6 months follow up, clinical improvement was seen in both groups; NYHA class and CCS class ($p > 0.05$). TTE at six months showed, peak trans-aortic gradient postoperatively; group I (26.9 ± 10.4 mmHg) vs. group II (35 ± 12.1 mmHg) (P value < 0.005). LVEF group I ($58.6 \pm 11.8\%$) group II mean ($57.8 \pm 10.3\%$) ($P > 0.05$). While LVMI in group I (109 ± 24.2 gr/m²) vs. group II (112.7 ± 26.5 gr/m²) ($P > 0.05$). One year survival was 98.8% vs. 95.6% in group II (Log Rank, $p > 0.05$).

Conclusion: Patient prosthesis mismatch has no adverse impact on early morbidity, mortality & short term survival. Assessment of clinical improvement according to NYHA and CCS status indicated no significant difference.

113 Glucose-Insulin-Potassium Reduced the Incidence of Low Cardiac Output Syndrome (LCOS) Following Aortic Valve Replacement (AVR)

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Objectives: Patients undergoing AVR for symptomatic aortic stenosis often have significant LVH which is associated with impairments in myocardial energy metabolism. LVH has also been associated with an increased risk in severity of myocardial injury and contractile dysfunction post AVR. We designed a trial to examine the effect of GIK on the incidence of low cardiac output syndrome (LCOS) following AVR.

Methods: We performed a prospective, single centre, double-blind, randomised placebo controlled trial of patients undergoing AVR±CABG with echocardiographic evidence of LVH. Patients were randomised to receive either GIK or placebo from induction of anaesthesia until six hours following aortic cross-clamp removal. Serial measurements of cardiac output were recorded and episodes of LCOS adjudicated by a blinded end-points committee.

LCOS was defined as a cardiac index $< 2.21 \text{ min}^{-1} \cdot \text{m}^{-2}$ in the presence of adequate pre-load and heart rate. All pre-specified analyses were conducted according to the intention to treat principle, and the study had a statistical power of 80% to identify a relative risk of 0.5 with a conventional one-sided α -value 0.25.

Results: 220 patients were randomised and three patients were excluded. There were no important differences between groups. The median EuroSCORE in the GIK arm was 4.4 (IQR 2.7-7.1) versus 4.5 (IQR 2.9-7.7) in the control arm. The incidence of LCOS in the GIK arm was 10% (11/110) versus 33.6% (36/107) in the control arm. This reduction in LCOS was associated with both significant reduction in inotrope usage and increase in cardiac index during the study period. The use of GIK was associated with a significant reduction in the incidence of LCOS (OR 0.22 95% CI 0.1-0.47, $p = 0.0001$).

Conclusion: In patients with LVH undergoing AVR peri-operative treatment with GIK was associated with a significant reduction in the incidence of LCOS and an improvement in haemodynamics.



114 A Novel Technique in Detecting Subclinical Changes in LV Function and Predicting Optimal Time for Surgery in Patients with Valve Disease.

Authors: Marciniak, A.; Sutherland, G.R.; Marciniak, M.; Kourliouros, A.; Smith, E.E.J.; Jahangiri, M.

St. Georges Hospital, United Kingdom

Objectives: Strain (S) and strain rate (SR) imaging ultrasound is a newly developed technique which is very sensitive in detecting regional systolic abnormalities. To date, there is no specific diagnostic method to detect subclinical changes in systolic function before irreversible left ventricular (LV) dysfunction occurs in aortic or mitral regurgitation (AR/MR). Furthermore, there is no accurate technique to predict potential prognosis after valve surgery.

To assess SR imaging in detecting changes in LV function in patients with regurgitant valve before development of clinical features and detection by conventional echocardiography. To predict optimum time after surgery.

Methods: Prospective study of 125 patients was carried out: group 1 - patients who underwent aortic valve replacement (AVR), group 2 - patients who underwent mitral valve surgery. All patients had standard echocardiography together with tissue Doppler examination performed before surgery and at 5 days, 6 weeks, 3, 6 and 12 months after surgery.

Results: All the surgical patients were divided into 2 groups based on post-operative EF: Group 1 with EF>50% and Group 2 with EF<50%. Group 1 had a significantly ($p<0.005$) higher preoperative SR (LW: $-1.8 \pm 0.38s^{-1}$; Ant: $-1.8 \pm 0.4s^{-1}$) compared to Group 2 (LW: $-1.0 \pm 0.29s^{-1}$; Ant: $-0.95 \pm 0.4s^{-1}$). Significant correlation was detected between preoperative SR and postoperative EF ($p<0.001$, $r = -0.71$). SR/EDV index showed also significant changes ($p<0.001$) at baseline between the groups.

For detecting subclinical changes in deformation of the LV lateral wall, a cut off value of the SR/EDV ≥ 0.006 had 89% sensitivity and 93% specificity; for anterior wall, SR/EDV ≥ 0.005 had 88% sensitivity and 92% specificity.

Conclusion: SR imaging is a specific technique in detecting subclinical changes in LV function in patients with non ischaemic valve regurgitation. It can be used in optimizing the timing of surgery with prediction of outcome in this group of patients.

115 Randomized Trial of Antithrombotic Therapy after Tissue AVR.

Authors: Nowell, J.; Markus, H.; Sarsam, M.; Smith, E.E.J.; Jahangiri, M.

St George's Hospital, United Kingdom

Objectives: Only a few prospective studies have examined the evidence for early antithrombotic therapy following bioprosthetic aortic valve replacement (AVR). Guidelines from professional bodies currently recommend warfarin for three months following surgery, based on mainly retrospective studies. Therefore, the day-to-day practice is erratic and no particular guidelines are being followed in the UK or the US. We present a feasibility phase of a prospective randomized trial where patients were randomized to either aspirin or warfarin monotherapy following isolated bioprosthetic aortic valve replacement.

Methods: The study design was unblinded prospective randomized clinical trial. Fifty consecutive patients undergoing isolated bioprosthetic AVR were randomized to two groups, aspirin or warfarin monotherapy for three months. All patients received routine post operative echocardiographic examination, to assess the prosthetic valve and to exclude thrombus formation. In addition, transcranial Doppler ultrasound was performed in patients for one hour post operatively to record embolic signals which provide a useful subclinical surrogate for stroke.

Results: Primary endpoints for this trial are death, stroke or TIA. We used the WHO criteria for stroke and the Modified Rankin Score (MRS) as a simple tool for assessing stroke. The MRS was calculated for each patient on admission, at six weeks and one year following surgery. There was no progression in MRS. There was only one death. The incidence of stroke or TIA was zero at one year follow up. No statistically significant difference in embolic rates between treatment groups was detected upon analysis of transcranial Doppler data.

Conclusion: In a feasibility phase of a randomized clinical trial comparing aspirin with warfarin following tissue AVR, Doppler evidence points to equivalency between treatments.



116 Comparing Outcomes of Mini to Standard Aortic Valve Replacement.

Authors: Saeed, I.; Tavakkoli Hosseini, M.; Sarsam, M.; Smith, E.E.J.; Jahangiri, M.
St. Georges Hospital, United Kingdom

Objectives: Ministernotomy for aortic valve replacement (AVR) has been described and is routinely used in some centres. However, there are only a few studies comparing the outcomes of mini to standard AVR, especially addressing pulmonary function and patient recovery. We set out to compare mini to standard AVR.

Methods: 84 consecutive patients who underwent mini AVR were matched to 84 who underwent standard AVR between January 2007 and September 2009. Patients who underwent mini AVR were consecutive patients referred to a surgical firm with no specific selection criteria, except that those requiring concomitant procedures were excluded. Upper limited sternotomy with full bypass using central cannulation was used. Postoperative outcome measures including 'respiratory function index' which comprised of time to extubation, chest infection and need for nebulizers were recorded.

Results: There were no deaths and one stroke in the standard group. 76 (90%) of mini AVR were fast-tracked compared to 15 (18%) in standard group. The two groups were further compared based on the following parameters. Data in parentheses show the numbers for mini AVR and standard AVR respectively. Median age (63 and 65 years), cross clamp time (54 and 77 minutes, $P < 0.01$), bypass time (69 and 96 minutes, $P < 0.01$), postop drainage (750 and 940 ml, $P = 0.04$), resternotomy for bleeding (1 and 2 cases, P NS), hospital stay (6 and 9 days, $P < 0.01$), respiratory function index (1 and 3, $p < 0.01$) and sternal infection (0 and 1, P NS).

Conclusion: In a matched cohort comparing mini with standard AVR, mini AVR is associated with shorter ICU and hospital stay and overall improved respiratory function index. Mini AVR should be considered not only for cosmetic reasons, but for overall improved outcome.

117 Technical Lessons Learnt in Sternal Closure with Nitillium Thermoreactive Clips in 1,000 High-Risk Patients - A single Centre Cohort Study.

Authors: Dunning, J.¹; Balasubramanian, S.K.²; Avlonitis, V.S.³; Gill, M.¹; Ferguson, J.¹; Wallis, J.¹; Hunter, S.¹; Goodwin, A.¹; Owens, A.¹; Kendall, S.W.H.¹

¹James Cook University Hospital, United Kingdom; ²Papworth Hospital, United Kingdom; ³Bristol Royal Infirmary, United Kingdom

Objectives: Nitillium thermoreactive clips are a novel method of sternal closure. These clips are pliable at low temperature making them easy to place round the sternum but stiffen at body temperature. They also demonstrate elasticity on straining, returning to their original position rather than cutting through. We sought to assess the incidence of sternal wound complications using these thermo-reactive clips (flexigrips) in 1,000 patients at high risk of sternal dehiscence.

Methods: From May-2004 to January-2009, 1,000 patients at high risk of sternal complications, had sternal closure using flexigrips. Perioperative and demographic variables were analyzed with univariate and multivariate logistic regression analysis to identify risk factors associated with Deep Sternal Wound Infection (DSWI).

Results: Median age was 64yrs and median BMI was 32kg/m². 85% were male, 30% diabetics and 75% had hypertension. 74% had CABG, 9% had valve replacements and 12% had combined procedures. There were no deep sternal complications in 981 patients (98%). The total incidence of DSWI was 1.9% and sternal dehiscence requiring surgery 1%. Superficial wound infection was 8.6%. Overall mortality was 1.6%. Multivariate analysis identified, BMI > 35 (Odds ratio 3.21:95%CI 1.16-8.85), type-II diabetes (Odds ratio 3.9:95%CI 1.27 - 12.3) and need for re-exploration (Odds ratio 7.65:95%CI 2.3-25.19) as significant risk factors for DSWI.

Conclusion: Thermo-reactive clips may be safely used for sternal closure in patients at high risk of sternal dehiscence, with an incidence of 1%. BMI > 35, diabetes and re-exploration were additional predictors of DSWI.



118 Titanium Mesh Reconstruction for Sternal Dehiscence: a Novel Technique of Sternal Repair.

Authors: Unnikrishnan, N.¹; Mallina, R.²

¹Leeds Teaching Hospitals, United Kingdom; ²Leeds General Infirmary, United Kingdom

Objectives: Sternal dehiscence following cardiac surgery increases morbidity & mortality. Pectoral muscle transposition helps healing but fails to give rigidity to the chest wall. We present a single surgeon's experience of a novel technique for reconstructing dehiscenced sternal wounds.

Methods: A 9 year retrospective study of patients who had sternal reconstruction following dehiscence was conducted. The operation included thorough debridement of the wound & the dehiscenced sternum was stabilized with a titanium mesh (Depuy Acromed, Inc) fixed on to the sternum and ribs with stainless steel wires. The curetted bone marrow was applied anteriorly & the mesh covered with pectoralis fascial flaps. They received antibiotics until all infection was cleared.

Results: Nine patients (4 males & 5 females) aged 56-79 years (mean 65) had titanium mesh sternal repair during 2000-09. Aortic root replacement, MVR, CABG, CABG+ AVR were the index operations. All had at least 2 pre-operative risk factors (Diabetes mellitus, High BMI, Peripheral vascular disease, Obstructive airway disease & smoking). Mean time to the application of titanium mesh from the diagnosis of sternal instability was 9 days (6 - 14 days) & the average time to discharge following reconstruction 10 days (6 - 21 days). Six had ICU stay of <4 days following repair.

Intra-operative cultures were positive for coagulase +ve staphylococcus aureus in 5 patients & mixed flora in 4. The mesh was removed from 1 patient at 7 months because of pain from the wires. Mean follow-up was 18 weeks (12- 36 weeks). All the patients had bony reunion of the sternum.

Conclusion: Titanium mesh reconstruction allows effective closure of sternum even in the presence of active infection & provides more stability than soft tissue reconstructive procedures. This facilitates early rehabilitation and reduces in-patient stay. It is cost-effective, simple to perform & serves as valuable procedure in managing difficult sternal wound dehiscence.

119 Intra-Operative Normal Saline Wash-Out of Pericardial Cavity and Sternal Wound, Reduces the Risk of Major Sternal Wound Infection.

Authors: Bilal, R.H.; Katbeh, T.; Sarkar, PK.

Northern General Hospital, United Kingdom

Objectives: Sternal wound infections are a serious morbid condition following cardiac surgery. We evaluated the effect of, simple warm normal saline wash out of the pericardial cavity and sternal wound.

Methods: Two hundred patients underwent coronary artery bypass grafting and concomitant procedures. Standard Infection Risk Scoring model by Society of Thoracic Surgeons was used to evaluate the pre-operative and combined risk score.

Group I; 100 patients with warm normal saline wash out.

Group II; 100 patients with no normal saline wash out.

All patients received prophylactic antibiotic. 500 ml of warm normal saline was used to wash out the pericardial cavity and the sternal wound. Fluid temperature was matched with patient's temperature via disposable thermometer (Tempa.DOT TM.)

Results: Mean age was 69.8 yrs in Group I vs. 70.3 yrs in Group II. Mean weight was 84.7 Kg in Group I vs. 81.2 Kg in Group II. Mean BMI for group I was 29.8 vs. 28.6 in group II (p>0.05). Diabetes Mellitus was evenly distributed. Other pre operative clinical indicators including, female gender, congestive heart failure, COPD, peripheral vascular disease (PVD), renal failure, recent myocardial infarction were equally distributed.

Perfusion time between 100-200 minutes was seen in 32 patients in group I vs. 21 patients in group II. Perfusion time greater than 200 minutes was seen in one patient in group II and none in group I. (p>0.05). Mean clinical major infection score for group I was 1.2 vs. 1.1 in group II (p>0.05). The predictive risk for major post operative infection was 4.0% in group I vs. 3.5% in group II. Observed infection in group I was none. In group II, 4 patients developed deep sternal wound infection requiring debridement and VAC therapy (p<0.05).

Conclusion: Simple warm normal saline washout of the pericardial cavity and sternal wound is a safe, cheap, and effective mode of prevention of major post operative infections following cardiac surgery.

120 Single Centre Experience of Berlin Heart Ventricular Assist Device (VAD) in Paediatric and Adult Populations.

Authors: Butt, T.; Cassidy, J.; Wrightson, N.; Griselli, M.; MacGowan, G.; Pillay, T.; Hasan, A.; Schueler, S.

Newcastle upon Tyne Hospitals, NHS Foundation Trust, United Kingdom

Objectives: The Berlin Heart has been used to bridge both adults and children to cardiac transplantation in our institution since 2005. We reviewed our experience to date, identifying differences between the 2 groups.

Methods: Retrospective review of all patients undergoing Berlin heart implantation at Freeman Hospital 2005-2009. All paediatric patients were ventilated. Both groups were on significant inotropic support with evidence of end organ dysfunction at the time of implantation. Anticoagulation management was the same between the two groups.

Results: 43 patients were identified fitting inclusion criteria: 17 adults and 26 children were supported with the Berlin heart for a total of 3040 days. 11(65%) adults were successfully bridged to transplantation. Six (35%) patients died on support. Of the 26 children, 14 (54%) were successfully transplanted. 6 (23%) children improved such that the VADs were able to be explanted, 5 (19%) children died on support and 1 child remains on support. 21 (81%) children were successfully bridged to either transplant or recovery.

In the adult population 47% were discharged home on mobile drive units.

Neurological events were commoner in the paediatric group, occurring in 8 (31%) children forming the commonest cause of death, compared to 2 (11%) adults. The commonest cause of death in the adult group was sepsis and systemic inflammatory response.

Adults waited a median of 96 days (1-397) compared to 40 days (7-140) in children for transplantation.

Conclusion: The Berlin heart can be used to successfully support patients from infancy to adulthood as a bridge to transplant. In our experience the wait time for adults for a suitable donor organ is longer. Sepsis and systemic inflammatory response are seen more frequently in the adult group but neurological complications seem lower than paediatric population. A significant number of adults on mobile drive units can be discharged home safely.

121 What are Critical Care Nurses' Perceptions of the Long-Term Mechanically Ventilated Patient the ICU Setting?

Authors: Mace, L.

Bristol Heart Institute, United Kingdom

Objectives: This study aimed to explore ICU nurses experiences and attitudes of caring for long-term critically ill patients. The purpose of the study was to generate a detailed account of how nurses engaged and coped when dealing with patients who required a prolonged period of care, including artificial ventilation, in ICU.

Methods: Previous research alluded to factors which make caring for long-term ICU patients difficult and challenging. There was also some evidence which suggested that particular patient types are 'unpopular' with ICU nurses.

Using a purposive sample, a qualitative design was utilised to unravel ICU nurses' perceptions of the long-term critically ill patient.

Twenty three critical care nurses, recruited from either the general or cardiac intensive care of one hospital trust, participated in one of four focus group interviews. The data generated was analysed using thematic content analysis.

Results: Long-term patients were identified as physically and emotionally demanding to care for a variety of reasons. Nurses in some instances felt ill prepared to deal with their complex needs. Balancing the needs of the long-term critically ill with those of the acutely ill was an ongoing organisational tension for senior staff. Conversely, long-term patients were viewed as producing rewarding and satisfying experiences of caring; more evident when ICU nurses felt they connected with individual patients.

Conclusion: The idea of the 'unpopular' patient still exists and is evident in the modern ICU setting. Preparing nurses to cope with the challenges which caring for the long-term critically ill pose through better support and additional education/training, will do much to maximise the care this patient group, while minimising the stress ICU nurses experience when caring for them. As a result, ICU nurses may come to perceive this patient population in a more positive light.



122 Prolonged Intensive Care Stay and Subsequent Psychological Distress - a Study in Cardiac Patients.

Authors: Screamon, M; Vuylsteke, A.; Sharples, L.

Papworth Hospital, United Kingdom

Objectives: The aim was to determine whether patients who stay in intensive care unit (ICU) for more than 24 hours after cardiac surgery develop persisting psychological symptoms.

Methods: After IRB and LREC approval, we approached all consecutive patients who underwent first time coronary artery bypass graft surgery and stayed in ICU for more than 24 hours (Long stay group, LS). For each of these patients who consented to the study, we recruited the subsequent patient, matched by age and sex, but who stayed in ICU for less than 24 hours (Short stay group, SS). All patients with a known psychological disorder or previous ICU admission were excluded.

At 3, 6 and 12 months following discharge from the hospital, we asked each patient to complete four psychological questionnaires: Experience after Treatment in Intensive Care 7 Item Scale (ECTI-7), Hospital Anxiety and Depression (HAD), Short Form 36 (SF36), adapted Trauma Symptom Checklist-33 (TSC-33). Results were analysed using repeated measures analysis of variance, using SPSS.

Results: We studied 302 paired patients. As shown in the table, patients who stayed longer than 24 hours in ICU had significantly poorer scores on all scales up to 12 months post surgery, even when adjusted for EuroSCORE and left ventricular function. Table shows all results, without reference to any specific timepoint. Questionnaire Mean difference LS-SS (95% CI) Significance level (2-tailed) ETIC-7 0.84 (0.39, 1.29) <0.001 HAD (anxiety) 0.84 (0.16, 1.52) 0.016 HAD (depression) 1.04 (0.48, 1.60) <0.001 SF-36 physical component -5.8 (-8.2, -3.4) <0.001 SF-36 mental component -5.4 (-7.7, -3.1) <0.001 TSC-33 (6 questions used) 1.8 (0.2, 3.5) 0.024 Conclusion: Patients who stayed in ICU for more than 24 hours after cardiac surgery scored higher on several psychological evaluation questionnaires when compared with patients who stayed less than 24 hours. This indicates the possibility of greater psychological distress for at least 12 months after cardiac surgery.

123 Implementation of care bundles for the insertion of central venous catheters in cardiac theatres and cardiac intensive care unit.

Authors: Kivi, S.

Morrison Hospital, United Kingdom

Objectives: Health care associated infections (HCAI) remain a major cause of morbidity, mortality and increased financial cost to the NHS. Patients in critical care areas are suggested to be at a greater risk of infection due to prolonged ventilation, invasive devices and immunosuppression. The insertion of central venous catheters is necessary in ICU's in order to provide vascular access, administer fluids, medications and parenteral nutrition. Unfortunately any invasive device can present complications, one of which is that of blood stream infections. Catheter related blood stream infections are costly resulting in prolonged hospital stay and treatment. With the Department of Health (2005) estimating that 6000 patients in England will contract a CR-BSI which will incur treatment costs exceeding £6000 per infection.

The aim of this study was to introduce central venous catheter care bundles into Cardiac ITU as part of the 'Saving 1000 lives' initiative, in order to reduce the number of catheter related blood stream infections.

Method: A 'Plan Do Study Act (PDSA) cycle was implemented in order to allow gradual changes to practise and ensure compliance with the bundle.

Results: 400 insertions of central venous catheters in cardiac theatres and cardiac intensive care have resulted in 2 catheter related blood stream infections.

Conclusion@s>: Although there was little data of previous reported blood stream infections available, anecdotal evidence suggests that changes to insertion methods and maintenance of central venous catheters has not only reduced the number of days that lines are insitu and a reduction in blood stream infections, but also a reduction in the number of unnecessary line changes.



124 Role of Intra-Gastric Balloon in Cardiac Surgery: 'An Adjunct to Pre-Operative Optimization for Morbid Obesity'

Authors: Sharkey, A.¹; Mumbi, C.¹; Bilal, H.¹; Ackroyd, R.²; Sarkar, PK.¹

¹Northern General Hospital, United Kingdom; ²Royal Hallamshire Hospital, United Kingdom

Objectives: Obesity is associated with a high risk of developing intra-operative and post-operative complications in patients undergoing cardiac surgery. High body mass index (BMI) is a known risk factor. Morbid obesity is a relatively common cause for delay in surgery, as the patients are optimized to near normal BMI. We evaluate the role of Intra Gastric Balloon in this group of patients and present our successful experience.

Methods: A 50 year old, male who weighed 159 Kg and a BMI of 48 was referred for coronary artery bypass grafting with severe triple vessel disease. Awaiting gastric bypass surgery for morbid obesity, he was cancelled in view of his significant ischemic heart disease. In consultation with Obesity Specialist Team, an intragastric balloon was inserted under gastroscopy guidance.

Results: His medications for coronary artery disease were optimized, in the next five months he lost 41kg and his BMI was reduced to 38. He underwent uneventful coronary artery bypass grafting. No untoward complication was experienced during and after the surgery. He was extubated 4 hours following the surgery and was discharged on day 5. On follow-up he remains well.

Conclusion: Intra-gastric ballooning is a relatively simple, safe and alternative approach to pre-operative optimization in cases of morbid obesity. Frequent employment of this technique should be considered in this group of patients.

125 Uniportal VATS Surgery: Experience From a Single Centre.

Authors: Roubelakis, A.; Khan, A.Z.; Modi, A.; Holman, M.; Casali, G.

Cardiothoracic Surgery Department, Southampton General Hospital, United Kingdom

Objectives: Video-Assisted Thoracic Surgery is well adopted in Thoracic Centres across the world as the new gold standard in treatment of many thoracic diseases. Uniportal VATS operations is an emerging and evolving new technique which is characterised by even less invasive procedures than conventional VATS operations. We present our single-centre experience from the uniportal VATS procedures performed.

Methods: From the 1st of April 2009 until the 1st of October 2009 37 operations were performed in our centre by single-port VATS access. Camera, instruments and stapler guns were inserted through a single 2.5 cm incision. The procedures included 19 (51.4%) operations for treatment of pneumothoraces/airleaks, 8 (21.6%) wedge resections for metastasis, 7 (18.9%) lung biopsies for interstitial lung disease, 2 (5.4%) empyema drainages /debridements and 1 (2.7%) pleuropericardial window associated with drainage of pleural effusion. Our patients were predominantly male (73%) with a mean age of 45.1(±21 years).

Results: There were no conversions to more invasive techniques in our series. Mean operative time was 51.8(±14.7)mins. Blood loss was minimal not requiring any transfusion with blood products. 36 out of 37 patients were sent to the ward immediately after the operation, with only 1 needing HDU stay for monitoring. Postoperative need for pain control was minimal. Postoperative complications included 1 haemothorax and 1 wound dehiscence. Only one patient required flutter bag insertion. One patient required a second surgical procedure (LVRS) for prolonged air leak due to extensive emphysema. Mean postoperative length of Hospital Stay was 3.27(±2.75) days (Median:2 days, Mode:1 day). On follow-up, all biopsied patients had tissue diagnosis and all metastasectomy had clear margins. None of the patients treated for pneumothorax had any recurrence.

Conclusion: From our experience uniportal VATS operations are safe, quick and efficient for simple thoracic procedures.



126 Is Major VATS Resection Safe in Octogenarians? The Southampton Experience.

Authors: Amer, K.; Khan, A.Z.; Vohra, H.A.

Southampton General Hospital, United Kingdom

Objectives: Age has been an excuse not to resect lung cancer. In this study we investigate the safety of first time VATS major resections (lobectomy, bilobectomy, pneumonectomy and segmentectomy) in patients ≥ 80 years of age.

Methods: Patients were accepted for VATS major resection if the CT/PET was suggestive of T1-3, N0-1 and M0 lesion. Age was not a criterion for exclusion. Data was collected prospectively, and comparison is made between 2 groups (A) < 80 years of age and (B) ≥ 80 years, with emphasis on safety.

Results: Between April 2005 and August 2009, 159 consecutive patients were considered for VATS major resection, 141 Group (A) and 18 group (B). Table 1 compares between patients < 80 and ≥ 80 years of age, who proceeded to VATS resection.

Conclusion: Octogenarians undergoing major VATS resection have a higher incidence of admission to ITU/HDU for cardiopulmonary support, but otherwise are no different to younger age groups when it comes to rate of conversion, hospital stay, morbidity and mortality. Age should not be an excuse to deny the elderly curative VATS resection.

	(A) Age < 80 yrs	(B) Age ≥ 80 years	P- value
Female	88/141 (62.4%)	8/18 (44.4%)	0.14
Conversion to thoracotomy	20/141 (14.1%)	3/18 (16.6%)	0.77
Mean operative time (skin to skin)	218 \pm 59 mins	220 \pm 59 mins	0.93
Mean Length of hospital stay	5.3 \pm 3.9 days	6.8 \pm 3.5 days	0.13
Postoperative Surgical events	71/141 (50.3%)	9/18 (50%)	0.97
Non surgical events	63/141 (44.6%)	5/18 (27.7%)	0.17
Air leak > 7 days	30/141 (21.2%)	2/18 (11.1%)	0.31
ITU admission	7/141 (4.9%)	5/18 (27.7%)	0.0005
Re-exploration for bleeding	2/141 (1.4%)	0/18 (0%)	0.61
30 day Mortality	2/141 (1.4%)	0/141 (0%)	0.61
In-hospital mortality	0/18 (0%)	0/18 (0%)	0
3 yr Actuarial survival	82.9 \pm 4.9%	87.8 \pm 8.2%	

127 Implications of Lung Cancer Waiting Time Targets for Thoracic Surgeons in the UK.

Authors: Devbhandari, M.P; Krysiak, P; Jones, M.T.; Shah, R.

South Manchester University Hospital, United Kingdom

Objectives: From January 2009 NHS trusts are no longer allowed to stop the clock to in calculating the recommended waiting time targets of 14 days from GP referral to out patient's consultation, 31 days from decision to treat to treatment and 62 days from referral to treatment. This has been perceived to increase the likelihood of increasing the breaches in the target times. This study was carried out to identify the incidence and causes of breaches.

Methods: North West Lung Centre at UHSM is the regional thoracic surgery referral centre for south of Greater Manchester. Data was collected on all lung cancer patients (n=220) treated here from Jan 2009 to September 2009. According to the treatment received the patients were divided into surgery (135, 61.3%), chemotherapy (80, 36.3%) and other treatment groups (5, 2.3%). Patients needing radiotherapy as first mode of treatment were referred to Christie Hospital and hence were excluded. Waiting times and the causes of delays were analyzed.

Results: No patient breached the 14 day and 31 day targets. 62 day target was breached by (23)10.5% of patients. Significantly more patients in surgical group (18/135, 13.3%) breached the 62 day target compared to chemotherapy (5/80, 6.25%) and other methods (0/5, 0%). Overall the most common cause of 62 day breach was late referral to our institution seen in 13(6%) patients.. Other causes were complex pathway in 7(3.2%) patients followed by patient choice, lack of surgical capacity in 1(0.5%) patient each.

Conclusion: Surgical patients are most likely to breach the waiting time targets and the commonest cause of breach is late referrals. Tertiary hospitals providing thoracic surgery services are most likely to be at a disadvantage in meeting the waiting time targets. Expedited referral methods from the district hospitals should be developed by thoracic surgical centres.

128 Improving Lung Cancer Resection in a Regional Thoracic Surgical Centre.

Authors: Addae-Boateng, E.; Ang, K.L.; Martin-Ucar, A.M.; Handagala, S.; Duffy, J.P
Nottingham University Hospitals NHS Trust, United Kingdom

Objectives: To assess the impact of the redesign of a Thoracic Surgery service on lung cancer resections.

Methods: We compared the case load between 2005 and 2007 in a regional Thoracic Unit with a mixed practice of general Thoracic and Oesophageal Surgery. In 2006, the Thoracic Surgery service was redesigned after the number of Thoracic Surgeons was increased from 3 to 4. We studied its impact on the MDT attendance, theatre list, and the number of procedures performed. Pre-operative characteristics of patients referred were also collected.

Results: There was an improvement in the MDT attendance rates from 70% in 2005 to 77% in 2007 ($p < 0.001$). There was also an expansion of theatre list from 12 to 14 sessions /week and more effective theatre cross-cover with the additional Thoracic Surgeon. This was associated with an increase in the overall procedures performed (see below), in particular the primary lung cancer resections.

Year	2005	2007
Primary lung cancer resections	102	164
Oesophageal resections	52	66
Other major resections	230	374

However, there were no significant changes in the age, cancer staging and the general preoperative status of the patients referred.

Conclusion: The redesign of our services following the increase in Thoracic Surgeons is associated a significant increase in number of primary lung cancer resection from 101 to 164 for an unchanged population base. This was achieved without a reduction in other surgical procedures in the unit.

129 How Does Gene Expression Profile for Lung Cancer Change Based on the Timing of Acquisition? A Preliminary Study.

Authors: Sadri, A.¹; Freidin, M.²; Bhudia, N.²; Nicholson, A.G.¹; Moffat, M.²; Cookson, W.O.²; Lim, E.¹

¹Royal Brompton Hospital, Academic Thoracic Surgery Unit, London, UK, United Kingdom;

²National Heart and Lung Institute, Imperial College, London, United Kingdom

Objectives: Gene expression profiling has been reported to have superior prognostic discrimination compared to TNM for non-small cell lung cancer. However the half life of RNA is short and we hypothesise that trauma (surgery), tissue deterioration after resection and freezing will have considerable impact on the differential expression of genes. This study compares the expression of genes at the exact time of resection and time points thereafter.

Methods: RNA expression from lung cancer tissue in six patients was analysed at 5 different time points (T1= at thoracotomy, T2 = immediately after specimen removal, T3 = interval between removal of specimen and before snap freezing, T4 = immediately after snap freezing of specimen and T5= 1 week after snap freezing). Genome wide expression analysis was undertaken using the Illumina Array (HumanWG-6 v2.0 Expression Band-Chip).

Results: A total 20599 genes showed significant expression. We found that gene expression changed significantly as time progressed ($p < 0.05$), with the largest difference between T3 and T4. Genes with a 2 fold differential expression between time points showed a similar difference ($p < 0.05$). Cluster analysis of genes also showed changing patterns of cluster expression with time.

Conclusion: Our study suggests significant differential expression of genes occurs between the different time points. In order for global gene expression profiling to be used widely, more study is required by the scientific community to standardise between the timing of sample acquisition.



130 Functional outcome in Patients with Non-Small Cell Lung Cancer who Failed BTS Recommended Post-Operative Predicted Criteria for Lung Resection.

Authors: Pattenden, H.A.¹; Karunanantham, J.¹; Leung, M.¹; Beckles, M.²; Cooper, S.³; Lim, E.¹

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Objectives: The study of outcomes of patients who do not fulfill conventional criteria for lung resection is difficult as the implied practice is “against” recommendations. We sought to determine functional outcomes and satisfaction in patients with lung function parameters below that recommended by British Thoracic Society guidelines.

Methods: This is a cohort study from a single surgeon series of patients with non-small cell lung cancer. Patients were identified from a surgical database and included if they had a post-operative predicted FEV1 or TLco less than 40% based on intended resection.

Results: From 1 February 2007 to 1 October 2009 a total of 145 patients were reviewed, and 28 patients had post-operative predicted FEV1 or TLco less than 40%. Twenty accepted risks of mortality and / or postoperative shortness of breath and chose surgery, and 8 chose non-surgical management.

On follow up, 9 patients died, with a similar overall survival (P=0.616). Patients with lower MRC score and TLco tended to choose non-surgical management. There was no in-hospital or 30-day mortality in the patients who chose surgery. Both groups had to modify their lifestyle to a similar degree. Satisfaction with exercise tolerance and quality of life were higher in the surgical group, but not statistically significant. Patients in both groups were equally satisfied with their treatment decisions.

Conclusion: Our results suggest that it is possible to present to patients with poor lung function, the risks and benefits of treatment options, to allow them to choose, to respect their achieve good surgical results and high patient satisfaction.

131 Thoracic Surgical Patients Requiring Unscheduled Admission to ITU: An Audit on the Usefulness of Thoracoscore.

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Objectives: We undertook this audit to identify complications post thoracic surgery dictating ‘step-up’ care and analyse usefulness of Thoracoscore in predicting ITU admissions.

Methods: A retrospective analysis was done of consecutive thoracic surgical admissions in ITU over a period of 1 year. Data was collected for operative category, indications and management in ITU. In addition these patients were subdivided in categories of no. of organ systems involved and compared with their Thoracoscores.

Results: Between 4/2008 and 4/2009 there were 1800 thoracic procedures carried out at our institution. 48 patients (2.6%) required ITU admission. For this group, M: F=29:19 and mean age of 61(20-84). Operative categories were; Lung resection (n=19), Thymectomy (n=4), VATS pleurodesis (n=6), Decortication (n=3), Pleural/Lung Biopsy (n=5), Thoracotomy/evacuation of hematoma (n=3), Diaphragmatic hernia repair (n=2), Other (n=6).

Reasons for admission were: Respiratory failure, n=20(42%), Hemodynamic instability, n=15(31%), Renal failure, n=7(15%), Sepsis, n=4(8.3%), Observation, n=14(29%). ITU interventions: Intubation/ventilation, n=23(48%), Inotropic support, n=14(29%), Renal support, n=6(12%), Monitoring/supportive treatment, n=15(31%), additional procedures included tracheostomy (n=9) and suction bronchoscopy (n=8). Some patients had more than one complication and hence required more than one supportive measure. 13(27%) of these patients died in ITU. 8(62%) had lung resections carried out. Morbidity and Thoracoscore (Table01);

Conclusion: In spite of effective resource utilization, mortality remains high in thoracic patients admitted to ITU on unscheduled basis. Literature supports Thoracoscore’s usefulness in risk stratification for mid-term mortality. However, its usefulness in predicting morbidity including need for ‘step-up’ care post-thoracic surgery is doubtful.

No. of organs involved	Length of ITU stay (days), Median(range)	Thoracoscores
1,n=25	5(1-62)	2.3(0.25-15)
2,n=0	N/A	N/A
3,n=9	19(2-51)	2.1(0.46-5.4)

132 The Midterm Outlook for Patients with Early Stage Diabetes Following Coronary Revascularisation.

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Objectives: This study aims to investigate whether a diabetic disadvantage develops in a specific subpopulation of diabetics with early stage disease, following coronary bypass surgery (CABG).

Methods: Patients undergoing CABG between 1999-2007 were reviewed, and divided into diabetic and non-diabetic groups. Those diabetics with renal impairment (eGFR<60ml/min), peripheral vascular disease, or both, were grouped together as 'advanced' diabetics. The remaining diabetic patients (with neither renal impairment nor peripheral vascular disease) were nominated as 'early diabetics'. Propensity matching was used to allow comparison of in-hospital outcomes and midterm survival between the non-diabetic (nonDM), 'early' diabetic (eDM), and 'advanced' diabetic (aDM) groups. Mean follow-up was 4.8 years, range 1.9 - 6 years.

Results: 237 'early' diabetics and 237 'advanced' diabetics were compared in turn to 956 matched non-diabetics. There was a higher incidence of post-operative renal failure and deep sternal wound infection in both diabetic groups (see Table 1). However, other in-hospital outcomes (in-hospital mortality, stroke, myocardial infarction, atrial fibrillation) were statistically similar. Midterm survival for the eDM and nonDM groups at 3 years and 6 years was statistically equivalent, while a clear survival disadvantage was demonstrated for the aDM group.

Conclusion: The perceived longer term 'diabetic disadvantage' in CABG patients does not apply to the subgroup of 'early' diabetic patients. Aggressive secondary prevention in this subgroup may improve their prognosis to that of non-diabetic patients following coronary bypass surgery.

	Non-diabetic (n=956)	'Early' diabetics (n=237)	Comparison of Early Diabetics vs Non-diabetics, p	'Advanced' Diabetics (n=237)	Comparison of Advanced Diabetics vs Non-diabetics, p
Stroke (%)	1.7	1.3	>0.99	0.8	0.55
Myocardial infarction (%)	3.5	1.3	0.08	2.1	0.29
Atrial fibrillation (%)	29.6	35.4	0.08	33.8	0.21
Post-operative acute renal failure (%)	2.0	4.6	0.02	16.0	<0.001
Deep sternal wound infection (%)	0.3	2.5	0.003	3.0	<0.001
In-hospital mortality (%)	1.2	2.5	0.12	2.1	0.34
1 year mortality (%)	2.5	5.9	0.008	5.5	0.02
3 year mortality (%)	6.1	8.4	0.19	10.6	0.02
6 year mortality (%)	9.0	13.1	0.06	20.3	<0.001

133 Preoperative Anaemia Increases Mortality and Postoperative Morbidity After Cardiac Surgery.

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Objectives: Anemia is an established adverse risk factor in cardiovascular disease. However, the effect of preoperative anemia is not well defined in heart surgery. This study evaluates the effect of preoperative anemia on early clinical outcomes in patients undergoing cardiac surgery.

Methods: A retrospective, observational, cohort study of prospectively collected data was undertaken on 7738 consecutive patients undergoing heart surgery between April 2003 and February 2009. Of these, 1856 patients with preoperative anemia were compared to 5882 patients without anemia (control group). According to the World Health Organization, anemia was defined as hemoglobin level <13 g/dl for men and <12 g/dl for women. Selection bias not controlled by multivariable methods was assessed with a propensity-adjustment method.

Results: Overall mortality was 2.1 %. Preoperative anemia was associated with a tripling in the risk of death (4.6% vs 1.5%, p<0.0001), postoperative renal dysfunction (18.5% vs 6.5%, p<0.0001), atrial fibrillation (36.7% vs 33%, p=0.003), stroke (1.9% vs 1.1 %, p=0.008) and length of hospital stay >7 days (54% vs 36.7%, p<0.0001). In propensity-adjusted, multivariable logistic regression, preoperative anemia was an independent predictor of mortality (odds ratio [OR] 1.44, 95% confidence interval [CI] 1.02 to 2.03), postoperative renal dysfunction (OR 1.73, 95% CI 1.43 to 2.1) and length of hospital stay > 7 days (OR 1.3, 95% CI 1.15 to 1.47).

Conclusion: In patients undergoing heart surgery preoperative anemia is associated with an increased risk of mortality and postoperative morbidity.

134 The Sick Euthyroid Syndrome Post Coronary Artery Surgery is Associated with Reduced Mid-Term Survival.

Authors: Ranasinghe, A.M.¹; Franklyn, J.A.¹; Graham, T.R.²; McCabe, C.J.¹; Mascaro, C.J.²; Rooney, S.J.²; Wilson, I.C.²; Pagano, D.²; Bonser, R.S.²

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Objectives: The sick euthyroid syndrome (SES) is a stress response to illness that may be adaptive or maladaptive. We investigated the relationship of the SES to mid-term survival in patients undergoing CABG.

Methods: In a randomised trial (1/00-9/04) investigating metabolic and triiodothyronine (T3) therapy, 160 euthyroid patients undergoing isolated on-pump CABG had serial thyroid function tests at baseline, 6, 12, 24, 48 and 72h post aortic cross clamp (AXC). 47 patients received no T3 therapy and 123 received T3 therapy at AXC removal (0.8µg/kg bolus, then an infusion, 0.113µg/kg/h for 6h). Follow-up data (census 06/09) for all cause mortality was 100% complete.

Results: T3 therapy increased serum free T3 (fT3) at 6h ($p < 0.001$) compared to controls. At 12, 24, 48 and 72h, 47.2%, 77.1%, 51.4%, and 17.6% controls exhibited had low serum fT3 (LST3) vs. 14.3%, 31.1%, 44.2% and 35.0% of T3 treated patients ($p < 0.001$, $p < 0.001$, $p = 0.448$ and $p = 0.054$). Mid-term survival was not different between control and T3 treated groups and for patients exhibiting a LST3 during the first 48h.

At 72h, fT3 levels were available on 154 (96.3%) patients of whom 48 (31.2%) had LST3. Patients with a LST3 at 72h had lower cardiac index at 6h post AXC (2.94 ± 0.53 vs. 2.76 ± 0.51 , $p = 0.048$) and increased median (IQR) ITU stay ($26.3(22.7-44.3)$ vs. $53.1(28.3-116.0)$ hours, $p < 0.001$), compared with those with normal fT3 (NST3). On Kaplan-Meier (log rank) survival analysis, mean [95%CI] survival was 6.3 [6.1-6.4] vs. 5.6 [5.1-6.1] yrs (NST3 vs. LST3 at 72h), $p = 0.001$.

In a multivariate model with age, gender, ejection fraction, renal function, low cardiac output state, peak troponin $I > 13.0$ ng/ml and LST3 at 72h, only LST3 at 72h was significantly associated with reduced survival; hazard ratio 3.86 [1.23-12.19], $p = 0.031$.

Conclusion: Post-CABG LST3 at 72 hours is associated with reduced survival. Whether this represents a marker of illness severity or a potential target for therapeutic intervention warrants further investigation.

135 FEV1 Predicts Length of Stay and In Hospital Mortality in Patients Undergoing Cardiac Surgery.

Authors: Zamvar, V.³; McAllister, D.A.¹; Wild, S.²; Maclay, J.D.²; Robson, A.³; Newby, D.E.²; MacNee, W.²; Innes, A.³; Mills, N.L.²

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Objectives: A clinical history of Chronic Obstructive Pulmonary Disease (COPD) predicts in-hospital mortality following cardiac surgery, yet the relationship between lung function and surgical outcomes has not been defined.

Methods: In a retrospective cohort design, records for 2,241 consecutive patients undergoing coronary artery bypass grafting and/or valve surgery from 2001 to 2007 were selected from a UK regional cardiac surgery database and linked to a regional spirometry database. Generalized linear models of hospital stay and mortality on FEV1 were adjusted for age, sex, height, body mass index, socioeconomic status, smoking, cardiovascular risk factors, recorded chronic pulmonary disease, and type and urgency of surgery.

Results: Spirometry was performed in 2,082 patients (93%) with a mean age of 67 (10) years. Patients were predominantly male, 35% were never smokers, 1.3% had been diagnosed with COPD and 15% had airflow obstruction on spirometry. Median hospital stay was 3 days longer amongst the lowest quintile for FEV1 compared to the highest quintile, and in adjusted models length of stay was 1.35-fold longer (95% CI 1.20-1.52; $p < 0.001$). The adjusted odds ratio (OR) for in-hospital death was 2.11-fold higher (95% CI 1.45-3.08; $p < 0.001$) per standard deviation decrement in FEV1. FEV1 predicted in-hospital mortality almost as well as the EuroSCORE with area under the receiver-operating-characteristic curves of 0.74 and 0.78 respectively.

Conclusion: Reduced FEV1 is a strong independent predictor of increased length of stay and in-hospital mortality following cardiac surgery, and should be further evaluated as a simple widely-available tool in the assessment of pre-operative risk.



136 Post-Operative Renal Function is Predictive of Late Survival Following Adult Cardiac Surgery.

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Objectives: Impaired pre-operative renal function defined by an estimated Glomerular Filtration Rate (eGFR) of $<60\text{mls}\cdot\text{min}^{-1}\cdot\text{m}^{-2}$ has been demonstrated to be predictive of an increased risk of in-hospital mortality and morbidity, and of reduced late survival. Cardiopulmonary bypass is tolerated well by most patients but a minority develop an acute kidney injury (AKI). The aim of this study was to assess whether more subtle changes in renal function were associated with reduced late survival and to examine predictors of post-operative renal function.

Methods: Prospectively collected data on 8733 patients undergoing cardiac surgery utilising cardiopulmonary bypass from 1.1.99 until 1.1.09 was analysed. Patients requiring circulatory arrest or undergoing thoracic organ transplantation were excluded. The eGFR was calculated using the Modification of Diet in Renal Disease equation accounting for age, gender and ethnicity.

The pre-operative eGFR was calculated from the plasma creatinine level immediately prior to surgery, and the post-operative eGFR was calculated from the day 4 creatinine. Time to event analyses were conducted using the approximate frailty models incorporating the EuroSCORE, surgeon as a random effect, type of procedure, and social deprivation index. Models containing the pre- and the day 4 eGFR were then compared using Akaike's Information Criteria (AIC).

Results: Median length of follow up was 6 years. The most powerful predictors of late survival was the EuroSCORE HR 2.928 95%CI 2.57-3.37, $p=0.00001$. Model fit was significantly improved with the addition of EGFR, with Day 4 eGFR most predictive as assessed by the AIC, HR 2.5 95%CI 1.99 - 3.17. The most powerful prediction of the day 4 eGFR was the baseline value but it was also influenced by EuroSCORE, procedure type and bypass time.

Conclusion: Renal function is an important predictor of late survival. Peri-operative changes in renal function may have significant prognostic effects.



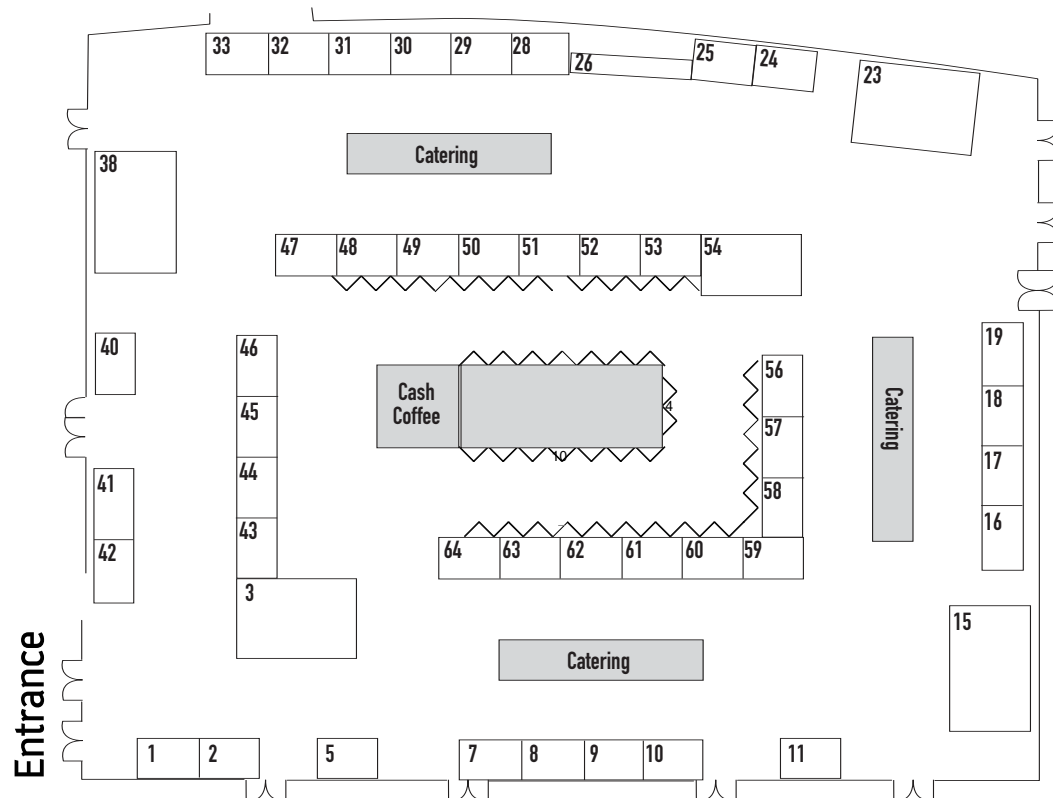
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Catalogue of Exhibitors

ALBERT WAESCHLE

STAND 49

Sternal Talon - The Innovative Sternal Closure

KLS Martin, a World Leading company in the field of Surgical Innovation is pleased to announce an important NEW development for Cardio Thoracic & Vascular Surgery.

Sternal Talon is a unique system that allows easy and rapid closure of the sternum. With this product the two halves of the split sternum are pulled together (without wires) for rigid fixation WITHOUT bone penetration.

Forces are distributed across a large surface area-a significant advantage, especially for high risk patients. Sternal Talon is manufactured from biocompatible titanium, it is easy to implant and can be opened (and re-closed) just as easily!

Sternal Talon offers a fast and firm Sternal closure, is stable under load immediately after implantation, and leads to less post operative complications and a more rapid recovery for the patient.

After extensive trials the system is now available in the UK from Albert Waeschle.

Technical information, training and product for evaluation are now available.

For more information please contact:

Roger Wood
Sales & Marketing Manager
Albert Waeschle Ltd
Tel: 07834341277
Email: roger@albertwaeschle.com

ATMOS MEDICAL LIMITED

STAND 64

Powerful, intelligent, innovative technology just got better

With over 100 years of suction system development, ATMOS Medical Limited (UK subsidiary of ATMOS MedizinTechnik) will be bringing the next generation of thoracic drainage systems to this year's conference. The ATMOS E201/ S201 Thorax drainage systems are the most powerful available worldwide and incorporate previously unavailable technical innovations.

With the ATMOS tube measuring system, the vacuum parameters are measured directly with the patient, not just at the vacuum source. Resulting from the constant monitoring of the set parameters the siphon effect is excluded as changes in line status are automatically balanced.

The built-in alarm function of the ATMOS S/E 201 Thorax will ensure that any problem can be clearly noted by staff within a noisy clinic environment.

Including a 'real-time' flow measuring system', the ATMOS system can measure current flow parameters so staff and physicians are fully informed of the patients status.

The ATMOS S201 has the additional features of a visual flow history display, the ability to export data in MS Excel® format via an SD card to a PC for patient treatment history traceability, the ability to connect to a nurse calling system and a colour graphic display.

We welcome you to our stand where both systems will be available for demonstration.

ATRIUM MEDICAL UK

STAND 5

Are you looking for a chest drainage system that will allow **YOUR PATIENTS TO BE MOBILE?**

Studies have shown many advantages associated with getting patients AMBULATORY, such as faster recovery of the pulmonary function, better mood of the patients with decreased need for sedation and pain killers. With the Express™ Mini 500 and the Pneumostat(tm) Chest Drain Valve you have found the best solutions for the health of your patients and an economical solution by reducing the length of the hospital stay.

For 29 years Atrium brings you experience, innovations, quality, safety, easy monitoring and the best nursing education tools that can be all found on www.atriumU.com : training, videos, newsletters...

Are you ready to get mobile? VISIT ATRIUM during SCTS at stand nr. 5

Atrium UK
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E-mail: atriumuk@atriummed.com
Web: www.atriummed.com
Chest drainage education: www.atriumU.com

ATS MEDICAL

STANDS 56 AND 57

ATS Medical, Inc. manufactures and markets products and services focused on cardiac surgery. At this meeting, ATS will introduce the ATS Enable Aortic Bioprosthesis, the first and only commercially available sutureless surgical tissue valve which received CE Mark approval in December 2009. The Enable valve is based on the ATS 3f® Aortic Bioprosthesis, a revolutionary next generation stentless pericardial tissue valve which provides a potentially more durable solution to aortic valve replacement. Also featured will be the ATS Open Pivot® Heart Valve that utilizes a unique pivot design resulting in exceptional performance and a low risk profile. The ATS Open Pivot AP360® valve offers the same clinical benefits of the open pivot design with a flanged cuff of double-velour polyester for exceptional flexibility, needle penetration and conformability. The ATS

Simulus® annuloplasty rings and bands complete the ATS portfolio of heart valve products. Continuing ATS Medical's focus on serving the cardiac surgery community are the ATS CryoMaze® products for the cryoablation of cardiac arrhythmias. The ATS Medical web site is <http://www.atomedical.com>.

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BAXTER HEALTHCARE LTD

STAND 61

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Berkshire

RG20 7QW

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Customer Services Fax no. 01635 206126

Surecall Baxter Medical Information Tel no. 0845 608 8132

Baxter Healthcare's mission is to apply our expertise in medical devices, pharmaceuticals and biotechnology to make a meaningful difference in patients' lives.

Baxter BioSurgery's mission is to improve surgical practice by the development and use of novel biomaterials for hard and soft tissue repair.

Baxter BioSurgery are showing a number of products at this meeting - aimed at helping the surgeon to achieve haemostasis, support and seal tissue.

CALMEDICAL

STANDS 9 AND 10

Calmedical is a distribution company offering new technologies to Cardiothoracic Surgeons and Respiratory Physicians in the UK. To introduce these techniques and products we are very focused on training and support as well as offering the highest possible quality and flexibility to service evolving surgical practice.

We are based in Lanark in Scotland and are the UK distributors for Estech Inc (Minimal Access Cardiac and Thoracic Surgery, AF Ablation and OBCAB), Emphasys Medical Inc (Zephyr Endobronchial Valve) and Pluormed (LeGoo Internal Vessel Occluding Gel)

We look forward to seeing you on our stand at the SCTS Meeting.

Contact Details

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www.calmedical.co.uk

CARDIAC SURGICAL UNIT ADVANCED LIFE SUPPORT (CAL S)

STAND 60

We have written and teach the new official 2009 EACTS guidelines for resuscitation after cardiac surgery on our 3 day course in the Lake District 3 times per year. The 2010 dates are April 15th-17th, July 29th-31st, and November 18th-20th. You will not only learn every aspect of this protocol including how to perform an emergency re sternotomy on our own re sternotomy manikins, but we also have a series of lectures, practicals and scenarios on hypotension and respiratory emergencies, tracheostomy and airway emergencies, CXR, ECGs and blood gases, emergency temporary and epicardial pacing, IABP insertion and set-up, and internal massage and defibrillation. It is suitable for all members of the cardiac surgical team from consultant anaesthetists to ward nurses and everyone who comes enjoys it.

We also have conducted 11 'in-house' courses, invited by host hospitals in their own units and are very happy to arrange this in the future. For more information look at www.csu-als.com, or join us on facebook ! Also don't miss our sponsored dinner for all non-doctors on the monday night of the conference.

CARDIOLOGIC LTD

STAND 29

Cardiologic Ltd presents the latest products developed by Atricure for Atrial Fibrillation surgery. The Gillinov-Cosgrove Atriclip for exclusion of the Left Atrial Appendage offers the perfect solution to the challenge of the LAA. The Atriclip is very easily and quickly deployed without risk of trauma to the delicate tissue of the LAA. The LAA is then reabsorbed and the inside surface of the LA becomes perfectly smooth.

The Cryo1 cryoablation probe from Atricure offers the latest advances in cryoablation. The flexible aluminium probe cools to -65 degrees (outside temperature) in less than 10 seconds and defrosts at the same rate when the freeze has been completed.

The latest Atricure bipolar clamp, the Synergy Access, offers an articulating jaw allowing easier navigation around the pulmonary veins and with the Glidepath system it is appropriate for both open and closed chest AF surgery.

The comprehensive range of Osypka heart wires and the new triple chamber temporary pacemaker are on display.

The new spray delivery device for Glubran is available which is highly effective for air leaks following lung surgery.

CARDIO SOLUTIONS (UK) LTD**STANDS 32 AND 33**

Customer Services:

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Web: www.cardiosolutions.co.uk

Cardio Solutions Ltd is a UK based company dedicated to the supply and sales management of Cardiovascular Equipment to the UK health market. Established in 2005 Cardio Solutions has continued to build on relationships within the medical industry to ensure the highest quality of service in the delivery of Cardiothoracic equipment, education and support to surgeons, NHS Trusts and hospitals.

Our product portfolio encompasses some of the finest innovations in medical technology including; St Jude Heart Valves, Conduits, Mitral Repair Rings and the Epicor HIFU ablation device; Medical Concepts Temporary Pacing Wires and Disposable Patient Cables; Porter Medical Inc. Aortic Punches; FLEXIGRIP- Nitinol Sternal Closure Clips from Praesidia and VirtuoSaph an Endoscopic Vein Harvesting device from Terumo/Vascutek.

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CARE FUSION**STAND 1**

CareFusion combines proven clinical technologies with actionable intelligence to improve patient care. Our employees are focused on developing and bringing to market, solutions to today's major healthcare challenges, for example healthcare associated infections (HAIs).

The CareFusion Infection Prevention mission is to deliver clinically differentiated evidence-based products and services that support the global effort to reduce HAIs.

ChloroPrep® is illustrative of this focus. ChloroPrep is a medicinal product containing a solution of 2% chlorhexidine gluconate (w/v) in 70% isopropyl alcohol (v/v) and is the only 2% Chlorhexidine based product licensed for cutaneous antisepsis prior to medical and surgical invasive procedures.

The solution is sterile and contained within a glass ampoule which is housed within an applicator. ChloroPrep is available in a range of applicators containing either 0.67ml, 1.5ml, 3ml, 10.5ml or 26ml of solution. This allows healthcare professionals to comply with evidence-based guidelines and recognised best practice for prevention of HAIs. ChloroPrep helps save lives.

CHALICE MEDICAL LTD**STAND 11**

Chalice Medical Ltd was established in 1998 to import high quality medical products from suppliers in Europe and the U.S.A specifically for the Cardiac Surgery and Perfusion market within the U.K & Ireland. Since then it has also installed manufacturing facilities to support its business. From our head office in Nottinghamshire, Chalice manufacture customised extracorporeal tubing packs, cannula & cardiotomy reservoirs within it's state of the art cleanrooms. The sales & marketing suites, climate conditioned warehousing and distribution centre are also located here.

Our Products Range Includes:

Levitronix Ventricular Assist Device:

- CentriMag® & PediVAS™ short term Ventricular Assist Device,

AutoTissue GmbH Heart Valves:

- Matrix P+: Decellularized Xenogenic Heart Valve,

Sternal Closure:

- DSS - Sternal Synthesis Device

Delacroix Chevalier Surgical Instruments :

- Full range of retractors including Carpentier Mitral Valve, IMA, Dubost, Adult and paediatric ranges.
- Instruments for minimally invasive surgery,
- Needle holders, Micro-instruments, Resano forceps,
- Titanium instruments,

Perouse Cardiovascular Grafts:

- Various sizes and models of formaldehyde free surgical grafts.

Medos and Eurosets Oxygenators and Extracorporeal Tubing Packs:

- Miniature Bypass and conventional systems,
- Adult, Paediatric and Neonatal ranges,
- Conventional, Coated and Long Term ECMO ranges,
- Dual chamber reservoirs with integrated lipid & leukocyte removal Cannulae:
- Full range of cannulae from leading companies around the globe,

CHALICE MEDICAL LTD

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Worksop W.Site: www.chalicemedical.com

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CLS SURGICAL LTD**STAND 45**

Recent developments include the introduction of the MitroFix Mitral Valve Restoration Device (see also the SCTS University programme) and a novel Injectable Pulmonary Valve for off-pump insertion. These and other products from BioIntegral Surgical inc of Toronto, Canada will be on display and we will be pleased to discuss the latest clinical data with you.

If you haven't seen the water-tank demonstration of the Smartcanula before, you will realise why the unique expanding design (from 18Fr to 36FR) achieves such remarkable flow rates - ideal for femoral or other remote cannulation sites.

We are also very pleased to be working with Fehling Instruments of Germany to bring you the highest quality micro-surgical instruments at sensible prices. Check them out and ask about arranging a loan of one or two to try them yourself.

Contact: Chris Bond 07768 271 791 or chris@cls-surgical.com

COVIDIEN

STAND 53

Covidien, formerly Tyco Healthcare, welcomes you to visit their exhibition stand to see the latest technology from two renowned divisions and one exciting new division; Autosuture, Syneture and Biosynthetics respectively.

Autosuture's innovative surgical staplers and stapleoscopy products are used worldwide and the Autosuture division remains focused on developing the best products, service and training for Surgeons and Healthcare Customers in the industry. Please ask us about our VATS MasterClass programmes.

The Syneture suture division not only provides a complete suture portfolio by combining USS's reputation for innovation with D&G's technology, but has technology no other company can provide. To test NuCoat™ needle technology, experiment with Next Generation Surgipro™ II and find out about the Cardiac training opportunities we provide, please visit the Syneture team.

The new Biosynthetic division recently launched the PleuraSeal™ lung sealant system, intended for use as a surgical sealant during pulmonary resection as an adjunct to standard closure techniques of visceral pleural air leaks. We look forward to showing you PleuraSeal™ and talking with you about your experiences and views.

CRYOLIFE

STAND 63

CryoLife Europa Ltd. is a wholly owned subsidiary of CryoLife, Inc., the leader in the processing and distribution of implantable living human tissues for use in cardiovascular surgeries. Internationally, the Company's focus is BioGlue® Surgical Adhesive, which can be used as a sealant, adhesive and for tissue reinforcement and is clinically proven in over 500,000 procedures worldwide. BioGlue is available in fully disposable syringes in 10mL, 5mL and 2mL volumes. The Company also distributes HemoStase®, a safe, simple and effective hemostat, CE marked as an adjunctive hemostatic device for the control of capillary, venous and arteriolar bleeding

DENDRITE

STANDS 7 AND 8

Dendrite Clinical Systems Ltd
59A Bell Street
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Fax: 01491 411 377
Email: info@e-dendrite.com
Website: www.e-dendrite.com

Head Office Contact: Dr Peter K H Walton, Managing Director

Dendrite Clinical Systems Ltd. is a specialist supplier of clinical databases, analysis software and consultancy services for the international healthcare sector. New cardiac databases include: the International Atrial Fibrillation Registry, the European Valve Repair Registry and the Chain of Hope Registry.

Using web-based technology the Dendrite database now incorporates images and diagrams. Images may be single shot or moving sequences and are stored as part of the patient's record. Diagrams are edited on-line and again saved. The patient's record can be reviewed or updated from any PC on the hospital network using Internet Explorer. Please come and visit our exhibition stand to see a demo of these new registries and to also hear about our "Gateway" product, which is a fully modular bi-directional interface engine that will handle data from hospital systems and cardiac devices to ensure you have the information you need to manage the patient and understand your clinical practice.

EDWARDS LIFESCIENCES

STAND 3

For over 50 years, Edwards Lifesciences has been dedicated to supporting patients in their fight against advanced cardiovascular disease, the world's leading cause of death and disability. Through its focused research, development, discovery and commercialization efforts, the company has driven the creation of leading heart valve therapies and hemodynamic monitoring technologies, as well as vascular and cardiac surgery innovations, to help countless patients resume fuller, happier and more active lives. Unified in their mission, Edwards' employees truly embody the company's pledge to help patients each and every day.

We look forward to seeing you at our booth no. 3 at the Society for Cardiothoracic Surgery Annual Meeting.

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EDWARDS LIFESCIENCES MINIMALLY INVASIVE SURGERY**STAND 43**

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Fax: 0870 606 2050	Fax: ++353 (0) 1 8211014

For over 50 years Edwards Lifesciences has been dedicated to supporting patients in their fight against advanced cardiovascular disease, the world's leading cause of death and disability. Through its focused research, development, discovery and commercialisation efforts the company has driven the creation of leading heart valve therapies and critical care monitoring technologies. On our stand come and find out more about the ever expanding options we offer for less invasive cardiothoracic surgery. These innovative options include the use of long shafted instruments; scissors, forceps, needle drivers, hooks, rongeurs as well as single use items such as soft tissue retractors, knot pushers and the Endoclamp.

We look forward to discussing these options with you whatever your current practice.

ETHICON LTD**STAND 50**

P.O. Box 1988, Simpson Parkway, Kirkton Campus, Livingston EH54 0AB
 Customer Services: Tel. 0800 0327 326 Fax 01344 864122
 Web addresses: www.ethiconproducts.co.uk

ETHICON, a division of JOHNSON & JOHNSON MEDICAL LIMITED, is the worldwide leader

in suture products and suture technology and is one of the most recognisable and well-respected brand names in the hospital environment. The division has a long history of innovation in providing products - including sutures, topical adhesives, surgical meshes and wound drains - that improve lives by advancing the standard of care in tissue repair.

ETHICON provide the widest range of suture products including the latest innovation in suture technology, Plus Antibacterial Sutures, designed to reduced risks of Surgical Site Infection. Plus Antibacterial Sutures are available in Coated VICRYL* Plus (Polyglactin910) Antibacterial Suture, MONOCRYL* Plus (25) Antibacterial Suture and PDS* Plus (Polydioxanone) Antibacterial Suture ETHICON also provide a superior range of needles to ensure ease of use for the Surgeon/Clinician and deliver the best of outcomes for the patient in Cardiothoracic surgery.

EUSA PHARMA**STAND 19**

EUSA Pharma is a rapidly growing transatlantic specialty pharmaceutical company focused on oncology, pain control and critical care. The company has three products which it currently markets in the UK:

- * Collatamp® EG: an antibiotic surgical implant for the treatment and prevention of post-surgical infection.
- * Erwinase® : for the treatment of acute lymphoblastic leukaemia.
- * Caphosol® : for the prevention and treatment of oral mucositis caused by cancer therapy

Contact Details:

EUSA Pharma, Building 3, Arlington Business Park, Whittle Way, Stevenage, Hertfordshire. SG1 2FP
 Tel: 01438 740720
 Fax: 01438 735740
 www.eusapharma.com

FEHLING INSTRUMENTS**STAND 44**

Fehling Instruments is a traditional family-owned business dedicated to providing the highest quality surgical instruments for the most critical of surgical specialities. For this reason one hundred per cent of their surgical instruments are manufactured in Germany from the finest materials under their personal supervision.

They are continuously striving to improve the performance and value of micro-surgical instruments and this has led to some outstanding innovations in materials and design. The introduction of the CERAMO® durable ceramic coating, with its distinctive black sheen, in 1996 was a major step towards perfecting the durability and sharpness of precision surgical instruments. CERAMO® surfaces are six times harder than steel.

New concepts in mechanics and design have made many favourable improvements to retractors, aortic punches, dilators, and many more cardiovascular instruments. Several of these are manufactured from SuperPlast® heat-memory metal alloy so that they return to

their pristine original shape and tension each time they are sterilised. It's like having a new instrument for every case!

Please discuss your requirements with the Fehling staff or their colleagues at CLS Surgical Ltd to arrange a no obligation trial with the appropriate instruments.

Contact: Chris Bond 07768 271 791 or chris@cls-surgical.com

GENESEE BIOMEDICAL

STAND 18

HEART IMPROVEMENT PROGRAMME

STAND 46

The Heart Improvement Programme, now part of NHS Improvement, is delivering on a range of national priority projects and bespoke pieces of work for 2008/09 including a focus on cardiac surgery and primary angioplasty. The cardiac surgery project is working with a number of district general hospitals and tertiary centres across England to explore sustainability of cardiac pathways, incorporating a broad focus on both elective and non-elective work aimed at improving local cardiac surgery services, for example;

- * utilisation of outpatients and visiting consultant satellite services
- * management of surgical referrals
- * pre-assessment of patients
- * scheduling of patients for surgery
- * reducing length of stay
- * workforce redesign

The work of the primary angioplasty project is focused around implementation of the Department of Health Treatment of Heart Attack National Guidance, the final report of the National Infarct Angioplasty Project (NIAP).

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HEARTWORKS

STAND 48

Heartworks is the first easy to use, accurate, real time, 3D computer generated transesophageal echocardiography simulator. Based on work done by cardiac anaesthesiologists at University College Hospital, London UK in conjunction with Glassworks Ltd, a leading digital animation company, this original teaching tool will revolutionise the teaching of echocardiography.

"It is exciting, one of the very best I have seen for some years. It shows the anatomy and function of the heart very accurately and is what you expect to see. This will have great impact on managing patients. This is just wonderful."

Professor Sir Magdi Yacoub, Professor of Cardiac Surgery.

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London
NW1 2PG
www.heartworks.me.uk
Tel: (+44) 2073809360

HILL-ROM

STAND 62

Following cardiac or thoracic surgery, retained airway secretions in high risk individuals can lead to the development of pulmonary complications that may delay their recovery. This group of patients has been shown to benefit from the use of The Vest® Airway Clearance System.

The Vest® System uses a technology called High Frequency Chest Wall Oscillation (HFCWO). The Vest® System has an inflatable vest connected by Air Hoses to an Air Pulse Generator. During therapy, the inflatable vest inflates and deflates rapidly, applying gentle pressure across the chest wall. This works to loosen and thin mucus and to move it toward the larger airways, where it can be cleared by coughing or suctioning. Safety studies have shown The Vest® to be safe to use with post cardiac and thoracic surgery patients and it is frequently used within 24 hours of surgery. The Vest® can be used in both the Intensive Care Unit and also on the wards where patients can initiate their own therapy under the guidance of the respiratory physiotherapist. For further information or a demonstration of the system please visit the Hill-Rom stand or contact us via www.thevest.com

KARL STORZ**STAND 40**

Company: Karl Storz Endoscopy (UK) Ltd
 Contact Name: Steve Anderson
 Address: 392, Edinburgh Avenue, Slough, Berkshire SL1 4UF
 Telephone: 01753 503 500
 Fax: 01753 578 124
 E-mail: customerservice@karlstorz.com

Karl Storz GmbH & Co. is the world's premier surgical endoscopy company with an established and acknowledged reputation for producing the finest quality surgical endoscopes and accessories. We shall be displaying a wide range of cardio-thoracic instruments for endoscopic procedures. These include the following in the cardio-thoracic product range:-

- * Multifunctional retractor for Thoracic and Heart Surgery
- * Endoscopic Saphenous Vein Harvesting system
- * Video-Mediastinoscope

If you are considering purchasing HDTV equipment and wish to ensure a state-of-the-art, future-proof HDTV solution, we shall be displaying the Karl Storz HD IMAGE1 Camera System with True 1080p HDTV incorporating 1080p resolution, 16:9 widescreen display and 16:9 acquisition ratio.

So please visit the Karl Storz stand, No.40, and we shall be pleased to discuss all your endoscopic requirements.

LANDMARK**STAND 17**

Landmark Surgical offer a wide range of high quality cardiovascular surgical instruments including titanium and stainless steel micro instruments and a range of super cut scissors dedicated to cardiac surgery. We are delighted to be the UK distributors for Genesee Biomedical who are known for their innovative paediatric and adult cardiac retractor systems.

This year our stand is side-by-side with Genesee Biomedical and we both offer you a warm welcome to our stands.

Landmark Surgical Ltd
 21 Woodland Rd
 Birkenhead
 Merseyside
 CH42 4NT

Contact Greg or Gareth Thomas

Tel 0151 643 1323
 Email info@landmarksurgical.com
 www.landmark-surgical.co.uk
 www.landmarksurgical.com

LEMON CHASE**STAND 52**

Lemonchase are the exclusive UK distributors of Designs for Vision loupes. Design for Vision are the number one choice for surgeons worldwide (indeed, they are the choice of over 95% of surgeons in the US and UK). Whether you are contemplating your first pair or would like advice on any changes to your current pair, Nick Lemon & Mark Chase would be delighted to see you at their stand, where they are also demonstrating Designs for Vision's outstanding range of Lithium Ion, battery powered LED lights, for up to 12 hours of continual use. Please contact 01892 752305 or info@lemonchase.com / www.lemonchase.com

MAQUET**STAND 38**

Maquet is featuring the VASOVIEW™ Endoscopic Vessel Harvesting system and equipment for clampless beating heart surgery.

Endoscopic Vessel Harvesting (EVH) is a minimal invasive procedure for obtaining healthy veins or arteries from patients undergoing coronary bypass surgery. Pioneered in the US, the first system was launched in 1997 and so far, more than 1,000,000 procedures have been performed. Maquet is now introducing the system to Britain. Replacing the current procedure, which can involve an incision from the groin to the ankle, with a small opening of approximately 2cm, enhances patient clinical outcomes and satisfaction.

MAQUET's off-pump product line enables a completely clampless approach to the CABG procedure. By eliminating the use of an aortic cross clamp and a partial occlusion clamp, the risk of neurological consequences due to the release of microemboli is reduced.

The ACROBAT™ Stabilizers and the XPOSE™ Positioning Devices are the foundation of MAQUET's beating heart product line. The ACROBAT Stabilizers use low-profile feet, FlexLink™ interlocking links to provide greater manoeuvrability and flexibility, and improved reach and access to target vessels. The XPOSE Positioners are designed to securely lift and position the heart and access target vessels, while maintaining hemodynamic stability.

Maquet Ltd
 14-15 Burford Way
 Boldon Business Park
 Sunderland
 Tyne and Wear
 NE35 9PZ
 Tel: 0191 519 6200
 Email: info@maquet.co.uk
 www.maquet.co.uk

MEDELA**STAND 16**

Thopaz - this mobile digital thoracic drainage system has been designed to improve and simplify patient management. By integrating the suction source with a digital display, Medela has set new standards.

Thopaz supports the early mobilization of the patient after thoracic surgery. The digital display enables surgeons and nursing staff to retrieve important information about the course of therapy at any time. Conventional thoracic drainage systems only provide a snapshot assessment. The integrated electronic measuring and monitoring functions continuously check the pleural pressure and the parenchymal flow of the patient. This not only gives nursing staff objective data, but it also provides greater security and requires less monitoring.

The treatment of thoracic patients with Thopaz sets new standards. The device is very small and easy to use. The patient can take it anywhere without having to rely on the support of the nursing staff. The increased mobility improves the well-being of the patient and has a positive effect on the healing process. Thopaz therefore plays an important role in reducing the duration of expensive hospital stays.

Thopaz is currently used in Leeds, Birmingham, Bristol, Stoke on Trent.

To discuss further or arrange a trial please call at our stand or contact Ruth Drewery Mob: 07816640250 /ruth.drewery@medela.co.uk

(Scotland and North East) or Sue Oliver Mob 07990594102 / sue.oliver@medela.co.uk (Midlands and the South)

MEDTRONIC LTD**STAND 23**

Medtronic offer a comprehensive range of tissue and mechanical valves, repair products, DLP cannulae, OPCAB products and Atrial Fibrillation pens, bi-polar clamps and generators. We have over 60000 ablation cases safely performed worldwide. We offer the latest tissue technology in the 3rd generation stented Mosaic and the unstented Freestyle valves as well as unparalleled 20 year data on our second generation Hancock II stented tissue valves. In addition, we have built on the outstanding results of the MedHall valve to bring you the latest technology in a bileaflet valve, the Advantage, available in both standard and supra-annular, aortic and mitral. Medtronic has recently launched two new repair products this year and would be happy to show these to you on our stand.

Please visit our stand where the team will be happy to show you all of the above along with some other exciting new products.

Cardiac Surgery Division

Sherbourne House

Croxley Business Park

Watford WD18 8WW

Tel: +44 (0) 1923 212213

Fax: +44 (0) 1923 241004

Website: www.medtronic.co.uk and www.heartvalverepair.net

Contact: Robert Young

NHS BLOOD AND TRANSPLANTATION (NHSBT)**STAND 47**

NHSBT is a Special Health Authority in the NHS with responsibility for optimising the supply of blood, organs, plasma and tissues and raising the quality, effectiveness and efficiency of blood and transplant services.

Tissue Services

NHSBT Tissue Services is now the largest multi-tissue banking organisation in the UK. It is a leader in the development of national and international standards, policies and regulation. An integral, very active R&D department ensures that new processes and services are continually introduced to support improved tissue repair and replacement therapies for patients. A robust strategy for long-term service provision has been approved and includes major investment in facilities equipment and the extension of services to include tissue engineering in the future.

Organ donation and Transplantation

Following the establishment of the UK-wide Organ Donation Taskforce in 2006, we are working to implement the recommendations from the first report which includes expanding the network of Donor Transplant Co-ordinators.

What we do

- Manage the National Transplant Database
- Provide a 24-hour service for the matching and allocation of donated organs
- Maintain the national NHS Organ Donor Register (ODR)

NUROS**STAND 59**

Nuros Ltd offers a comprehensive range of surgical grafts, aortic stents and stent-grafts including the new E-vita open plus hybrid stent graft system. E® -vita open plus optimises the elephant trunk procedure by cleverly combining surgical and endovascular techniques. In the recently introduced E® -vita Open Plus system the stent-graft and surgical graft extension are of a one-piece design using an advanced, blood-tight, finely woven covering developed specifically for this application. The graft extension is housed within the stent-

graft inside the delivery system and is pulled out post-deployment to facilitate classic vascular reconstruction of the aortic arch. This unique system is ideal for treating non-accessible areas of the descending aorta during open chest procedures.

A European follow up trial for E® -vita Open has more than eighty patients already enrolled. This is being co-ordinated by The Department of Thoracic and Cardiothoracic Surgery at The West German Heart Centre, Essen. UK centres are encouraged to contribute and details are available upon request.

Please visit Nuros on stand no. 59 for information on the Jotec E® -vita systems and the rest of this innovative European product range.

PIERSON SURGICAL LTD

STAND 58

Pierson Surgical Ltd is a surgical products distributor covering products for CardioVascular, Vascular and General Surgery. Our current product range for Cardiac surgery includes:

- * Péters Surgical Sutures - a specialist range of sutures for Cardiac surgery, including Cardionyl® for Mitral Valve Repair and Corolene® which has very low memory, ideal for Coronary grafts. The range also includes options for pre-attached pledgets.
- * Uniring Universal Annuloplasty System - an innovative new device from Péters Surgical : one size fits all, the ring can be customised to the desired annulus circumference.
- * ATS Medical Cryoablation System - CryoMaze™. Using cryotherapy for the treatment of cardiac arrhythmias is the only surgical cardiac ablation option that can safely and effectively complete all lesions in the “gold standard” Cox-Maze III procedure with a single product and one energy source. The advantage of cryotherapy over heat-based therapies is that freezing preserves tissue integrity and minimizes the risk of endocardial thrombus associated with heat-based sources.
- * Rooke® Vascular Insulating Heel Float System - triple layer insulating lightweight boot which reduces the chance of heel pressure sores forming for long stay patients.
- * Landanger Surgical Instruments - an extensive range of instruments for every surgical discipline.
- * Tubing Clamps - high quality clamps available for Perfusionists
- * Cardiothoracic Support Bandages - sternal support bandage for sternotomy which provides Permanent support of the thorax to limit post-surgical trauma and allow easier breathing

Contact us on
07785 295594 or sales@piersonsurgical.com
Website www.piersonsurgical.com
Fax 07092 315510

PRACTICAL LEGAL TRAINING AGENCY

STAND 28

We are a leading training agency providing high quality medico-legal courses for health care professionals. Our emphasis is to promote and maintain good standards of practice, safe patient care and reduce costs.

We offer a range of courses, workshops and conferences on various topics that are an everyday concern for health professionals and health managers such as consent, health records, accountability, managing risks, handling patient complaints and legal topics such as court room skills and statement and report writing.

Our courses are delivered by highly regarded specialists. All courses are practical and easy to understand. They can be tailored to your specific requirements and are delivered in-house for your convenience.

Consultancy

We offer a consultancy service to assist healthcare providers in achieving good standards of practice. We can assist with drafting and implementing policies, guidelines and protocols. Assisting with serious untoward incidents, preparing for court hearings, investigating complaints and bespoke consultancy advice and assistance.

Books

We have a series of practical medico-legal books specifically for health professionals published by Radcliffes Oxford.

‘Health Records in Court’ by Jane Lynch

‘Clinical Responsibility’ by Jane Lynch

For further information contact Jane Lynch on 07919 441629 or by email at info@plta.co.uk

Practical Legal Training Agency

Jane Lynch

David Burrows-Sutcliffe

Tel: 07919 441629

Web: www.plta.co.uk

Email: info@plta.co.uk



PULSE SURGICAL LTD**STAND 2**

PULSE SURGICAL LTD

32A Station Road, Chinnor, Oxon OX39 4PZ

Tel: +44 (0) 1844 352220

Fax: +44 (0) 1844 354322

Email: steve@pulsesurgical.co.ukWebsite: www.pulsesurgical.com

Contact: Mr. Steve Chaplin

Pulse continues to be one of the most focused cardiothoracic companies in the UK. As independent distributors, we can offer a unique mix of complimentary products. These include the superb Scanlan Instrument product line, including specially designed VATS instrumentation, the On-X heart valve range, and Medi-Stim's flow meter now with imaging option. Synovis have just launched Veritas in Europe, a patch for chest wall reconstruction that remodels, complementing PeriStrips for staple-line buttressing and Periguard pericardial patches. We also handle the MedXpert range of Pectus bars and associated tools for Pectus Excavatum correction, and their unique Stratos system for complex Pectus, flail chest/trauma and rib resection stabilisation. Many unique niche products to assist you in surgery also feature in our range of complimentary products.

REDAX S.R.L.**STAND 51**

REDAX S.r.l.

Via A. Volta, 51

MIRANDOLA (MO)

41037

ITALIA

Fax: +39 0535 611673

Tel: +39 0535 23224

info@redax.it

www.redax.itsilvio.sacco@redax.it

Redax developed a complete range of chest drainage systems with innovative design aimed at containing dimensions, allowing for additional stability. Chest Drains are available in different models - Dry and Wet - also with autotransfusion option. Redax has also developed a "Mobile Drainage System" based on a portable vacuum unit for easier portability and early mobilization of patients. Thoracic Catheters and Fluted Silicone Drains belong to the cardio-thoracic range of products too.

SORIN**STAND 54**

Sorin Group have been at the forefront of world heart valve design and manufacture since 1977. Unique Carbofilm™ technology, coupled with state of the art, innovative technological advancement, allows Sorin Group to offer an unrivalled portfolio of heart valve replacement and repair products.

With the published 21 year evidence of excellent durability and performance of the Mitroflow valve and the fast growing use of the Sorin SOLO, single suture line stentless valve, there's never been a better time to consider the Sorin range in your practice.

To evaluate the very latest products from Sorin Group, please visit us at booth number 54, where the Sorin team will be available to discuss your requirements.

Sorin Group UK Ltd, 1370 Montpellier Court, Gloucester Business Park, GL3 4AH
Telephone 01452 638500

ST. JUDE MEDICAL LTD**STAND 30**

Capulet House, Stratford Business & Technology Park, Banbury Road, Stratford upon Avon, CV37 7GX

Tel: +44 (0) 1789 207620

Fax: +44 (0) 1789 207601

Email: melcocks@sjm.comWebsite: www.sjm.com

Contact: Martyn Elcocks, Marketing Manager

With advances in new techniques the potential profile of patients presenting for surgery is changing.

These changes are reflected in the developing product portfolio from St Jude Medical's Cardiac Surgery Division.

This year's meeting will offer delegates an opportunity to view our established Regent™ and Epic™ families of mechanical and porcine valves and an early insight into a soon to be launched family of new pericardial valves.

Also on show will be Epicor Cardiac Ablation System. High Intensity Focused Ultrasound is used to provide cardiac surgical ablation safely and reproducibly, both epicardially and off-pump.

We look forward to welcoming you to the St Jude Medical stand in Liverpool.

VASCUTEK**STAND 15**

Significant advances in valved conduit design are rare, however BioValsalva™, a radically new design of valved conduit is without doubt an exception.

BioValsalva™ is a unique porcine aortic biological valved conduit designed for the Bentall procedure. It is a pre-sewn device combining an innovative self sealing graft material and the elan(tm) Vascutek Ltd porcine aortic stentless biological valve.

BioValsalva™ reduces procedure complexity, prevents valve-to-graft mismatch and has the potential to reduce bypass, cross-clamp and procedural times. It also enables the treatment of more vulnerable patient groups.

The proximal portion of the conduit is shaped to mimic the geometry and therefore blood flow patterns of the natural sinuses of Valsalva. This combined with the stentless valve ensures that near normal physiological blood flow is achieved.

The graft material provides superb handling, excellent suturability and rapid haemostasis.

VASCUTEK, a TERUMO Company
Newmains Avenue, Inchinnan
Renfrewshire PA4 9RR, Scotland, UK
Tel: (+44 141 812 5555
Fax: (+44) 141 812 7170
www.vascutek.com

UK MEDICAL**STAND 42**

UK Medical is delighted to attend this year's SCTS.

Our focus this year will be on the PleurX® catheter for home management of recurrent malignant pleural effusion and ascites. In particular, we will be discussing new clinical data that has led to an opening in its indications. Continued research shows strong justification for the use of PleurX in patients who would normally be considered candidates for talc slurry or thoracoscopic talc insufflation.

The Pleurx catheter has been successfully implanted in thousands of patients globally and has over 30 published clinical papers supporting its use. With UK Medical's years of practical experience and commitment to providing the highest level of training and support, PleurX is an evidence-based option that you can offer your patients with confidence.

In addition, we will be showing the Safe-T-Centesis catheter, specifically designed to reduce the risks associated with percutaneous thoracentesis and paracentesis.

We hope you enjoy the meeting and we look forward to seeing you at our stand.

UK Medical Ltd
Albreda House
Lydgate Lane
Sheffield
S10 5FH
Tel: 0114 268 8880
Email: info@ukmedical.com
www.ukmedical.com

WISEPRESS**STAND 26**

Wisepress Medical Bookshop
The Old Lamp Works
25 High Path
Merton Abbey
London
SW19 2JL
Phone: +44 20 8715 1812
Fax: +44 20 8715 1722
Email: bookshop@wisepress.com
www.wisepress.com

Wisepress.com, Europe's leading conference bookseller, has a complete range of books and journals relevant to the themes of the meeting. Books can be purchased at the stand or, if you would rather not carry them, posted to you - Wisepress will deliver worldwide. In addition to attending 250 conferences per year, Wisepress has a comprehensive medical and scientific bookshop online with great offers, some up to 40% off the publisher list prices.



GENERAL INFORMATION

The 2010 Annual Meeting of the Society is at the Arena and Convention Centre, Liverpool from Sunday 7th March to Tuesday 9th March 2010.

CONTINUING PROFESSIONAL DEVELOPMENT

Delegates will be awarded 23 credits of CPD for attendance at the whole meeting. Please note that certificates of attendance will be available for collection at registration at the end of the conference. You will need to complete a feedback form in order to collect your certificate.

ANNUAL SOCIAL EVENT

The SCTS Annual Social Event will take place on Tuesday 9th March between 19:30hrs and 00:30hrs at the Hilton Hotel, Liverpool. An evening not to be missed, this year, the black-tie dinner will include a race night and tribute Beatles band and includes champagne on arrival and a three-course meal including wine. Tickets are £60 per head and can be purchased from the registration desk until 18:00hrs on Monday 8th March. Our annual event was sold out last year so we strongly advise you to book early because we anticipate that this will be as popular.

ANNUAL BUSINESS MEETING

The Annual Business Meeting will be held on Sunday 7th March 2010 between 18:00hrs and 19:30hrs.

Please note that the Business Meetings are open to Society members only.

THE PULSE SURGICAL LECTURE

Dr Hugo Vanermen will deliver his lecture on Sunday 7th March 2010 at 17:00hrs.

HEART RESEARCH UK LECTURE

Dr Michael Mack will deliver his lecture on Monday 8th March 2010 at 11:45hrs.

HUNTERIAN LECTURE

Mr Zain Khalpey will deliver his lecture on Tuesday 9th March 2010 at 1045 hrs.

LILLY TUDOR EDWARDS LECTURE

Dr Valerie Rusch will deliver her lecture on Tuesday 9th March 2010 at 11.45 hrs.

REFRESHMENTS AND LUNCH

Complementary tea and coffee will be provided during the official breaks in the exhibition hall. A buffet lunch is included in the registration fee, and will also be served in the exhibition hall.

REGISTRATION

Sunday 7th March	16:00 - 20:00hrs
Monday 8th March	08:30 - 18:00hrs
Tuesday 9th March	08:30 - 14:00hrs

POSTERS

All posters should be mounted in their indicated space before 08:30hrs on Monday 8th March and should be removed between 15:15hrs and 16:00hrs on Tuesday 9th March. Any posters not collected after 16:00hrs will be disposed of.

KEY TO BADGES

Badges should be worn at all times during the conference. Exhibitors will be easily identified by their yellow badges.

White – attending entire conference/forum

Red – attending Monday only.

Blue – attending Tuesday only.

SATELLITE MEETINGS

Monday 8th March

08.30 – 10.00	Thoracic Sub-Committee Room 6 Chairman: Graham Cooper
12.30 – 13.30	Education Sub-Committee Room 6 Chairman: Prof John Pepper
14:00 – 15:00	Data Committee Room 6 Chairman: Mr Ben Bridgewater

Tuesday 9th March

13:30 - 15:00	Exhibitors' Meeting Room 4b Chairman: Mr Simon Kendall (attending: Mr Ian Wilson, Miss Tilly Mitchell)
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SATELLITE MEETINGS Tuesday 9th March Continued

15:45 - 17:00	Scholarship Award Meeting Room 6 Chairman: Mr Leslie Hamilton (attending: Honorary Secretary, President-elect, Education Secretary, Cardiothoracic Dean, Chairman of the SAC, Chair of the National Selection Committee)
18:30 - 19:00	Presentation Grading Meeting Room 6 Chairman: Mr Simon Kendall (attending: President, President-elect, Chairman of the Intercollegiate Board Chairman of the SAC Cardiothoracic Dean)

SPEAKER'S ROOM

Location Room 7. All presenters are requested to review their audio-visual material in the Speaker's room at the following times:

Morning presentations – by 15:00hrs on the day before presentation

Afternoon presentations – by 09:30hrs on the day of presentation

TRADE EXHIBITION

The Annual Trade Exhibition will be held in conjunction with the Meeting and will be open from 08:30hrs Monday 8th March to 15:45 hrs on Tuesday 9th March 2010.

WELCOME RECEPTION

There will be a Welcome Reception hosted by the Lord Mayor of Liverpool in the Foyer of the ACC Liverpool on the evening of Sunday 7th March 2010 between 19:30 and 20:30hrs. Musical entertainment will be provided by the North Staffordshire University Orchestra. Conducted by Mr Chris Satur, Consultant Cardiothoracic Surgeon. The Welcome Reception is included in the registration fee.

SCTS Lifetime Achievement Award (Sponsored by Heart Research UK)

2008	Mr Donald Ross
2009	Sir Terence English
2010	Prof Peter Goldstraw

SCTS 2009 Prizewinners

Ronald Edwards Medal	H Fallouh
John Parker Medal	S Attaran
Society Thoracic Medal	K Sarraf
Best CT Forum Presentation	P Agostini

The winners will be presented with their medals at the annual dinner

SCTS 2010 Awards

Ronald Edwards Medal	best scientific oral presentation
John Parker Medal	best clinical presentation
Society Thoracic Medal	best thoracic presentation
Society CT Forum Medal	best CT Forum presentation
Society Student Prize	best medical student poster

The winners will be announced at the annual dinner

SCTS 2009 Scholarships

Society Cardiac scholarship	P Modi
Society Thoracic scholarship	C Tan
The Marian & Christina Ionescu Travelling Scholarship	N/A

SCTS 2010 Scholarships

Society Cardiac scholarship
Society Thoracic scholarship
The Marian & Christina Ionescu Travelling Scholarship

The winners of the 2010 scholarships will be announced at the annual dinner



COMMITTEES

Executive Committee 2010–2011

Mr Leslie Hamilton	President	2008–2010
Prof David Taggart	President Elect	2008–2010
Mr Graham Cooper	Honorary Secretary	2008-2013
Mr Malcolm Dalrymple-Hay	Honorary Treasurer	2009-2014
Mr Simon Kendall	Meeting Secretary	2007-2012
Mr Sunil Ohri	Communications Secretary	2005-
Mr Sunil Bhudia	Trainee Representative	2008-2011
Mrs Tara Bartley	Nursing Representative	2006-2011
Mr Tim Graham	Chairman of the SAC	2007–2010
Mr Ben Bridgewater	Chairman of the Data Committee	2008–
Mr Jim McGuigan	Elected member	2007-2010
Prof John Pepper	Elected member/Education Secretary	2007-2010
Mr John Duffy	Elected member	2008-2011
Mr Neil Moat	Elected member	2008-2011
Miss Marjan Jahangiri	Elected member	2009-2012
Mr Ian Wilson	Elected member	2009-2012

Board of Representatives 2009–2010

Mr Tim Graham	Chairman of the SAC
Mr Robert Jeffrey	Chairman of Inter-Collegiate Board
Mr Steven Hunter	Cardiothoracic Dean (demitted office Sept 2009)
Mr Sion Barnard	Cardiothoracic Dean (from Sept 2009)
Mr Jonathan Hyde	Cardiothoracic Tutor (demitted office Sept 2009)
Mr Michael Lewis	Cardiothoracic Tutor (from Sept 2009)
Mr Richard Page/ Mr Jim McGuigan	Thoracic Audit

Unit Representatives

Mr Hussein El-Shafei	Aberdeen Royal Infirmary
Mr Nelson Alphonso	Alder Hey Children's Hospital
Mr Tim Jones	Birmingham Children's Hospital
Mr Richard Steyn/ Mr Pala Rajesh	Birmingham Heartlands Hospital
Mr Franco Sogliani	Blackpool Victoria Hospital

Mr Gavin Murphy	Bristol Royal Infirmary
Mr Mike Cowen	Castle Hill Hospital
Mr Aonghus O'Donnell	Cork University Hospital
Mr Clinton Lloyd	Derriford Hospital
Mr Edward Brackenbury	Edinburgh Royal Infirmary
Mr Andrew Ritchie	Essex Cardiothoracic Centre
Mr Thasee Pillay/ Sion Barnard	Freeman Hospital
Mr David Waller	Glenfield Hospital
Mr Geoff Berg	Golden Jubilee National Hospital
Mr Victor Tsang/ Martin Kostolny	Great Ormond Street Hospital
Mr Christopher Blauth	Guy's and St Thomas' Hospital
Miss Karen Harrison-Phipps	Guy's Hospital
Mr Jon Anderson/ Mr Prakash Punjabi	Hammersmith Hospital
Mr Ashgar Khaghani	Harefield Hospital
Mr Andrew Goodwin	James Cook University Hospital
Mr Chandi Ratnatunga	John Radcliffe Hospital
Mr Ahmed El Gamel	King's College Hospital
Mr David O'Regan	Leeds General Infirmary
Mr John Chalmers	Liverpool Heart & Lung Hospital
Mr Graham Venn	London Bridge Hospital
Mr Nick Odom	Manchester Heart Centre
Mr David Luke/ Mr Freddie Wood	Mater Misericordiae Hospital
Mr Aprim Youhana	Morrison Hospital
Mr Adrian Levine	North Staffordshire Royal Infirmary
Mr Moninder Bhabra	New Cross Hospital
Mr David Hopkinson	Northern General Hospital
Mr David Richens	Nottingham City Hospital (Cardiac)
Mr John Duffy	Nottingham City Hospital (Thoracic)
Mr David Jenkins	Papworth Hospital
Mr Simon Jordan	Royal Brompton Hospital
Mr Richard Berrisofrd	Royal Devon & Exeter Hospital
Mr Jim McGuigan/ Mr J Mark Jones	Royal Victoria Hospital, Belfast
Mr Clifford Barlow	Southampton General Hospital
Mr Alan Wood	St Bartholomews Hospital



Mr John Smith	St George's Hospital
Ms Eilis McGovern	St James' Hospital Dublin
Mr Andrew Thorpe	St James' Hospital, Leeds
Mr Andrew Chukwuemeka	St Mary's Hospital
Mr Shyam Kolvekar	The Heart Hospital
Mr Andy Forsyth/ Mr Uday Trivedi	The Royal Sussex County Hospital
Mr Domenico Pagano	University Hospital of Birmingham
Mr Dheeraj Mehta	University Hospital of Wales
Mr Ramesh Patel	Walsgrave Hospital
Mr Rajesh Shah	Wythenshawe Hospital

Committee Group Chairs

Mr Patrick Magee	CEA Committee	2002–continuing
Mr Ben Bridgewater	Data Committee	2008–continuing
Prof John Pepper	Education Committee	2008–continuing

Working Group Chairs

Mr Richard Page	Thoracic Surgical audit	2004–continuing
Mr Graham Cooper		
Mr Graham Venn	Professional Issues	2007–
Mr Graham Venn	Job Planning Guidelines	2007–
Mr Graham Venn	Clinical Guidelines	2008–2010
Mr Steven Livesey	Revalidation	2008–continuing

Presidential Objectives

- 1 Improving quality of care for patients: exploring different outcome measures
- 2 Developing standards for re-certification
- 3 Improving communication with members – strengthening the Board of Representatives
- 4 Database committee: establishment and development
- 5 Raising the professional profile of the Society
- 6 Patient involvement: appointment of representative to Executive committee
- 7 Developing data collection in thoracic surgery

Programme Committee 2008 Meeting

		Lead Reviewers	
Mr Simon Kendall	Meeting Secretary	Mr Steve Clark (lead)	Transplantation
		Mr Malcolm Dalrymple-Hay	Adult Cardiac
		Mr John Duffy	Thoracic
Mr Ian Wilson	Deputy Meeting Secretary	Mr Brian Fabri (Mr Mark Pullan)	Adult Cardiac
		Mr Adrian Marchbank	Experimental & Miscellaneous
		Mr Andrew Parry	Congenital
		Ms Tara Bartley	CT Forum

Abstract Reviewers 2010 Meeting

Adult Cardiac	Mr Brian Fabri (lead)	Thoracic	Mr John Duffy (lead)
	Mr Malcolm Dalrymple-Hay (lead)		Mr Sion Barnard
	Mr Geoff Berg		Mr Jim McGuigan
	Mr Edward Brackenbury		Mr Rajesh Shah
	Mr Ben Bridgewater		Mr David Waller
	Mr Kulvinder Lall	Transplantation	Mr Steve Clark (lead)
	Mr Gavin Murphy		Mr Jorge Mascaro
	Mr Unnikrishnan Nair		Ms Karen Redmond
	Mr Mark Pullan		Mr Steven Tsui
	Mr Steven Rooney		Mr Nizar Yonan
	Mr Uday Trivedi	Forum	Ms Tara Bartley (lead)
Congenital	Mr Andrew Parry (lead)		Ms Georgina Aldous
	Mr Conal Austin		Mr Calum Buchanan
	Mr Lars Nolke		Ms Linda McKee
	Mr James Pollock		Ms Helen Munday
	Mr Mark Redmond		Mr Tobias Rankin
Experimental	Mr Adrian Marchbank (lead)		
	Dr David Chambers		
	Mr Jonathan Hyde		
	Mr Clinton Lloyd		
	Mr Alex Shipolini		



Specialist Advisory Committee in Cardiothoracic Surgery 2009–2010

(A Sub-committee of the Joint Committee for Higher Surgical Training)

Mr Tim Graham	(Chairman) Royal College of Surgeons	2007-2010
Mr Steve Livesey	(Deputy Chairman) Society for Cardiothoracic Surgery	2005-2010
Mr Steven Hunter	Cardiothoracic Dean, (2004-2009) National Selection and Recruitment Officer, JCST (2009-2010)	2004-2009
Mr Sion Barnard	Cardiothoracic Dean, Society for Cardiothoracic Surgery	Oct 2009- Sept 2014
Mr David Barron	Congenital Surgery Representative, Society for Cardiothoracic Surgery	2007-2012
Mr Pala Rajesh	Lead Thoracic Surgery Representative, Joint Royal Colleges Representative	2006-2011
Professor John Wallwork	Academic Surgery Representative, Society for Cardiothoracic Surgery	2007-2012
Professor John Pepper	Education Secretary, Society for Cardiothoracic Surgery	2007/2012
Mr Robert Jeffrey	Chairman of the Intercollegiate Examinations Board	2007-2010
Mr John Anderson	Joint Royal Colleges Representative	2008-2013
Mr Alan Kirk	Joint Royal Colleges Representative	2008-2013
Mr Lars Nolke	Royal College of Surgeons in Ireland Representative	2008-2011
Mr Sunil Bhudia	Trainee Representative	2007-2010

Intercollegiate Board in Cardiothoracic Surgery 2009–2010

Mr Robert Jeffrey	Chairman (2007–2010)	2007-2010
Professor John Pepper	Representative of the Society for Cardiothoracic Surgery	2007-2012
Mr Tim Graham	Chairman SAC in Cardiothoracic Surgery	2007-2010
Mr Jonathan Anderson	Representative of the Royal College of Surgeons of England	2007-2012
M Vicent Young	Representative of the Royal College of Surgeons in Ireland	2008-2013
Mr David Richens	Representative of the Royal College of Physicians and Surgeons of Glasgow	2007-2012
Mr Pala Rajesh	Representative of the Royal College of Surgeons of Edinburgh	2007–2012
Mr Sion Barnard	Cardiothoracic Dean	2009-2014

Society Representatives on Other Bodies

Organisation	Representative	Tenure (Inclusive)
Senate and Federation of Surgical Specialist Associations	Leslie Hamilton	2008-2010
Council of the Royal College of Surgeons of England	Leslie Hamilton	2008-2010
Surgical Sub-Committee of the Central Consultants and Specialists Committee		2008-2010
Expert Group for Cardiac Surgery at NCEPOD	James Roxburgh Steven Livesey	Not defined
Council of the College of Clinical Perfusion Scientists of GB & Ireland	Malcolm Dalrymple-Hay Tim Jones	2006-
British Standards Authority	Chandi Ratnatunga	Not defined
Medical Devices Agency (MHRA)	Steven Hunter	Not defined
Outpatient HRG Group	Ben Bridgewater	Duration of project
Strategic Group for National Heart Valve Contracts	Steven Livesey	Not defined
Professional Standards and Peer Review Committee (British Cardiac Society)	Graham Cooper	2008-2013
Childrens' Surgical Forum	Andrew Parry	2007-
Joint Advisory Group for Upper GI Endoscopy	Jim McGuigan	2004-
RCSE Specialty Advisory Board	Graham Cooper	TBC
TEARS	Christopher Blauth	Not defined
Intercollegiate Lung Cancer Group (LUCADA data project)	Richard Berrisford (William Fountain)	2001
Tripartite Group (Dept of Health, Healthcare Commission and SCTS)	Ben Bridgewater James Roxburgh	Undetermined
Angioplasty Guidelines and Practice Sub-committee of the BCS	Graham Venn	Undetermined
Specialist Adviser to NICE's Interventional Procedures Programme	Simon Kendall	2007-2010
Academic Research Board, Royal College of Surgeons of England	Domenico Pagano	2007-
UEMS	Patrick Magee Neil Moat	2008-

Meeting History

List of Presidents of the Society since 1934

1934	Mr H Morrison Davies	1977	Mr H R S Harley
1936	Mr J R H Roberts	1978	Mr R Abbey-Smith
1938	Mr A Tudor Edwards	1979	Mr R P Moore
1945	Mr J B Hunter	1980	Mr J R Belcher
1947	Mr W M Anderson	1981	Mr M Bates
1948	Mr R B Purse	1982	Mr J M Hill
1950	Mr A Graham Bryce	1983	Mr J F Dark
1952	Sir C Price Thomas	1984	Mr D N Ross
1954	Mr H Reid	1985	Mr M Paneth
1956	Mr B Dick	1986	Mr M V Baimbridge
1958	Sir R Brock	1987	Sir K Ross
1959	Mr G A Mason	1988	Professor W H Bain
1961	Sir T Holmes Sellors	1989	Mr W G Williams
1963	Mr R F J Henry	1991	Professor D I Hamilton
1964	Mr N R Barrett	1992	Professor G H Smith
1966	Mr V C Thompson	1994	Mr B Ross
1968	Mr P R Allison	1995	Mr J Bailey
1969	Mr A L d'Abreu	1996	Professor H Matthews
1970	Mr A Logan	1997	Professor D Wheatley
1971	Mr O S Tubbs	1999	Mr J Dussek
1972	Mr F R Edwards	2000	Mr J Monro
1973	Mr J L Collis	2002	Mr C Hilton
1974	Mr R H R Belsey	2004	Mr P Magee
1975	Mr R S Barclay	2006	Professor Sir B Keogh
1976	Mr W P Cleland	2008	Mr L Hamilton
		2010	Professor D Taggart

SCTS Annual Meeting's 12-Year History

1999	East Midlands Conference Centre	Nottingham
2000	Business Design Centre	London
2001	East Midlands Conference Centre	Nottingham
2002	Bournemouth International Centre	Bournemouth
2003	Edinburgh International Conference Centre	Edinburgh
2004	Beau Sejour Centre	Guernsey
2005	Olympia Conference Centre	London
2006	CityWest Conference Centre	Dublin
2007	Manchester International Convention Centre	Manchester
2008	Edinburgh International Conference Centre	Edinburgh
2009	Bournemouth International Centre	Bournemouth
2010	Arena & Convention Centre	Liverpool



Organised by:

Society for Cardiothoracic Surgery in Great Britain and Ireland

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Tara Bartley - Nursing Representative
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Sunil Ohri – Communications Secretary
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Vipin Zamvar – Publications Secretary
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All best endeavours will be made to present the programme as printed. However the Society for Cardiothoracic Surgery in Great Britain and Ireland reserves the right to alter or cancel without prior notice any of the arrangements, timetables, plans or other items relating directly or indirectly to the meeting for any cause beyond their reasonable control. The Society for Cardiothoracic Surgery in GB & Ireland is not liable for any loss or inconvenience caused as a result of such alteration. In the event of cancellation of the congress all pre-paid fees will be refunded in full. However the Society for Cardiothoracic Surgery in GB & Ireland is not liable for any other loss or inconvenience caused as a result of such cancellation and delegates are therefore advised to take out their own travel insurance and extend their policy for personal possessions as the meeting does not cover individuals against cancellations of bookings or theft or damage of belongings.

2011 Meeting - London

The Society for Cardiothoracic Surgery in Great Britain and Ireland Annual Meeting 2011 will be held in London at the Excel Centre 20th to 22nd March.

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Annual Meeting
March 7th - 9th 2010
Liverpool Arena & Convention Centre

Society for
Cardiothoracic
Surgery
in Great Britain
and Ireland



SUMMARY MEETING PROGRAMME

Sunday 7 March

0830–0900 SCTS University Welcome
0900–1230 SCTS University Thoracic Surgery
0900–1230 SCTS University AF Surgery
0900–1230 SCTS University Mitral Valve
0900–1230 SCTS University Ross Procedure
1230–1330 CT Surgical Trainees Working Lunch
1330–1600 SCTS University Thoracic Surgery
1330–1600 SCTS University AF Surgery
1330–1600 SCTS University Mitral Valve
1300–1600 SCTS University Ross Procedure
1330–1645 COVIDIEN ACSA Workshop
1500–1700 CT Surgical Trainees Meeting
1700–1800 PULSE Surgical Lecture
1800–1930 Annual Business Meeting
1930–2030 Welcome Reception

Monday 8 March

0700–0830 PULSE Surgical Thoracic Symposium
0700–0900 COVIDIEN Cardiac Symposium
0830–1000 Thoracic Sub-Committee Meeting
0800–0900 Scientific Oral Presentation
0840–1000 Oral Presentations
0830–1000 Thoracic Sub-Committee
1045–1145 Oral Presentations
1045–1145 ETHICON Cardiothoracic Forum
1045–1145 Cardiac Oral Presentations
1045–1230 PHILIPS CVIS (TOMCAT) Database Managers Meeting
1145–1230 Patients Meeting
1145–1230 Heart Research UK Lecture
1200–1800 Perfusionists' Meeting
1330–1500 UK Cardiothoracic Surgical Activity

1330–1500 Patients Meeting
1545–1700 Surgery for Mesothelioma
1700–1830 Chest Drains, Air Leaks, Pulmonary Sepsis
1545–1655 ETHICON Cardiothoracic Forum
1545–1655 Cardiac Surgery Bleeding
1700–1830 NovoNordisk Symposium (Bleeding in Cardiac Surgery)
1830–2000 Vascutek Symposium
1830–2000 UK Medical Symposium

Tuesday 9 March

0730–0900 MEDTRONIC Off-Pump CABG
0800–1000 Cardiac Oral Presentation
0845–1000 ETHICON Cardiothoracic Forum
0845–1000 Congenital Cardiac Surgery
0850–1000 Thoracic Surgery: Preoperative Staging
0900–1230 Perfusionists' Meeting
1045–1230 Aortic Surgery Workshop
1045–1230 ETHICON Cardiothoracic Forum
1045–1230 Congenital Cardiac Surgery Workshop
1045–1145 Thoracic Surgical Papers
1045–1230 Hunterian Lecture and Transplant Papers
1145–1230 LILLY Thoracic Surgical Lecture
1330–1500 Thoracic Surgical Papers
1330–1500 ST JUDE's PPM
1330–1500 ETHICON Cardiothoracic Forum
1530–1700 Congenital Cardiac Surgery Lectures
1545–1700 ETHICON Cardiothoracic Forum
1545–1700 Scientific Oral Papers
1700–1800 President's Address
1930–2330 Annual Dinner