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The Society for Cardiothoracic Surgery in Great Britain and Ireland

2011 ANNUAL MEETING

20-22 March 2011

ExCel Centre, London

President

Professor David Taggart (2010-2012)

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Mount Sinai Hospital, New York, USA

Dr Alessando Brunelli
Ospedali Riuniti Ancona, Italy

Professor Thierry Carrel
University Hospital of Berne, Switzerland

Professor Volkmar Falk
University of Zurich, Department of Cardiovascular Surgery, Switzerland

Mr Philip Hayward
Austin Hospital, Melbourne, Australia

Dr Mark Hazekamp
University Hospital Leiden, Netherlands

Professor Keyvan Karkouti
Toronto General Research Institute, Canada

Dr Teresa Kieser
University of Calgary, Canada

Professor Philippe Kolh
University Hospital of Liege, Belgium

Professor Irving Kron
University of Virginia Health System, USA

Professor Patrizio Lancellotti
University Hospital of Liège, Belgium

Dr Michael Mack
The Heart Hospital Baylor Plano, Texas, USA

Professor Robert McKenna
Cedars Sinai Medical Center, California, USA

Dr Patrick Perier
Herz und Gefäss Klinik, Germany

Professor John Puskas
Emory University, Division of Cardiothoracic Surgery, Georgia, USA

Dr Ardawan Rastan
Heart Center Leipzig, Germany

Professor Christian Schlensak
University Hospital of Freiberg, Germany

Dr Malakh Shrestha
Hannover Medical School, Germany

Professor Lars Svensson
The Cleveland Clinic, Ohio, USA

Professor Malcolm Underwood
The Chinese University Hospital of Honk Kong

Professor Jean-Louis Vanoverschelde
Cliniques Universities Saint-Luc, Belgium

Professor Thomas Walther
Kerchoff Heart Centre, Bad Nauheim, Germany

Professor Jean-Marie Wihlm
Nouvel Hopital Civil, Service de Chirurgie Thoracique, Strasbourg, France

Professor William Wijns
Cardiovascular Centre, Aalst, Belgium
National Guests

**Dr Jenny Aston**  
Chair, Advanced Nurse Practitioner Forum, UK

**Dr Mark De Belder**  
President of British Cardiovascular Intervention Society, UK

**Mr John Black**  
President, Royal College of Surgeons of England, UK

**Mr Gerry Bolger**  
Former Programme Director, Quality in Nursing Care and Outcomes Chief, Nursing Officer’s Team, Department of Health

**Professor Roger Boyle**  
National Director for Heart Disease and Stroke, Department of Health, UK

**Dr Ellen Jane Flint**  
National Clinical Advisor for Cardiac Rehabilitation, UK

**Professor Keith Fox**  
President of the Cardiac Society, UK

**Professor Sir Bruce Keogh**  
NHS Medical Director, UK

**Rt. Hon. Andrew Lansley,**  
Secretary of State for Health, UK

**Ms Rebecca Miles**  
National Cardiac Benchmarking Collaborative (NCBC), UK

**Ms Andrea Spyropoulos**  
President, Royal College of Nursing, UK

**Professor Matthew Thompson**  
Department of Vascular Surgery, St George’s Hospital, London

**Professor Keith Willett**  
National Clinical Director for Trauma Care, Department of Health, UK
ExCel Floor Plan

Platinum Suite Lobby – Level 1

Platinum Suite Lounge and Meeting Rooms – Level 2

Platinum Suite – Level 3

ExCel London
# Outline Programme

## SUNDAY 20th March 2011

<table>
<thead>
<tr>
<th>Time</th>
<th>Time</th>
<th>Room</th>
<th>Session</th>
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<tbody>
<tr>
<td>08:30</td>
<td>09:00</td>
<td>Level 2</td>
<td><strong>SCTS University Welcome</strong></td>
</tr>
<tr>
<td>09:00</td>
<td>12:00</td>
<td>Room 3</td>
<td><strong>SCTS UNIVERSITY Ischaemic Mitral Valve Regurgitation</strong></td>
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<tr>
<td>09:00</td>
<td>12:00</td>
<td>Room 2</td>
<td><strong>SCTS UNIVERSITY Aortic Dissection</strong></td>
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<td>Room 5</td>
<td><strong>SCTS UNIVERSITY Off-Pump Coronary Artery Revascularisation</strong></td>
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<tr>
<td>09:00</td>
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<td>Room 6</td>
<td><strong>SCTS UNIVERSITY Contemporary Thoracic Surgical Practice</strong></td>
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<td>09:00</td>
<td>12:00</td>
<td>Room 1</td>
<td><strong>SCTS UNIVERSITY Innovative Options in Aortic Valve Surgery</strong></td>
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<tr>
<td>09:00</td>
<td>12:00</td>
<td>Room 7</td>
<td><strong>SCTS UNIVERSITY The Small Aortic Root</strong></td>
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### LUNCH

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:15</td>
<td>13:45</td>
<td>Room 2</td>
<td><strong>Lunch Box Session Endoscopic Conduit Harvesting</strong></td>
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<tr>
<td>12:15</td>
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<td>Room 1</td>
<td><strong>Lunch Box Session Evaluation of Graft Patency</strong></td>
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<td><strong>Lunch Box Session Post Operative Bleeding</strong></td>
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<td>Room 6</td>
<td><strong>Lunch Box Session Minimal Extracorporeal Circulation or Retrograde Autologous Prime</strong></td>
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<tr>
<td>12:15</td>
<td>13:45</td>
<td>Room 5</td>
<td><strong>Lunch Box Session Guidelines in Lung Cancer Management and Resection</strong></td>
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<tr>
<td>12:15</td>
<td>13:45</td>
<td>Room 7</td>
<td><strong>Lunch Box Session Emerging Technologies Workshop</strong></td>
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<tr>
<td>12:15</td>
<td>13:45</td>
<td>Room 4</td>
<td><strong>Lunch Box Session Hybrid Interventions are the future of Congenital Cardiac Surgery</strong></td>
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### AFTERNOON SESSION

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<td><strong>SCTS UNIVERSITY The Small Aortic Root</strong></td>
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<td><strong>TEA</strong></td>
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<tr>
<td>17:30</td>
<td>19:00</td>
<td>Room 4</td>
<td><strong>Annual Business Meeting</strong></td>
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</table>
# Outline Programme

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<td><strong>TEA</strong></td>
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<td>Room 4</td>
<td><strong>Annual Business Meeting</strong></td>
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### SUNDAY 20th March 2011 continued

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<tr>
<td>17:30</td>
<td>19:00</td>
<td>Room6</td>
<td>Moderated Movies</td>
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<td>19:00</td>
<td>20:00</td>
<td>Exhibition Hall</td>
<td>WELCOME RECEPTION</td>
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<td>18:30</td>
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### MONDAY 21st March 2011

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<tr>
<td>07:15</td>
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<td>Room 2</td>
<td>Medtronic Cardiac Breakfast Symposium</td>
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<td>07:00</td>
<td>08:00</td>
<td>Zinc</td>
<td>Education Sub-Committee</td>
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<td>08:00</td>
<td>09:00</td>
<td>Room 7</td>
<td>Scientific Session: Myocardial Protection</td>
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<tr>
<td>08:50</td>
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<td>Scientific Session: Myocardial Protection</td>
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<td>09:00</td>
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<td>Room 7</td>
<td>Patients’ Forum Meeting Area</td>
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<td>08:50</td>
<td>10:00</td>
<td>Room 3/4</td>
<td>PULSE Surgical Opening Session</td>
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<td>Thoracic Sub-Committee</td>
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<td>Coffee</td>
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<td>Room 6</td>
<td>Cardiac Surgical Papers</td>
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<td>Database Managers Meeting</td>
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<td>Room 2</td>
<td>Cardiopulmonary Forum</td>
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<td>11:45</td>
<td>Room 3/4</td>
<td>Cardiac Aortic Surgery</td>
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<td>11:45</td>
<td>Room 1</td>
<td>Thoracic Mixed Session</td>
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<td>12:30</td>
<td>Room 1</td>
<td>Thoracic Surgery: Chest Wall Deformity and Reconstruction</td>
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<td>11:45</td>
<td>12:30</td>
<td>Room 2</td>
<td>Patients’ Forum</td>
</tr>
<tr>
<td>11:45</td>
<td>12:30</td>
<td>Room 3/4</td>
<td>Heart Research UK Lecture: Thoracic Aortic Stenting PROF. LARS SVENSSON</td>
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<td>13:30</td>
<td>Titanium</td>
<td>Surgeons and MBA</td>
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<td>Patients’ Forum</td>
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<tr>
<td>13:30</td>
<td>15:00</td>
<td>Room 3/4</td>
<td><strong>Address by the Secretary of State for Health</strong>&lt;br&gt;Rt Hon. Andrew Lansley,&lt;br&gt;Trauma Reconfiguration, and UK Cardiothoracic Surgical Activity</td>
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<tr>
<td>13:30</td>
<td>17:30</td>
<td>Titanium</td>
<td><strong>The Society of Clinical Perfusionists Scientists</strong></td>
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<td>Room 7</td>
<td><strong>Maquet ACSA Association of Surgical Care Practitioners Session</strong></td>
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<td><strong>ACSA AGM</strong></td>
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<td>Zinc</td>
<td><strong>Data Committee</strong></td>
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<td>15:45</td>
<td>16:25</td>
<td>Room 6</td>
<td><strong>Thoracic Surgery: Research Trial Papers</strong></td>
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<td><strong>Cardiothoracic Forum</strong></td>
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<td>18:00</td>
<td>Room 3/4</td>
<td><strong>Management of the High-Risk Patient</strong></td>
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<td>Room 1</td>
<td><strong>Cardiothoracic Surgical Trainees Meeting</strong></td>
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<td>Room 6</td>
<td><strong>Thoracic Surgery: Research Collaborative</strong></td>
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<td>Room 2</td>
<td><strong>Ethicon Symposium Morbidity after Cardiac Surgery</strong></td>
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<td>Room 6</td>
<td><strong>Synthes Symposium Rib Fixation and Stabilisation</strong></td>
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<td>07:00</td>
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<td>Room 7</td>
<td><strong>Medela Thoracic Surgical Symposium</strong></td>
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<td>Room 3/4</td>
<td><strong>Edwards TAVI Surgical Symposium</strong></td>
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<td>Venue TBC</td>
<td><strong>Cardiac Surgical Papers</strong></td>
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<td><strong>Vascutek Congenital Symposium</strong></td>
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<td>09:00</td>
<td>Room 6</td>
<td><strong>Cardiac Surgical Papers: Post-Operative Management</strong></td>
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<td>10:00</td>
<td>Room 6</td>
<td><strong>Cardiopulmonary Transplantation Papers</strong></td>
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<td><strong>Cardiothoracic Forum</strong></td>
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<td><strong>Congenital Cardiac Surgery: Reconfiguration</strong></td>
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<td>Exhibition Area</td>
<td><strong>COFFEE</strong></td>
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<td>11:00</td>
<td>12:30</td>
<td>Room 3/4</td>
<td><strong>SORIN Seminar : Minimal Invasive AVR</strong></td>
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<td>Room 2</td>
<td><strong>Cardiothoracic Forum</strong></td>
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<td>Room 5</td>
<td><strong>Congenital Cardiac Surgery Complex Transposition with VSD and LVOT Obstruction</strong></td>
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<tbody>
<tr>
<td>10:45</td>
<td>11:45</td>
<td>Room 1</td>
<td><strong>Thoracic Surgical VATS</strong></td>
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<tr>
<td>10:45</td>
<td>11:15</td>
<td>Room 7</td>
<td><strong>Contemporary Mitral/Atrial Fibrillation Surgery</strong></td>
</tr>
<tr>
<td>11:15</td>
<td>11:45</td>
<td>Room 7</td>
<td><strong>Guest Lecture State of the Art Atrial Fibrillation Surgery</strong> Dr Ardawan Rastan</td>
</tr>
<tr>
<td>11:45</td>
<td>12:30</td>
<td>Room 7</td>
<td><strong>Cardiac Papers: Atrial Fibrillation and Mitral Surgery</strong></td>
</tr>
<tr>
<td>12:00</td>
<td>12:30</td>
<td>Room 7</td>
<td><strong>Guest Lecture State of the Art Mitral Valve Surgery: Contemporary Practice and Future Development Prof Irving Kron and Mr Ani Anyanwu</strong></td>
</tr>
<tr>
<td>11:45</td>
<td>12:30</td>
<td>Room 1</td>
<td><strong>Medela/Tudor Edwards Thoracic Surgical Lecture: Surgery for Emphysema Professor Robert McKenna</strong></td>
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**12:30 13:30 Exhibition Area**  **LUNCH**

<table>
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<tr>
<th>Time from</th>
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<tr>
<td>12:30</td>
<td>13:30</td>
<td>Exhibition Area</td>
<td>Medical Students Poster Presentations</td>
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<tr>
<td>12:30</td>
<td>13:30</td>
<td>Titanium</td>
<td><strong>CRISP Trial - Collaborators Meeting</strong></td>
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<tr>
<td>12:30</td>
<td>13:30</td>
<td>Room 5</td>
<td><strong>Congenital Meeting</strong></td>
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<td>13:30</td>
<td>17:00</td>
<td>Titanium</td>
<td><strong>College Council of Clinical Perfusion Scientists</strong></td>
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<tr>
<td>13:30</td>
<td>15:00</td>
<td>Room 1</td>
<td><strong>Thoracic Surgical Papers: Mediastinal Staging</strong></td>
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<tr>
<td>13:30</td>
<td>15:00</td>
<td>Room 2</td>
<td><strong>Cardiothoracic Forum</strong></td>
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<tr>
<td>13:30</td>
<td>15:00</td>
<td>Room 3/4</td>
<td><strong>St Jude Symposium ESC/EACTS Guidelines for Revascularisation</strong></td>
</tr>
<tr>
<td>13:30</td>
<td>15:00</td>
<td>Room 5</td>
<td><strong>Hunterian Lecture and Congenital Cardiac Surgery Papers</strong></td>
</tr>
<tr>
<td>14:00</td>
<td>14:30</td>
<td>Room 7</td>
<td><strong>Exhibitors Meeting</strong></td>
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**15:00 15:30 Exhibition Area**  **TEA**

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<tr>
<th>Time from</th>
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<tbody>
<tr>
<td>15:30</td>
<td>16:40</td>
<td>Room 7</td>
<td><strong>Scientific Session: Prognostic Markers and Conduits</strong></td>
</tr>
<tr>
<td>15:30</td>
<td>16:40</td>
<td>Room 5</td>
<td><strong>Congenital Cardiac Surgery Papers- Management of the Bicuspid Aortic Valve</strong></td>
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<td>15:30</td>
<td>16:40</td>
<td>Room 2</td>
<td><strong>Cardiothoracic Forum</strong></td>
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<td>15:30</td>
<td>16:40</td>
<td>Room 1</td>
<td><strong>Thoracic Miscellaneous</strong></td>
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<td>15:30</td>
<td>16:40</td>
<td>Room 3/4</td>
<td><strong>Cardiac Surgery Papers</strong></td>
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<tr>
<td>16:10</td>
<td>16:40</td>
<td>Room 3/4</td>
<td><strong>Current and Future Status of OPCAB: Dr John Puskas</strong></td>
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<td>16:45</td>
<td>18:15</td>
<td>Room 3/4</td>
<td><strong>EWTD Symposium</strong></td>
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<td>18:15</td>
<td>18:30</td>
<td>Zinc</td>
<td><strong>Presentation Meeting</strong></td>
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<td>19:15</td>
<td>23:59</td>
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<td><strong>Annual Dinner Thames River Cruise</strong></td>
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### WEDNESDAY 23rd March 2011

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<tr>
<th>Time from</th>
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<th>South Gallery</th>
<th>Session</th>
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<tbody>
<tr>
<td>09:00</td>
<td>12:30</td>
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<td><strong>Board of Representatives' Meeting</strong></td>
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</tbody>
</table>
Society for Cardiothoracic Surgery in Great Britain and Ireland

Annual Meeting, London

March 20 - 22 2011
Excel Centre

MEETING PROGRAMME
REMODEL
REGROW
RESTORE

RETHINK THE TREATMENT OF A DAMAGED HEART.

CorMatrix ECM® Technology provides a bioscaffold that enables a patient’s own cells to repair and remodel damaged cardiovascular tissue. More than 25,000 ECM implants have been used by cardiac surgeons to date.

Learn more at www.cormatrix.com
Meeting Programme

Sunday, March 20, 2011

MORNING SESSION

08:30-09:00
SCTS University
Welcome
Chairs: Mr Ian Wilson/Mr Rajesh Shah/Sir Bruce Keogh/Professor David Taggart

09:00-12:00
SCTS University
Ischaemic Mitral Valve Regurgitation: The Art of Balancing Forces
Chairs: Professor Irving Kron/Mr Frank Wells

09:00-12:00
SCTS University
Aortic Dissection: A Surgical Master Class
Chairs: Professor Lars Svensson/Professor Robert Bonser

09:00-12:00
SCTS University
Off-Pump Coronary Artery Revascularisation: It’s Role in 2011
Chairs: Professor John Puskas/Professor David Taggart/Professor Gianni Angelini

09:00-12:00
SCTS University
Contemporary Thoracic Surgical Practice
Chairs: Professor Robert McKenna/Mr Rajesh Shah/Mr Ed Black

09:00-12:00
SCTS University
Innovative Options in Aortic Valve Surgery
Chairs: Dr Michael Mack/Mr Ben Bridgewater

09:00-12:00
SCTS University
The Small Aortic Root: Meeting the Needs of Different Generations
Chairs: Mr Asif Hasan/Mr Marcus Haw

LUNCH

12:15-13:45
SCTS University - Lunch Box Session
Endoscopic Conduit Harvesting: Unraveling the Myths
Chairs: Mr Malcolm Dalrymple-Hay/Professor John Puskas/Dr Michael Mack/Mr Tony DeSouza/Mr Toufan Bahrami
12:15-13:45 SCTS University - Lunch Box Session
Room 1
**Evaluation of Graft Patency:**
*Quality Assurance or Unnecessary Expense?*
*Chairs: Professor David Taggart/Dr Teresa Kieser/Mr Philip Hayward/Dr Roger Bury/Professor Thierry Carrel*

12:15-13:45 SCTS University - Lunch Box Session
Room 3
**Post Operative Bleeding:**
*More than Just a Lost Night’s Sleep*
*Chairs: Mr Gavin Murphy/Professor Keyvan Karkouti*

12:15-13:45 SCTS University - Lunch Box Session
Titanium Room
**Minimal Extra Corporeal Circulation or Retrograde Autologous Prime: What Role in Current Practice?**
*Chair: Mr Mo Bhabra/Mr Steve Robins*

12:15-13:45 SCTS University - Lunch Box Session
Room 6
**Guidelines in Lung Cancer Management and Resection:**
*Utility or Futility?*
*Chairs: Mr Richard Page/Mr Eric Lim/Professor Alessandro Brunelli*

12:15-13:45 SCTS University - Lunch Box Session
Room 5
**Emerging Technologies Workshop:**
*Cutting Edge - Breaking News*
*Chairs: Mr Joe Zacharias/Professor Irving Kron/Professor Patrick Perier/Professor Lars Svensson/Professor Christian Schlensak/Mr John Dunning/Dr Mohammed Munavvar*

12:15-13:45 SCTS University - Lunch Box Session
Room 7
**Hybrid Interventions are the Future of Congenital Cardiac Surgery**
*Chair: Mr Tim Jones*

**AFTERNOON SESSION**

14:00-17:00 SCTS University
Room 3
**Ischaemic Mitral Valve Regurgitation:**
*The Art of Balancing Forces*
*Chairs: Professor Irving Kron/Mr Frank Wells*

14:00-17:00 SCTS University
Room 2
**Aortic Dissection: A Surgical Master Class**
*Chairs: Professor Lars Svensson/Professor Robert Bonser*
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<th>Time</th>
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<tr>
<td>14:00-17:00</td>
<td>SCTS University Room 5</td>
<td><strong>Off-Pump Coronary Artery Revascularisation: Its Role in 2011</strong>&lt;br&gt;Chairs: Professor John Puskas/Professor David Taggart/Professor Gianni Angelini</td>
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<tr>
<td>14:00-17:00</td>
<td>SCTS University Room 6</td>
<td><strong>Contemporary Thoracic Surgical Practice</strong>&lt;br&gt;Chairs: Professor Robert McKenna/Mr Rajesh Shah/Mr Ed Black</td>
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<td>14:00-17:00</td>
<td>SCTS University Room 1</td>
<td><strong>Innovative Options in Aortic Valve Surgery</strong>&lt;br&gt;Chairs: Dr Michael Mack/Mr Ben Bridgewater</td>
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<td>14:00-17:00</td>
<td>SCTS University Room 7</td>
<td><strong>The Small Aortic Root: Meeting the Needs of Different Generations</strong>&lt;br&gt;Chairs: Mr Asif Hasan/Mr Marcus Haw</td>
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<td>17:00-17:30</td>
<td>Level 2</td>
<td><strong>TEA</strong></td>
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<td>17:30-19:00</td>
<td>Room 4</td>
<td><strong>ANNUAL BUSINESS MEETING</strong></td>
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<td>17:30-19:00</td>
<td>Room 6</td>
<td><strong>MODERATED MOVIES</strong>&lt;br&gt;Chairs: Professor Lars Svensson/Professor Robert McKenna/Professor John Puskas</td>
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<td><strong>En Bloc Resection for Lung Cancer with Chest Wall Invasion via the Chest Wall Resection Site. How to Do it?</strong></td>
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<td><strong>Left Anterior Descending Artery Endarterectomy by Hydrodissection</strong></td>
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<td><strong>An Alternative Approach for Valve Sparing Aortic Root Stabilisation in Acute Aortic Dissection Type A</strong></td>
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<td><strong>Aortic Arch Replacement for False Aortic Aneurysm after Catheter Induced Injury</strong></td>
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<td><strong>Redo Aortic Root Surgery: a Technical Challenge</strong></td>
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<td><strong>A Simple Set up for Minimally Invasive Mitral Valve Surgery</strong></td>
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<tr>
<td>19:00-20:00</td>
<td>Exhibition Hall</td>
<td><strong>WELCOME RECEPTION - EXHIBITION HALL OPEN at 18:30</strong></td>
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Monday, March 21, 2011

07:15-08:30 Medtronic Cardiac Symposium
The Future Just Got Brighter-New Technologies from Medtronic Limited

07:15 Breakfast served
Mr Neil Moat, Consultant Cardiothoracic Surgeon, Royal Brompton Hospital, London

07:30 Live In A Box-Video Presentations

07:45 Sub Clavian and Alternative Access Approaches with the Medtronic CoreValve

07:55 Questions to Mr Moat
Mr Kulvinder Lall, Consultant Cardiac Surgeon, St Bartholomew’s Hospital, London

08:00 Live In A Box-Video from Professor Carell’s Unit - “Implantation Technique of the Medtronic Enable Sutureless Valve”

08:05 St Bartholomew’s and the London NHS Trust - “An Early Experience with the Medtronic Enable Sutureless Valve”

08:15 Questions to Mr Lall

08:20 Panel Discussion with Mr Moat and Mr Lall

08:30 Close of meeting

08:00-19:00 Speakers’ Room
Mr Scott Clarke
Head of Audio Visual

07:00-08:00 Education Sub Committee
Chair: Professor John Pepper

08:00-09:00 Scientific Session - Myocardial Protection
Chairs: Mr Gavin Murphy/Mr Paul Ridley

08:00 001 Esmolol-Adenosine Cardioplegia: Anti-Ischaemic Additives Enhance Protection
E. Teh¹, H.B. Fallouh¹, J.C. Kentish², D.J. Chambers¹
1 St Thomas’ Hospital, United Kingdom; 2 King’s College London, United Kingdom
08:10  002  Does Remote Ischaemic Pre-Conditioning Provide Second Window Endothelial Protection in Humans?
S. Arif1, B. Ladak1, I. Rahman2, R. Beadle1, M.P Frenneaux1, R.S. Bonser2
1 University of Birmingham, United Kingdom; 2 University Hospitals Birmingham, United Kingdom; 3 University of Aberdeen, United Kingdom

08:20  003  Anti-Ischaemic Agent, Ranolazine: Cardioplegic Friend or Foe?
A.J. Chambers1, H.B. Fallouh2, R. Leslie2, J.C. Kentish3, D.J. Chambers2
1 Brighton and Sussex Medical School, United Kingdom; 2 St Thomas’ Hospital, United Kingdom; 3 King’s College London, United Kingdom

08:30  004  The Effect of Perhexiline on Myocardial Protection during Coronary Artery Surgery: A Two-Centre Randomised Double-Blind Placebo-Controlled Trial
Nigel Drury1, N.J. Howell1, E. Senanayake1, M.J. Calvert2, M.E. Lewis3, C.J.G. Mascaro1, I.C. Wilson1, T.R. Graham1, S.J. Rooney1, D. Pagano1
1 Queen Elizabeth Hospital Birmingham, United Kingdom; 2 University of Birmingham, United Kingdom; 3 Royal Sussex County Hospital, United Kingdom

08:40  005  Warm Blood Cardioplegia with Low or High Magnesium for Coronary Bypass Surgery: A Randomized Controlled Trial
1 University Hospital Coventry, United Kingdom; 2 Bristol Heart Institute, United Kingdom; 3 Ospedale S. Croce e Carle, Italy

08:50  006  Off Pump Coronary Revascularisation Better Preserves Immune Cells Compared to Cardiopulmonary Bypass
N.C. McGonigle1, W.T. McBride1, M. Armstrong2, G. Campalani1
1 The Royal Victoria Hospital, Belfast, United Kingdom; 2 The Queen’s University of Belfast, United Kingdom

08:50-10:00  Database Managers sponsored by Dendrite Clinical Systems
Room 5
* Migrating from Old Dataset to the New Dataset
* Data download to CCAD-Tips and Tricks

09:00-10:00  Patients’ Forum-Meeting Area
Room 7
Chair: Mr David Geldard MBE

08:50-10:00  PULSE SURGICAL OPENING SESSION
Room 3 / 4
* Migrating from Old Dataset to the New Dataset
* Data download to CCAD-Tips and Tricks

* Migrating from Old Dataset to the New Dataset
* Data download to CCAD-Tips and Tricks
08:50 007  The National Lottery for Lung Cancer Surgery-is ‘Hub-and-Spoke’ the Missing Ticket?  
Kelvin Lau¹, D.A. Waller¹, S. Rathinam¹, M.D. Peake²  
¹Glenfield Hospital, United Kingdom; ²National Cancer Intelligence Network, United Kingdom

09:00 008  The Development and Validation of a Model to Assess Total Morbidity Burden after Cardiac Surgery  
J. Sanders¹, B.E. Keogh², J. Van der Meulen³, J.P. Browne⁴, T. Treasure¹, M.G. Mythen², H.E. Montgomery¹  
¹University College London, United Kingdom; ²Department of Health, United Kingdom; ³Royal College of Surgeons, United Kingdom; ⁴University College Cork, Ireland; ⁵University College London and University College London Hospitals, United Kingdom; ⁶United Kingdom

09:10 009  Duration of Red Cell Storage and Acute Kidney Injury following Cardiac Surgery  
N. Patel¹, H. Lin¹, T. Toth¹, P. Ray³, G.I. Welsh⁴, s.c. satchell⁴, R. Cardigan⁵, G.D. Angelini¹, G.J. Murphy¹  
¹Bristol Heart Institute, University of Bristol, United Kingdom; ²Department of Histopathology, North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom; ³Department of Anaesthesia and Critical Care, Weston General Hospital, Weston Super Mare., United Kingdom; ⁴AcademicRenal Unit, University of Bristol, Southmead Hospital, Bristol, United Kingdom; ⁵NHS Blood and Transplant Service, Cambridge, United Kingdom

09:20 010  Post-Operative Outcomes in Patients Managed with INVOS-a Prospective Audit  
S. Bennett¹, C.M. Haworth², M. Bennett², D. Walsh³, R. Bennett¹  
¹Castle Hill Hospital, United Kingdom; ²University of Newcastle, United Kingdom; ³Hull York Medical School, United Kingdom

09:30 011  Excellent Biventricular Function Following Heart Transplantation from DCD Donors  
A. Ali¹, B. Xiang², P White³, T. Lee⁴, S. Tsui³, E. Ashley⁵, R. Arora⁴, S.R. Large¹, G. Tian², D. Freed⁴  
¹Papworth Hospital, United Kingdom; ²National Research Council, Canada; ³Addenbrookes Hospital, United Kingdom; ⁴St. Boniface Hospital, Canada; ⁵Stanford University Medical Center, USA

09:40 012  Outcome Following Thoracic Surgery: The Role of Preoperative Chlorhexidine Mouthwash in the Prevention of Post Operative Pneumonia  
C.A. Efthymiou; K. Abbas; R. Milton  
Department of Thoracic Surgery, St. James’s University Hospital, Leeds
09:50 013 **True Inter-Professional Working: A Combined Rota for Junior Doctors, Cardiac Surgical Care and Nurse Practitioners**  
D.A. Tragheim; G. Chilton; G. Cooper  
Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom

08:30-10:00 **Thoracic Sub-Committee**  
Chairs: Mr Graham Cooper/Mr John Duffy/Mr Rajesh Shah

10:00-10:45 **Coffee**

10:45-11:45 **Cardiac Surgical Papers**  
Room 6  
Chairs: Mr Alan Bryan/Ms Catherine Sudarshan

10:45 014 **Is Pre-Operative Haemoglobin A1c Level a Good Predictor of Adverse Outcome after Cardiac Surgery?**  
S. Datta; P. Gowland; B. Prendergast; G. Mulaeh; R. Hasan; D.J.M. Keenan; T. Valessaris, N. Odom; K.E. McLaughlin  
Manchester Royal Infirmary, United Kingdom

10:55 015 **Effect of Preoperative Lung Function on Patients with Aortic Valve Replacement**  
D. Pousios; C.W. Barlow; M.P. Haw; M. Kaarne; S.A. Livesey; S.K. Ohri; G.M. Tsang  
Southampton General Hospital, United Kingdom

11:05 016 **Preoperative Renal Function Measurements to Predict Acute Kidney Injury following Coronary Artery Bypass Grafting: Which Method to Use?**  
C. Toolan; O. Valencia; A. Kourliouros; A. Crerar-Gilbert  
St George’s Healthcare NHS Trust, United Kingdom

11:15 017 **Six Years Results from a Prospective Randomised Control Trial comparing Carpentier Edwards-SAV (CE-SAV) and Medtronic Mosaic Valves**  
R. Birla; S. Hosmane; G. Twine; J. Unsworth-White  
Derriford Hospital, United Kingdom

11:25 018 **Redo Aortic Valve Surgery: Influence of Prosthetic Valve Endocarditis on Outcomes**  
Paul Modl; S. Leontyev; M.A. Borger; S. Lehmann; J. Seeburger; T. Walther; F.W. Mohr  
Herzzentrum, Universität Leipzig, Germany
11:35 019  **Wake-Up to Sleep Apnoea Syndrome in Patients Undergoing CABG**
David McCormack¹, A.M. Hogan², M.J. Marshall³, S. Ibrahim¹, A. Openshaw¹, F. Cormack², A. Shipolini¹
1 London Chest Hospital, United Kingdom; 2 University College London, United Kingdom; 3 Research Centre for Primary Health Care and Equity, University of New South Wales, Australia., United Kingdom

10:45-12:30  **Database Managers sponsored by Dendrite Clinical Systems**
Room 5
*Chairs: Ms Tracey Smailes/Mr Philip Kimberley*

10:45  **Introduction**
Mr Ben Bridgewater, Consultant Cardiothoracic Surgeon, Wythenshawe Hospital, Manchester

11:00  **Update from Data Group**
Mr James Roxburgh, Consultant Cardiothoracic Surgeon, Guys and St Thomas’ Hospital, London

11:15 020  **Impact of Age on the Performance of a Risk Stratification Model: Should Risk Assessment Modelling for Elderly Patients be Improved?**
G. Casali¹, P. D’Errigo², F. Seccareccia², S. Rosato², A. Maraschini², G. Badoni², P. Ciccarelli², F. Musumeci¹
1 Department of Cardiology and Cardiovascular Surgery, Azienda Ospedaliera S. Camillo-Forlanini, Rome, Italy; 2 National Centre for Epidemiology, Surveillance and Health Promotion, Istituto Superiore di Sanità, Italy

11:35 021  **Monitoring Rare Events for Quality Improvement: Testing the Suitability and Characteristics of the g-type Control Chart**
M. Jarvis
Castle Hill Hospital, United Kingdom

11:50 022  **Assessment of Euroscore in Patients Undergoing Aortic Valve Replacement**
N. Skipper¹, J. Matingal², V. Zamvar²
1 Edinburgh University, United Kingdom; 2 Edinburgh Royal Infirmary, United Kingdom

12:05  **Migrating from Old Dataset to the New Dataset**
*Data download to CCAD-Tips and Tricks Cardiac Databases across the world-Where the UK sits in World practice*
Mr Peter Walton, Dendrite Clinical Systems

12:25  **Feedback from DBM managers discussion including action points**
*Database Managers Forum Update and Close*
<table>
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<th>Session</th>
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<th>Chairs</th>
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<tbody>
<tr>
<td>10:45-11:45</td>
<td><strong>Cardiothoracic Forum</strong></td>
<td>Room 2</td>
<td><strong>Chairs: Professor Sir Bruce Keogh/Ms Christina Bannister</strong></td>
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<tr>
<td>10:45-10:55</td>
<td><strong>Opening Remarks</strong></td>
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<td><strong>Tara Bartley, Nursing Representative, SCTS</strong></td>
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<td>10:55-11:10</td>
<td><strong>Key Note Speaker Opening Remarks</strong></td>
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<td><strong>Andrea Spyropoulos, President of the RCN</strong></td>
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<tr>
<td>11:10-11:40</td>
<td><strong>Sir Bruce Keogh, Medical Director of the NHS</strong></td>
<td></td>
<td><strong>The NHS; the implications of the current changes.</strong></td>
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<tr>
<td>10:45-11:45</td>
<td><strong>Cardiac Aortic Surgery</strong></td>
<td>Room 3 / 4</td>
<td><strong>Chairs: Professor Malcolm Underwood/Mr Rakesh Uppal</strong></td>
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<tr>
<td>10:45</td>
<td>023 <strong>Are the Long Term Results after Aortic Valve-Sparing Operations Really Good?</strong></td>
<td></td>
<td>M. Shrestha; S. Sarikouch; N. Khaladj; C. Hagl; A. Haverich Hannover Medical School, Germany</td>
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<tr>
<td>10:55</td>
<td>024 <strong>Comparison of Outcomes after Aortic Valve Sparing Procedure and Aortic Root Replacement in Marfan’s Patients</strong></td>
<td></td>
<td>J. Afoke; N.R. Abdul-Kareem; A. Child; M. Jahangiri St. George’s Hospital, United Kingdom</td>
</tr>
<tr>
<td>11:05</td>
<td>025 <strong>Acute Type A Aortic Dissection-Does Treatment Delay Compromise Outcome?</strong></td>
<td></td>
<td>P. Narayan; C.A. Rogers; C. Bogdan; G.J. Murphy; G.D. Angelini; A.J. Bryan Bristol Heart Institute, United Kingdom</td>
</tr>
<tr>
<td>11:15</td>
<td>026 <strong>Who Should Repair Type A Aortic Dissections?</strong></td>
<td></td>
<td>R, Attia; C.I. Blauth; J.C. Roxburgh; G.E. Venn; V. Bapat; F.P Shabbo; C.P Young Guy’s and St Thomas’ Hospital, United Kingdom</td>
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<tr>
<td>11:25</td>
<td>027 <strong>Spinal Perfusion Pressure (SPP) Protocol following Thoracic and Thoracoabdominal Aortic Intervention: Is it Important?</strong></td>
<td></td>
<td>F. Jafarzadeh; J. Ratnasingham; M.L. Field; M. Kuduvali; A. Oo; M. Desmond Liverpool Heart and Chest Hospital, United Kingdom</td>
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<tr>
<td>11:35</td>
<td>028 <strong>Aortic Transection - a Ten Year Review of Surgical and Endovascular Management at a Tertiary Referral Centre</strong></td>
<td></td>
<td>N. Keenan; T. Ni Dhonnochu; M. Shelly; L. Lawler; J. McCarthy; J. Hurley Mater Misericordiae Hospital, Ireland</td>
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</table>
10:45-11:45  Thoracic Mixed Session
Room 1
Chairs: Mr Simon Jordan/Mr Sasha Stemencovic

10:45 029  Operative Surgical Training in General Thoracic Surgery: Transitions in Trainee Structures and Training Models
K. Morgan Bates\textsuperscript{1}, O.A. Jarral\textsuperscript{1}, Z. Sarang\textsuperscript{2}, G. Ladas\textsuperscript{1}, M. Dusmet\textsuperscript{1}, S. Jordan\textsuperscript{1}, E. Lim\textsuperscript{1}
1 The Royal Brompton Hospital, United Kingdom; 2 Imperial College London, United Kingdom

10:55 030  Experience of Two Decades of Tracheal Resections in a Tertiary Institution
I. Raievskyi; S. Jordan; M. Dusmet; G. Ladas; E. Lim; P. Goldstraw
Royal Brompton Hospital, United Kingdom

11:05 031  Chest Drain Removal: An Audit of Current Practice at a District General Hospital
J. Hyer; N. Watson; S. Paramothayan
St. Helier Hospital, United Kingdom

11:15 032  Do we need a Routine Chest X-Ray following Chest Drain Removal?
A. Alzetani; S. Ghosh
University Hospital North Staffordshire, United Kingdom

11:25 033  Para-Vertebral Intercostal Nerve Block is an Adequate Technique for Post Thoracotomy Analgesia
A. Alzetani; S. Ghosh
University Hospital North Staffordshire, United Kingdom

11:35 034  Regional Experience with Epidural versus Extra-Pleural Analgesia for Thoracotomy and Isolated Lobectomy
A. Nasir\textsuperscript{1}, M. Parker\textsuperscript{2}, U. Hamid\textsuperscript{3}, A. Ahmed\textsuperscript{3}, S. Murphy\textsuperscript{4}, K. McCourt\textsuperscript{3}, K. McManus\textsuperscript{3}, M. Shields\textsuperscript{3}, J. McGuigan\textsuperscript{3}
1 University Hospital of South Manchester, United Kingdom; 2 Postgraduate Medical Institute, Anglia Ruskin University, Chelmsford, United Kingdom; 3 Royal Victoria Hospital, Belfast, United Kingdom; 4 Acute Pain Services, Royal Victoria Hospital, Belfast, United Kingdom

11:45-12:30  Thoracic Surgery - Chest Wall Deformity and Reconstruction
Room 1
Chairs: Mr Kostas Papagiannopoulos / Mr Rajesh Shah / Mr Slon Barnard

11:45 035  Should the Nuss Procedure for Pectus Excavatum be Part of Adult Surgical Practice?
D. Waller; A. Khosravi; P. Nanjah; M. Javed; G.J. Peek; A. Nakas; S. Rathinam
Glenfield Hospital, United Kingdom
12:00  Advances in Osteosynthesis and Chest Wall Reconstruction for Tumours and Trauma
Professor Jean-Marie Wihlm, Strasbourg, France

11:45-12:30  Patients’ Forum
Room 2  Chairs: Mr David Geldard/Mr Pat Magee

11:45  036  Surgical Site Infection Surveillance Scheme for Patients who are Undergoing Cardiac Surgery in a National Cardiothoracic Referral Centre in Ireland
M. Buckley; E. Lodge; N. Kiely; M. Kingston; R. Ruane; B. O’Connell; V. Young
St James’s Hospital, Ireland

12:00  037  A Survey of the In-House Urgent Patient’s Experience Waiting for Cardiac Surgery
L. Nolan¹, V. Meredith², F. Bhatti¹, A. Zaidi¹
1 Morriston Hospital, United Kingdom; 2 Morrsiton Hospital, United Kingdom

12:15  038  Is Same Day Admission for Cardiac Surgery Possible?
R.S. George; K. Javangula; D. O’Regan
Leeds General Infirmary, United Kingdom

11:45-12:30  Heart Research UK Lecture
Room 3 / 4  Chairs: Professor Bob Bonser/Mr Aung Oo
Thoracic Aortic Stenting: A State of the Art Review
Professor Lars Svensson, Cleveland Clinic, Ohio, USA

12:30-13:30  LUNCH
Exhibition area

12:30-13:30  Surgeons and MBA
Titanium  Chair: Mr David O’Reagan

13:30-15:00  Address by the Secretary of State for Health Rt Hon. Andrew Lansley
Room 3 / 4  Trauma Reconfiguration and UK Cardiothoracic Surgical Activity.
Trauma Tsar Professor Keith Willett
Chairs: Professor David Taggart/Graham Cooper

13:30  Introduction by David Taggart
13:35  Prof Keith Willett, Trauma reconfiguration in the UK
14:00  Andrew Lansley, Address and Questions
14:35  Cardiac Surgical Activity  Mr Ben Bridgewater, Cardiac Surgeon
Manchester, Chair of Cardiac Data Committee.

14:45  Thoracic Surgical Activity  Mr Richard Page, Thoracic Surgeon Liverpool,
Chair of Thoracic Surgical data Committee.
12:35-13:55  Patients’ Forum  
Room 2  
Chairs: Mr David Geldard/Professor Marjan Jahangiri/Mr Graham Venn

Welcome and Introduction, Mr David Geldard

12:35  Improving the Experience and the Outcomes for Patients and their Carers  
Professor Sir Bruce Keogh, Medical Director NHS and Ms Tara Bartley, Nursing Representative, SCTS

13:00  Keynote speech:  
The Current and Future Status of Cardiac Rehabilitation, and the Role of the New Commissioning Guide  
Dr Jane Flint, National Clinical Advisor for Cardiac Rehabilitation.

J. Sharman; T. Perkins; S. Henderson; D.A. Waller; A. Nakas; S. Rathinam  
Glenfield Hospital, Leicester, United Kingdom

13:40  040  Discharge Myths! Patients can go Home Safely on the 4th Postoperative Day  
R.S. George; K. Javangula; D. O’Regan  
Leeds General Infirmary, United Kingdom

13:30-17:30  The Society of Clinical Perfusionist Scientists  
Room Titanium  
Chair: Mr Robin Jones

13:30-18:00  ACSA - Association of Surgical Care Practitioners - sponsored by Maquet  
Room 7  
Chair: Mr Tobias Rankin  
Welcome and Introductions: Mr Tobias Rankin

13:40  040.1  Are we Reporting the Chest X-Rays that we are Requesting: an Audit Cycle  
R. Ward; H. Gilbert; J. Apsey; R. Birla  
Derriford Hospital, United Kingdom

13:50  041  Reduction in Infection Rates with Introduction of Endoscopic Vein Harvesting  
R. Yadav; G. Sobhun; S.L.F. Doran; R. Trimlett; A.C. DeSouza  
Royal Brompton Hospital, United Kingdom

14:00  Vein Mapping  
Mr Joel Dunning, James Cook University Hospital, Middlesbrough

15:00-15:45  TEA  
Exhibition area
15:30-18:00 ACSA AGM
Room 7
Chair: Mr Tobias Rankin

15:00-15:45 Data Committee
Zinc
Chair: Mr Ben Bridgewater

15:45-16:25 Thoracic Surgery: Research Trial Papers
Room 6
Chairs: Mr John Edwards/Miss Emma Beddow/Joe Marzouk

15:45 042 The role of the vitamin D axis in Lung Cancer
M. Abdelaziz¹, A.C. Millen¹, S. Rathinam², R. Steyn¹, M. Kalkat¹, E. Bishay¹, P. Rajesh¹, A.M. Wood³, B. Naidu¹
1 Birmingham Heartlands Hospital, United Kingdom; 2 Glenfield Hospital, United Kingdom; 3 University of Birmingham, United Kingdom

15:55 043 Pulmonary Metastasectomy using the 1318nm Laser. Initial Experience with 44 Consecutive Procedures
G. Ladas; L. Okior; S. Qureshi
Royal Brompton Hospital, United Kingdom

16:05 044 Why do some Patients not Receive the Gold Standard Treatment for Lung Cancer? An Audit of Operative Standards
S.T. Williams; Antonio Martin-Ucar; M. Malik
Nottingham University Hospitals, United Kingdom

16:15 045 A Systematic Review of Lung-Sparing Extirpative Surgery for Pleural Mesothelioma
T. Treasure¹, E.S. Teh², F. Fiorentino¹, C. Tan³
1 Clinical Operational Research Unit, United Kingdom; 2 The Rayne Institute, United Kingdom; 3 St George’s Hospital, United Kingdom

16:25-18:00 Thoracic Surgery Research Collaborative
Room 6
Chairs: Mr Eric Lim/Mr Douglas West

16:25 UK-TSRC
Mr Antonio Martin-Ucar

16:30 Debate: The house believes that surgeons should administer adjuvant treatment after radical surgery for non-small cell lung cancer
For - Eric Lim, Consultant Thoracic Surgeon, Royal Brompton Hospital, London, UK
Against - Riyaz Shah, Consultant Oncologist, Maidstone and Tunbridge Wells NHS Trust, Kent, UK

17:00 New research proposals

17:55 Close
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>15:45-17:00</td>
<td><strong>Cardiothoracic Forum</strong></td>
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<td>15:45-16:15</td>
<td><strong>Plenary Session: Trauma in the Pre-Hospital Setting</strong></td>
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<td>Chairs: Ms Juliet King/Ms Rebecca Myatt</td>
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<td><strong>Trauma and first line management prior to the hospital setting</strong></td>
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<td>Mr R Steyn, Thoracic Surgeon, Heartlands Hospital, Birmingham</td>
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<td>16:15</td>
<td>046 <strong>Developing a Multidisciplinary Complex Pre and Post Operative Intervention to Reduce Complications and Enhance Recovery after Lung Resection Surgery</strong></td>
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<td>M.Z. Abdelaziz; A. Bradley; P. Agostini; K. Nagarajan; E. Bishay; M.S. Kalkat; R.S. Steyn; P B. Rajesh; B. Naidu</td>
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<td>Birmingham Heartland Hospital, Heart of England NHS Foundation Trust, United Kingdom</td>
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<td>16:30</td>
<td>047 <strong>The Introduction of Standardised Guidelines for Talc Pleurodesis into a Cardiothoracic Unit</strong></td>
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<td>C. Badger; J. Asante-Siaw</td>
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<td>University Hospitals Coventry and Warwickshire, United Kingdom</td>
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<td>16:45</td>
<td>048 <strong>Impact of a Nurse-Led Clinic in Thoracic Surgery</strong></td>
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<td>S.H. Williams; J.G.E. Williams; M. Bibi; P Tcherveniakov; R. Milton</td>
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<td>St James’s University Hospital, Leeds, United Kingdom</td>
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<td>15:45-18:00</td>
<td><strong>Management of the High-Risk Patient - Consultants Only</strong></td>
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<td>15:45-16:00</td>
<td><strong>A Personal View</strong></td>
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<td>Mr Steve Griffin, Hull</td>
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<td>16:05-16:15</td>
<td><strong>What is Wrong with Risk Averse Behaviour?</strong></td>
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<td>Mr Ian Wilson, Birmingham</td>
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<td>16:15-16:25</td>
<td><strong>Risk Averse Behaviour - An International Phenomenon</strong></td>
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<td>Professor Irving Kron, University of Virginia, USA</td>
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<td>16:30-16:40</td>
<td><strong>The Patient’s View</strong></td>
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<td>Mr David Geldard</td>
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<td>16:40-16:55</td>
<td><strong>The Congenital Model</strong></td>
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<td>Mr Tim Jones, Birmingham</td>
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<td>17:05-17:20</td>
<td><strong>Reducing Variation in Lung Cancer Resection Rates</strong></td>
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<td>Mr David Waller, Leicester</td>
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<td>17:30-17:45</td>
<td><strong>Second opinions in Adult Cardiac Surgery</strong></td>
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<td>Mr Graham Cooper, Sheffield</td>
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15:45-18:00  **Cardiothoracic Surgical Trainees Meeting**  
**Room 1**  
*Chairs: Ms Betsy Evans/Mr Steve Livesey*

15:45-16:10  **How to prepare for national selection.**  
Two recently appointed NTNs talk on their experience of the selection process and how they about prepared for it.  
*Priya Sastry and Alia Noorani*  
Response from Sion Barnard

16:10-16:40  **EWTD-changes to service and training**

16:10 049  **The European Working Time Directive and Training in Cardiothoracic Surgery in Wales: The Holy Grail?**  
M. Jenkins; P Vaughan; PA. O’Keefe  
University Hospital of Wales, United Kingdom

16:20 050  **EWTD-How Service Reconfiguration can Maximize Training Opportunities**  
I. Ahmed; S. Balasubraminian; S. Asopa; P. Botha; I. Abu-Saif; P Ogotu; D. Harrington; J. Ferguson; S. Kendall  
James Cook University Hospital, United Kingdom  
ISCP and logbooks

16:30 051  **Growth Curves for Trainee Cardiac Surgeons-Identifying Failure to Thrive?**  
P. Botha¹; S. Stamenkovic²; S. Barnard²; S. Jameson¹; S. Kendall¹; J. Ferguson¹  
1 James Cook University Hospital, United Kingdom; 2 Freeman Hospital, United Kingdom  
Response from Jonathan Hyde

17:00-17:30  **Exam tips and advice on available courses**  
Two NTNs who have just completed the exam process to give their views on the exam and preparation required.  
*Mr Justin Nowell and Mr Yasir Abu-Omar*  
Response from John Smith on changes to exam format  
Response form Mike Lewis on courses (college tutor role)

17:30-18:00  **An update on work-force planning regarding outcome of CCT holders, proposals on peri-CCT fellowships and consultant jobs including planning for interviews**

**Current update on fate of CCT holders**  
*Betsy Evans*  
**Future proposals for peri-CCT jobs/change in training structure**  
*Steve Livesey*  
**Thoracic peri-CCT posts**  
*Sion Barnard*
18:30-22:00 Ethicon Symposium
Room 2
Assessment and Improvement of Morbidity after Cardiac Surgery
Chair: Mr Francis Wells

18.30 Morbidity after Cardiac Surgery
Mr Francis Wells (UK)

18.55 Impact of Patient Blood management on Morbidity
Mr Gavin Murphy (UK)

19.20 SSI in Cardiac Surgery
Dr Rafael Astudillo (Sweden)

19.45 The Impact of Care Bundles on Morbidity
Mr Martin Kiernan (UK)

20.10 Q&A and Close
Mr Frank Wells (UK)

20.20 Reception Dinner

18:30-20:30 Synthes Symposium
Room 6
Rib Fixation and Stabilisation Advances for patients with Flail Chest and Multiple Fractures
Speakers:
Dr M Bemelman, General Surgeon/Trauma Surgeon, University Medical Center, Utrecht, Holland
Mr S Barnard, Consultant Thoracic Surgeon, Freeman Hospital, Newcastle, UK
Tuesday, March 22, 2011

07:00-08:30 Medela Thoracic Surgical Symposium
Room 7

Issues in Chest Tube Management: Physics, Physiology and Practice
Chair: Mr Thomas Routledge
Guy’s and St Thomas’s Hospitals, London, UK

New approach to chest drainage: an update
Dr Alessandro Brunelli
Division of Thoracic Surgery, Ospedali Riuniti Ancona, Ancona, Italy

A transition from analog to digital scoring of air leaks post thoracic surgery and provision of standardized management of chest tubes following chest surgery
Mr Konstantinos Papagiannopoulos
St James’s University Hospital, Leeds, UK

The physics of breathing and suction
Mr Martin Walti, BSc Mechanical Engineering
Biomedical Engineer, Medela AG, Switzerland

Development of a nurse led protocol for chest drain removal
Dr Debbie Danitsch, Nurse Consultant, Cardiothoracic Care
University Hospital of North Staffordshire, Stoke on Trent

07:45-10:15 Edwards TAVI Surgical Symposium
Room 3 / 4

Chairs: Mr Neil Moat/Mr Leon Hadjinikolaou

Transcatheter Aortic Valve Implantation: 2011 and beyond
Chair: Dr Michael Mack
Co-Chair: Mr Vinnie Bapat
Expert Panel: Mr Christopher Young, Mr Neil Moat, Mr Olaf Wendler, Dr Martyn Thomas

07:15-07:45 Coffee / Croissants

07:45 Introduction
Mr Vinnie Bapat

07:50 Prediction of In-Hospital Death Following Aortic Valve Replacement: A New Accurate Model
N.J. Howell, M. Richardson, N. Freemantle, B. Bridgewater, D. Pagano
1 University Hospital Birmingham, United Kingdom; 2 University of Birmingham, United Kingdom; 3 University Hospital of South Manchester, United Kingdom
08:00 053  Outcome of Patients with Aortic Stenosis Referred to a Multidisciplinary Meeting for Transcatheter Valve
S.G. Jones; N.R. Abdulkareem; D. Roy; S.J. Brecker; M. Jahangiri
St George’s Hospital, United Kingdom

08:10  Martyn Thomas
Is there still a case for medical treatment of aortic stenosis in the UK?
* Current results with the Sapien valve
* SOURCE & PARTNER Data
* The Impact of Bicuspid Aortic Valve Disease (why is it a contra-indication)
* Role of BAV

08:25 054  What Impact has TAVI had on Conventional Aortic Valve Replacement Surgery in the First Two Years?
S.W. Grant¹, I. Dimarakis¹, M. Devbhandari¹, S.M. Rehman¹, A.D. Grayson², D.M.T. Saravanan¹, S.G. Ray¹, R.D. Levy¹, I. Kadir¹, B. Bridgewater¹
¹ University Hospital of South Manchester, United Kingdom; ² Southport and Ormskirk NHS Trust, United Kingdom

08:35 056  Aortic Valve Surgery in Octogenarians: How has Transcatheter Aortic Valve Implantation Changed the Surgical World
S. Chaubey¹, V. Bapat², R. Deshpande¹, J. Roxburgh², R. Dworakowski¹, J. Desai¹, C. Young², O. Wendler²
¹ Kings College Hospital, United Kingdom; ² St Thomas Hospital, United Kingdom

08:45  Establishing a TAVI service: A multidimensional programme
Olaf Wendler
* The Role of MDM
* Case studies examples

09:00 057  Outcomes of Patients with Previous Cardiac Surgery Undergoing TAVI Compared with Redo Surgical AVR
S.G. Jones; N. Abdulkareem; S.J. Brecker; M. Jahangiri
St George’s Hospital, United Kingdom
09:10  058  The Use of Transcatheter Valve-in-Valve Implantation in Patients with Degenerated Aortic Bioprostheses
O. Nawaytou; O. Wendler; R. Attia; K. Macgillivray; R. Dworokowski; P. MacCarthy; M. Thomas; R. Deshpande; C. Young; V. Bapat
King’s Health Partners, United Kingdom

09:20  Technical Advances in Trans-apical Approaches and Expansion of Current Indications
Chris Young
* The Role in Redo Surgery
* Valve-in-Valve Technology
* New tools: Ascendra 2 and 29 valve

09:35  055  Transaortic Transcatheter Aortic Valve Implantation (TAVI) using Edwards Sapien Valve: a Novel Approach
R. Attia; A. Diaz; O. Nawaytou; A. Narayana; M. Thomas; S. Redwood; J. Hancock; K. Macgillivray; C.P. Young; V. Bapat
Guy’s and St Thomas’ Hospital, United Kingdom

09:45-09:55  Vinnie Bapat
Tips, tricks, trouble shooting

09:55-10:10  Michael Mack
TAVI - US perspective and future of TAVI

10:10-10:15  Panel Questions and Summary of the session

07:30-08:45  Vascuraek Congenital Symposium:
RVOT Reconstruction
Chair: Mr Chuck McClean
Introduction  N Weerasena
Rational for Development  J McKenna
The Product  TBA
Implantation  K McArthur
Early Outcomes  N Weerasena
Discussion  All

07:30-16:45  Speakers’ Room
Chair: Mr Scott Clarke
Head of Audio Visual

08:00-08:50  Cardiac Surgical Papers-Post Operative Management
Chairs: Mr Vivek Pathi/Ms Farah Bhatti
08:00 059 Maximising Cardiac Output and Coronary Conduit Flow in the Immediate Post CABG Patient by Varying Pacing Modality, A/ Delay and Rate
S. Jahangeer; M. Hargrove; K. K. Doddakula; A. O’Donnell; T. Aherne; J. Hinchion
Cork University Hospital, Ireland

08:10 060 The Impact of Major Peri-Operative Renal Insult on Long-Term Renal Function and Survival after Cardiac Surgery
V. Srivastava; C. D’Silva; M.N. Bittar; J. Zacharias; J. Au; D.L. Ngaage
Victoria Hospital, Blackpool, United Kingdom

08:20 061 Cognitive Decline after Coronary Artery Bypass Graft Surgery: Time to Reconsider the Evidence?
F.K. Cormack¹, D.J. McCormack², W.I. Awad², A. Shipolini², M. Underwood³, T. Baldeweg⁴, A.M. Hogan⁴
1 UCL Research Department of Clinical, Educational and Health Psychology, United Kingdom; 2 London Chest Hospital, United Kingdom; 3 Division of Cardiothoracic Surgery, Prince of Wales Hospital, Faculty of Medicine, The Chinese University, Hong Kong SAR; 4 UCL Institute of Child Health, United Kingdom

08:30 062 Aspirin and Clopidogrel Resistance in Cardiac Surgical Patients, its Occurrence and Influence on Chest Drainage and Platelet Transfusion
A. Wright¹, S.V. Sheppard¹, M. Filippaki², R.S. Gill², P. Diprose²
1 Dept of Perfusion, Southampton University Hospital NHS Trust, United Kingdom; 2 Dept of Anaesthesia, Southampton University Hospital NHS Trust, United Kingdom

08:40 063 Safety and Efficacy of Recombinant Factor VIIa in the Treatment of Post Cardiotomy Haemorrhage
S. F. Hashmi; S. Kuyumdzhiev; Z. Mahmood; L. Anderson; V. Pathi; G.A. Berg
West of Scotland Heart and Lung Centre, Golden Jubilee National Hospital, Clydebank, United Kingdom

08:50 064 Does Delayed Removal of Left Pleural Drain after CABG Affects Development of Left Pleural Effusion?
D Agrawal¹, S. Prasad²
1 New Royal Infirmary, Edinburgh, United Kingdom; 2 New Royal Infirmary, Edinburgh, United Kingdom

09:00-10:00 Cardiopulmonary Transplantation Papers
Room 6
Chairs: Mr Andre Simon/Mr David Jenkins
09:00 088  **US-Derived Quantitative Donor Risk Score Predicts Mortality after Orthotopic Heart Transplantation in the UK**  
A. Emin¹, C.A. Rogers², N.R. Banner³, R. Bonser⁴  
¹ Clinical Effectiveness Unit, The Royal College of Surgeons of England, United Kingdom; ² Clinical Trials and Evaluation Unit, University of Bristol, United Kingdom; ³ Consultant Cardiologist and Transplant Physician, Harefield Hospital, United Kingdom; ⁴ Director of Cardiopulmonary Transplantation, Queen Elizabeth Hospital, Birmingham, United Kingdom

09:10 089  **Minimally Invasive Bilateral Sequential Lung Transplantation (MBSLTx) is Associated with Reduced Length of Stay in ICU**  
A.F. Popov¹, D. Rajaruthnam², B. Zych¹, H. Krueger¹, M. Carby¹, A.R. Simon²  
¹ Department of Cardiothoracic Transplantation & Mechanical Circulatory Support, Harefield Hospital, M, United Kingdom; ² Department of Cardiothoracic Transplantation & Mechanical Circulatory Support, Harefield, Middlesex, United Kingdom; ³ Department of Transplant Medicine, Harefield Hospital, Middlesex, United Kingdom

09:20 090  **Donor Biomarkers Associated with Primary Graft Dysfunction (PGD) in the Heart Transplant (HTx) Recipient**  
V.B. Dronavalli¹, D. Ward², W. Wei², P. Johnson², R.S. Bonser¹  
¹ Queen Elizabeth Hospital, University Hospitals Birmingham. On behalf of the Steering group UK Cardio, United Kingdom; ² University of Birmingham, United Kingdom

09:30 091  **Intracellular Calcium Handling in the Donor Heart: Comparison between DCD and Brainstem Dead (BSD) Donor Hearts**  
F.J. Taghavi¹, A. Ali², C. Woods¹, S.R. Large², E. Ashley¹  
¹ Stanford University Hospital, USA; ² Papworth Hospital, United Kingdom

09:40 092  **Outcome of Lung Graft Volume Reduction for Oversized Donors during Pulmonary Transplantation**  
S Shanmuganathan; T. Butt; J. Dark; S. Clark  
Freeman Hospital, United Kingdom

09:50 093  **Levitronix Centrimag Third-Generation Maglev Continuous Flow Pump as Bridge to Solution**  
A Loforte; M.A. Montalto; R.F. Ranocchi; L.M.P Lilla Della Monica; L.A. Lappa; C.C. Contento; M.F. Musumeci  
S. Camillo Hospital, Italy
08:45-10:00  Cardiothoracic Forum
Room 2

Chairs: Mr David O'Regan/Ms Helen Munday

Plenary: WHO Checklist-Surgical Safety Checklist: Is It Worth the Effort?
Stephen Clark, Cardiac Surgeon, Freeman Hospital, Newcastle-Upon-Tyne

09:15  065  The Missing Link: The Role of the Cardiac Surgical Care Practitioner in Bridging the Service-Training Gap
A. Hayden Walker; S.E. Deacon; L. Hadjinnikolaou
Glenfield Hospital, United Kingdom

09:30  066  Prioritising Non-Elective Patients: Do They All Need to Wait in Hospital?
C. Bannister¹; S.A. Livesey²
1 Southampton University Hospital NHS Trust, United Kingdom; 2 Southampton General Hospital, United Kingdom

09:45  067  The Impact of the Post-Operative ‘Fast-Track’ Protocol on Patient Management and Outcomes Following Cardiac Surgery
A. Sharkey; G. Chetty; PC Braidley; N. P Briffa; G. J. Cooper; D. N. Hopkinson; S. Forlani; T. J. Locke; P. K. Sarkar; G. A. L. Wilkinson
Northern General Hospital, Sheffield, United Kingdom

08:45-10:00  Congenital Cardiac Surgery - Reconfiguration of Paediatric Cardiac Surgical Services in the UK-Consultation Phase
Room 5

Chairs: Mr Leslie Hamilton/Mr Bill Braun

08:45  Introduction: “Safe and Sustainable” Review of Paediatric Cardiac Surgery: the Need for Change. Mr Leslie Hamilton

08:55  Professor Roger Boyle-‘Taking the Broad View’

09:05  Dr Jeremy Glyde (NSCG Project Manager): The Review Process

09:20  Dr Patricia Hamilton (Chair of Steering Group): Overview

09:30  Discussion

08:50-10:00  Thoracic Surgery - Risk
Room 1

Chairs: Mr Ehab Bishay/Mr Tim Batchelor

08:50  068  Comparing Outcome of Patients admitted Same Day for Lung Resection with Patients admitted before the Day of Surgery
S. Attaran; J. Mcshane; M. Diab; I. Whittle; M. Carr; M. Poullis; H. El-Sayed; N. Mediratta; M. Shackcloth
Liverpool Heart and Chest Hospital, United Kingdom
Could Thoracoscore Accurately Predict In-Hospital, 30-Days and Midterm Mortality in Patients Undergoing Pneumonectomy?  
S. SA Qadri; M. Chaudhry; A. Cale; M. Loubani  
Castle Hill Hospital, Cottingham, Hull, United Kingdom

Myocardial Infarction after Thoracic Surgery: Can the Revised Cardiac Risk Index Identify Patients at Risk?  
L. Okiror; L. Seow; J. Lyne; E. Lim  
Royal Brompton Hospital, United Kingdom

A Propensity-Matched Comparison of Survival after Lung Resection in Patients Readmitted to Intensive Care versus Patients with No Readmission  
S. Attaran; J. Mcshane; N. Ainsborough; I. Whittle; M. Carr; M. Poullis; N. Mediratta; H. El-Sayed; M. Shackcloth  
Liverpool Heart and Chest Hospital, United Kingdom

Predicting Risk of Intensive Care Unit Admission after Resection for Non-Small Cell Lung Cancer: a Validation Study  
E. Lim; L. Okiror; N. Patel; G. Ladas; M. Dusmet; S. Jordan; P. Kho; J. Cordingley  
Royal Brompton Hospital, United Kingdom

Can Mortality after Thoracic Surgery be Prevented? A 5-Year Institutional Review  
A. Ali; A. Saeed; L. Shamma; L. Rogan; F.C. Wells; A.S. Coonar  
Papworth Hospital, United Kingdom

Is there a need for Prospective International Database for Thymomas?  
K. Nagarajan; W. Dudek; M.S.K. Kalkat; E. Bishay; R.S. Steyn; B. Naidu; P.B. Rajesh; M.Z. Abdelaziz  
Birmingham Heartlands Hospital, United Kingdom

Minimally Aortic Valve Surgery through Right Anterior Thoracotomy: Early and Mid-Term Follow-Up  
A.M. Miceli; D.G. Gilmanov; S.B. Bevilacqua; M.F. Ferrarini; G.C. Concistrè; M.M. Murzi; T.G. Gasbarri; P.A.F. Farneti; M.S. Solinas; M.G. Glauber  
Fondazione G. Monasterio, Italy
11:10 076  Minimally Invasive versus Conventional Aortic Valve Replacement: A Single Centre 5-Year Experience
R. Attia; J.C. Roxburgh; C.P Young
Guy's and St Thomas' Hospital, United Kingdom

11:20 077  Minimally Invasive Aortic Valve Replacement (AVR) with Sutureless Valves compares well against Conventional Aortic Valves
M. Shrestha; S. Sarikouch; Y. Li; K. Hoeffler; N. Khaladj; C. Hagl; N. Koigeldiyev; A. Haverich, Hannover Medical School, Germany

11:25 078  Initial Experience of the Sutureless ‘ENABLE’ Valve
P. A. Gupta; P. Whitlock; K.S. Lall
St Bartholomew's Hospital, United Kingdom

Dr Michael Mack will talk to Unaffordable Luxury and Dr Malakh Shrestha, Hannover, to Major Advance.

10:45-12:30  Cardiothoracic Forum
Room 2
Chairs: Mr Ben Bridgewater/Ms Kelly Ann Prime
Plenary:
Quality Indicators
G Bolger
National Cardiac Benchmarking Collaborative
Rebecca Miles

11:45 079  Minimising Patient Morbidity - The Next Challenge for Cardiothoracic Surgery
C. Tennyson; D.J. McCormack; S. Ibrahim; P. Lohrmann; A.Shipolini
London Chest Hospital, United Kingdom

12:00 080  Secondary Prevention following Coronary Artery Bypass Grafting: Are we Compliant with the Guidelines?
V. Joshi; B. Bridgewater
University Hospital of South Manchester, United Kingdom

12:15 081  A Survey of Quality of Life Following Surgery for Malignant Pleural Mesothelioma Reflects the Patients’ Commitment to Learning about the Disease
D. Raffle; A. Barua; A.E. Martin-Ucar
Nottingham City Hospital, United Kingdom
<table>
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<tr>
<th>Time</th>
<th>Session</th>
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</table>
| 10:45-12:30 | **Congenital Cardiac Surgery-Complex Transposition with VSD and LVOT Obstruction**  
            | **Chairs: Mr Marcus Haw/Mr Olivier Ghez**                              |
| 10:45-11:15 | **Anatomy/Morphology**  
            | **Dr Andrew Cook, UCL**                                              |
| 11:15-11:30 | **Imaging**  
            | **Dr Alison Hayes, Paediatric Cardiologist Bristol Royal Infirmary** |
| 11:30-12:00 | **Surgical issues**  
            | **Dr Hazecamp, Leiden**                                              |
| 12:00-12:30 | **Discussion**                                                         |
| 10:45-11:45 | **Thoracic Surgical VATS**  
            | **Chairs: Mr Steve Woolley / Mr Khalid Amer**                      |
| 10:45     | **Is Open Pleurectomy the Best Way to Manage Pneumothorax?**  
            | **A Contemporaneous Comparative Study**  
            | **B.H. Kirmani; V. Joshi; J. Zacharias**  
            | **Blackpool Victoria Hospital, United Kingdom**                   |
| 10:55     | **Angiogenic Response to Major Lung Resection for Non-Small Cell Lung Cancer: VATS versus Open**  
            | **C. Ng; R.H.L. Wong; S. Wan; C.W.C. Hui; E.C.L. Yeung; M.K.Y. Hsin; I.Y.P Wan; M.J. Underwood**  
            | **Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong SAR** |
| 11:05     | **Lymphadenectomy in Video Assisted and Open Lung Resections: Is it always Useful?**  
            | **M. Hughes; S.M. Woolley; Z. Qureshi; W.S. Walker**  
            | **Royal Infirmary of Edinburgh, United Kingdom**                   |
| 11:15     | **New UK Video Assisted Thoracoscopic (VATS) Lung Resection Programme: Outcomes are Encouraging for us All**  
            | **V. Mehta; E. Royston; J. Nicholson; R. Sayeed; E. Black**  
            | **John Radcliffe Hospital, Oxford, United Kingdom**               |
| 11:25     | **VATS Lobectomies in the Reoperative Setting-is it a Contraindication?**  
            | **K. S. Rammohan; B. Stauffer; S. Gazala; I. Hunt; A. Valji; K. Stewart; E.L.R. Bédard**  
            | **Royal Alexandra Hospital, Canada**                            |
11:35  087  Thoracoscopic Plication as a Treatment for Unilateral Diaphragmatic Paralysis—a Worthwhile Venture?
K S Rammohan; K. Rommens; S. Gazala; K. Stewart; E.L.R. Bédard
Royal Alexandra Hospital, Canada

10:45-11:45  Contemporary Mitral/Atrial Fibrillation Surgery
Room 7  Chairs: Mr Uday Trivedi/Mr Ramesh Patel

Abstracts - Atrial Fibrillation

10:45  A Propensity-Matched Comparison of Post Cardiac Surgery Outcome in Patients with Preoperative Atrial Fibrillation versus Patients in Sinus Rhythm
S. Attaran; M. Shaw; L. Bond; M.D. Pullan; B. Fabri
Liverpool Heart and Chest Hospital, United Kingdom

10:55  Does the Outcome Improve after Radiofrequency Ablation in Patients Undergoing Cardiac Surgery: a Propensity-Matched Comparison
Saina Attaran¹, M. Shaw², A. Ward², D.M. Pullan², B. Fabri²
¹ Liverpool Heart and Chest hospital, United Kingdom; ² Liverpool Heart and Chest Hospital, United Kingdom

11:05  Phase I Results of Cox-Maze IV Surgical Bipolar Radio Frequency Ablation for Atrial Fibrillation: Eight Years Single Centre Experience.
A Khosravi; S. Rizvi; H. Abunasara; N. Sharma; D. Alexander; T. Spyt
Glenfield Hospital, United Kingdom

11:15-11:40  Invited Guest Lecture
State of the Art Atrial Fibrillation Surgery: Contemporary Practice and Future Development
Dr Ardawan Rastan - Liepzig

Abstracts - Mitral Valve Surgery

11:40  Impact of Patient-Prosthesis Mismatch after Mitral Valve Replacement: an Australian Multicentre Analysis of Early Outcomes and Mid-Term Survival
W.Y. Shi¹, C.H. Yap², P.A. Hayward¹, D.T. Dinh³, C.M. Reid³, G.C. Shardey⁴, J.A. Smith³
¹ Austin Hospital, University of Melbourne, Australia; ² Bristol Heart Institute, United Kingdom; ³ Monash University, Australia; ⁴ Monash Medical Centre, Australia

11:50  “Mitrofix” as an Alternative Repair for Posterior Mitral Valve Leaflet Pathology; Early Results
H Abunasra; N. Masala; E. Logtens; J. Swanevelder; J. Bence; T. spyt
Glenfield Hospital, United Kingdom
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<tr>
<td>12:00-12:30</td>
<td>Invited Guest Lecture&lt;br&gt;&lt;strong&gt;State of the Art Mitral Valve Surgery: Contemporary Practice and Future Development&lt;/strong&gt;&lt;br&gt;Professor Irving Kron&lt;br&gt;Mr Ani Anyanwu</td>
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<td>11:45-12:30</td>
<td>Medela/Tudor Edwards Thoracic Surgical Lecture&lt;br&gt;Room 1&lt;br&gt;&lt;strong&gt;Evolution and Current Status of Lung Volume Reduction Surgery for Emphysema&lt;/strong&gt;&lt;br&gt;Professor Robert McKenna, Sinai Medical Center, Los Angeles, USA</td>
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<td>12:30-13:30</td>
<td>Lunch&lt;br&gt;Exhibition area</td>
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<td>12:30-13:30</td>
<td>Medical Student Poster Presentations&lt;br&gt;Exhibition area&lt;br&gt;&lt;strong&gt;Chair: Mr David McCormack&lt;/strong&gt;</td>
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<td>12:30-13:30</td>
<td>CRISP Trial - Collaborators Meeting&lt;br&gt;Titanium&lt;br&gt;&lt;strong&gt;Chair: Professor David Taggart&lt;/strong&gt;</td>
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<td>12:30-13:30</td>
<td>Congenital Meeting&lt;br&gt;Room 5&lt;br&gt;&lt;strong&gt;Chair: Mr Nihal Weerasena&lt;/strong&gt;</td>
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<td>13:30-17:00</td>
<td>College Council of Clinical Perfusion Scientists, Great Britain and Ireland&lt;br&gt;Titanium&lt;br&gt;&lt;strong&gt;Chair: Mr Philip Gamston&lt;/strong&gt;</td>
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<td>13:30-15:00</td>
<td>Thoracic Surgical Mediastinal Staging&lt;br&gt;Room 1&lt;br&gt;&lt;strong&gt;Chairs: Mr Antonio Martin-Ucar/Mr Ian Hunt&lt;/strong&gt;</td>
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<tr>
<td>13:30-15:00</td>
<td>Is Mediastinal Lymph Node Dissection Necessary for Low-Grade Malignant Tumours of the Lung?&lt;br&gt;C. Chen¹, Z.H. Zheng ¹, H.X.F. Hu¹, X.H.K. Xie², J.S. Jiang³&lt;br&gt;¹ Department of General Thoracic Surgery, Shanghai Pulmonary Hospital, Tongji University School of Medicine, China; ² Department of Pathology, Shanghai Pulmonary Hospital, Tongji University School of Medicine; ³ Department of Radiology, Shanghai Pulmonary Hospital, Tongji University School of Medicine</td>
</tr>
<tr>
<td>13:40  100</td>
<td>Should All Patients Undergoing Elective Mediastinoscopy be Considered for Day Case Surgery?&lt;br&gt;R. Rathore; T.J.P Batchelor&lt;br&gt;Bristol Royal Infirmary, United Kingdom</td>
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13:50  101  **Stage Migration: Results of Lymph Node Dissection in the Era of Modern Imaging and Invasive Staging for Lung Cancer**

B.H. Kirmani\(^1\), R. Rintoul\(^2\), T. Win\(^3\), C. Magee\(^4\), L. Magee\(^2\), C. Choong\(^1\), F.C. Wells\(^1\), A.S. Coonar\(^1\)

1 Dept of Thoracic Surgery, Papworth Hospital, Cambridge, United Kingdom; 2 Dept of Thoracic Oncology, Papworth Hospital, Cambridge, United Kingdom; 3 Dept of Respiratory Medicine, Lister Hospital, Stevenage, United Kingdom

14:00  102  **Re-appraisal of N2 Disease by Lymphatic Drainage Pattern for Non-Small-Cell Lung Cancers: in Terms of Zones, Chains, and Both**

C Chen\(^1\), Z.H. Zheng\(^1\), H.X.F. Hu\(^1\), X.H.K. Xie\(^2\), J.S. Jiang\(^3\)

1 Department of General Thoracic Surgery, Shanghai Pulmonary Hospital, Tongji University School of Med, China, Peoples Republic; 2 Department of Pathology, Shanghai Pulmonary Hospital, Tongji University School of Medicine, China, Peoples Republic; 3 Department of Radiology, Shanghai Pulmonary Hospital, Tongji University School of Medicine, China, Peoples Republic

14:10  103  **Pathological Staging of Malignant Pleural Mesothelioma. How Important is Nodal Disease in Selection for Radical Surgery?**

K. Lau; A Nakas; D. Waller

Glenfield Hospital, Leicester, United Kingdom

14:20  104  **Surgery for Pulmonary Colorectal Metastases: Factors Influencing Prognosis and Survival**

M Hawari; W. Parry; M. Van Leuven; M. Wilkinson; F. Van Tornout

Norfolk and Norwich University Hospital, United Kingdom

14:30  105  **Outcomes of Different Surgical Approaches to Malignant Pericardial Effusion**

D Quinn\(^1\), C. Ng\(^2\), R. Wong\(^2\), M. Hsin\(^2\), I. Wan\(^2\), S. Wan\(^2\), T. Tan\(^2\), M. Underwood\(^2\)

1 University Hospital Birmingham, United Kingdom; 2 Prince of Wales Hospital, Hong Kong SAR

14:40  106  **A Propensity-Matched Comparison of Survival after Lung Resection in Patients with High versus Low Body Mass Index**

S Attaran; N. Ainsborough; J. Mcshane; I. Whittle; M. Poullis; N. Mediratta; H. El-Sayed; M. Shackcloth

Liverpool Heart and Chest Hospital, United Kingdom

14:50  107  **Is Routine Cross Matching Necessary for Patients Undergoing Elective Lobectomy?**

M. Devbhandari; S. Farid; C. Goatman; P. Krysiak; M.T. Jones; R. Shah

University Hospital of South Manchester, United Kingdom
13:30-15:00  Cardiothoracic Forum
Chairs: Mr Tim Graham/Mr Ian Mitchell/Mr Tony Gelsthorpe
Plenary: Regulation and Standardisation at Advanced Levels of Nursing Practice for Patient Safety and Public Protection
  Jennifer Aston - Chair  ANPF

13:45 108  True Inter-Professional Working: A Combined Rota for Junior Doctors, Cardiac Surgical Care and Nurse Practitioners
  D.A. Tragheim; G. Chilton; G. Cooper
  Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom

14:00 109  Nurse Practitioners (NPs) can safely provide Sole Resident Cover for Cardiac Intensive Care Units (CICU)
  P. Nanjaiah; H. Skinner; R.S. Jutley; I.M. Mitchell; S. McCartney; D. Richens
  City Hospital, Nottingham, United Kingdom

14:15 110  Reflection on the Implementation of a Nurse Practitioner Training Programme in a Large Cardiothoracic Surgical Unit
  S Laidler; F. Thompson; L. Clarke; R. MacFarlane; S. Naden; G. Newberry; S. Stamenkovic; S. Clark
  Freeman Hospital, United Kingdom

14:30 111  The Role of Nurse-led Post-Operative Cardiac Clinics: a Fifteen Month Experience in Wales
  A. Parkes; M. Jenkins; D. Mehta
  University Hospital of Wales, United Kingdom

  P. Agostini; T. Starkey-Moore; S. Rathinam; B. Naidu; R. Steyn; E. Bishay; M. Kalkat; P. Rajesh
  Heartlands Hospital, United Kingdom

13:30-15:00  St Jude Symposium:
Room 3 / 4  ESC/EACTS Guidelines for Revascularisation
Chairs: Professor David Taggart/Professor Keith Fox/Professor Roger Boyle

13:30  Introduction
  Professor David Taggart-President SCTS, Co-Author ESC/EACTS Guidelines

13:35  The Role for PCI
  Professor Kolh, Cardiac Surgeon Liege, Belgium, Co-Author ESC/EACTS Guidelines
13:55  The Role for Surgery  
*Dr Wijns, Cardiologist Aalst, Belgium, Co-Author ESC /EACTS Guidelines*

14:15  The Impact on UK Cardiology  
*Professor Keith Fox, Edinburgh, President of Cardiac Society*

14:30  How do we go forward?  
*Dr Mark DeBelder, President British Society for Interventional Cardiology*

14:45  The Patient’s Perspective  
*Mr David Geldard, MBE, Patient Representative SCTS and BCIS*

14:50  Concluding remarks and discussion  
*Professor Roger Boyle, CBE, National Clinical Lead for Heart Disease and Stroke*

14:00-14:30  Exhibitors Meeting  
*Room 7, Chairs: Mr Simon Kendall/Mr Ian Wilson*

13:30-15:00  Congenital Cardiac Surgery-Abstracts / Hunterian Lecture  
*Room 5, Chairs: Mr Andrew Parry /Mr Nelson Alphonso*

**The Hunterian Lecture:** Mr Mazyar Kanani  
Congenital Cardiac Surgery in the Modern Era: Integrating Form and Function in the Repair of the Atrioventricular Septal Defect

14:00  Effect of Normothermic Cardiopulmonary Bypass on Renal Injury in Paediatric Cardiac Surgery: a Randomized Controlled Trial  
N Patel; S. Bays; A. Pawade; A. Parry; S. Suleiman; G.D. Angelini; M. Caputo  
Bristol Heart Institute, University of Bristol, United Kingdom

14:10  Cardiac Surgery and Veno-Arterial Extracorporeal Membrane Oxygenation [ECMO]. A Single Centre Experience  
A. Khosravi; A. Capuani; A. Noah; R.K. Firmin; G.J. Peek  
Glenfield Hospital, United Kingdom

14:20  Atrial septal defect and patent foramen ovale closure are associated with a reduced prevalence of atrial tachyarrhythmia: a meta-analysis  
O.A. Jarral¹, S. Saso², J.A. Vecht³, C. Rao⁺, M.A. Gatzoulis; T. Athanasiou²  
1 Department of Biosurgery and Surgical Technology, St. Mary’s Hospital, Imperial College London; 2 Department of Cardiothoracic Surgery, National Heart and Lung Institute, Imperial College London, The Hammersmith Hospital
The Outcome of 278 Cases of Atrial Isomerism Heart: Transition of Surgical Strategy in Three Decades
H Ichikawa; K.K. Kagisaki; T.H. Hoashi; I.S. Shiraishi
National Cerebral and Cardiovascular Center, Japan

An Ovine Model of Postoperative Dilated Right Ventricular Outflow Tract and Pulmonary Insufficiency
J.D. Robb¹, M.A. Harris², M. Minakawa¹, K. Koomalsingh³, A. Jassar¹, A.C. Glatz², J.J. Rome², R.C. Gorman¹, J.H. Gorman², M.J. Gillespie²
¹ University of Pennsylvania, USA; 2 Children’s Hospital of Philadelphia, USA

Right Ventricular Outflow Tract Cryoablation for Ventricular Tachycardia in Patients undergoing Pulmonary Valve Replacement
TS Khan¹, J. Kadlec², S. Congiu³, M. Blackburn³, K. English³, N. Weerasena³
¹ Department of Congenital Cardiac Surgery, United Kingdom; 2 Norfolk and Norwich University Hospital, United Kingdom; 3 Leeds General Infirmary, United Kingdom

Sildenafil Citrate, a Phosphodiesterase-5 Inhibitor, prevents Post Cardiopulmonary Bypass Acute Kidney Injury
N. Patel¹, H. Lin¹, T. Toth², C. Jones¹, P. Ray³, G.I. Welsh⁴, S.C. Satchell⁴, G.D. Angelini¹, G.J. Murphy¹
¹ Bristol Heart Institute, University of Bristol, United Kingdom; 2 Department of Histopathology, North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom; 3 Department of Anaesthesia & Critical, Weston General Hospital, Weston Super Mare, United Kingdom; 4 Academic Renal Unit, University of Bristol, Southmead Hospital, Bristol, United Kingdom

Hypercholesterolaemia Protects against Cardiopulmonary Bypass induced Endothelial Dysfunction and Acute Kidney Injury
P. Sleeman¹, N. Patel¹, C. Jones¹, H. Lin¹, T. Toth², P. Ray³, G.I. Welsh⁴, S.C. Satchell⁴, G.D. Angelini¹, G.J. Murphy¹
¹ Bristol Heart Institute, University of Bristol, United Kingdom; 2 Department of Histopathology, North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom; 3 Department of Anaesthesia & Critical Care, Weston General Hospital, Weston Super Mare, United Kingdom; 4 Academic Renal Unit, University of Bristol, Southmead Hospital, Bristol, United Kingdom
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<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>Institution</th>
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<tr>
<td>15:50</td>
<td>121</td>
<td>Increased Preoperative B-Type Natriuretic Peptide Levels Predict Early Clinical Outcomes and Midterm Survival After Aortic Valve Replacement</td>
<td>A. Miceli; A.G.C. Cerillo; D.G. Gilmanov; E.V. Varone; G.C. Concistrè; F.C. Chiaramonti; T.G. Gasbarri; S.B. Bevilacqua; P.A.F. Farneti; M.G. Glauber</td>
<td>Fondazione G. Monasterio CNR-regione Toscana, Italy</td>
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<td>16:00</td>
<td>122</td>
<td>Predictive Value of Nt-proBNP in the Occurrence of Postoperative Atrial Fibrillation in Cardiac Surgery with Cardiopulmonary Bypass</td>
<td>M.H. Ben Soltana; S. Kalleb; R. Barkia; S. Ghariani; K. Ghrairi; S. Akrouit; A. Karouit; I. Frikha; Z. Triki</td>
<td>Academic Medical Center Habib Bourguiba of SFAX, Tunisia</td>
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<td>16:10</td>
<td>123</td>
<td>Peri-Adventitial Human Stem Cells for the Prevention of Vein Graft Disease in Pig Vein-into-Artery Interposition Grafts</td>
<td>D. Wei-Chun Huang; G. Newby; A.C. Newby; G.J. Murphy</td>
<td>Bristol Heart Institute, United Kingdom</td>
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<td>16:20</td>
<td>124</td>
<td>Regeneration of α-Adrenergic Receptors following Phenoxybenzamine Treatment in the Human Radial Artery</td>
<td>R. Warwick; M. Shackcloth; A. Oo</td>
<td>Liverpool Heart and Chest Hospital, United Kingdom</td>
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<td>16:30</td>
<td>125</td>
<td>Estimation of Coronary Artery Strain from the Natural Torsional Frequency of Long Saphenous Vein and its Relationship with Coronary Artery Disease</td>
<td>L. John</td>
<td>Kings College Hospital, United Kingdom</td>
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<td>15:30-16:40</td>
<td>126</td>
<td>Congenital Cardiac Surgery-Management of the Bicuspid Aortic Valve</td>
<td>Chairs: Mr Andrew Parry/Professor Sir Magdi Yacoub</td>
<td>Room 5</td>
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<td>15:30</td>
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<td>Genetics/Histology/Morphology of the Aorta and Aortic Valve</td>
<td>Mr Nelson Alphonso, Congenital Surgeon, Liverpool</td>
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<td>15:45</td>
<td>126</td>
<td>Selective Replacement of the Ascending Aorta and Non-Coronary Sinus of Valsalva (Hemi-Root) for Bicuspid Aortic Valve Associated Aortopathy</td>
<td>M.M. Sabetai; G. Belitsis; M. Petrou</td>
<td>Royal Brompton &amp; Harefield NHS Foundation Trust, United Kingdom</td>
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<td>15:55-16:15</td>
<td></td>
<td>Surgery; When / Surgical Options / Valve sparing</td>
<td>Professor Lars Svensson, The Cleveland Clinic</td>
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16:15-16:30  **Surgery - a Different Perspective**  
Mr Tim Jones, Congenital Surgeon, Birmingham

16:30-16:45  **Discussion**

15:30-16:40  **Cardiothoracic Forum**  
Room 2  
*Chairs: Mr Edward Brackenbury / Mr Neville Rumsby*

15:30  127  **Nursing Care of Spinal Drains Following Aortic Surgery**  
J. Doolan; M. L. Field; M. Kuduvalli; A. Oo; J. Kendall; M. Desmond  
Liverpool Heart and Chest Hospital, United Kingdom

15:45  128  **Pain Control in Cardiac Surgery Patients: Prospective Study of Intrathecal Morphine versus Patient-Controlled Analgesia**  
R. Haris Bilal; N. Nazeakor; M. N. Bittar; J. Zacharias; R. Millner; P. Saravanan; D. Ngaage  
Blackpool Victoria Hospital, United Kingdom

16:00  129  **How Good is Your Local Anticoagulation Clinic? Audit of Time in Therapeutic Range of Patients Discharged on Oral Anticoagulation Therapy**  
I. Ahmed; A. Foster; S. Asopa; S. Hunter  
James Cook University Hospital, United Kingdom

16:15  130  **Introduction of an End of Life Care Process**  
L. Truesdale; T. Williamson; K. Mouats  
Golden Jubilee National Hospital, United Kingdom

15:30-16:40  **Thoracic Miscellaneous**  
Room 1  
*Chairs: Mr Joe Zacharias/Mr Mike Shackcloth*

15:30  131  **Flat Trachea Syndrome-Under-Diagnosed and Under-Treated?**  
G. Niranjan; J. K. Marzouk  
University Hospital of Coventry & Warwickshire, United Kingdom

15:40  132  **Digital Chest Drains Expedite Patient Recovery and Discharge after Thoracic Surgery-Single Centre Experience**  
I. Srinivasan; A. Alzetani; D. Danitsch; A. Lea; S. Ghosh  
University Hospital North Staffordshire, United Kingdom

15:50  133  **Does use of VAT Port Sites for Chest Drains Increase Complications Post-Operatively?**  
E. Ward¹, S. Barnard²  
¹ Sunderland Royal Hospital, United Kingdom; ² Freeman Hospital, United Kingdom
16:00 134 Single Centre Experience with Mediastinal Masses over Ten Years
R. Birla; S. Hosmane; V. Tentzeris; A. Khaksarian; Y. Awan; A. Marchbank; J. Unsworth-White; J. Rahamim
Derriford Hospital, United Kingdom

16:10 135 Thoracoscopic Thyroidectomy—a Novel Approach to the Retrosternal Goitre
S.I.A. Rizvi¹, A. Pajaniappane², K. Lau², I. Oey², N. London³, D.A. Waller⁴
1 Glenfield Hospital, United Kingdom; 2 Glenfield Hospital Leicester, United Kingdom; 3 Leicester General Hospital, United Kingdom

16:20 136 Does Extrapleural Pneumonectomy have any Role in the Treatment of Malignant Mesothelioma after MARS Trial?
Q. Syed SA; M. Loubani; M. Chaudhry; A. Cale; M. Cowen
Castle Hill Hospital, United Kingdom

15:30-16:40 Cardiac Surgery
Room 3 / 4 Chairs: Mr Mark Pullan/Mr Enoch Akowuah

15:30 137 Contemporary Outcomes of Urgent CABG flowing NSTEMI; Urgent CABG Consistently Out Performs GRACE Predicted Survival
E. Senanayake; J. Evans; N.J. Howell; R.S. Bonser; U. Dandekar; J. Mascaro; T.R. Graham; S.J. Rooney; I.C. Wilson; D. Pagano
Queen Elizabeth Hospital, United Kingdom

15:40 138 Reappraisal of Coronary Endarterectomy: 20 Year Survival of 956 Patients Undergoing 338 LAD and 562 RCA Endarterectomies
S.C. Papaspyros; K. Javangula; P. Ariyaratnam; A. Petsa; R.U. Nair
Leeds General Infirmary, United Kingdom

15:50 139 Contemporary Use of On-Pump and Off-Pump CABG in the Arterial Revascularisation Trial (ART)
D.P. Taggart¹, f.o.r. ART Investigators²
1 John Radcliffe Hospital, United Kingdom; 2 Royal Brompton Hospital, United Kingdom

16:00 140 A Randomised Controlled Trial of Median Sternotomy vs. Anterolateral Left Thoracotomy in Off-Pump Coronary Artery Bypass Surgery (the STET trial)
C.S. Rogers; K. Pike; D. Kounali; B.C. Reeves; S. Tomkins; L. Culliford; G.D. Angelini; G.J. Murphy
Bristol Heart Institute, United Kingdom

16:10 The Current and Future Status of OPCAB in Revascularisation
Dr John Puskas
Emory University, Atlanta GA, USA
The following films will be shown continually in the foyer area of the conference:

141  **En Bloc Resection for Lung Cancer with Chest Wall Invasion via the Chest Wall Resection Site. How to Do it?**
E. Addae-Boateng¹, S.H. Dasanayake Mudiyanselage², N. Johnstone², K. Pointon², A.E. Martin-Ucar²
1 Nottingham University Hospitals NHS Trust, United Kingdom; 2 Nottingham City Hospital, United Kingdom

142  **Left Anterior Descending Artery Endarterectomy by Hydrodissection**
S. Papaspyros; K.C. Javangula; R.U. Nair
Leeds General Infirmary, United Kingdom

143  **An Alternative Approach for Valve Sparing Aortic Root Stabilisation in Acute Aortic Dissection Type A**
M. Shrestha; N. Khaladj; C. Hagl; A. Haverich
Hannover Medical School, Germany

144  **Aortic Arch Replacement for False Aortic Aneurysm after Catheter Induced Injury**
M. Shrestha; O. Teebken¹, N. Khaladj; C. Hagl; A. Haverich
1 Hannover Medical School, Germany

145  **Redo Aortic Root Surgery: a Technical Challenge**
M. Shrestha; N. Khaladj; N. Koigeldiyev; C. Hagl; A. Haverich
Hannover Medical School, Germany

146  **A Simple Set up for Minimally Invasive Mitral Valve Surgery**
M. Solinas; M. Moscarelli; R. Casula; R.P. Punjabi; F.M. Ryba; G. Angelini
Imperial College of London Hammersmith Hospital, United Kingdom

16:45-18:15  **EWTD Symposium**
Room 3 / 4  
*Chairs: Professor Marjan Jahangiri/Mr Chris Munsch/Mr Steve Livesey*

16:45  **Introduction-Professor Marjan Jahangiri**

16:55  **The Truth and Myths of EWTD Legislation. The Evidence for Health and Safety**
*Ms Rona Miller, Head of HR, University Hospitals of Birmingham*

17:10  **Impact on Cardiothoracic Surgical Training: Competence of ST8s and their Performance as Consultants.**
*Mr Steve Livesey. Chair SAC, Cardiothoracic Surgery*

17:20  **Experience of Trainees-Ms Betsy Evans. ST8**
*Elected Trainee Representative*
17:30  Quality and Continuity of Care for the Patient-the Changing Surgical Team-Tara Bartley. Nursing Representative SCTS

17:45  The Influence of the College of Surgeons. 
Mr. John Black, President of the Royal College of Surgeons, England

18:05  Closing remarks and Discussion 
Mr Chris Munsch, Chairman JCST

18:15-18:30  Presentation Meeting 
Zinc 
Chair: Mr Simon Kendall

19:15-23:59  Annual Dinner 
Thames River Cruise 
Transport will be leaving near the Western Gateway entrance of ExCel at 1915
**Wednesday, March 23, 2011**

09:00-10:30  **Board of Representatives**  
South Gallery  
ExCel  
*Chairs: Professor David Taggart/Mr Graham Cooper*

10:30-11:00  Coffee  
South Gallery  
ExCel

11:00-12:30  **Board of Representatives**  
South Gallery  
ExCel  
*Chair: Professor David Taggart*
Annual Meeting, London

March 20 - 22 2011
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Forum Programme

Monday, March 21, 2011

08:45-10:00  Multidisciplinary Shared Session With Papers From Science, Nursing And Surgical Care Practitioners
Room 3/4

Chairs: Professor D Taggart (President, SCTS), Tara Bartley, (Nursing Representative, SCTS) & Tobias Rankin (President, ACSA)

08:50-09:00  The National Lottery for Lung Cancer Surgery-is ‘Hub-and-Spoke’ the Missing Ticket?
K. Lau¹, D.A. Waller¹, S. Rathinam¹, M.D. Peake²
1 Glenfield Hospital, United Kingdom; 2 National Cancer Intelligence Network, United Kingdom

09:00-09:10  The Development and Validation of a Model to Assess Total Morbidity Burden after Cardiac Surgery
J. Sanders¹, B.E. Keogh³, J. Van der Meulen³, J.P Browne⁴, T. Treasure¹, M.G. Mythen⁵, H.E. Montgomery¹
1 University College London, United Kingdom; 2 Department of Health, United Kingdom; 3 Royal College of Surgeons, United Kingdom; 4 University College Cork, Ireland; 5 University College London and University College London Hospitals, United Kingdom

09:10-09:20  Duration of Red Cell Storage and Acute Kidney Injury following Cardiac Surgery
N.Patel¹, H. Lin¹, T. Toth², P Ray³, G.I. Welsh⁴, S.C. Satchell⁴, R. Cardigan⁵, G.D. Angelini⁴, G.J. Murphy¹
1 Bristol Heart Institute, University of Bristol, United Kingdom; 2 Department of Histopathology, North Bristol NHS Trust, Southmead Hospital, Bristol, United Kingdom; 3 Department of Anaesthesia and Critical Care, Weston General Hospital, Weston Super Mare, United Kingdom; 4 Academic Renal Unit, University of Bristol, Southmead Hospital, Bristol, United Kingdom; 5 NHS Blood and Transplant Service, Cambridge, United Kingdom

09:20-09:30  Post-Operative Outcomes in Patients Managed with INVOS - a Prospective Audit
S. Bennett¹, C.M. Haworth¹, M. Bennett², D. Walsh³, R. Bennett¹
1 Castle Hill Hospital, United Kingdom; 2 University of Newcastle, United Kingdom; 3 Hull York Medical School, United Kingdom
09:30-09:40  Excellent Biventricular Function Following Heart Transplantation from DCD Donors
A. Ali¹, B. Xiang², P. White³, T. Lee⁴, S. Tsui⁵, E. Ashley⁶, R. Arora⁷, S.R. Large¹, G. Tian², D. Freed⁴
1 Papworth Hospital, United Kingdom; 2 National Research Council, Canada; 3 Addenbrookes Hospital, United Kingdom; 4 St. Boniface Hospital, Canada; 5 Stanford University Medical Center, USA

09:40-09:50  Outcome Following Thoracic Surgery: The Role of Preoperative Chlorhexidine Mouthwash in the Prevention of Post Operative Pneumonia
C.A. Efthymiou¹, R. Milton², K. Abbas¹
1 Department of Thoracic Surgery, St, James’s University Hospital, Leeds, United Kingdom; 2 St, James’s University Hospital, Leeds, United Kingdom

09:50-10:00  True Inter-Professional Working: A Combined Rota for Junior Doctors, Cardiac Surgical Care and Nurse Practitioners
D.A. Tragheim; G. Chilton; G. Cooper
Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom

10:00-10:45  Tea and coffee

10:45-11:40  Chairs: Sir Bruce Keogh (Medical Director NHS), / Ms Christina Bannister, Deputy Nursing Representative, SCTS
Room 2
Opening Remarks
Tara Bartley, Nursing Representative, SCTS

10:55-11:10  Key Note Speaker Opening Remarks
Andrea Spyropoulos, President of the RCN

11:10-11:40  The NHS; the implications of the current changes
Sir Bruce Keogh, Medical Director of the NHS

11:45-12:30  Heart Research UK Presentation, Joint Session
Room 3/4

12:30-13:30  Lunch

13:30-15:00  Address by the Secretary of State Rt. Hon. Andrew Lansley and UK Activity, Joint Session

15:00-15:45  Tea and coffee
15:45-16:15  Trauma and first line management prior to the hospital setting  
Mr. R Steyn, Thoracic Surgeon, Heartlands Hospital, Birmingham

16:15-16:30  Paper 1: Developing a Multidisciplinary Complex Pre and Post Operative Intervention to Reduce Complications and Enhance Recovery after Lung Resection Surgery  
M.Z. Abdelaziz; A. Bradley; P. Agostini; K. Nagarajan; E. Bishay; M.S. Kalkat; R.S. Steyn; R.B. Rajesh; B. Naidu  
Birmingham Heartland Hospital, Heart of England NHS Foundation Trust, United Kingdom

16:30-16:45  Paper 2: The Introduction of Standardised Guidelines for Talc Pleurodesis into a Cardiothoracic Unit  
C. Badger; J. Asante-Siaw  
University Hospitals Coventry and Warwickshire, United Kingdom

16:45-17:00  Paper 3: Impact of a Nurse-Led Clinic in Thoracic Surgery  
S.H. Williams; J.G.E. Williams; M. Bibi; P. Tcherveniakov; R. Milton  
St James’s University Hospital, Leeds, United Kingdom

**Tuesday, March 22, 2011**

Room 2  
Chairs: Mr David O’Regan, Consultant Surgeon, Leeds General Infirmary/ Ms Helen Munday, Lead Nurse, Practice Development, Papworth Hospital

08:45-09:15  WHO Checklist - Surgical safety checklists; it is worth the effort!  
Mr Stephen Clark, Cardiothoracic Surgeon, Freeman Hospital, Newcastle

09:15-09:30  Paper 4: The Missing Link: The Role of the Cardiac Surgical Care Practitioner in Bridging the Service-Training Gap  
A. Hayden Walker; S.E. Deacon; L. Hadjinnikolaou  
Glenfield Hospital, United Kingdom

09:30-09:45  Paper 5: Prioritising Non-Elective Patients: Do They All Need to Wait in Hospital?  
C. Bannister¹, S.A. Livesey²  
¹ Southampton University Hospital NHS Trust, United Kingdom; ² Southampton General Hospital, United Kingdom
09:45-10:00  **Paper 6: The Impact of the Post-Operative ‘Fast-Track’ Protocol on Patient Management and Outcomes Following Cardiac Surgery**
A. Sharkey; G. Chetty, Northern General Hospital, United Kingdom

10:00-10:45  **Tea and Coffee**

10:45-11:15  **Chairs: Mr Ben Bridgewater, Consultant Surgeon, Wythenshawe & Kelly Ann Prime, Pre-Admission Nurse, UCLH NHS Foundation Trust**

**Measuring quality outcomes, what this mean**
Mr. G Bolger, Former programme director quality in nursing care and outcomes Chief Nursing Officer’s Team

11:15-11:45  **National Cardiac Benchmarking Collaborative**
Dr Rebecca Miles

11:45-12:00  **Paper 7: Minimising Patient Morbidity - The Next Challenge for Cardiothoracic Surgery**
C. Tennyson; D.J. McCormack; S. Ibrahim; P. Lohrmann; A.R. Shipolini The London Chest Hospital, United Kingdom

12:00-12:15  **Paper 8: Secondary Prevention following Coronary Artery Bypass Grafting: Are we Compliant with the Guidelines?**
V. Joshi; B. Bridgewater University Hospital of South Manchester, United Kingdom

12:15-12:30  **Paper 9: A Survey of Quality of Life Following Surgery for Malignant Pleural Mesothelioma Reflects the Patients’ Commitment to Learning about the Disease**
D. Raffle; A. Barua; A.E. Martin-Ucar
Nottingham City Hospital, United Kingdom

12:30-13:30  **Lunch**

**Chairs: Mr Tim Graham, Consultant Cardiac Surgeon, Queen Elizabeth Hospital, Birmingham/Mr Ian Mitchell Consultant, Cardiac Surgeon/Mr Tony Gelsthorpe, Critical Care Practitioner, Trent Cardiac Centre, City Hospital, Nottingham, United Kingdom**

13:30-13:45  **Regulation and Standardisation at Advanced Levels of Nursing Practice for Patient Safety and Public Protection**
Jenny Aston, Advance Nurse Practitioner Forum

13:45-14:00  **Paper 10: True Inter-Professional Working: A Combined Rota for Junior Doctors, Cardiac Surgical Care and Nurse Practitioners**
D.A. Tragheim; G. Chilton; G. Cooper Sheffield Teaching Hospitals NHS Foundation Trust, United Kingdom
14:00-14:15  **Paper 11:** Nurse Practitioners (NPs) can safely provide Sole Resident Cover for Cardiac Intensive Care Units (CICU)
*P. Nanjaiah; H. Skinner; R.S. Jutley; I.M. Mitchell; S. McCartney; D. Richens*
City Hospital, Nottingham, United Kingdom

14:15-14:30  **Paper 12:** Reflection on the Implementation of a Nurse Practitioner Training Programme in a Large Cardiothoracic Surgical Unit
*S. Laidler; F. Thompson; L. Clarke; R. MacFarlane; S. Naden; G. Newberry; S.A. Stamenkovic*
Newcastle upon Tyne Hospitals NHS Foundation Trust, United Kingdom

14:30-14:45  **Paper 13:** The Role of Nurse-led Post-Operative Cardiac Clinics: a Fifteen Month Experience in Wales
*A. Parkes; M. Jenkins; D. Mehta*
University Hospital of Wales, United Kingdom

14:45-15:00  **Paper 14:** Innovative and Practical Approach to Multidisciplinary Teaching in the Area of Thoracic Surgery using Simulation Techniques
*P. Agostini; T. Starkey-Moore; S. Rathinam; B. Naidu; R. Steyn; E. Bishay; M. Kalkat; P. Rajesh*
Heartlands Hospital, United Kingdom

15:00-15:30  Tea and Coffee

15:30-15:45  **Paper 15:** Nursing Care of Spinal Drains Following Aortic Surgery
*J. Doolan; M.L. Field; M. Kuduvalli; A. Oo; J. Kendall; M. Desmond*
Liverpool Heart and Chest Hospital, United Kingdom

15:45-16:00  **Paper 16:** Pain Control in Cardiac Surgery Patients: Prospective Study of Intrathecal Morphine versus Patient-Controlled Analgesia
*R. Haris Bilal; N. Nazeakor; M.N. Bittar; J. Zacharias; R. Millner; P. Saravanan; D. Ngaage.*
Blackpool Victoria Hospital, United Kingdom

16:00-16:15  **Paper 17:** How Good is Your Local Anticoagulation Clinic? Audit of Time in Therapeutic Range of Patients Discharged on Oral Anticoagulation Therapy
*Ishtiaq Ahmed; A. Foster; S. Asopa; S. Hunter*
James Cook University Hospital, United Kingdom
16:15-16:30  **Paper 18: Introduction of an End of Life Care Process**  
L. Truesdale¹, T. Williamson², K. Mouats²  
1 Golden Jubilee National Hospital; 2 Golden Jubilee National Hospital, United Kingdom  

16:30-16:40  **Closing Remarks**  
*Tara Bartley, Nursing Representative, SCTS*  

16:45-18:15  **EWTD Symposium**  
*Chairs: Professor Marjan Jahangiri/Mr Chris Munsch/Mr Steve Livesey*  

16:45  **Introduction**  
*Professor Marjan Jahangiri*  

16:55  **The Truth and Myths of EWTD Legislation. The Evidence for Health and Safety**  
*Ms Rona Miller, Head of HR, University Hospitals of Birmingham*  

17:10  **Impact on Cardiothoracic Surgical Training - Competence of ST8s and their Performance as Consultants**  
*Mr Steve Livesey, Chair SAC, Cardiothoracic Surgery*  

17:20  **Experience of Trainees**  
*Ms Betsy Evans, ST8 Elected Trainee Representative*  

17:30  **Quality and Continuity of Care for the Patient - the Changing Surgical Team**  
*Tara Bartley, Nursing Representative SCTS*  

17:45  **The Influence of the College of Surgeons**  
*Mr. John Black, President of the Royal College of Surgeons, England*  

18:05  **Closing remarks and Discussion**  
*Mr Chris Munsch, Chairman JCST*  

Poster presentations will be displayed in the registration area  

**2011 Annual Dinner, The Silver Sturgeon River Boat Trip**  

1915 Transport to leave ExCel  
1940 Embarkation at Canary Wharf  
2300 Return to ExCel
Society for Cardiothoracic Surgery in Great Britain and Ireland

Annual Meeting, London

March 20 - 22 2011
Excel Centre

ABSTRACTS
SURGERY IS CHANGING, STANDARDS ARE NOT.

GOLD STANDARD PROCEDURE, GOLD STANDARD PERFORMANCE.

INVESTIGATIONAL DEVICE

SORIN PERCEVAL S
SELF-ANCHORING HEART VALVE

For Surgeons
001 Esmolol-Adenosine Cardioplegia: Anti-Ischaemic Additives Enhance Protection

Authors: E. Teh¹, H.B. Fallouh¹, J.C. Kentish², D.J. Chambers¹

1 St Thomas’ Hospital; 2 King’s College London

Objectives: We previously reported a novel esmolol-adenosine cardioplegia (EAC) as a clinically relevant ‘polarising’ cardioplegic solution that improved cardioprotection compared to the ‘depolarising’ St Thomas’ Hospital cardioplegia. We hypothesised that anti-ischaemic additives to EAC might further enhance the protection. We therefore conducted dose-response studies for magnesium or 2,3-butanedione monoxime (BDM) added to EAC.

Method: Isolated Langendorff-perfused rat hearts (n=6 per group) were equilibrated (20 min) and control function (left ventricular developed pressure: LVDP) measured. They were then arrested with multiple infusions (2 min every 30 min) of EAC alone, EAC plus Mg²⁺ (5, 10 or 15 mM), or EAC plus BDM (2.5, 5 or 10 mM), and were subjected to 90 min global ischaemia followed by 60 min reperfusion. Optimal doses of Mg²⁺ and BDM were then combined as additives to EAC. Recovery of function was normalised (%) to control; ANOVA and Tukey’s post-hoc tests were used for statistical analysis, with p<0.05 considered significant.

Results: Dose-response studies demonstrated that addition of 10 mM Mg²⁺ to EAC significantly (p<0.05) improved recovery of LVDP compared with EAC alone, as did the addition of BDM at concentrations of 5 and 10 mM (see Table). Using the optimum concentrations of Mg²⁺ (10 mM) and BDM (5 mM) to EAC had a synergistic effect, with a further improvement in recovery.

Conclusions: Efficacy of EAC was enhanced by addition of the anti-ischaemic agents, magnesium and BDM. Magnesium is a natural calcium-channel blocker and may be acting synergistically with the calcium-channel blocking effect inherent in esmolol. BDM targets the myofibrils as a calcium desensitiser, and prevents interaction between myosin and actin. Using EAC with magnesium and BDM influences all potential arrest targets in the myocardial cell, and may be a novel and beneficial alternative to depolarising cardioplegic solutions for myocardial protection during cardiac surgery.

<table>
<thead>
<tr>
<th>Additive</th>
<th>Mg (mM)</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>-</th>
<th>-</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDM (mM)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2.5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Final LVDP (% control)</td>
<td>30±6</td>
<td>49±2</td>
<td>57±4*</td>
<td>53±6</td>
<td>53±2</td>
<td>65±4*</td>
<td>59±5*</td>
</tr>
<tr>
<td>Recovery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

*p<0.05 vs. EAC alone
002 Does Remote Ischaemic Pre-Conditioning Provide Second Window Endothelial Protection in Humans?

Authors: S. Arif¹, B. Ladak¹, I. Rahman², R. Beadle¹, M.P. Frenneaux³, R.S. Bonser²

1 University of Birmingham; 2 University Hospitals Birmingham; 3 University of Aberdeen

Introduction: Remote ischaemic pre-conditioning (RIPC) may protect against ischaemia-reperfusion injury (IRI) immediately and as a second window of protection 24 hours post-ischaemia. Clinical studies have demonstrated immediate protection but 2nd window protection has yet to be demonstrated. We investigated whether RIPC affords IRI endothelial protection during both windows.

Methods: 18 healthy, non-smokers (mean age 21±0.6 years) attended on 4 occasions in random order for a) the ischaemic insult (IMI) alone (20-minute occlusion of the non-dominant arm), b) IMI plus remote stimulus (three x 5-minute occlusions of the dominant leg during IMI), c) IMI plus remote stimulus 24 hours before and placebo (no intervention). Fifteen minutes post-IMI, endothelial function was measured by venous occlusion plethysmography with acetylcholine infusion (ACh). FBF was expressed as the mean ratio of flow in the infused/non-infused arm (FBF_r).

Results: There was a significant rise from baseline in FBF_r in all groups, in response to ACh (table 1). Peak FBF_r following the IMI+early RIPC compared to IMI was significant (#table 1, p=0.019). No difference was seen for the 2nd window of protection.

<table>
<thead>
<tr>
<th>Acetylcholine dose (nanomol/min)</th>
<th>Control (FBF_r)</th>
<th>IMI (FBF_r)</th>
<th>IMI+early RIPC (FBF_r)</th>
<th>IMI+late RIPC (FBF_r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1.2 (0.9-1.3)</td>
<td>1.3 (1.0-1.5)</td>
<td>1.2 (1.0-1.3)</td>
<td>1.2 (0.9-1.4)</td>
</tr>
<tr>
<td>100</td>
<td>3.9 (3.0-5.7)*</td>
<td>3.8 (2.2-4.8)*</td>
<td>5.0 (3.3-6.7)*†</td>
<td>4.0 (2.2-5.8)*</td>
</tr>
</tbody>
</table>

Data expressed as median (IQR); *p<0.0001 compared to baseline; †p=0.019 compared to FBF_r at peak acetylcholine dose following ischaemia alone.

Conclusions: RIPC immediately before IMI affords endothelial protection. However, there is no evidence of 2nd window protection in this human study.
Anti-Ischaemic Agent, Ranolazine: Cardioplegic Friend or Foe?

**Authors:** A.J. Chambers¹, H.B. Fallouh², R. Leslie², J.C. Kentish³, D.J. Chambers²

1 Brighton and Sussex Medical School; 2 St Thomas’ Hospital; 3 King’s College London

**Objectives:** Ranolazine is an anti-ischaemic agent that is thought to inhibit the late (persistent) sodium current, preventing calcium overload and reducing energy utilisation. Our previous work into a novel ‘polarising’ Esmolol-Adenosine cardioplegia (EAC) demonstrated improved cardioprotection over the ‘depolarising’ St. Thomas’ Hospital cardioplegia (STC). We hypothesised that addition of ranolazine to STC or EAC may enhance protection, providing evidence for this proposed mechanism of action.

**Method:** Isolated Langendorff-perfused rat hearts (n=4 per group) were arrested with STC or EAC (± 5 µM ranolazine) for 60 min, then reperfused with Krebs solution (60 min). Recovery of function (left ventricular developed pressure: LVDP) was normalised to pre-ischaemic control. ANOVA and Tukey’s post-hoc test were used for statistical analysis, with p<0.05 considered significant.

**Results:** Ranolazine added to STC improved recovery of LVDP by 41% (27±11 to 38±16%; p<0.05) compared to STC alone. Of the solutions tested, EAC alone exhibited the best recovery of LVDP (to 46% of control) but adding ranolazine to EAC reduced this recovery significantly.

**Conclusions:** During depolarised arrest (with STC), when the persistent sodium current is activated, addition of ranolazine was beneficial, suggesting reduction of sodium (and hence calcium) overload. Polarising arrest (with EAC) is unlikely to activate the persistent sodium current; hence, addition of ranolazine to EAC was ineffective. This study supports the suggestion that ranolazine acts via inhibiting the persistent sodium current, and that EAC arrests via a more polarised membrane potential. Ranolazine may provide a beneficial additive to depolarising cardioplegic solutions in current practice.

LVDP (% of pre-ischaemia control: mean±SEM

<table>
<thead>
<tr>
<th>Recovery Time (min)</th>
<th>5</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>STC</td>
<td>3±1</td>
<td>7±3</td>
<td>20±1</td>
<td>25±2</td>
<td>28±4</td>
<td>28±5</td>
<td>27±6</td>
</tr>
<tr>
<td>STC + R</td>
<td>21±8</td>
<td>24±9</td>
<td>32±11</td>
<td>39±9</td>
<td>38±8</td>
<td>39±9</td>
<td>38±8*</td>
</tr>
<tr>
<td>EAC</td>
<td>25±7</td>
<td>27±9</td>
<td>38±10</td>
<td>41±11</td>
<td>47±10</td>
<td>47±10</td>
<td>46±9*</td>
</tr>
<tr>
<td>EAC + R</td>
<td>22±6</td>
<td>23±7</td>
<td>28±8</td>
<td>33±8</td>
<td>34±8</td>
<td>36±8</td>
<td>36±7†</td>
</tr>
</tbody>
</table>

*(p<0.05) *(vs STC) †(vs EAC)
The Effect of Perhexilene on Myocardial Protection during Coronary Artery Surgery: A Two-Centre Randomised Double-Blind Placebo-Controlled Trial


1 Queen Elizabeth Hospital Birmingham; 2 University of Birmingham; 3 Royal Sussex County Hospital

Objectives: Perhexilene is a metabolic modulator that is thought to inhibit mitochondrial carnitine palmitoyltransferase, reducing fatty acid metabolism and increasing carbohydrate utilisation. We have previously shown that glucose-insulin-potassium (GIK) enhances myocardial protection during CABG through metabolic manipulation. This study assessed whether preoperative perhexilene improves clinical or biochemical markers of myocardial protection in these patients.

Methods: A prospective, randomised, double-blind, placebo-controlled trial of patients undergoing CABG was conducted at two centres. Patients were randomised to receive either perhexilene or placebo tablets for at least 5 days prior to surgery. Serial perioperative measurements of cardiac output and troponin-T were recorded. The primary outcome was a low cardiac output episode (LCOE) in the first 6 hours after removal of the aortic X-clamp, adjudicated by a blinded end-points committee. LCOE was defined as a cardiac index of <2.2L.min-1.m-2 in the presence of adequate preload, afterload and heart rate. All prespecified analyses were conducted according to the intention-to-treat principle; the trial had a statistical power of 90% to detect a relative risk of 0.5 with a conventional one-sided á-value of 0.025.

Results: 286 patients were randomised, received the intervention and included in the analysis. There were no important baseline differences between groups. The incidence of a LCOE in the perhexilene arm was 36.7% (51/139) versus 34.7% (51/147) in the control arm (OR 0.92, 95% CI 0.56-1.50, p=0.74). There were no significant differences in inotrope usage, ECG evidence of myocardial injury, peak troponin-T, reoperation, renal dysfunction or length of hospital stay.

Conclusions: Preoperative treatment with perhexilene does not improve myocardial protection in patients undergoing CABG. Unlike GIK, there is no benefit in the administration of the metabolic modulator perhexilene to these patients.
005 Warm Blood Cardioplegia with Low or High Magnesium for Coronary Bypass Surgery: A Randomized Controlled Trial

Authors: K.C. Santo¹, M. Caputo², G.D. Angelini², C. Fino³, M. Agostini³, C. Grossi³, M.S. Suleiman², B.C. Reeves²

1 University Hospital Coventry; 2 Bristol Heart Institute; 3 Ospedale S. Croce e Carle

Objectives: Magnesium (Mg2+) is cardioprotective and has been routinely used to supplement cardioplegic solutions during coronary artery bypass graft (CABG) surgery. However, there is no consensus about the Mg2+ concentration that should be used. The aim of this study was to compare the effects of intermittent antegrade warm blood cardioplegia supplemented with either low or high concentration Mg2+.

Methods: This study was a randomized controlled trial carried out in two cardiac surgery centres, Bristol UK and Cuneo Italy. Patients undergoing isolated CABG with cardiopulmonary bypass were eligible. Patients were randomized to receive warm blood cardioplegia supplemented with 5 or 16 mmol/L Mg2+. The primary outcome was postoperative atrial fibrillation. Secondary outcomes were serum biochemical markers (troponin I, Mg2+, potassium, lactate and creatinine) and time-to-plegia arrest. Intraoperative and postoperative clinical outcomes were also recorded.

Results: Data from 2 centres for 691 patients (342 low and 349 high Mg2+) were analysed. Baseline characteristics were similar for both groups. There was no significant difference in the frequency of postoperative atrial fibrillation in the high (32.8%) and low (32.0%) groups (risk ratio 1.03, 95% confidence interval, CI, 0.82 to 1.28). However, compared to the low group, troponin I release was 28% less (95% CI 55% to 94%, p=0.02) in the high Mg2+ group. 30 day mortality was 0.72% (n=5); all deaths occurred in the high Mg2+ group but there was no significant difference between the groups (p=0.06). Frequencies of other major complications were similar in the two groups.

Conclusions: Warm blood cardioplegia supplemented with 16 mmol/L Mg2+, compared to 5 mmol/L Mg2+, does not reduce the frequency of postoperative atrial fibrillation in patients undergoing CABG but may reduce cardiac injury.
Off Pump Coronary Revascularisation Better Preserves Immune Cells Compared to Cardiopulmonary Bypass

Authors: N.C. McGonigle¹, W.T. McBride¹, M. Armstrong², G. Campalani¹

1 The Royal Victoria Hospital, Belfast; 2 The Queen’s University of Belfast

Objectives: To establish if the immune system is better preserved in patients when revascularisation is performed off pump (OPCAB) when compared to that utilizing cardiopulmonary bypass (CPB).

Methods: Twenty-seven (17CPB, 10 OPCAB) patients undergoing first time coronary revascularisation were randomized to have the procedure performed as OPCAB or CPB. Samples of peripheral whole blood and bone marrow were collected at the times illustrated (table 1). Flow cytometry was performed on the prepared specimens to establish alterations in the populations of T lymphocytes, antigen presenting myeloid dendritic cells (mDCs) and plasmacytoid dendritic cells (pDCs), and monocytes.

Table1. Times of sample collection

<table>
<thead>
<tr>
<th>Time</th>
<th>Sample Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>T0</td>
<td>Blood</td>
</tr>
<tr>
<td>T2</td>
<td>Blood, Bone marrow</td>
</tr>
<tr>
<td>T3</td>
<td>Blood, Bone marrow</td>
</tr>
<tr>
<td>T5</td>
<td>Blood</td>
</tr>
</tbody>
</table>

Results: The T helper lymphocyte population remained constant in the OPCAB group whilst reduced in the CPB group, with significant differences at T2 (p=0.0395), T3 (p=0.0290) and T5 (p=0.0074). pDCs numbers remained constant in the OPCAB group and declined in the CPB group, remaining depressed at 48 hours after surgery (p=0.0061). Similarly, mDCs were reduced in the CPB group at T3 (p=0.0105) and remained constant in the OPCAB group. Surgery resulted in a reduction of circulating monocytes in the CPB group and this was not demonstrated in the OPCAB group. Bone marrow immune precursor cells were significantly increased in the OPCAB group during surgery (T2(p=0.0374) and T3(p=0.0091)) compared to the CPB group.

Conclusions: OPCAB surgery better preserves the number of circulating cells fundamental to immunological protection during the peri-operative period conferring an advantage to patients undergoing revascularisation by this technique.
007 The National Lottery for Lung Cancer Surgery - is ‘Hub-and-Spoke’ the Missing Ticket?

Authors: K. Lau¹, D.A. Waller¹, S. Rathinam¹, M.D. Peake²

¹ Glenfield Hospital; 2 National Cancer Intelligence Network

Objectives: The published data captured by the National Lung Cancer Audit (LUCADA) in 2008 identified a wide variation in resection rate in cancer networks in England and Wales (median 13.7%, range 5.2% to 31.8%). We tested the hypothesis that resection rate was related to the local caseload and local provision of general thoracic surgeons.

Methods: We correlated the LUCADA data with manpower data for this time period derived from multiple sources. During this period, 31 trusts provided the thoracic surgery service to 33 cancer networks comprising 174 trusts. Of these 31 trusts, 18 (58%) had less than 2 dedicated general thoracic surgeons and 13 had 2 or more (range 2-5).

Results: Of the 15,774 histologically confirmed cases of non-small cell lung carcinoma (NSCLC) recorded 2,240 (14.2%) underwent surgery. There was a trend towards lower resection rate in trusts with fewer histologically confirmed cases (p=0.06). Overall, trusts where surgery was conducted (base hospitals) had significantly higher resection rates than those where it was not (peripheral hospitals): median 20.0% vs 11.3% (p < 0.001). Similarly, within each cancer network, the resection rate was also significantly higher at base than at peripheral hospitals (median 18.5% vs 11.7%, p <0.001). Furthermore, the 13 base units served by 2 or more general thoracic surgeons had significantly higher resection rates than the remainder (median 21.4% vs 17.4%, p = 0.02).

Conclusions: These results support the centralisation of thoracic surgical services within a smaller number of specialist multidisciplinary teams containing several general thoracic surgeons discussing a larger volume of cases.
The Development and Validation of a Model to Assess Total Morbidity Burden after Cardiac Surgery

Authors: J. Sanders¹, B.E. Keogh², J. Van der Meulen³, J.P. Browne⁴, T. Treasure¹, M.G. Mythen⁵, H.E. Montgomery²

1 University College London; 2 Department of Health; 3 Royal College of Surgeons; 4 University College Cork; 5 University College London and University College London Hospitals;

Objectives: Low post-operative death rates make mortality an inadequate outcome measure. Since post-operative morbidity is more common, its measurement would be more sensitive. The Post-Operative Morbidity Survey (POMS, Bennett-Guererro et al. 1999) is the only prospective tool for standardised morbidity measurement in general surgical patients. No such tool exists in cardiac surgery. We sought to develop and validate a tool (C-POMS) for identifying morbidity post cardiac surgery.

Methods: Morbidity was prospectively assessed in 450 cardiac surgery patients on post-operative days 1, 3, 5, 8 and 15 using POMS criteria (presence/absence of infectious, pulmonary, cardiovascular, wound, haematological, pain, renal, gastrointestinal complication) and cardiac-specific variables (from expert panel). Other morbidities were noted as free-text. Items were considered for inclusion into C-POMS if prevalence >5%, missingness <5% and mean severity-importance index score >8 (derived from expert ratings on 5-point Likert scales). Item face validity and construct validity were assessed using expert panel review, Cronbach’s alpha (internal consistency) and linear regression to test predictive ability of C-POMS with LOS.

Results: Further to POMS, 175 additional morbidities were identified. Following item-reduction, C-POMS resulted in a 13 domain model: modified POMS categories plus new endocrine, electrolyte, review (clinical review/investigation) and assisted ambulation domains. Internal consistency (>0.7) on D3-D15 permits use of C-POMS as a summative score (0-13) to denote total morbidity burden. For every unit increase in C-POMS summary score there is a 1.7 (D3), 2.2 (D5), 4.5 (D8) and 6.2 (D15) increase in subsequent LOS (all p=0.000).

Conclusion: C-POMS is the first validated standardised tool for identifying total morbidity burden post cardiac surgery. It may find application in modelling causation, pre-operative risk assessment, and in identifying preventative and therapeutic targets.
009 Duration of Red Cell Storage and Acute Kidney Injury following Cardiac Surgery

Authors: N. Patel¹, H. Lin¹, T. Toth², P. Ray³, G.I. Welsh⁴, S.C. Satchell⁴, R. Cardigan⁵, G.D. Angelini¹, G.J. Murphy²

1 Bristol Heart Institute, University of Bristol; 2 Department of Histopathology, North Bristol NHS Trust, Southmead Hospital, Bristol; 3 Department of Anaesthesia and Critical Care, Weston General Hospital, Weston Super Mare.; 4 Academic Renal Unit, University of Bristol, Southmead Hospital, Bristol; 5 NHS Blood and Transplant Service, Cambridge

Objective: Clinical studies have demonstrated associations between allogenic red blood cell (RBC) transfusion and organ dysfunction, particularly acute kidney injury (AKI) in cardiac surgical patients, however causality has not been established. The aim of this study was to determine whether RBC transfusion has a causal effect on the development of AKI in a large animal experimental model of transfusion mediated organ injury.

Method: Adult White-Landrace pigs (50-70kg, n=22) were randomised to either Day 42 or Day 14 RBC transfusion or sham procedure. Perfusion pressure, central venous filling pressure and hydration were standardised. Endpoints included serial functional and biochemical measures of renal injury and endothelial function. All pigs were recovered for 24 hours prior to organ harvest and histological assessment. Mean differences (SD) presented in table

Results: Transfused pigs received 1000mls (4 units) of cross-matched allogenic leucodepleted RBC stored in SAG-M preservative for either 14 or 42 days. Accumulation of toxic metabolites within the supernatant as well as cellular changes showed considerable homology to those measured in SAG-M stored human RBC units. Day 42 RBC transfusion elicited AKI manifest by an 18% reduction in creatinine clearance, renal endothelial dysfunction manifest by an attenuation of the vasodilatory response to acetylcholine in the renal artery and cortical microvasculature, and medullary hypoxia at 24 hours. This was associated with significant platelet activation and inflammatory cell infiltrate in renal tissue. Administration of Day 14 RBC units prevented AKI by preserving creatinine clearance, renal endothelial function and medullary oxygen tension, and attenuating platelet activation and inflammatory cell infiltrate.

Conclusion: RBC storage duration is associated with adverse renal outcomes. Platelet activation represents a novel therapeutic target for the prevention of transfusion mediated organ injury in cardiac surgical patients.

<table>
<thead>
<tr>
<th></th>
<th>Sham (n=9)</th>
<th>D14 RBC Transfusion (n=5)</th>
<th>D42 RBC Transfusion (n=8)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine Clearance δ 24 hrs (ml/min)</td>
<td>+21.1 (11.6)</td>
<td>+23.0 (6.9)</td>
<td>-19.6 (2.9)**</td>
<td>0.022</td>
</tr>
<tr>
<td>Renal Blood Flow δ Post Ach (%)</td>
<td>+79.5 (15.1)</td>
<td>+95.6 (13.3)</td>
<td>+40.4 (6.2)**</td>
<td>0.021</td>
</tr>
<tr>
<td>Cortical Perfusion δ Post Ach (%)</td>
<td>+80.5 (11.9)</td>
<td>+59.2 (19.9)</td>
<td>+18.6 (12.1)**</td>
<td>0.028</td>
</tr>
<tr>
<td>Medullary Oxygen Tension at 24hrs (mmHg)</td>
<td>98.2 (14.2)</td>
<td>82.8 (3.7)</td>
<td>53.2 (7.1)**</td>
<td>0.031</td>
</tr>
<tr>
<td>Mean number of PAC (activated platelets) positive cells per mm² renal section</td>
<td>0 (0)</td>
<td>8.5 (3.3)*</td>
<td>28.7 (4.1)**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Mean number of MAC-387 (inflammatory cells) positive cells per mm² renal section</td>
<td>1.3 (0.9)</td>
<td>0.8 (0.5)</td>
<td>3.3 (1.2)**</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

* p<0.05 vs sham ** p<0.05 vs CPB
010 Post-Operative Outcomes in Patients Managed with INVOS - a Prospective Audit

Authors: S. Bennett\textsuperscript{1}, C.M. Haworth\textsuperscript{1}, M. Bennett\textsuperscript{2}, D. Walsh\textsuperscript{3}, R. Bennett\textsuperscript{1}

1 Castle Hill Hospital; 2 University of Newcastle; 3 Hull York Medical School

Objective: INVOS measures the regional cerebral oxygen saturation (rSO\textsubscript{2}) using infrared spectroscopy. An audit was conducted measuring neurocognitive outcomes and length of stay (LOS) in a cardiac surgery population in whom INVOS was used.

Gold Standard: Taking 100 consecutive patients prior to this audit as the standard, we wanted to be within 80% of this to determine if our INVOS management protocol was effective. This analysis established gold standard figures for mortality, LOS and stroke.

Method: 100 adult patients undergoing cardiac surgery involving cardiopulmonary bypass (CPB) and INVOS between August 2009 and March 2010 were studied. INVOS readings were recorded at 7 specific points: pre-operative on air, post-intubation and 5 times during surgery. Changes were made to management if the rSO\textsubscript{2} started to fall using our local protocol based on Murkin’s\textsuperscript{1}. Neurological and verbal assessments were done prior to discharge. Hospital mortality and LOS were recorded. Telephone follow up 6 months assessed general health, mood, memory, the presence of new stroke.

Results: Management of CPB was changed as a result of INVOS readings in 44 patients, anaesthetic/surgical management in 4 patients. 6 patients fell to critical INVOS values despite changes. Delayed extubation (n=6), post operative neurological deficit (n=2), hospital mortality (n=1) and permanent stroke (n=0). Median LOS 7 days. Table 1 compares these with the control group. Telephone follow up at 6 months was achieved in 96 patients showing good recovery with only one stroke and one death following discharge. Of those falling to critical INVOS values, 50% reported poor memory.

<table>
<thead>
<tr>
<th>Control (n = 100)</th>
<th>INVOS (n = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mortality</td>
<td>3</td>
</tr>
<tr>
<td>LOS (days)</td>
<td>9</td>
</tr>
<tr>
<td>Stroke</td>
<td>3</td>
</tr>
</tbody>
</table>

Conclusion: If we apply our gold standard, INVOS management improves mortality, LOS and neurological complications. This suggests that INVOS should be used routinely or that a randomized trial should now be undertaken.

References:

011 Excellent Biventricular Function Following Heart Transplantation from DCD Donors

Authors: A. Ali¹, B. Xiang², P. White³, T. Lee⁴, S. Tsui¹, E. Ashley⁵, R. Arora⁴, S.R. Large¹, G. Tian², D. Freed⁴

1 Papworth Hospital; 2 National Research Council; 3 Addenbrookes Hospital; 4 St. Boniface Hospital; 5 Stanford University Medical Center

Objectives: We have previously demonstrated that resuscitation of the DCD(donation after circulatory death) donor heart is followed by good metabolic and functional recovery. However, load-dependent measurement of cardiac function suggested impairment of right ventricular contractility. Our aim was to evaluate load-independent biventricular contractility before and after DCD heart transplantation.

Methods: Pigs (60 kg) were subjected to either brainstem death (BSD) or hypoxic cardiac arrest (DCD). In the DCD group resuscitation was achieved via ECMO reperfusion 15 minutes after circulatory arrest. Orthotopic transplantation was performed using hearts from both groups (n=5). Biventricular function before and after transplantation was assessed using the end-systolic pressure-volume relationship (ESPVR).

Results: Hearts transplanted from both groups demonstrated normal biventricular function with no significant difference in either the LV or RV ESPVR after transplantation. Mixed venous oxygen saturation (SvO2) after transplantation was normal indicating a satisfactory cardiac output (BSD 63.5 +/- 2.3% vs. DCD 64.1 +/- 3.1%, p = 0.61). Extension of the circulatory arrest time from 15 to 30 minutes still allowed for resuscitation and transplantation of the DCD heart.

Conclusion: Our findings confirm that the DCD heart is viable and can support the circulation after transplantation. Function was comparable to the transplanted BSD heart. Despite previous findings suggesting impairment of RV function in the DCD heart, load-independent assessment of RV function revealed good contractility before and after transplantation. Utilization of DCD hearts for human cardiac transplantation may allow for expansion of the donor pool.
012 Outcome Following Thoracic Surgery: The Role of Preoperative Chlorhexidine Mouthwash in the Prevention of Post Operative Pneumonia

Authors: C.A. Efthymiou; K. Abbas; R. Milton

Department of Thoracic Surgery, St, James’s University Hospital, Leeds

Objectives: The oropharynx is a reservoir for a multitude of commensal microorganisms. Natural defences exist to prevent overgrowth, invasion and transmission of these pathogens thereby reducing the incidence of respiratory, gastrointestinal and systemic infections. These defences are however breached by invasive anaesthetic and surgical procedures associated with thoracic surgery. Decontamination of the oral cavity prior to surgical intervention may potentially reduce the detrimental effects of such breaches. We evaluated the use of preoperative chlorhexidine antiseptic mouthwash on the incidence of post operative pneumonia.

Methods: A total of 385 patients were randomised to control (group A, n=190) and mouthwash (group B, n=195) arms. Following surgery patients were investigated for the development of pneumonia based on Guidelines for the Management of Hospital Acquired Pneumonia.

Results: Both cohorts had similar demographics in age (57.2yrs v 58.1 yrs in group B, p=0.632, 72.1% v 66.6% males, p=0.269) Over all incidence of postoperative pneumonia combining both groups was 6.49%. The incidence of postoperative pneumonia was significantly reduced in patients treated with preoperative chlorhexidine mouthwash (control 10.52% vs mouthwash 2.56% p=0.003). Length of hospital stay was also found to be significantly shorter in the chlorhexidine group (5 days v 12.1 days in control, p=0.032).

Conclusion: The use of preoperative chlorhexidine mouthwash prior to thoracic surgery results in a reduction in the development of postoperative pneumonia and subsequent postoperative length of stay. Pre-operative use of chlorhexidine mouthwash is beneficial in reducing incidence of postoperative pneumonia in thoracic surgery.
013 True Inter-Professional Working: A Combined Rota for Junior Doctors, Cardiac Surgical Care and Nurse Practitioners

Authors: D.A. Tragheim; G. Chilton; G. Cooper
Sheffield Teaching Hospitals NHS Foundation Trust

Objective: In response to the reduction in Junior Doctors hours (EWTD), we developed the Cardiac Surgical Care Practitioner role for theatres and clinics and the Advanced Nurse Practitioner role for the wards and High Dependency area. This resulted in the need for these personnel to work together in a combined rota. This is EWTD compliant for the Junior Doctors and met the needs of the service.

Method: Controversially this rota is organised by two non medical personnel, the Matron and the Principal Cardiac Surgical Care Practitioner. This combined rota was implemented on the 01.08.09. Since that date, six out of seven night shifts per week have been covered by ANP’s, each junior doctor only works one night and one weekend every seven weeks. This has ensured EWTD compliance.

Results: We will demonstrate that having this combined rota run by non medical staff has been

· Welcomed by the Junior Doctors and Consultants
· Improved Junior Doctor Training
· Improved inter-professional working environment
· Improved continuity of care

Conclusion: Inter-professional working is often championed as a desirable goal. We have achieved this.
Is Pre-Operative Haemoglobin A1c Level a Good Predictor of Adverse Outcome after Cardiac Surgery?

**Authors:** S. Datta; P. Gowland; B. Prendergast; G. Mulaeh; R. Hasan; D.J.M. Keenan; T. Valessaris; N. Odom; K.E. McLaughlin

**Manchester Royal Infirmary, United Kingdom**

**Objective:** Diabetes mellitus increases morbidity and mortality after cardiac surgery. Haemoglobin A1c (Hb1Ac) is known to be a marker of glycemic control in patients undergoing cardiac surgery. This study analysed the predictive value of pre-operative HbA1c in relation to adverse outcomes after surgery.

**Methods:** Hb1Ac levels were prospectively obtained between January 2002 and January 2006 in 1757 patients. The cohort was divided into two matched groups (Group I Hb1Ac < 7% and Group II Hb1Ac > 7%). Cox proportional hazards regression model was used to determine whether Hb1Ac was an independent risk factor for mortality and logistic regression models were employed to determine whether Hb1Ac was an independent risk factor for wound infection and renal failure requiring dialysis after surgery.

**Results:** Among 1757 patients (mean age 64 ± 12), 1366 patients were in group I and 391 in group II. Patients with HbA1c of 7% or greater gave rise to an increased risk of post-operative renal failure requiring dialysis (p< 0.05, OR 1.02, 95% CI 0.9- 1.04) and deep sternal wound infection (p<0.04, OR 1.04, 95% CI 0.9-1.06) despite strict blood sugar control during the early post-operative period. However there was no difference in 5-year survival between patients with Hb1Ac greater than 7% compared with patients with Hc1Ac lower than 7% (p<0.68).

**Conclusion:** Elevated pre-operative Hb1Ac was found to be an independent risk factor of developing deep sternal wound infections and renal failure requiring dialysis after cardiac surgery. Rigorous control of blood sugar in diabetic patients may be mandatory before listing patients for cardiac surgery, especially when Hb1Ac is greater than 7%.
015 Effect of Preoperative Lung Function on Patients with Aortic Valve Replacement

Authors: D. Pousios; C.W. Barlow; M.P. Haw; M. Kaarne; S.A. Livesey; S.K. Ohri; G.M. Tsang
Southampton General Hospital

Objectives: We set out to study the relationship between preoperative lung function, as demonstrated by spirometry, and outcome after aortic valve replacement (AVR).

Methods: Between January 2008 and December 2009, 188 patients (109 men, median age 71 [19-89]) underwent first time AVR with or without a concomitant procedure (not coronary artery bypass grafting). The mean logistic EuroSCORE was 8.5±0.5. A history of chronic obstructive pulmonary disease (COPD) involved 48 patients (25.5%). Data relating to forced expiratory volume in 1 s (FEV1) and forced vital capacity (FVC) were retrieved from the departmental database.

Results: Total in-hospital mortality was 1.06% (n=2). Isolated AVR was performed in 143 cases, while most procedures were elective (n=145, 77%). The mean length of ventilation was 1.17±0.08 days, mean stay in intensive care or high dependency unit 2.96±0.22 and total hospital stay 10.2±0.6 days. Two patients needed tracheostomy, while 32 (17%) developed chest infection. Actuarial survival was 94.7% in 1 year. Patients were divided into four groups: control (n=83) (Fev1> 80%, Fev1/FVC > 0.7), mild COPD (n= 50) (Fev1 > 80%, Fev1/FVC < 0.7), moderate COPD (n= 45) (50 %< Fev1<80%, Fev1/FVC<0.7), severe COPD (n=10) (Fev1<50%, Fev1/FVC<0.7) according to Gold COPD criteria. Demographics were not statistically significant between them. There was no statistical difference in mortality, length of stay/ventilation, atrial fibrillation or chest infection between the four groups (p> 0.15). Remarkably, people with more severe COPD had slightly better results.

Conclusions: Mortality and morbidity rates associated with AVR surgery were not influenced by the presence and degree of airflow obstruction in patients with COPD. These patients should not be denied surgery exclusively on the basis of the COPD. Further studies are required to identify the limits of lung function that would necessitate alternative approach to aortic valve replacement.
**Objectives:** Acute kidney injury (AKI) is associated with excess morbidity and mortality in cardiac surgery patients. Pre-existing renal dysfunction is a major risk factor yet assessment methods vary. Derived renal function equations are thought to be superior to serum creatinine assays, delivering more accurate representations of renal physiology with sophisticated scales of disease severity. We examined the predictive value of established renal function measurements to AKI incidence and assessed baseline creatinine values compared to chronic kidney disease (CKD) scoring criteria as preoperative stratification tools.

**Methods:** Data was collected for 2413 on-pump CABG patients between 2002-2008. Renal function measurements including Modified Diet in Renal Disease (MDRD), Cockcroft Gault (CG), Mayo Quadratic Equation (Mayo), Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) and serum creatinine underwent logistic regression to determine associations with AKI. Distribution of CKD scores within serum creatinine values were examined and probability of AKI within each calculated. Risk adjusted cumulative sum evaluated AKI outcome per CKD score.

**Results:** Serum creatinine (OR 1.05, 95%CI 1.04 to 1.06, p<0.001) and age (OR 1.07, 95%CI 1.05 to 1.09 p<0.001) were the most significant predictors of postoperative AKI. The MDRD equation performed best of the derived formulas as a predictor for AKI (OR 1.03, 95%CI 1.01 to 1.04 p<0.001). Day 2 serum creatinine detected the highest incidence of AKI. Patients with preoperative CKD scores 2 and 3 had the greatest risk of AKI, with CKD stage 2 yielding worse than expected outcomes.

**Conclusion:** Preoperative serum creatinine remains the strongest predictor for postoperative AKI. Patients with mild renal dysfunction preoperatively are at higher risk for AKI compared to those with more severe renal impairment. Creatinine measurements on postoperative day 2 more timely identify AKI than routine day 1 and 4 measurements.
**017 Six Years Results from a Prospective Randomised Control Trial comparing Carpentier Edwards-SAV (CE-SAV) and Medtronic Mosaic Valves**

**Authors:** R. Birla; S. Hosmane; G. Twine; J. Unsworth-White

**Derriford Hospital**

**Objectives:** The study prospectively compares the clinical performance of Carpentier Edwards - SAV (CE-SAV) and Medtronic Mosaic porcine bioprostheses in the aortic position.

**Method:** A total of 403 patients undergoing bioprosthetic aortic valve replacement (AVR) between January 2001 and March 2005 were prospectively randomised to receive either CE-SAV (n = 197) or Medtronic Mosaic (n = 206) valves. All the patients are being followed up annually for 10 years and are offered echocardiography at 1, 6 and 10 years postoperatively.

**Results:** The patients in the two groups were comparable with respect to their preoperative demographics, Euroscore, and their intraoperative characteristics of cardiopulmonary bypass. The mean follow up to date is 6 +/- 0.25 years with a total follow up of 2418 patient-years. The adverse events during the follow up period are tabulated below. Out of three patients who had structural valve deterioration, two required reoperation. There have been a total of 64 (32.5%) deaths in the group receiving CCE-SAV valves and 85 (41.3%) in the group receiving Mosaic Valve. The five year survival in the two groups was 77.7% and 73.3% respectively (p value 0.36).

**Conclusions:** At this stage of the study there are no statistically significant differences in the clinical performance between CE-SAV and Medtronic Mosaic aortic prostheses.

<table>
<thead>
<tr>
<th>Event</th>
<th>CE-SAV (n=197)</th>
<th>Medtronic Mosaic (n=206)</th>
<th>p Value</th>
<th>95% Confidence Interval for difference in proportions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural valve deterioration (SVD)</td>
<td>0</td>
<td>3 (1.45%)</td>
<td>0.262</td>
<td>-0.036 to 0.007</td>
</tr>
<tr>
<td>Para prosthetic leak</td>
<td>0</td>
<td>4 (1.94%)</td>
<td>0.143</td>
<td>-0.043 to 0.004</td>
</tr>
<tr>
<td>Thrombosed prosthesis N/A</td>
<td>0</td>
<td>0</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Thromboembolism</td>
<td>23 (11.67%)</td>
<td>16 (7.77%)</td>
<td>0.247</td>
<td>-0.024 to 0.102</td>
</tr>
<tr>
<td>Valve related re operation</td>
<td>0</td>
<td>4 (1.94%)</td>
<td>0.143</td>
<td>-0.043 to 0.004</td>
</tr>
<tr>
<td>Endocarditis</td>
<td>2 (0.05%)</td>
<td>2 (0.09%)</td>
<td>1</td>
<td>-0.019 to 0.020</td>
</tr>
<tr>
<td>Freedom from SVD at 5 yrs</td>
<td>100%</td>
<td>98.54%</td>
<td>0.262</td>
<td>0.007 to 0.036</td>
</tr>
<tr>
<td>Freedom from reoperation at 5 yrs</td>
<td>100%</td>
<td>98.54%</td>
<td>0.262</td>
<td>0.007 to 0.036</td>
</tr>
<tr>
<td>Permanent pacemaker</td>
<td>18 (9.13%)</td>
<td>19 (9.35%)</td>
<td>1</td>
<td>-0.058 to 0.056</td>
</tr>
</tbody>
</table>

Adverse events comparision between CE-SAV and Medtronic Mosaic groups.
Redo Aortic Valve Surgery: Influence of Prosthetic Valve Endocarditis on Outcomes

Authors: P. Modi; S. Leontyev; M.A. Borger; S. Lehmann; J. Seeburger; T. Walther; F.W. Mohr
Herzzentrum, Universität Leipzig

Objective: Compared with reoperative aortic valve replacement (AVR) for non-endocarditic causes, the contemporary risk and long-term outcomes of reoperation for aortic prosthetic valve endocarditis are ill-defined.

Methods: Between December 1994 and April 2008, 313 patients underwent reoperative AVR, of which 152 (48.6%) had prosthetic valve endocarditis. Mean follow-up was 6.5±0.4 years and 97.4% complete.

Results: Patients with prosthetic valve endocarditis were older with a higher risk profile. The overall hospital mortality was 15.3% (n=48) (prosthetic valve endocarditis vs nonendocarditis, 24.3%, n=37 vs 6.8%, n=11, p<0.001). Independent predictors of mortality for prosthetic valve endocarditis were sepsis (odds ratio [OR] 6.5, 95% confidence interval [CI] 2.0-21.0, p<0.01), ejection fraction <30% (OR 5.8, 95% CI 1.3-25.0, p=0.02), concomitant coronary artery bypass grafting (CABG) (OR 3.3, 95% CI 1.1-9.8, p=0.03) and aortic root abscess (OR 2.7, 95% CI 1.2-6.4, p=0.02), and for the nonendocarditis group were concomitant CABG (OR 8.1, 95% CI=2.0-33.0, p<0.01) and mitral valve surgery (OR 4.8, 95% CI 1.3-17.9, p=0.02). The 1, 3, 5 and 10-year survival for patients with and without prosthetic valve endocarditis were 52±4% vs 82±3%, 43±5% vs 73±4%, 37±5% vs 63±5%, and 31±7% vs 56±8% respectively (log rank <0.001). Predictors of long-term mortality in prosthetic valve endocarditis were sepsis (OR 3.1, 95% CI 1.5-4.5, p<0.01) and unstable preoperative status (OR 1.8, 95% CI=1.2-3.5, p=0.04), whereas in nonendocarditis patients the only predictor was New York Heart Association class IV (OR 2.5, 95% CI=2.8-7.4, p<0.01). Five-year actuarial freedom from endocarditis was 80±0.3% vs 95±0.6% (prosthetic valve endocarditis vs nonendocarditis, p=0.002).

Conclusion: Despite contemporary therapy, reoperation for aortic prosthetic valve endocarditis is still associated with relatively high perioperative mortality and limited long-term survival.
019  Wake-Up to Sleep Apnoea Syndrome in Patients Undergoing CABG

Authors: D. McCormack¹, A.M. Hogan², M.J. Marshall³, S. Ibrahim¹, A. Openshaw¹, F. Cormack², A. Shipolini²

1 London Chest Hospital; 2 University College London; 3 Research Centre for Primary Health Care and Equity, University of New South Wales, Australia.

Introduction: Sleep apnoea syndrome (SAS) is associated with cardiac disease but remains under-diagnosed. Cardiac surgery may be complicated by increased systemic inflammation resulting from SAS-induced intermittent hypoxia, sympathetic nervous system activation and arrhythmia. We report the severity of pre-operative SAS in patients undergoing coronary artery bypass grafting (CABG); and show a relationship with both pre- and post-operative inflammation (CRP).

Methods: A total of 105 patients have been enrolled into the Sleep & Heart Surgery Study. Herein we describe data obtained from 77 patients (71 male; mean age 64.9, SD10.5) admitted for CABG. Patients were asked pre-operatively to complete questionnaires and to undergo a sleep study, yielding mean overnight oxygen saturation (SpO2) and an apnoea-hypopnoea index (AHI: events/hr), reflecting: obstructive (OAI) and central (CAI) apnoeic indices.

Results: Regular snoring, indicative of SAS, was reported by 62.2% of patients, confirmed by bedpartner (Rs.588, P<0.001). AHI scores (>15) suggested moderate-severe SAS in half of patients (50.8%), and was positively associated with BMI (Rs.390 P=0.001), but not with age, NYHA class, Logistic EuroScore or pre-admission vital signs. CAI was found as commonly as OAI, consistent with compromised cardiac function in our cohort. Higher pre-operative CRP values were found in those with worse sleep apnoea: OAI (Rs.394) and lower overnight SpO2 (Rs.-.390; both P<0.01). Higher post-operative CRP values were also obtained from those who had demonstrated lower overnight SpO2 on sleep study (post-operative day 2: Rs.-.40³, day 3: Rs.-.52³, day 4: Rs.-.293, all P<0.02).

Conclusion: Moderate-severe SAS is common in cardiac surgical patients, representing central and obstructive apnoea. There could be implications for post-operative morbidity, suggested here by a pro-inflammatory state pre-operatively and a greater inflammatory response to surgery.
Impact of Age on the Performance of a Risk Stratification Model: Should Risk Assessment Modelling for Elderly Patients be Improved?

Authors: G. Casali, P. D’Errigo, F. Seccareccia, S. Rosato, A. Maraschini, G. Badoni, P. Ciccarelli, F. Musumeci

1 Department of Cardiology and Cardiovascular Surgery, Azienda Ospedaliera S. Camillo-Forlanini, Rome; 2 National Centre for Epidemiology, Surveillance and Health Promotion, Istituto Superiore di Sanità

Objectives: Risk stratification models are known to be generally poorly performing on high risk patients. Age is one of the main risk factors used to identify this subpopulation. Aim of this analysis is to evaluate the performance of the risk assessment model derived from the “Italian CABG Outcome Project” (ItCABG) in different age classes.

Methods: ItCABG model was applied to the Italian CABG population (34310 procedures from 2002 to 2004) stratified by age. Four age classes were considered: <60; 60-69; 70-79; ≥80. The performance of the model in predicting the 30-day mortality was formally assessed for calibration (Hosmer-Lemeshow test -HLtest) and discrimination (ROC area) in each age class. Differences were appropriately tested.

Results: ItCABG model was tested on the whole population showing a better performance than the EuroSCORE model. When population was stratified by age (n=8354, 12335, 11900 and 1721, respectively), ItCABG model revealed a good discrimination power in the first three classes but not in the elderly patients (ROC Areas = 0.82, 0.77, 0.76 and 0.64, respectively). Though differences in discrimination power between the three youngest classes were not significant, the ROC Area for the elderly patients resulted significantly lower compared to the other classes. The model calibration was good in patients aged <79, but poor in the elderly patients (HLtest=18.12, p=0.05).

Conclusions: ItCABG model showed a very good performance in the youngest age classes but a poor performance when predicting early mortality in patients aged ≥80. As age of patients undergoing CABG procedures is increasing, other elderly distinctive risk factors need to be assessed to improve risk stratification in this subset of patients.
Monitoring Rare Events for Quality Improvement: Testing the Suitability and Characteristics of the g-type Control Chart

Authors: M. Jarvis
Castle Hill Hospital

Objectives: Control charts are powerful tools for continuously monitoring complications and guiding quality improvement efforts. However, when monitoring rare events ($\rho_0 < 0.1$), the common control charts, such as p-charts or np-charts, which monitor the proportion of patients in a sample experiencing the complication, require too long a series of observations to be of practical use. The g-chart monitors the number of non-events between events and thus maximises the use of available data.

Methods: Empirical data distributions for complications after isolated coronary bypass surgery (CABG) were tested for suitability for g-chart monitoring. Monte Carlo simulations were used to compare g-chart performance to p-chart performance in the clinically relevant range (0.005 to 0.1) of probabilities for complications.

Results: Empirical non-event run lengths for reopening for bleeding, mediastinitis, acute renal failure and stroke after isolated CABG were shown to have a geometric distribution and therefore to be suitable for g-chart monitoring. Monte Carlo simulations showed that the average run length (ARL), number of points plotted on the chart, for the detection of a 50% reduction in the complication rate decreased with increasing probability of the event. Similarly, the average number of inspections (ANI), patients in the series, also decreased with increasing probability of the event. Given the number of isolated CABG performed in most UK cardiothoracic centres per year the g-chart is able to detect a 50% reduction in complication rate within one year when the probability of the complication is greater than 0.01. In contrast the ARL and ANI for a p-chart chart monitoring scheme is significantly greater than for the g-chart and is of less practical value.

Conclusions: g-chart monitoring schemes for rare events offer significant practical advantages over other statistical process control methods and events of importance to cardiac surgery are suitable for this technique.
Assessment of Euroscore in Patients Undergoing Aortic Valve Replacement

Authors: N. Skipper\textsuperscript{1}, J.M. Matingal\textsuperscript{2}, V. Zamvar\textsuperscript{2}

1 Edinburgh University; 2 Edinburgh Royal Infirmary

Objectives: The logistic EuroSCORE (European System for Cardiac Operative Risk Evaluation) is a risk stratification system used to predict the operative risk in patients undergoing surgical aortic valve replacement (AVR). The aim of this study is to investigate how accurate this system is, and how it compares to the observed risk.

Methods: From 1 January 2004 through 31 December 2009, 1389 patients underwent AVR±coronary artery bypass grafting (CABG) (865 primary isolated AVR and 524 AVR + CABG) at the New Royal Infirmary Edinburgh. The logistic EuroSCORE was calculated for each patient and summed up for expected in-hospital mortality. Expected and observed mortalities were compared.

Results: On the whole, the in-hospital mortality was 3% and was overestimated by the logistic EuroSCORE, which predicted 7.2% mortality (p=0.05). This discrepancy was even more pronounced in high-risk patients, where the in-hospital mortality was 8%, while the logistic EuroSCORE predicted 19.5% (p=0.03).

Conclusion: The logistic EuroSCORE overestimates the risks for AVR. Therefore, it should not be used to deny high-risk patients a surgical AVR.
023 Are the Long Term Results after Aortic Valve-Sparing Operations Really Good?

Authors: M. Shrestha; S. Sarikouch; N. Khaladj; C. Hagl; A. Haverich

Hannover Medical School

Objective: ‘Bentall’ operation is the ‘gold standard’ for the treatment of combined pathology of the ascending aorta and the aortic valve. Aortic valve sparing ‘David Procedure’ has been proposed as an alternative. We present our 15 year follow-up results.

Methods: More than 450 David procedures have been performed in our institution. Of these, 126 patients were operated between 7/1993 and 12/2000. Mean age was 53±17 years (46 female). Sixty-seven had additional procedures.

Results: There were six deaths in 30 POD, four of whom had AADA. In the follow-up, there were 29 late deaths. Only eight of these were cardiac related. Fourteen patients were re-operated on their aortic valves. Follow-up was performed in all living patients who still had their native aortic valves (n=77). Leaflet degeneration due to proposed leaflet contact with the straight Dacron graft was not observed. During the entire follow-up of 790 patient years, there was no stroke or major bleeding. Survival at 1, 5, 10 and 15 years were 98%, 90% and 74%, 71% respectively. Freedom from valve replacement at 1, 5, 10 and 15 years were 94%, 91% and 86% and 58% respectively.

Conclusion: Valve-sparing ‘David I’ procedure, especially in isolated, elective situations has excellent long-term results. Valve related complications such as stroke or major bleeding are low. Although technically demanding, this procedure is reproducible with low mortality in experienced hands.
024 Comparison of Outcomes after Aortic Valve Sparing Procedure and Aortic Root Replacement in Marfan’s Patients

Authors: J. Afoke; N.R. Abdul-Kareem; A. Child; M. Jahangiri
St. George’s Hospital

Objectives: Aortic valve sparing procedures are the preferred option in patients with Marfan’s syndrome and aneurysm of the ascending aorta. However, aortic annulus dilatation and aortic valve regurgitation have been the main deterrents for this procedure. We set out to compare the outcomes of aortic valve sparing procedure and aortic root replacement (ARR) in a contemporary matched cohort.

Methods: 21 patients with Marfan’s syndrome who underwent aortic valve sparing procedure (remodelling) between January 2003 and January 2010 were prospectively matched to 21 patients who underwent ARR. 38 operations were elective and 4 were urgent or emergency. Median age was 37 years (range 18-57 years) with a median follow up of 4.7 years (range 1.0-6.8 years).

Results: There were no in-hospital deaths. Two patients in each group had concomitant mitral valve repair. Survival was 100% at 1 year, 100% at 3 years, 95% at 5 years with no difference between the groups. Complications included three thromboembolic events and one case of endocarditis, all in the ARR group. Two patients from the valve sparing group developed mild aortic regurgitation. Further surgery for distal aortic segments was performed in one patient in each group.

Conclusions: Although ARR remains the mainstay of treatment, patients have cumulative risks of thromboembolism, haemorrhage and endocarditis with this procedure. This series demonstrates that valve sparing remodelling procedure in patients with Marfan’s syndrome and minimal aortic valve regurgitation is associated with reduced mid-term risks and preserved valve function.
025 Acute Type A Aortic Dissection - Does Treatment Delay Compromise Outcome?

Authors: P. Narayan; C.A. Rogers; C. Bogdan; G.J. Murphy; G.D. Angelini; A.J. Bryan

Bristol Heart Institute

Background: Historically, acute Type A aortic dissections has been described to carry a mortality which increases by 1%-3% per hour. Early surgical intervention is therefore thought to be associated with a better outcome. The aim of this study was to examine whether patients operated earlier have a better outcome.

Methods: 205 consecutive operative repairs for acute type A aortic dissections performed between 1992 until 2009 in a single institution. Time from onset of symptoms to surgical repair was reliably established in 152 cases. Patients were grouped into those who had undergone an operation early [within 12 hrs] and compared to those who had the operation later [after 12 hrs]. Presence of significant haemodynamic compromise and malperfusion pre-operatively was assessed.

Results: Median time between onset of symptoms and operation was 12.5 hrs [IQR 9 - 24.25, range 3.5 to 132]. 72 patients (47%) were operated within 12 hrs. Mortality within 30 days was higher was seen in those operated earlier 19.4% (95% CI 12.0-30.6) vs.13.8% (95%CI 7.9-23.5) p=0.32. Log-rank test for equality of survivor functions was 0.0807. However, malperfusion and haemodynamic compromise was also seen more commonly in those with shorter wait(47% vs. 31%) P = 0.029 and was found to be an independent predictor of long term mortality (hazard ratio 1.90, 95%CI 1.14 to 3.15), p=0.014. The mortality risk remained lower for those operated later(hazard ratio 0.67, 95% CI 0.40-1.12) after the presence of malperfusion and haemodynamic compromise was taken into account although the difference was not statistically significant(p=0.13). Similar post operative morbidity outcomes were seen in both groups.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Early Surgical Intervention(&lt;12 hrs) n=72</th>
<th>Late Surgical Intervention(&gt;12hrs) n=80</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse Neurological Outcomes</td>
<td>10 (14%)</td>
<td>10 (12%)</td>
<td>0.70</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>8(11%)</td>
<td>11 (14%)</td>
<td>0.62</td>
</tr>
<tr>
<td>Re-operation for Bleeding</td>
<td>8 (11%)</td>
<td>9 (11%)</td>
<td>0.99</td>
</tr>
<tr>
<td>ITU stay(days)</td>
<td>4 (IQR 2 - 6)</td>
<td>5 (IQR 3 - 12)</td>
<td>0.06</td>
</tr>
<tr>
<td>Total Hospital Stay(days)</td>
<td>13 (IQR 10 - 19)</td>
<td>14 (IQR 10 - 22)</td>
<td>0.45</td>
</tr>
</tbody>
</table>

Conclusions: Significant haemodynamic compromise and/or malperfusion at presentation as indicators of disease severity and not timing of intervention per se are the major determinants of outcome. In surgically treated patients delay to treatment was not associated with worse outcome.
026 Who Should Repair Type A Aortic Dissections?

Authors: R. Attia; C.I. Blauth; J.C. Roxburgh; G.E. Venn; V. Bapat; F.P. Shabbo; C.R Young
Guy’s and St Thomas’ Hospital

Objective: The natural history of acute type A aortic dissections mandates early surgical intervention. Traditionally mortality is quoted to increase 1% every hour for the first 48-hours. We aimed to identify features of acute type A aortic dissections that would predict outcomes.

Methods: All patients having aortic surgery for acute type A aortic dissections during 2005-2009 were identified. Prospectively recorded clinical and operative data were analysed using cox proportional hazards model, multivariate regression and Kaplan-Meier survival curves constructed.

Results: 60 patients had surgery for acute type A aortic dissection. Mean Logistic Euroscore was 33.6%, median age 59.8yrs. 33/60(55%) were referrals from secondary centres, 19/60(31.6%) from emergency room and remainder from other hospital departments. Mean time taken from CT scan to surgery for patients from secondary centres was 804minutes compared to 554minutes for patients presenting directly to our centre. There was a divergence in major complications (17.8% vs. 36.3% p=0.02) and lower in-hospital mortality (10.7% vs.18.1% p=0.04) in favour of early surgery. Overall hospital mortality was 18.3%. In-hospital mortality for specialist aortic surgeons was 14.8% vs. 21.2% for non-aortic surgeons (p=0.004). The operative procedures for aortic surgeons were more varied and complex with a longer bypass time (181.2mins vs. 157mins p=0.8) however with a shorter cross-clamp and hypothermic arrest time (83.4 and 24.4mins vs. 110 and 32mins p=0.07).

Conclusions: There is a reduction in major complications and mortality in favour of early surgery. Despite increased operative complexity by aortic surgeons overall mortality was less, possibly as a result of a more comprehensive approach to the disease, which in turn improved survival. This presents a challenge for future planning of aortic vascular surgery services.
Spinal Perfusion Pressure (SPP) Protocol following Thoracic and Thoracoabdominal Aortic Intervention: Is it Important?

Authors: F. Jafarzadeh; J. Ratnasingham; M.L. Field; M. Kuduvalli; A. Oo; M. Desmond
Liverpool Heart and Chest Hospital

Objective: Paraplegia is a devastating postoperative complication of thoracic and thoraco-abdominal aortic aneurysm (TAA) surgery. Monitoring and manipulation of spinal perfusion pressure (SPP) forms one part of our paraplegia prevention protocol. In this study, we evaluated the compliance to our institutional protocol for controlling cerebrospinal fluid (CSF) pressure and mean arterial pressure management (MAP) to maintain an adequate (SPP). Our policy is to maintain CSF pressure less than 15mmHg, MAP more than 90mmHg and SPP greater than 70mmHg.

Method: We conducted a retrospective analysis of prospectively collected data on all patients undergoing TAA procedures from June 2007 to September 2010. There were 34 open surgical procedures and 2 TEVAR. Continuous intraoperative and hourly postoperative parameters up to the first 72 hours were analysed looking at MAP, CSF pressure, SPP and volume of CSF drainage. In addition, a notes review was conducted to correlate these parameters with clinical outcome.

Results: There was a single intraoperative permanent paraplegia and 4 delayed paraplegia. Of these 4 patients, 1 was permanent (TEVAR) and 3 were transient. All the 4 delayed paraplegia patients had a low compliance with the protocol and achieved their target SPP only 55% of the time. Of the 4 patients with delayed paraplegia, 3 made a full clinical recovery following reinstitution of the protocol. Analysis demonstrated the SPP of less than 40mmHg is strongly associated with paraplegia (p value = <0.0001, odds ratio of 27).

Conclusion: We conclude that our protocol for monitoring and manipulating SPP reduces the risk of paraplegia following thoracoabdominal intervention. Training and education within a multi-disciplinary Team is important to ensure compliance with the protocol and its effectiveness.
Aortic Transection - a Ten Year Review of Surgical and Endovascular Management at a Tertiary Referral Centre

Authors: N. Keenan; T. Ni Dhonnochu; M. Shelly; L. Lawler; J. McCarthy; J. Hurley
Mater Misericordiae Hospital

Introduction: Acute traumatic aortic transection (ATAT) is frequently catastrophic. Recent advances have resulted in a shift from surgical to endovascular repair.

Methods: A retrospective review of ATAT over a 10 year period in a single institution was conducted. Between 2001 and 2006 8 patients underwent surgical repair. Since 2006, all ATAT (n=14) have been managed endovascularly. Results are reported as mean +/- SD.

Results: Of 22 patients, 19 were male and 3 female. Mean age was 35.1 +/- 18. Road traffic accidents (RTAs) accounted for 19 (86%). All patients had associated injuries - thoracic (20), orthopaedic (16), neurological (10; 3 spinal cord transactions), and abdominal (4) - with 13 patients requiring additional surgical interventions for these injuries. Time from injury to treatment of the aortic transection ranged from 7 hours to >8 days. In the surgical group, access was via thoracotomy (7/8) or median sternotomy (1/8) and procedure length was 297 +/- 102.9 mins. Time for stent placement, via the femoral artery, was 165 +/- 79 mins. Surgical patients were ventilated for 8.4 +/- 7.1 days; stented patients for 2.8 +/- 2.8 days. Length of ICU stay in surgical patients was 11.4 +/- 9.4 days, and in stented patients was 3.6 +/- 3. One mortality occurred during stenting; there was no intra-operative mortality.

Conclusion: ATAT occurs most commonly in a young male population, predominantly secondary to RTAs. Minimally invasive intervention results in shorter procedure times and avoidance of cardiopulmonary bypass. Furthermore, although confounded by associated injuries, stented patients have shorter lengths of ventilation and ICU stays.
Operative Surgical Training in General Thoracic Surgery: Transitions in Trainee Structures and Training Models

Authors: K. Morgan Bates¹, O.A. Jarral¹, Z. Sarang², G. Ladas¹, M. Dusmet¹, S. Jordan¹, E. Lim¹

1 The Royal Brompton Hospital; 2 Imperial College London

Objectives: Post-graduate medical training has been restructured in the United Kingdom, from Calman to MMC to Tooke (Post-MMC). The aim of this study was to report our centres operative training by demographics of trainees corresponding to post-MMC training structure by component based decomposition of operative surgical experience.

Methods: Trainees were standardised by year of qualification into an expected post-MMC structures (CT1-2, ST3-8 & Post CCT). Each operation was decomposed into: diagnostic endoscopy, interventional endoscopy, opening, assessment, dissection, resection, reconstruction and closure.

Results: Between 1st July 2007 - 1st July 2009, 1803 operations were performed by 4 consultant surgeons, of these 38 were excluded due to missing data and 6 due to multiple entries. The remaining 1759 operations were the broken down into 12,327 components. In this time period there were 20 trainees, 5 in CT/ST 1-2 category, 10 in ST3-8 category and 6 in Post-CCT category (2 trainees moved between categories based on time, only 1 in the post-CCT category was actually post-CCT). In the percentage of total components performed for each training group are listed by component as diagnostic endoscopy (1%,20%,14%), interventional endoscopy (0%,6%,6%), opening (3%,24%,13%), assessment (1%,14%,12%), dissection (1%,13%,12%), resection (1%,13%,10%), reconstruction (0%,2%,7%), closure (3%,22%,17%).

Conclusions: Our data suggests that competency based, component operative surgical training is a suitable model for general thoracic surgical training. Operative surgical training experience between ST3-8 and Post-CCT was similar as most trainees do not achieve the expected milestone as stated by Tooke.
030 Experience of Two Decades of Tracheal Resections in a Tertiary Institution

Authors: I. Raievskyi; S. Jordan; M. Dusmet; G. Ladas; E. Lim; P. Goldstraw

Royal Brompton Hospital

Objective: Tracheal resections are an uncommonly performed surgical procedure. We report our experience over the last 19 years.

Methods: From 10/06/1991 to 22/10/2010, we identified 51 patients who underwent tracheal resection at our institution, of which 32 (63%) were men. The mean age was 48 (18) years.

Results: The underlying pathology was malignant disease in 28 (55%) and benign strictures in 23 cases (45%). Of the 28 patients with a malignant aetiology, the breakdown was as follows: adenoid cystic carcinoma (13), squamous cell carcinoma (10), adenocarcinoma (1), undifferentiated carcinoma (1), mucoepidermoid tumor (1), papillary carcinoma of thyroid (1) and medullary carcinoma of thyroid (1). The approach was right thoracotomy only in 22 (43%), cervical incision only in 26 and a combined approach (right thoracotomy with cervicotomy/laryngeal release or bilateral thoracotomy) in 3. The extent of resection and reconstruction consisted of carinal resection and Barclay reconstruction in 5, creation of neocarina in 3, trachea and lung resection in 6 (4 right pneumonectomies, 1 left pneumonectomy and 1 right upper lobectomy), tracheal sleeve resection in 31, tracheo-laryngeal resections in 3, reconstruction of carina with re-implantation of right main bronchus in 1, reconstruction of carina with re-implantation of right upper lobe in 1, and lateral tracheal wall resection with myo-cutaneous flap reconstruction in 1. Complications were: 1 in-hospital mortality (2%) in patient who developed ARDS (1), chylothorax requiring re-thoracotomy (1), pneumonia requiring ventilation (1), anastomotic stricture and left vocal cord paresis (1).

Conclusion: A wide range of different procedures can be performed for tracheal diseases, low morbidity and mortality can be achieved.
031 Chest Drain Removal: An Audit of Current Practice at a District General Hospital

Authors: J. Hyer; N. Watson; S. Paramothayan
St. Helier Hospital

Objectives:

* To examine knowledge of current guidelines for chest drain removal amongst doctors and nurses at our institution.

* To assess training received regarding chest drain removal.

Methods: Doctors and nurses on acute medical and surgical wards in our institution were invited to complete a questionnaire based on current British Thoracic Society and local guidelines for chest drain removal. The grade of staff, experience, knowledge and training were analysed.

Results: A total of 102 completed questionnaires were analysed. Respondents were doctors (38) and nurses (63) of all grades, unrecorded (1). The majority of respondents had either assisted (61) or removed (50) a chest drain previously; 21 had removed a drain in the last six months. The majority of respondents (72) were unaware of any guidelines for chest drain removal. In response to specific questions on chest drain removal; 46 staff correctly knew that two people were required to remove a chest drain, 38 of respondents correctly answered that a chest drain should be removed in expiration or during Valsalva manoeuvre. Only 25 responded correctly that clamping a chest drain at the time of removal is beneficial and 35 correctly answered that a purse string suture is not recommended. A total of 61 staff were unable to identify any complications following chest drain removal. Only 16 staff had undergone any formal training on chest drain removal and 73 staff felt that they would benefit from additional training.

Conclusions: This audit demonstrates widespread lack of awareness of chest drain removal guidelines amongst doctors and nurses in our institution, which is reflected in inconsistency between colleagues and a lack of knowledge of best practice. Only a minority appears to have undergone any training and most would welcome formal training. The results suggest patients could be exposed to significant clinical risk. Similar audits need to be conducted in other hospitals to establish the extent of this risk.
032  Do we need a Routine Chest X-Ray following Chest Drain Removal?

Authors: A Alzetani; S Ghosh

University Hospital North Staffordshire

Objective: Under water chest drains are a main feature of most thoracic surgical procedures as a primary treatment for effusions or pneumothoracis or following surgery on the chest. It has been customary to perform a chest X-ray (CXR) post drain removal to check for recurrent or residual effusion/ pneumothorax. We wanted to review the need for this “ROUTINE” investigation in our postoperative practice.

Methods: All patients admitted for thoracic surgical procedures -excluding bullectomy/pleurectomy- under a single surgeon had a chest drain removed when indicated (no air leak, drainage less than 150mls in 24hours and a fully expanded lung on pre-removal chest x-ray) without performing a post removal CXR. All were seen in outpatients 2-4 weeks after discharge and had a CXR.

Results: There were 350 patients admitted for thoracic surgery over 24 months (April 2008-March 2010). All had a chest drain inserted intraoperatively. The average time for drain removal was 2.1 days (4-5 days). They were monitored for an average of 6 hours afterwords (4-24 hours) then sent home. None readmitted in the interval between discharge and follow-up. At clinic follow up all were symptom free with normal Chest X-rays showing fully expanded lungs and no residual effusion/ pneumothorax.

Conclusions: The routine use of CXR in uncomplicated patients post drain removal is not justified. It delays discharge, exposes patient to unnecessary radiation and increases hospital costs. We would recommend its use if clinically indicated after a brief period of monitoring if the patient becomes symptomatic.
**033 Para-Vertebral Intercostal Nerve Block is an Adequate Technique for Post Thoracotomy Analgesia**

**Authors:** A Alzetani; S Ghosh  
University Hospital North Staffordshire

**Objective:** Adequate analgesia post thoracotomy facilitates early mobilization, chest physiotherapy and early discharge. Paravertebral intercostal nerve block (PINB) is one of the recognized methods of achieving immediate perioperative pain relieve. We would like to share our experience in the use of this technique in our department.

**Methods:** Patients referred for thoracotomy underwent PINB using 40mls of Levobupivacaine hydrochloride 0.325% deposited by surgeon immediately after thoracotomy and before starting dissection in 5 intercostal spaces and around the chest drains site. All patients had patient controlled administration of opiates (PCA) initiated afterwards with oral Paracetamol and opiates on demand. The post operative need for extra analgesics techniques were monitored in addition to time to mobilization and length of hospital stay.

**Results:** Between May 2007 and March 2010 three hundred patients (60% male) were admitted for thoracotomies. All had PINB. Only 4 patients needed an epidural in recovery to control their pain. The PCA was commenced on average 12 hours (4-24 hours) after surgery and was discontinued in 30 hours (24-36 hours). There was no increase in need for other analgesics. Patients mobilized within 12 hours (4-24 hours) from procedure and were discharged home within 3.1 days (1-6 days).

**Conclusions:** Paravertebral intercostal nerve block is a viable and safe method of perioperative pain control which could be an attractive substitute to more traditional technique such as epidurals and intraspinal blocks that require increased monitoring for systemic side effects such as hypotension, syncope... etc. Its used should be considered for first line pain control in thoracic surgery.
Regional Experience with Epidural versus Extra-Pleural Analgesia for Thoracotomy and Isolated Lobectomy

Authors: A. Nasir\(^1\), M. Parker\(^2\), U. Hamid\(^3\), A. Ahmed\(^3\), S. Murphy\(^4\), K. McCourt\(^3\), K. McManus\(^3\), M. Shields\(^3\), J. McGuigan\(^3\)

1 University Hospital of South Manchester; 2 Postgraduate Medical Institute, Anglia Ruskin University, Chelmsford, United Kingdom; 3 Royal Victoria Hospital, Belfast; 4 Acute Pain Services, Royal Victoria Hospital, Belfast

Objective: Optimal pain management after thoracotomy is critical and plays vital role in reducing post-op morbidity. At our institution patients either receive an epidural or extra-pleural catheter (EPC) if undergoing a thoracotomy. The aim of this study was to examine the quality of pain-relief and length of hospital-stay in patients undergoing thoracotomy.

Methods: Prospectively entered data was reviewed and 75 patients identified, who underwent postero-lateral thoracotomy and isolated lobectomy from April 2004 to September 2009. Pain was scored on the first post-operative day on a scale of 1-10. The presence of nausea and hypotension (defined as reduction in systolic blood pressure (SBP) to 30% or greater of the admission SBP for 2 or more readings, 2 hours apart) was recorded. The length of hospital-stay was recorded for all patients.

Results: Data from 37 patients in the epidural group and 38 in the EPC group were examined. The results are summarised in Table 1. The demographics and pre-operative function in both groups were similar. Patients with hypotension in both groups didn’t require critical care admission. There was no significant difference in length of hospital-stay.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Epidural Group</th>
<th>Extra-pleural catheter (EPC)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No of Patients</td>
<td>37</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Mean Age (years)</td>
<td>63 (36-79)</td>
<td>65 (43-78)</td>
<td></td>
</tr>
<tr>
<td>Male:Female Ratio</td>
<td>20:17</td>
<td>25:13</td>
<td></td>
</tr>
<tr>
<td>Mean FEV1 (% of predicted)</td>
<td>86 (0-118)</td>
<td>85 (0-128)</td>
<td></td>
</tr>
<tr>
<td>Mean POSSUM</td>
<td>9.8</td>
<td>8.5</td>
<td></td>
</tr>
<tr>
<td>Mean Nausea Score 1st 24hrs</td>
<td>0.17</td>
<td>0.13</td>
<td>0.81</td>
</tr>
<tr>
<td>Mean Pain Score at rest 1st 24hrs</td>
<td>1.1</td>
<td>0.97</td>
<td>0.55</td>
</tr>
<tr>
<td>Mean Pain Score on movement 1st 24hrs</td>
<td>2.6</td>
<td>2.3</td>
<td>0.32</td>
</tr>
<tr>
<td>Critical incidents</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Number of subjects with hypotension</td>
<td>7</td>
<td>4</td>
<td>0.35</td>
</tr>
<tr>
<td>Mean hospital stay</td>
<td>8.7 (5-16)</td>
<td>7.9 (4-18)</td>
<td>0.18</td>
</tr>
</tbody>
</table>

Conclusions: Similar pain relief is achievable with either analgesic modality. Length of hospital stay is not dependent on the modality used. Due to rare but potential catastrophic complications such as CNS infections and total paralysis with epidural analgesia, extra-pleural catheters can be used successfully to treat acute pain following thoracotomy.
035 Should the Nuss Procedure for Pectus Excavatum be Part of Adult Surgical Practice?

Authors: D. Waller; A. Khosravi; P. Nanjah; M. Javed; G.J. Peek; A. Nakas; S. Rathinam
Glenfield Hospital, Leicester

Objectives: The Nuss procedure was devised as an operative method for minimally invasive repair of pectus excavatum in pediatric patients. However, the surgical indication for this procedure has been extended into young adult patients. The aim of this study was to assess the surgical outcome of the Nuss procedure in these two age groups and to analyze its feasibility in the adult population.

Methods: Retrospectively we analysed the initial cohort of 49 patients with pectus excavatum who underwent the Nuss procedure over a 10 year period in our institution. We arbitrarily analyzed patients in two groups based on age: group A (less than 18 years) and group B (older than 18 years). A modified Nuss evaluation Questionnaire was used to assess patient’s satisfaction. We compared the perioperative course and postoperative outcome of the groups.

Results:

<table>
<thead>
<tr>
<th></th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of patients</td>
<td>13</td>
<td>36</td>
</tr>
<tr>
<td>Male : Female</td>
<td>10 : 3</td>
<td>29 : 7</td>
</tr>
<tr>
<td>Age (years)</td>
<td>14 (8-17)</td>
<td>21 (18-37)</td>
</tr>
<tr>
<td>Hospital stay (days)</td>
<td>4.1 (3-5)</td>
<td>6.3 (5-11)</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>12 (92%)</td>
<td>18 (50%)</td>
</tr>
</tbody>
</table>

Complications

- Pneumothorax: 0 vs. 3 (Ns)
- Bar dislodgment: 1 vs. 2 (Ns)
- Significant pain: 0 vs. 5 (Ns)
- Wound infection: 0 vs. 4 (Ns)
- Redo-surgery: 2 (15%) vs. 10 (28%) (Ns)

Conclusion: Whilst the Nuss procedure is highly recommended in paediatric patients with pectus excavatum our results suggest that in adults it is necessary to select patients carefully because of higher incidence of complications and inferior cosmetic results.
036 Surgical Site Infection Surveillance Scheme for Patients who are Undergoing Cardiac Surgery in a National Cardiothoracic Referral Centre in Ireland

Authors: M. Buckley; E. Lodge; N. Kiely; M. Kingston; R. Ruane; B. O’Connell; V. Young

St James’s Hospital

Objective: Surgical site infection (SSI) results in significant morbidity and mortality amongst patients undergoing cardiac surgery. The cardiothoracic team in conjunction with the infection control team introduced a surgical site infection surveillance scheme in 2008 in order to establish rates of infection over time, determine causative pathogens, and guide interventions.

Methods: Data was collected on each patient to comply with risk stratification requirements of the Centers for Disease Control definitions. Denominator data was collected electronically, numerator data by hand.

Results: SSI rates decreased from 5.1% to 3% over ten quarters. Results indicated that meticillin-susceptible Staphylococcus Aureus was the most common causative organism of infection.

Conclusion: The surveillance scheme prompted a review of pre-operative screening for carriage of staphylococci and a change in protocol. The scheme demonstrates that introduction of SSI surveillance is possible without significant resources and can lead to a reduction in rates of SSI. Analysis and feedback is performed using posters and biannual meetings.
A Survey of the In-House Urgent Patient’s Experience Waiting for Cardiac Surgery

Authors: L. Nolan¹, V. Meredith², F. Bhatti¹, A. Zaidi¹

1 Morriston Hospital; 2 Morrsiton Hospital

Objectives: This survey aims to explore the experience of waiting for cardiac surgery for the in house urgent patient.

Methods: Semi-structured interviews using the Hospital Anxiety and Depression Scale (HADS).

Sample: A sample of 20 patients who required cardiac surgery necessitating them to remain in hospital.

Results: Most patients’ experienced a high level of anxiety and boredom, complaining of lack of mental and physical stimulation. Lack of communication from Clinicians was cited as the main cause for concern and anxiety in most patients interviewed. Many patients initially felt that communication was excellent but criticized the uncertainty of a specific date for surgery. Some patients felt they had physically deteriorated whilst in hospital because they were inactive and felt less physically fit. Fear of dying and separation from family support was a cause for distress in some patients. This was often compounded by their environment e.g. continuously wearing cardiac telemetry and nightwear. Some communication increased patient anxiety: “doctors say I’m lucky to be alive” and ‘I’m a ticking time bomb’.

Discussion: Suggestions to improve the experience was sought from patients: An exercise program, improvements in catering and daily visits from the surgical team were suggested.
038  Is Same Day Admission for Cardiac Surgery Possible?

Authors: R.S. George; K. Javangula; D. O'Regan

Leeds General Infirmary

Background: There has been a move towards same-day surgical admission to safely limit inpatient hospitalization. The clinical consequences of admitting a patient on the day of the scheduled cardiac procedure, however, has never been evaluated in the UK. The purpose of this study was to analyze whether same-day admission for patients undergoing elective cardiac surgery is safe and effective.

Methods: All patients attended a consultant-led fit to admit clinic. Pre-, intra-, and post-op and 8 weeks follow up parameters were analysed in all patients who underwent on-pump cardiac procedure between Jan 2003 and Sep 2010. Follow up documentation included readmission rate, need for any treatment and minor and major complications including wound problems.

Results: 1412 patients were identified of which 970 (68.7%) were elective cases. Out of those 88 were admitted on the morning of the operative day (Group 1) and 882 were admitted 1.4±2.7 days prior to surgery (Group 2). Group 1 patients were younger (60.8±8.2 years vs 64.8±8.5 years, p<0.001) with significantly lower Euroscore (2.2±2.2 vs 3.5±2.4, p<0.001). 3.4% of Group 1 were insulin dependent diabetics versus 4.6% (p=0.442). X-clamp was similar between the two groups (p=0.834). Inpatient clinical incidents were similar between the two groups (32.3% vs 36.0%, p=0.557). There was 1 peri-operative death in Group 1 (1.1%) as compared to 13 in Group 2 (1.5%, p=0.566). Group 1 patients were discharged at 6.3±5.7 days vs 6.6±5.1 days (p=0.607). At 8 weeks follow up all cause readmission rates to any hospital were similar between the two groups (p=0.189). The occurrence of post-discharge arrhythmias, wound complications and major organ related complications were also similar between the two groups.

Conclusion: Same day admission policy is not associated with pre-, intra-, or post-operative complications. This approach has proven to be safe and can be routinely administered in selected group of patients.
039  Thoracic Surgery Patient Experience Day (TSPED)

Authors: J. Sharman; T. Perkins; S. Henderson; D.A. Waller; A. Nakas; S. Rathinam
Glenfield Hospital, Leicester

Background: Patient experience is the mainstay of our current NHS practice. It is acknowledged that the patients all have unique experiences of the service and differing expectations. We conducted the TSPED in our unit with the aim of exploring the views and experience of previous patients and their significant others. The aim was to enable planning of more effective services for future patients and their carers and to make positive changes where required.

Methods: Sample selection: A diverse sample was selected in terms of age, sex, and ethnicity by choosing every 3rd person from the admission book covering the period October 2009 to March 2010. A letter and agenda outlining an overview of the day was posted to 48 patients.

Agenda Formulation: A semi-structured agenda was formulated to provide a framework for discussion without inhibiting patient creativity. The ward manager, Thoracic Support nurse, Band 5 ward nurse and 2 ward HCA’s facilitated and aided patients in identifying positive and negative aspects around the identified themes (Communication and information, Visiting Times, Privacy & dignity, hospital facilities & environment, Infection Control, Patient journey). Two Thoracic surgeons were available to hold a question and answer session for participants.

Group Work: Small Groups discussions were held with the staff acting as group facilitators aimed to encourage an informal and relaxed discussions.

Results: From a total of 48 patients, 33 responded but 11 consented to participate in the day. A total of 19 participants (11 patients) agreed to attend the day. 1 participant cancelled and 2 did not arrive on the day. The results of the discussions are summarised in Table 1.

<table>
<thead>
<tr>
<th>Category</th>
<th>Strength</th>
<th>Weakness</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication and Information Giving</td>
<td>Good working relationship between all levels of ward team, no superiority.</td>
<td>No formal discharge talks, ideally families would like notice to attend in order to ask questions.</td>
</tr>
<tr>
<td>2. Visiting Times</td>
<td>They are OK, It is disruptive for staff if the public wander in and out at any time-first consideration must be the patient.</td>
<td>Visiting times are not long enough for relatives that have to travel a long distance.</td>
</tr>
<tr>
<td>3. Privacy &amp; dignity</td>
<td>Good confidentiality with Doctors on ward round. People did knock when curtain shut.</td>
<td>Theatre gowns would be better tied at the side rather than the back.</td>
</tr>
<tr>
<td>4. The hospital facilities &amp; environment</td>
<td>I think the hospital environment is good. Good network of local conveniences.</td>
<td>Not adequate signage to find ward had to ask for directions repeatedly.</td>
</tr>
<tr>
<td>5. Infection control</td>
<td>The ward was kept clean &amp; tidy at all time, staff washed their hands enough and wore gloves and aprons</td>
<td>There could be more hand gel units around the hospital-they don’t stand out enough and are hard to spot</td>
</tr>
<tr>
<td>6. The Patient Journey</td>
<td>Nurses &amp; doctors work well and communicate well together</td>
<td>Patient food poor.Long wait for TTOs</td>
</tr>
</tbody>
</table>

Conclusion: The team participating in the TSPED found the experience invaluable. It was encouraging to receive such a positive response. This has led to a comprehensive but achievable plan for the next 6 months to improve our services markedly for patients and significant others.
Discharge Myths! Patients can go Home Safely on the 4th Postoperative Day

Authors: R.S. George; K. Javangula; D. O’Regan

Leeds General Infirmary

Background: Rising healthcare costs have prompted challenges to the post-op length of stay. This has not been defined in cardiac surgery. We asked if patients undergoing cardiac surgery can be discharged early and what are the consequences and the predictors of this change.

Methods: Pre-, intra-, and post-op and 8 weeks follow up parameters were analysed in all patients who underwent on-pump cardiac procedure between Jan 2003 and Sep 2010. Follow up documentation included readmission rate, need for any treatment and minor and major complications including wound problems.

Results: 1412 patients were identified of which 1373 (97.2%) remained alive for follow-up. 305 (22.2%) patients were discharged on the 4th post-op day (Group 1) and 1068 were discharged on at least the 5th post-op day (Group 2). Group1 tended to be younger (61.6±8.4 yrs vs 64.8±9.2 yrs, p<0.001) males with lower Euroscore (2.3±1.9 vs 4.3±3.0, p<0.001). CPB and X-clamp times were lower in Group 1 (57.8±21.5 min vs 75.6±33.2 min, p<0.001 and 38.0±14.8 min vs 46.7±28.2 min, p<0.001, respectively) with lesser post-op drain loss (415.7±251.6 mls vs 518.3±369.1 mls, p<0.001). Following discharge, all cause readmission rate was lower in Group 1 (6.9% vs 10.2%, p=0.01). The occurrence of post-discharge arrhythmias and all type of wound complications were similar between the two groups (5.2% vs 6.2%, p=0.586, and 21% vs 18%, p=0.243, respectively). Major organ related complications were lower in Group 1 (7.2% vs 12.2%, p=0.02). Regression analysis revealed that low Euroscore, NYHA class I, absence of diabetes, and elective admission were independent predictors for early discharge (p<0.01).

Conclusion: A 4-day discharge policy is safe and is associated with fewer readmissions as compared to the conventional discharge on the 5th or beyond post-op day. We believe discharging patients on the 4th post-op day is predictable and safe and can be planned prior to admission to achieve operational efficiencies.
040.1 Are we Reporting the Chest X-Rays that we are Requesting: an Audit Cycle

Authors: R. Ward; H. Gilbert; J. Apsey; R. Birla

Derriford hospital

Objectives: All inpatient Cardiac Surgery chest x-rays (CXR) are auto reported in our hospital. Regulation 7(8) of The Ionising Radiation (Medical Exposure) Regulations 2000 (IR(ME)R) states: “The employer shall take steps to ensure that a clinical evaluation of the outcome of each medical exposure, is recorded in accordance with the employer’s procedures”. An audit was undertaken to assess the compliance in our unit against IR(ME)R standard of 100% of exposures having a recorded clinical evaluation.

Method: In the initial audit, 162 inpatient CXR of 28 randomly selected patients were reviewed to analyse whether a clinical outcome had been recorded (defined as ‘compliance’). As this audit showed significantly lower compliance than the standard, immediate interventional steps were taken through junior doctors induction programmes and monthly departmental meetings to increase awareness of the need to autoreport these CXR. Of the various recommendations made, a simplistic CXR reporting prompt on the clinical record sheets (in the integrated care pathway) used in the wards was found to be the most cost effective method and was therefore adopted. After one month, we completed the audit cycle by reauditing compliance in a prospective audit on 40 patients who underwent a total of 161 CXR.

Results: Most clinicians were unaware of the requirement by them as referrers to actually record the findings of the CXR they requested. The overall results are tabulated. Especially on the wards, the compliance improved to 78% (61 of 78 CXR) in reaudit from 34% (22 of 65 CXR) the initial audit.

Conclusions: Use of simple methods like CXR prompts on clinical record sheets can assist as a reminder to clinicians to document their findings on daily ward rounds and thus help meet the statutory requirements of IR(ME)R. There is a need to publicise the legislative requirements to document the clinical outcome of each exposure, and the responsibility of the referrers towards the same.

<table>
<thead>
<tr>
<th></th>
<th>Initial Audit</th>
<th>Reaudit</th>
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</thead>
<tbody>
<tr>
<td>Total CXR done</td>
<td>162</td>
<td>153</td>
</tr>
<tr>
<td>Compliance</td>
<td>82(53.3%)</td>
<td>109 (67.5%)</td>
</tr>
<tr>
<td>Overall compliance</td>
<td></td>
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</table>
**041 Reduction in Infection Rates with Introduction of Endoscopic Vein Harvesting**

**Authors:** R. Yadav; G. Sobhun; S.L.F. Doran; R. Trimlett ; A.C. DeSouza

Royal Brompton Hospital

**Objectives:** Leg wounds from saphenous vein harvesting in Coronary Artery Bypass Surgery (CABG) are associated with significant morbidity. In light of this our group embarked on an endoscopic vein harvest (EVH) programme and optimised the technique by identifying the saphenous vein with ultrasound to minimise the size of skin incision. This study was designed to investigate the influence of introduction of EVH on donor site infection rates.

**Methods:** A retrospective review of patients undergoing isolated CABG between September 2008 and August 2010 was undertaken. We compared patients that underwent open vein harvest (OVH) with EVH. Clinical outcomes included mortality, length of operation, length of post operative stay and wound infection rate.

**Results:** A total of 279 patients underwent OVH and 151 patients EVH. Mortality rates were 1.4% and 0.6% respectively. The mean and median length of operation for OVH was 228.4±2.7 and 225 minutes respectively and for EVH 235±4.0 and 230 respectively. The mean and median post operative stay in the OVH group was 9.2±0.5 and 7 days and in the EVH group was 9.2 ±0.7 and 7 days respectively. There was no statistically significant difference between the groups for these parameters. However, donor site infection rate was 2.5% in the OVH group and 0% in the EVH group. Patient satisfaction with EVH was high.

**Conclusion:** The introduction of EVH has resulted in abolition of leg wound infection in our group to date. This may be related to the use of ultrasound to identify the long saphenous vein so the incision remains small and no flaps are created. Although, the period of study includes the learning curve of the operators, there was no increase in length of operation. The length of post operative stay remained similar in the two groups and may have been affected by variables not included in this study. Although randomised control trials are required to fully investigate the benefit of EVH in CABG this study reflects our positive experience to date.
042 The role of the vitamin D axis in Lung Cancer

Authors: M. Abdelaziz¹, A.C. Millen¹, S. Rathinam², R. Steyn¹, M. Kalkat¹, E. Bishay¹, P. Rajesh¹, A.M. Wood³, B. Naidu¹

1 Birmingham Heartlands Hospital; 2 Glenfield Hospital; 3 University of Birmingham

Objectives: Vitamin D deficiency is associated with poor prognosis in many types of cancer. Vitamin D receptor (VDR) polymorphisms play a role in genetic susceptibility to cancer. Little is known about their role in lung cancer, however vitamin D binding protein (DBP) indirectly activates alveolar macrophages, a higher number within a tumour linking to a better prognosis. We hypothesise that vitamin D axis is altered in lung cancer and is associated with a poor outcome.

Methods: 148 patients with lung cancer, 68 with other intrathoracic tumours and 33 controls were studied. Vitamin D was measured in stored plasma by tandem mass spectrometry and DBP by specific ELISA. Subjects were followed up for a range of 1-5 years post surgery, and deaths recorded. Results were compared between groups and against survival. We have assessed VDR and DBP expression in lung cancer and normal cell lines by Western blotting and immunohistochemistry.

Results: DBP levels were significantly lower in lung cancer than health (Median 33.6 (IQR 22.6-44.2) v 45.5 (29.7-62.2) p=0.02). There was no difference between vitamin D levels in lung cancer and health (Mean 30.82(2.96) v 38.5(1.5), p=0.06). In the other intrathoracic malignancies markedly lower vitamin D levels were seen (15.7 (1.98), p<0.01), although DBP was no different (p=0.72). There were no differences between histological types of lung cancer and neither marker related to survival (both p>0.8). In the lung cancer cell lines studied 2 expressed DBP and none expressed VDR, whilst in lung tissue VDR staining was reduced in lung cancer relative to normal cells.

Conclusions: Vitamin D deficiency is uncommon in lung cancer, unlike other malignancies, but reduced VDR in tumour tissue suggests that tumour tissue will not be able to respond to it and so vitamin D is unlikely to be a useful treatment. DBP may be a more promising drug target, but further study of DBP and tumour associated macrophages will be required to elicit disease mechanisms.
043  **Pulmonary Metastasectomy using the 1318nm Laser. Initial Experience with 44 Consecutive Procedures**

**Authors:** G. Ladas; L. Okior; S. Qureshi

Royal Brompton Hospital

**Objectives:** Pulmonary metastasectomy is safe, can prolong life or be curative in properly selected patients. The purpose of this study is to describe the equipment, techniques, and our initial experience following the introduction of the 1318nm lung laser in a busy metastasectomy practice.

**Methods:** We conducted a retrospective review of a series of 34 consecutive patients that underwent laser lung metastasectomy in the first 7 months from the introduction of a 1318nm system at our institution. Patient and operative details were obtained from a prospective thoracic surgical and pathology database, as well as case notes. All operations were performed by a single surgeon.

**Results:** Between March and October 2010, we performed 44 limited muscle sparing thoracotomies for laser resection of presumed pulmonary metastases in 34 consecutive patients. Ten of these had staged bilateral thoracotomies. The mean age (SD) of the cohort was 53 (20) years, and 33 (73%) were men. A total of 158 nodules were excised ranging from 1 to 22 per patient, (median 2, IQR 2 to 4), and 81 nodules (51%) contained viable metastatic tumour. Forty three (52%) nodules contained sarcomas and 33 (41%) contained carcinomas. Two nodules (1.3%) represented a pulmonary carcinoid tumour and 2 nodules (1.3%) represented other benign disease. A total of 9 anatomical resections were done concomitantly with the laser metastasectomy (2 lobectomies and 7 segmentectomies). Complete (R0) resection was achieved in all cases. The median duration to pleural drain removal was postoperative day 3 (IQR 2 to 4) and median postoperative hospital length of stay was 5 days (IQR 4 to 6). There were no procedure related complications. In-hospital, and 30-day mortality was nil.

**Conclusions:** Use of a laser for resection of pulmonary metastases is safe and enables fast, oncologically sound removal of multiple and/or centrally located deposits, whilst sparing lung tissue, and minimising the risk of post operative air leak or bleeding.
044 Why do some Patients not Receive the Gold Standard Treatment for Lung Cancer? An Audit of Operative Standards

Authors: S.T. Williams; A. Martin-Ucar; M. Malik

Nottingham University Hospitals

Objective: To audit anatomical resection and lymph node excision in patients undergoing lung cancer surgery according to the gold standards defined by the European Society of Thoracic Surgeons.

Methods: This is a retrospective analysis of all patients with primary lung cancer operated on by a single surgeon between July 2009 and October 2010. Rates of anatomical resection and lymph node excision were measured from data obtained from histo-pathology reports and a surgical database. Uni- and multi-variate analyses were performed to identify reasons associated with diversion from set standards.

Results: 100 patients [61 male and 39 female, median age 71 (range 37-90) years] underwent surgery, operative mortality was 4%. Median European Society Objective score (ESOS) was 5.5 (range 0.1 to 34.8). 11 procedures were completed by VATS approach. Anatomical resections were performed in 88 cases. At least 1, 2 and 3 N2 lymph node stations were obtained in 86%, 63% and 40% respectively. History of another malignancy (p=0.01), VATS approach (p=0.001) and high ESOS score (p=0.006) were associated with non-anatomical resections on uni-variate analysis. All these variables retained their predictor value on Multivariate analysis. Age over 80 (p= 0.009), VATS approach (p<0.001) and high ESOS scores (p= 0.026) were associated with less complete mediastinal exploration. On Logistic Regression, only Octogenarians (p=0.01) and VATS surgery (p<0.001) remained associated with less lymphadenectomy.

Conclusion: The failure to perform extensive lymph node excision was unrelated to poor spirometry or increased ESOS score. This demonstrates a particular need for attention to mediastinal lymph node dissection; thus further audit is required in order to ascertain progress.
045  A Systematic Review of Lung-Sparing Extirpative Surgery for Pleural Mesothelioma

Authors: T. Treasure¹, E.S. Teh², F. Fiorentino¹, C. Tan³

1 Clinical Operational Research Unit; 2 The Rayne Institute; 3 St George’s Hospital

Objectives: There is a resurgence of interest in lung-sparing extirpative surgery for malignant pleural mesothelioma. In order to offer evidence based clinical recommendations and to planning future trials a summary of outcomes for this surgery is required.

Methods: A formal literature search was performed and papers sifted to find clinical reports containing data on patient selection, operative descriptions, and associated clinical outcomes. Operative descriptions were extracted from the text. All available data were extracted, tabulated, and summarized using quantitative methods.

Results: There were no randomized or other forms of controlled studies. The reports were heterogenous. From 464 titles 26 papers contained sufficient demographic data on a total of 1270 patients for outcomes to be included in the systematic review. 2 important prognostic factors, the type and stage, were not consistently reported. There was great variation in the operations performed within and between series as well as the multimodality treatment administered. The average survival at 1,2,3,4 and 5 years were 51%, 26%, 16%, 11% and 9%. There were no data on performance, symptomatic change, or other patient reported outcomes.

Conclusions: Summary data are provided. Data such as these should inform future clinical decisions and be the basis of planning studies.
046 Developing a Multidisciplinary Complex Pre and Post Operative Intervention to Reduce Complications and Enhance Recovery after Lung Resection Surgery

Authors: M.Z. Abdelaziz; A. Bradley; P. Agostini; K. Nagarajan; E. Bishay; M.S. Kalkat; R.S. Steyn; P.B. Rajesh; B. Naidu

Birmingham Heartland Hospital, Heart of England NHS Foundation Trust

Objectives:
1. Develop a multidisciplinary programme to accelerate the patient pathway into locally available services of pulmonary rehabilitation, smoking cessation and nutritional intervention.
2. Develop a comprehensive transferrable self management education programme
3. To test outcome measures that demonstrate efficacy of intervention.

Methods: 2 referring hospitals to a regional thoracic unit were chosen to develop and test the programme; one within the community and the other in hospital rehabilitation. Outcome measures were also tested in patients who did not receive the intervention from 8 other hospitals referred to the same unit.

Results:
The Programme: Engagement of all stakeholders from user to commissioner ensured ‘buy in’ and success of this pilot study. Patients identified as potential candidates for curative lung cancer surgery at the multidisciplinary meeting were invited into the programme. In a pilot study, 21 patients attended education and rehabilitation classes twice weekly until surgery. On average they attended 6 sessions (range 1 to 12). Patients liked the programme hence the low drop out rate [1 patient (4.7%)]. Then 3 weeks after surgery they returned to the programme for a further 5 weeks.

Outcome measures: primary (Table 1) and secondary (Lung spirometry, six minute walk, BMI and quality of life EORTC QLQ-C30 and LC13) were captured successfully. Preliminary results comparing the intervention to the non intervention group of non randomised/matched controls group are promising.(Table 1)

Conclusions: A viable outpatient based complex intervention pathway of enhanced recovery/ pulmonary rehabilitation has been developed and outcome measures tested. Initial results are very promising but a large multicentre randomised controlled trial is warranted to test efficacy.

<table>
<thead>
<tr>
<th></th>
<th>Intervention (n=21)</th>
<th>Non Intervention (n=96)</th>
</tr>
</thead>
<tbody>
<tr>
<td>*PPC Rate %</td>
<td>4</td>
<td>22</td>
</tr>
<tr>
<td>ITU admission %</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>HDU median LOS</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Hospital median LOS</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>*Readmission rate %</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

LOS=Length of stay, *= p<0.05
The Introduction of Standardised Guidelines for Talc Pleurodesis into a Cardiothoracic Unit

Authors: C. Badger; J. Asante-Siaw

University Hospitals Coventry and Warwickshire

Objectives: Talc slurry is instilled into the space between the visceral and parietal pleura, causing an inflammatory reaction, leading to the formation of adhesions. It is used as a palliative treatment for preventing the accumulation of recurrent malignant pleural effusions. There are considerable practice inconsistencies regarding talc pleurodesis in a 47 bed Cardiothoracic Unit. This procedure has been traditionally undertaken by doctors, but it is a role that can be carried out by Advanced Nurse Practitioners with appropriate training. An evidence based protocol for the procedure is required to ensure consistency of practice by Doctors and Nurse Practitioners.

Method: Initial research commenced with discussion with the ward pharmacist and a Consultant Thoracic Surgeon. A literature search revealed several protocols for talc pleurodesis already in existence. Once a protocol was devised, it was presented at the monthly QIPP’s (Quality Innovation Productivity Prevention) meeting to seek approval for its introduction. Training of the Nurse Practitioners to commence undertaking this procedure involved observation of its performance by Registrar level and above. Assessment of competence was using Direct Observational Procedural Skills (DOPS).

Results: Standardised guidelines for the procedure of talc pleurodesis were successfully implemented into a 47 bed Cardiothoracic Unit, and also disseminated for Trust wide use. Inappropriate variations have been reduced, ensuring evidence-based, high quality, timely, safe and effective care of patients.

Conclusion: The guidelines introduced were adapted from the British Thoracic Society Guidelines for Talc Pleurodesis. The author will audit patient satisfaction and outcome in 3 months time, but suggests that the research-based standard will minimise harm and produce an optimal patient outcome by cost-effective means.
048  Impact of a Nurse-Led Clinic in Thoracic Surgery

Authors: S.H. Williams; J.G.E. Williams; M. Bibi; P. Tcherveniakov; R. Milton

St James’s University Hospital, Leeds

Objectives: Since 2007 our department has run a ward-based, nurse-led clinic (NLC); providing follow-up and management of select patients discharged after thoracic surgery. Over a two-month period we assessed patient satisfaction with the clinic’s ability to manage their postoperative needs.

Methods: Data was collected prospectively from July to August 2010 using structured questionnaires.

Results: 83 questionnaires were completed. 100% of patients found it easy to arrange a convenient appointment and 65% were seen on time. These patients underwent a wide variety of procedures; the reasons for attendance were predominantly wound assessment and chest drain review. 65% of patients were managed without seeing a doctor, of whom only 7% believed seeing a doctor would have been beneficial. 88% of patients stated their needs were met in the clinic; 99% of patients described their overall satisfaction as good, very good or excellent.

Conclusions: This survey highlights the importance and usefulness of such a service for a busy thoracic department. The nurse-led clinic is an efficient and effective way to review patients, who would otherwise spend longer in hospital, or utilised slots in the main thoracic clinic. This clinic generates an average monthly income of £5,355. Finally, patients are extremely satisfied with this service.
The European Working Time Directive and Training in Cardiothoracic Surgery in Wales: The Holy Grail?

Authors: M. Jenkins; P. Vaughan; P.A. O’Keefe

University Hospital of Wales

Objective: The European Working Time Directive (EWTD) continues to raise concerns over maintaining standards of training within these time constraints whilst providing NHS service delivery. Cardiothoracic surgical training has been affected by a number of factors, but particularly the EWTD.

Method: During 2005-2009, our Deanery Training Rotation in Cardiothoracic Surgery (CTS) was completely re-structured to include:
- Removal of ST3-8 National Training Numbers (NTNs) from rostered out-of-hours working
- Focused training opportunities according to trainer and trainee expressed capabilities
- Innovative ST3 modular programme in allied specialties
- Co-operative arrangement with another CTS training scheme

To allow maximum trainee-consultant contact, NTNs are supernumerary. The ST3 year is divided into four-month periods, rotating through cardiac surgery, thoracic surgery and allied specialties including interventional and diagnostic cardiology, vascular imaging, extracorporeal perfusion and respiratory medicine. Workplace-based assessments based on the ISCP website, enable educational supervision and record hands-on experience. The ST5-6 years include experience of heart and lung transplantation, congenital cardiac surgery and complex aortic surgery, accommodated by our allied deanery CTS training scheme.

Results: The advantages and disadvantages to the new training curriculum are outlined in the table below. The new training curriculum is innovative and has obvious benefits over the old style of training and should be used as a template for training in all surgical specialties. It establishes a firm grounding for cardiothoracic surgery.

<table>
<thead>
<tr>
<th>ADVANTAGES TO THE NEW TRAINING ROTATION IN CARDIOTHORACIC SURGERY</th>
<th>DISADVANTAGES TO THE NEW TRAINING ROTATION IN CARDIOTHORACIC SURGERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>It allows maximum trainee-consultant contact in the theatre and outpatient environment (3 - 4 operating lists per week).</td>
<td>Supernumerary status inevitably includes a cut in salary</td>
</tr>
<tr>
<td>A consistent working pattern with a particular consultant ensures better continuity of patient care</td>
<td></td>
</tr>
<tr>
<td>There are no random midweek days off to ensure EWTD compliance, and no weeks off to accommodate night and weekend shifts</td>
<td></td>
</tr>
<tr>
<td>Priority is given to NTNs over non-training grades for allocation to theatre, out-patient clinics and MDT meetings</td>
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<tr>
<td>Academic study time is built into the timetable</td>
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<tr>
<td>The ST3 modular programme allows the surgical trainee to gain a better understanding of allied specialties</td>
<td></td>
</tr>
<tr>
<td>The programme fosters a better working partnership between clinicians from different specialties</td>
<td></td>
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</tbody>
</table>
050  EWTD - How Service Reconfiguration can Maximize Training Opportunities

Authors: I. Ahmed; S. Balasubramanian; S. Asopa; P. Botha; I. Abu-Saif; P. Ogotu; D. Harrington; J. Ferguson; S. Kendall

James Cook University Hospital

Objectives: Since the full implementation of the European Working Time Directive (EWTD) in 2009 there has been widespread concern about the ability of the NHS to continue to deliver a safe service and to produce well trained professionals. The Temple report ‘Time for Training’ (May 2010) highlighted some of these concerns, which demonstrated that with the compression of available trainee hours, a proportionately greater amount of time is taken to provide service at the detriment of training. This is particularly apparent for those in ‘craft’ specialities like surgery. It was reported that 43% of trainees felt that EWTD had reduced training opportunities.

Methods: Rota design is crucial for training and service delivery. In this institute the existing rota resulted in Cardiothoracic trainees missing 3 months of day time operative training opportunities over the course of 1 year. A consensus was agreed that a new rota was necessary to change this to maximize training. The new rota abandoned the week of nights and a 24 hour on call was introduced specifically tailored so a trainee did not miss operating opportunities.

Results: The model of the new rota results in a 50% reduction of lost operating opportunities over the course of 1 year. This translates to being exposed to an extra 36 major cases per year. In addition there is a greater continuity of care and consultant exposure on a daily basis thus maximizing learning opportunities. Changing to 24 hour on call has been reported by 100% of the trainees (n=8) to be productive to well being, operative training, continuity of care and work - life balance. None of the trainees were routinely working over EWTD limits.

Conclusions: In a 48 hour week there are over 15000 hours available for training during a 7 year speciality training programme. These are not being used effectively. This model has shown that a small change in rota design has a significant positive impact on service / training balance.
Objectives: The reduction of working hours has placed considerable pressure on both trainers and trainees to find new ways of improving surgical training. The new Intercollegiate Surgical Curriculum Program (ISCP) website offers an integrated operative logbook and the possibility to identify strengths and weaknesses in training programs and trainee development early. Graphical representation of the available data for trainees across the country may assist trainees in evaluating their progress and assist educational supervisors, program directors and assessment panels in optimising trainee placements.

Methods: As a pilot study, we retrospectively reviewed trainee operative experience in cardiac surgery in one deanery over a period of 8 years. Data on trainee involvement as primary operator and assistant for all cases, and specifically for index cases (first-time CABG and AVR) were collected and various methods of graphical representation evaluated.

Results: From 2002 to 2010, 11 trainees on the national training system (NTN) were based in the deanery. These trainees were involved in 5126 cases, and as first operator in 49.5%. Of all cases during this period, 4190 were index cases and a registrar performed these cases as first operator in 52.6%. Graphical representation demonstrates clear progression over the duration of training, with an increasing fraction of index cases being performed as first operator, as opposed to assistant (Table 1). Progression in the total number of cases (index and non-index) performed was less noticeable beyond two years of training.

Conclusions: A national collection of data as is available in the ISCP system may allow a useful graphical representation of national averages and allow the trainee and ARCP panel to easily assess progression as compared to the national average. Preliminary experience using similar tools for index operations in orthopaedic surgery is encouraging and warrants further assessment in cardiac surgery.
052 Prediction of In-Hospital Death Following Aortic Valve Replacement: A New Accurate Model

Authors: N.J. Howell¹, M. Richardson², N. Freemantle², B. Bridgewater³, D. Pagano¹

1 University Hospital Birmingham; 2 University of Birmingham; 3 University Hospital of South Manchester

Objectives: Aortic valve replacement is accepted as the standard treatment for severe symptomatic aortic valve stenosis and regurgitation. As novel treatments are introduced for patient at high risk for conventional surgery, it is important to have models, which accurately predict procedural risk. The aim of this study was to develop and validate a risk stratification model to predict in-hospital risk of death for patients undergoing aortic valve replacement, and to compare the model to existing algorithms.

Methods: We reviewed data from the Central Cardiac Adult Database which holds prospectively collected clinical information on all adult patients undergoing cardiac surgery in NHS hospitals and some private providers in the United Kingdom and Ireland. We included all the patients undergoing aortic valve replacement with or without any other concomitant procedure (coronary artery bypass grafting, (CABG), CABG plus other procedure). The study population consists of 55,157 patients undergoing surgery between 1 April 2001 and 31 March 2009. The model was built using data from April 2001 to March 2008 and validated using data from patients undergoing surgery April 2008 to March 2009. The model was compared against the additive and logistic EuroSCORE models and a valve specific risk prediction model.

Results: The final multivariable model includes factors describing cardiovascular risk status and procedural factors. Applying the model to the independent validation data set provided a C-index of 0.791, which was substantially better than that achieved by previously developed risk models.

Conclusion: We have produced an accurate risk model to predict outcome following AVR surgery. It will be of use for patient selection and informed consent, and of particular interest in defining those patients at high risk who may benefit from novel approaches to AVR.
053  **Outcome of Patients with Aortic Stenosis Referred to a Multidisciplinary Meeting for Transcatheter Valve**

**Authors:** S.G. Jones; N.R. Abdulkareem; D. Roy; S.J. Brecker; M. Jahangiri

St George’s Hospital

**Objectives:** Until recently many elderly patients with symptomatic aortic stenosis and multiple risk factors were untreated due to perceived risks of surgery. With the advent of transcatheter aortic valve implantation, there has been a surge in referral for treatment. We present outcomes of patients referred to a multidisciplinary meeting.

**Methods:** 202 patients were reviewed between January 2008 and September 2010. Patients’ characteristics, investigations and their outcome allocated to transcatheter aortic valve implantation, surgical aortic valve replacement and medical therapy were studied. The decision making process was a combination of known risk factors accounted for in EuroSCORE and factors unaccounted for in traditional scoring systems.

**Results:** 72 underwent transcatheter implantation, 85 underwent surgical valve replacement and 45 were treated medically. There were no deaths at 30 days in the transcatheter or surgical groups. There were more strokes (6.3% vs 1.4%, p=0.057) and pacemaker implantations (25% vs 0, p=0.0001) in transcatheter compared to surgical group. The patients in transcatheter group had shorter ventilation and intensive care stay. Similar numbers were discharged home or to their original residence. At median follow up of 466 days, more patients had paravalvular leak and central aortic valve regurgitation in transcatheter group. At one year there were more deaths in medically managed group (30%), compared to transcatheter (17%) or surgical groups (4%).

**Conclusions:** Symptomatic high risk aortic valve patients have a good outcome following transcatheter aortic valve implantation or surgery. 42% of the patients referred for transcatheter aortic valve implantation had surgery, and did well. The medically managed group have a poor outcome.
054 What Impact has TAVI had on Conventional Aortic Valve Replacement Surgery in the First Two Years?

Authors: S.W. Grant¹, I. Dimarakis¹, M. Devbhandari¹, S.M. Rehman¹, A.D. Grayson², D.M.T. Saravanan¹, S.G. Ray¹, R.D. Levy¹, I. Kadir¹, B. Bridgewater¹

1 University Hospital of South Manchester; 2 Southport and Ormskirk NHS Trust

Objective: To assess the impact of introducing a transcatheter aortic valve implantation (TAVI) service on conventional aortic valve surgical activity and outcomes.

Methods: A single-centre retrospective analysis of data from 815 consecutive patients undergoing isolated aortic valve replacement (AVR) or coronary artery bypass grafting (CABG) plus AVR from January 2006 to December 2009 was undertaken. Fifty consecutive patients who underwent TAVI from January 2008 to December 2009 were also included in the analysis.

Results: In the two years following the introduction of TAVI at our centre, conventional AVR activity has increased by 37% compared to an 8% increase nationally (p<0.001). Compared to the two years prior to TAVI there was no change in the mean logistic EuroSCORE (7.4 Vs 7.9 p=0.16) or crude mortality rate (2.9% Vs 2.1% p=0.48). During this period 28 high-risk patients referred for TAVI underwent conventional AVR with a 30-day mortality rate of 3.6%, and fifty patients underwent TAVI with a 30-day mortality rate of 0%. The mean logistic EuroSCORE of the high risk conventional AVR patients and TAVI patients was 19.9 and 25.3 respectively.

Conclusions: Since the introduction of a TAVI service at our centre, conventional AVR activity has increased. Despite a trend of increasing mean logistic EuroSCORE there has been a non-significant reduction in crude mortality rate. A number of patients initially referred for TAVI have undergone conventional AVR with an acceptable 30-day mortality. Offering a TAVI service has a positive impact on the volume of conventional AVR surgical activity.
Objective: Transcatheter Aortic Valve Implantation (TAVI) is a new and innovative treatment for high risk patients with native aortic stenosis. Standard approaches for TAVI are either through Transfemoral (TF) or Transapical (TA) route. We report an alternative approach through the ascending aorta (TAo) to implant Edwards SAPIEN THV valve in select patients. We also discuss the advantages and future application of this approach.

Methods: A total of 170 patients underwent TAVI using the Edwards Lifesciences Sapien THV valve in our institution, of which 12 patients (7%) underwent TAVI using a TAo route. The indications for TAo approach over TA were: severe chest wall deformity (2), poor lung function (8) and poor left ventricular function (2).

Results: The mean age was 77.9±13.7 years and 7/12(58%) were females. Mean Logistic Euroscore was 41.3±21.2%. The mean ejection fraction was 45±16.5%. All procedures were performed under general anaesthesia. Valve sizes used were 23mm (8/12, 66.6%) and 26mm (4/12, 33.3%). Procedural success was achieved in all patients. Post procedural peak gradient was 10.5±4.5mmHg. None of the patients had >Grade 1 AR at discharge. None of the patients sustained neurological, vascular or renal complications. The median length of stay was 8 days. There was no 30-day mortality.

Conclusion: We have successfully used the TAo route in patients deemed unsuitable or high risk for conventional approaches. TA approach is technically always feasible but not necessarily desirable in patients with severe chest deformity, poor lung function or previous pulmonary complications. Thoracotomy is also associated with pain and risk of pleural effusion which can prolong recovery. Further it avoids access site complications associated with TA route i.e. ventricular tear and pseudoaneurysm formation. It is possible that this approach may become preferred over TA especially if there is shift in using this technology for lower risk patients.
Aortic Valve Surgery in Octogenarians: How has Transcatheter Aortic Valve Implantation Changed the Surgical World

Authors: S. Chaubey, V. Bapat, R. Deshpande, J. Roxburgh, R. Dworakowski, J. Desai, C. Young, O. Wendler

1 Kings College Hospital; 2 St Thomas Hospital

Objectives: Transcatheter Aortic Valve Implantation (TAVI) is an alternative to aortic valve replacement (AVR). Limited data is available on how TAVI has changed numbers, demographics and outcomes in octogenarian patients.

Methods: Patients with aortic stenosis (AS) who underwent primary AVR±CABG were analysed and grouped according to time before TAVI (Group Ia, n=362, Jan/03-Dec/07) and after TAVI started (Group Ib, n=277, Jan/08-Dec/09), and compared with patients who underwent TAVI (n=151, Aug/07-Dec/09).

Results: The total number of octogenarian patients with AS operated/year increased after TAVI was started from 70.4 (2003-2007) to 214 (2008-2009) (p=0.002). Although mean age was similar in the groups (Ia:83.6, Ib:83.8, TAVI:82.5), risk profile of AVR patients decreased over time. Coronary artery disease reduced to 53.8% (Ib) vs 65.4% (Ia) (p=0.03) and logistic EuroSCORE to 18.2% (Ib) vs 20.2% (Ia) (p=0.016). The incidence of diabetes mellitus (29.4%), COPD (40.9%) and pulmonary hypertension (60.5%) were significantly higher in TAVI compared to Ia and Ib (p<0.001). The logistic Euroscore was similar between Ia (20.2%) and TAVI (21.6%). Postoperative incidence of stroke (Ia:4.7%, Ib:2.9%, TAVI:6%) and thirty-day mortality were not significant different with the highest mortality in Ia (11.9%) (Ib:7.3%, TAVI 9.9%).

Conclusions: Since TAVI started, the number of octogenarians with AS who undergo surgical/interventional treatment in our institution has steadily increased. Although the overall risk score of patients has increased, the risk score for patients undergoing conventional AVR has decreased, reflecting the increasing number of higher-risk patients undergoing TAVI.
Outcomes of Patients with Previous Cardiac Surgery Undergoing TAVI Compared with Redo Surgical AVR

Authors: S.G. Jones; N. Abdulkareem; S.J. Brecker; M. Jahangiri

St George’s Hospital

Objectives: Surgical aortic valve replacement remains the gold standard treatment for aortic valve disease. Increasing numbers of elderly patients with multiple comorbidities are referred for transcatheter aortic valve implantation (TAVI), partly due to the perceived high risks of surgery. These include particularly patients who have had previous cardiac surgery. We compare the outcomes of patients undergoing TAVI with redo surgery in a subset of patients who have had previous cardiac surgery.

Methods: We identified patients with aortic valve disease referred to our multidisciplinary meeting who had had previous cardiac surgery. Patient characteristics were noted as well as their allocation to either redo surgery or TAVI. Twenty of these patients were allocated to TAVI. These were matched to 20 who had been referred for TAVI and subsequently had redo surgery. Treatment modalities were chosen individually according to the EuroSCORE and other factors unaccounted for in traditional scoring tools.

Results: From June 2008 to March 2010, 191 patients were discussed. 63 underwent TAVI, 20 of whom had undergone previous cardiac surgery. There was no significant difference in the EuroSCORE between groups (18±2 vs 19±3, p=0.91). TAVI patients had a higher BMI (27.1±3.9kg/m2 vs 21.8±0.5kg/m2, p=0.0001). There were no deaths at 30 days in either group. One (5%) patient in the transcatheter group had a TIA post procedure, and one (5%) had a haematoma at the site of arterial puncture requiring exploration. There were more pacemaker implantations in the transcatheter group (25% vs 0%, p=0.02).

Conclusions: Improved risk stratification and understanding of it in patients with aortic valve disease and previous cardiac surgery is required in order to identify those who would benefit from surgery compared to TAVI. Despite the perceived high risks in the surgical group, there were no deaths and patients had lower rates of stroke and pacemaker implantation than those who underwent TAVI.
058 The Use of Transcatheter Valve-in-Valve Implantation in Patients with Degenerated Aortic Bioprostheses

Authors: O. Nawaytou; O. Wendler; R. Attia; K. Macgillivray; R. Dworokowski; P. MacCarthy; M. Thomas ; R. Deshpande ; C. Young ; V. Bapat

King’s Health Partners

Objectives: Reoperations for degenerated aortic bioprostheses and homografts carry a high risk especially in patients with multiple comorbidities. Transcatheter Aortic Valve Implantation (TAVI) is a new and innovative treatment for high risk patients with native aortic stenosis (AS). We present our experience with TAVI as a valve-in-valve (V-in-V) procedure in this cohort of patients.

Methods: A total of 300 patients underwent TAVI using the Edwards Lifesciences Sapien(tm) valve at our institution, of which 9 patients (3%) underwent transapical TAVI as a V-in-V procedure. Seven of those were degenerated bioprostheses and two were homografts. The mean age was 77.8 ± 8.33 and 5 (56%) were females. The mean logistic Euroscore was 29.59 ± 10.35% and STS score was 8.0 ± 5.18%. The mean ejection fraction was 46.44 ± 9.54%. Aortic stenosis was predominant in 5 and aortic regurgitation (AR) in 4 and 89% were in New York Heart Association functional class III-IV. All procedures were performed under general anaesthesia and the transapical approach was used in all patients. Valve sizes used were 23mm (n=6, 67%) and 26mm (n=3, 33%).

Results: Procedural success was achieved in all patients (100%). Post procedural mean and peak gradients were 8.78 ± 4.84 and 15.33 ± 7.60 mmHg, respectively. None of the patients had > Grade 1 AR at discharge. None of the patients sustained neurological, vascular or renal complications. One patient required insertion of a permanent pacemaker for persistent AV block. There was no 30 day mortality.

Conclusions: The use of transapical TAVI as a valve-in-valve for the treatment of degenerated bioprostheses is feasible with excellent short term results in this cohort of high surgical risk patients. Use is dictated by the internal diameter of the degenerated bioprosthesis and longer follow up periods are needed to assess the durability of this treatment option if it were to become an option for lower risk patients.
Maximising Cardiac Output and Coronary Conduit Flow in the Immediate Post CABG Patient by Varying Pacing Modality, A/Delay and Rate

Authors: S. Jahangeer; M. Hargrove; K. K. Doddakula; A. O’Donnell; T. Aherne; J. Hinchion
Cork University Hospital, Ireland

Objective: Patient requiring external pacing support in the immediate post isolated coronary artery bypass graft (CABG) population were investigated to ascertain the most appropriate pacing modality.

Method: 60 consecutive patients undergoing CABG, who requiring temporary pacing post bypass were studied. Cardiac conduit flow was measured using an ultrasonic transit time flow probe. Cardiac output (CO) was also measured using a pressure contour analyzer. An external pacing box was used to programme different pacing modalities, rate, and Atria-Ventricular (A/V) delays. Conduit flows and CO were compared for each of these pacing parameters.

Phase 1
Coronary conduit flow measurements were compared using VVI versus DDD pacing.

Phase 2
Comparison of CO, coronary conduit flow with varying pacing modalities of VVI, AAI, DDD, DDD Bi vent and VVI Bi pacing.

Phase 3
Cardiac output versus rate and A/V delay in the CABG patients.

Results:

Phase 1
All patients who received DDD pacing had a higher coronary conduit flow in the immediate post operative period when compared to VVI pacing alone.

Phase 2
AAI is superior to DDD, DDD Bi, and VVI with respect to CO. AAI is superior to DDD and VVI Bi with respect to MAP and coronary conduit flow. All parameters were higher in DDD than DDD Bi.

Phase 3
AAI pacing with a/v delay of 150 - 200 mSecs significantly increases CO. Maximum CO were achieved with an A/V delay of 200 mSecs at rate of 90 bpm. Lowest CO at 60 bpm and an A/V delay 50 mSecs.

Conclusion: Patients requiring pacing post isolated coronary artery graft with complete heart block should be paced in DDD mode with a A/V delay of 150 -200 mSecs with a maximum rate of 90 bpm. Patients with slow conduction should be paced in AAI mode with a long A/V delay 200 mSecs. VVI, DDD and VVI Bi ventricular pacing and rates below 60 bpm have the lowest cardiac output in the study group.
**060 The Impact of Major Peri-Operative Renal Insult on Long-Term Renal Function and Survival after Cardiac Surgery**

**Authors:** V. Srivastava; C. D’Silva; M.N. Bittar; J. Zacharias; J. Au; D.L. Ngaage  
Victoria Hospital, Blackpool

**Objectives:** Temporary renal replacement therapy (RRT) facilitates recovery from major peri-operative renal injury and although it can improve hospital outcome following cardiac surgery, it is not known if it mitigates long-term renal sequelae. This study investigates the risk of long-term dialysis and late survival in patients who received temporary RRT after cardiac surgery.

**Methods:** Prospectively collected data for all hospital survivors who received RRT following cardiac surgery between March 1996 and July 2010 were analysed. Patients on dialysis preoperatively and those with functioning renal transplant were excluded. Follow-up data were obtained from the NHS tracing service and telephone interviews with respective General Practitioner.

**Results:** Of 86 patients who had RRT following cardiac surgery, 22 (25.6%) were females and mean age was 68.5 ± 9.8 years. Mean additive EuroSCORE was 7.26 ± 3.6. Pre-existing renal dysfunction (creatinine > 200 μmol/L) was present in 17.4% (n=15) and diabetes in 31 (36%). Twelve patients (14%) had redo operation and 9 (11%) thoracic aortic surgery.

During a 14-year follow-up, there were 33 late deaths (38.4%) but none of the long-term survivors had received dialysis. However, 39% had mild to moderate renal dysfunction. The 5 and 10-year survival rates for this patient cohort were 62% and 47% respectively.

**Conclusions:** Major peri-operative renal insult requiring temporary renal replacement therapy after cardiac surgery does not increase the risk for renal dialysis in the long term, and perhaps late deaths.
061 Cognitive Decline after Coronary Artery Bypass Graft Surgery: Time to Reconsider the Evidence?

**Authors:** F.K. Cormack¹, D.J. McCormack², W.I. Awad², A. Shipolini², M. Underwood³, T. Baldeweg⁴, A.M. Hogan⁴

¹ UCL Research Department of Clinical, Educational and Health Psychology; ² London Chest Hospital; ³ Division of Cardiothoracic Surgery, Prince of Wales Hospital, Faculty of Medicine, The Chinese University of Hong Kong; ⁴ UCL Institute of Child Health

**Objective:** To perform systematic meta-analysis on neurocognitive outcome following first time coronary artery bypass graft surgery (CABG), over the first post-operative year.

**Methods:** Papers published since 2000 were selected for inclusion if they used at least one measure from the 2005 consensus statement on assessment of neurobehavioral outcomes after cardiac surgery (Grooved Pegboard; Auditory Verbal Learning; Digit Symbol; Trails A & B). For inclusion, papers needed to report mean and SD in at least two time points, one being pre-operative. 234 papers were found, of which 24 met the inclusion criteria. Data were analysed using random effects analysis to allow for heterogeneity in baseline scores. Post operative data were analysed at three time points: 2 weeks or less, <3 months, 6-12 months.

**Results:** Aggregate number of patients for each analysis ranged from 171 to 1106. The table shows the changes in cognitive performance relative to pre-operative baseline. Negative Z-scores indicate a decline in performance, positive scores signify an improvement. Significant decline was observed on one measure at the early post-operative time point. Conversely, there was a significant improvement in 4/5 tests by the third month and in all tests at 6-12 months.

<table>
<thead>
<tr>
<th></th>
<th>&lt; 2 weeks</th>
<th>1-3 months</th>
<th>6-12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digit Symbol</td>
<td>Z= -2.82 p=0.004</td>
<td>Z= 4.89 p&lt;0.0001</td>
<td>Z= 4.72 p&lt;0.0001</td>
</tr>
<tr>
<td>Verbal Learning</td>
<td>Z= 0.13 n.s.</td>
<td>Z= 3.79 p=0.0002</td>
<td>Z= 6.07 p&lt;0.0001</td>
</tr>
<tr>
<td>Trails A</td>
<td>Z= 1.61 n.s.</td>
<td>Z= 3.62 p=0.0003</td>
<td>Z= 3.28 p=0.001</td>
</tr>
<tr>
<td>Trails B</td>
<td>Z= 0.40 n.s.</td>
<td>Z= 2.58 p=0.009</td>
<td>Z= 3.89 p&lt;0.0001</td>
</tr>
<tr>
<td>Pegboard</td>
<td>Z= -1.64 n.s.</td>
<td>Z= 0.5 n.s.</td>
<td>Z= 4.51 p&lt;0.0001</td>
</tr>
</tbody>
</table>

**Conclusions:** Despite the presence of a well-documented minority of patients with cognitive decline following CABG, the present data suggest an overall improvement in group performance over the first year.
062 Aspirin and Clopidogrel Resistance in Cardiac Surgical Patients, its Occurrence and Influence on Chest Drainage and Platelet Transfusion

Authors: A. Wright¹, S.V. Sheppard¹, M. Filippaki², R.S. Gill², P Diprose²

1 Dept of Perfusion, Southampton University Hospital NHS Trust; 2 Dept of Anaesthesia, Southampton University Hospital NHS Trust

Objective: In Southampton approximately 50% of cardiac surgery patients present having taken one or more anti-platelet agents within 5 days. This may increase the risk of bleeding and platelet transfusions. There is increasing awareness of aspirin and clopidogrel resistance although studies describing its occurrence vary. Therefore do drainage and transfusion vary with response?

Methods:

1. Patients taking one or both of these agents within five days of surgery who had undergone Multiplate platelet function analysis were identified from our transfusion database. Drainage and transfusion requirement were analysed.

2. A platelet function directed protocol for the transfusion of platelets was implemented; drainage and transfusion requirement were again assessed.

Results: Overall 26% of surgical patients were found to be non-responsive to aspirin and 47% to clopidogrel.

<table>
<thead>
<tr>
<th></th>
<th>Aspirin Only</th>
<th></th>
<th>Aspirin and Clopidogrel</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Responder (n=26)</td>
<td>Non-Responder (n=11)</td>
<td>p</td>
<td>Responder (n=51)</td>
</tr>
<tr>
<td>4hr Drainage</td>
<td>260 (140-320)</td>
<td>80 (60-100)</td>
<td>0.001</td>
<td>180 (120-220)</td>
</tr>
<tr>
<td>Platelets Transfused</td>
<td>73% (n=38)</td>
<td>55% (n=28)</td>
<td>0.47</td>
<td>75% (n=31)</td>
</tr>
<tr>
<td>After Implementation of Platelet Protocol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4hr Drainage</td>
<td>160 (73-227)</td>
<td>140 (80-252)</td>
<td>0.83</td>
<td>200 (113-407)</td>
</tr>
<tr>
<td>Platelets Transfused</td>
<td>68% (n=38)</td>
<td>19% (n=28)</td>
<td>0.001</td>
<td>77% (n=31)</td>
</tr>
</tbody>
</table>

Table 1. Variation in drainage and transfusion in responders and non responders to anti-platelet medication

Conclusion: Response to aspirin and clopidogrel varies greatly in surgical patients; chest tube drainage is reduced in non-responders. Determination of platelet function intra-operatively using Multiplate in conjunction with a transfusion protocol can reduce inappropriate platelet transfusion.
063 Safety and Efficacy of Recombinant Factor VIIa in the Treatment of Post Cardiotomy Haemorrhage

Authors: S. F. Hashmi; S. Kuyumdzhiev; Z. Mahmood; L. Anderson; V. Pathi; G.A. Berg
West of Scotland Heart and Lung Centre, Golden Jubilee National Hospital, Clydebank

Objective: Severe post cardiotomy bleeding is often associated with generalised coagulopathy. The use of Recombinant factor VIIa (rFVIIa) after cardiac surgery has been controversial due to the theoretical risk of enhanced thrombin generation causing thrombotic complications. The purpose of our study is to investigate whether rFVIIa administration, where generalised coagulopathy & surgical bleeding coexist, can potentially lead to cardiac tamponade.

Methods: 2321 patients underwent adult cardiac surgery procedures at our institution from April 2008 to December 2009. We retrospectively analysed all patients who received rFVIIa to examine the safety and efficacy of rFVIIa in our unit. End points were (A) generalised intractable postoperative bleeding requiring rFVIIa as a salvage medication resulting in thrombosis of mediastinal drains and cardiac tamponade (B) hospitalisation and (C) hospital mortality.

Results: 18 (1%) patients received rFVIIa either in operating room or intensive therapy unit. Mean dose of rFVIIa was 7.3 mg. The number of blood products used and mean amount of bleeding reduced significantly post rFVIIa administration (Table 01) Variables are expressed as means.

<table>
<thead>
<tr>
<th></th>
<th>Pre rFVIIa</th>
<th>Post rFVIIa</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total chest drainage (mls)</td>
<td>2345</td>
<td>734</td>
<td>0.003</td>
</tr>
<tr>
<td>Packed red cells (units)</td>
<td>8</td>
<td>2</td>
<td>0.002</td>
</tr>
<tr>
<td>Fresh frozen plasma (units)</td>
<td>10</td>
<td>2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Platelets (units)</td>
<td>3</td>
<td>0</td>
<td>0.132</td>
</tr>
<tr>
<td>Cryoprecipitate (units)</td>
<td>2</td>
<td>0</td>
<td>0.345</td>
</tr>
</tbody>
</table>

6 (33%) p= 0.002 patients developed cardiac tamponade due to thrombosis of mediastinal drains requiring emergency resternotomy. 2 (11%) patients developed thromboembolic complications. Mean hospital stay receiving rFVIIa was 24 days. 30 days Hospital mortality was 16%(3).

Conclusion: Although very effective in restoring haemostasis, we suggest administration of rFVIIa only in cases of intractable bleeding, where a surgical cause is excluded and laboratory tests confirm the presence of generalised coagulopathy. This may prevent cardiac tamponade due to thrombosis of mediastinal drains which increases patient morbidity.
Does Delayed Removal of Left Pleural Drain after CABG Affects Development of Left Pleural Effusion?

**Authors:** D. Agrawal¹, S. Prasad²

1 New Royal Infirmary, Edinburgh; 2 New Royal Infirmary, Edinburgh

**Objective:** CABG is common cause of pleural effusion. This occurs at varying intervals but common in early post-operative period (41% to 87%). It either results from atelectasis from diaphragm dysfunction or haemorrhagic effusions from IMA harvesting. The incidence of re intervention for pleural effusion after CABG in our unit is very high (18%). As per protocol chest drains are removed when the drainage is <120 ml over last 6 hrs. To assess the impact of delayed removal of left pleural drain on re intervention for clinically and radiological significant pleural effusion.

**Methods:** An audit was undertaken on 228 CABG pts operated by one consultant over 21 months from Oct. 2008 to June 2010.

Phase 1 (114 Pts operated in First 11 months) - all drains were removed when the limit of drainage reached agreed protocol.

Phase 2 - (114 Pts operated in next 10 months) - the Lt pleural drain was left for another 24 hrs after the drainage was <120 ml in 6 hrs.

**Results:**

Phase 1 - 18 pts (15.78%) required re intervention (pleural drain or aspiration) for clinically & radiologically significant pleural effusion (moderate to large). One pt develop haemothorax due to injury to lung during drain insertion required thoracotomy.

Phase 2 - 2 pts (1.75%) required re intervention.

The hospital discharge was delayed by a median of 2 days (range 2-3 days) to a total of 41 days for 15.78% patients who required re intervention. The cost of delay in discharge is estimated as approximately £41000 & shortage of available bed for new admissions.

**Conclusion:** The delayed removal of left pleural drain reduces the need for re intervention & has direct positive impact on patient safety by avoiding complications related to procedure & cost savings by reducing the number of bed occupancy days. A prospective randomised trial is currently on the way for impact assessment.
The Missing Link: The Role of the Cardiac Surgical Care Practitioner in Bridging the Service-Training Gap

Authors: A. H. Walker; S.E. Deacon; L. Hadjinnikolaou

Glenfield Hospital

Objectives: Mandatory publication of surgeon-specific data (April 2002) and implementation of the EWTD (August 2004) highlighted difficulties balancing the requirements of service provision with surgical training. This study explores our centre’s use of Surgical Care Practitioners (SCP) in bridging the service-training gap over the past decade.

Hypotheses:
1. Use of SCPs has no effect on cardiac surgical trainees’ (ST) operative experience
2. Use of SCPs has no influence on short-term outcomes following cardiac surgery

Methods: After a retrospective analysis of our prospective database from January 2000 to January 2010, 11658 eligible cases were divided by 2 groups: Group I (n=10201) performed by a consultant and ST and Group II (n=1457) performed by consultant and SCP. Analysis was undertaken by a single observer with p values <0.05 taken as significant.

Results: In any 6-month period there were more cases per ST (132) than per SCP (20), p<0.001. SCPs assisted 18.7% (SD 6.2%) of CABG, 15.0% (SD 6.5%) of valve procedures and 13.8% (SD 8.7%) of complex cases, p=0.044. Group II accounted for 5.9% of cases prior to publication of outcome data and 14.6% (p<0.001) following its introduction. Group II accounted for 10.6% of cases prior to and 14.2% (p<0.001) following the implementation of the EWTD.

The outcome data are shown in Table One.

<table>
<thead>
<tr>
<th></th>
<th>Group I</th>
<th>Group II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean CBP (mins)</td>
<td>94</td>
<td>90*</td>
</tr>
<tr>
<td>Mean CPB (mins)</td>
<td>58</td>
<td>54*</td>
</tr>
<tr>
<td>ITU stay (days)</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>In-patient stay (days)</td>
<td>11.2</td>
<td>11.1</td>
</tr>
<tr>
<td>ITU re-admission (percentage)</td>
<td>3.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Re-exploration (percentage)</td>
<td>12.6</td>
<td>12.2</td>
</tr>
<tr>
<td>In-hospital Mortality (percentage)</td>
<td>4.2</td>
<td>4.0</td>
</tr>
</tbody>
</table>

*p<0.001

Conclusion: Although Group II activity has increased since the EWTD and publication of surgeon-specific outcomes, trainees still do significantly more cases as 1st assistant than SCPs. Surgical trainee assisted procedures have longer cardio-pulmonary bypass and cross-clamp times, possibly due to perioperative teaching, but this is not associated with poorer short-term outcomes. This study demonstrates use of SCPs to be a safe and effective way to sustain departmental activity within the constraints of modern surgical practice, whilst allowing the maintenance of surgical training.
066 Prioritising Non-Elective Patients: Do They All Need to Wait in Hospital?

Authors: C. Bannister¹, S.A. Livesey²

1 Southampton University Hospital NHS Trust; 2 Southampton General Hospital

Objectives: The Rexius Scoring System is a risk stratification process which uses criteria to prioritise patients waiting for non-elective cardiac surgery. The aim of this study was to identify the appropriateness of our practice by implementing this process. As a Nurse Case Manager, this system is useful, as decisions can be made about the order in which non-elective patients are to be treated. Potential low risk patients can be assessed in order to send them home with a date for surgery, thereby saving bed days and cost.

Methods: In a 4 month period 151 patients were referred to our unit for non-elective cardiac surgery. Of those 115 were male, 49 had a Left Main Stem Stenosis and 74 had a troponin positive Acute Coronary Syndrome. 65 were referred primarily for valve surgery. Median age of patients was 72 years (40-89). Mean Additive EuroSCORE was 5.52 (±2.89SD).

Results: Using this risk stratification process, 61 patients were deemed high risk, 85 patients medium risk and 5 patients low risk. These 5 patients, according to the system, could have theoretically been sent home with a date for surgery within 4 weeks of admission. However, on clinical assessment this was clearly not appropriate. Of the 151 patients, 140 were accepted for cardiac surgery, 8 were not accepted, 2 had their transfers revoked by the District General Hospital and 1 patient decided he did not want surgery. 4 patients died whilst waiting for surgery and 4 patients died following their surgery.

Conclusions: The Rexius Scoring System is useful for prioritising non-elective patients, and in our practice, the referral was appropriate for all patients referred for urgent in-patient surgery. Therefore all patients did need to wait in hospital for in-patient transfer and operation.
067 The Impact of the Post-Operative ‘Fast-Track’ Protocol on Patient Management and Outcomes Following Cardiac Surgery

Authors: A. Sharkey; G. Chetty; PC Braidley; N. P Briffa; G. J. Cooper; D. N. Hopkinson; S. Forlani; T. J. Locke; P. K. Sarkar; G. A. L. Wilkinson

Northern General Hospital

Objectives: A stay on the intensive care unit (ICU) is a significant component of the cost of cardiac surgery. There has been a move to ‘fast-track’ patients, involving early extubation, and management on a high dependency unit. We sought to determine if there was any difference in postoperative management and complication rates between patients who were fast-tracked and those who were not.

Methods: Our Infoflex hospital database identified patients who underwent coronary artery bypass grafting x3 (CABG) or aortic valve replacements (AVR) during a 6-month period. 10 consecutive patients from each operative group who were fast-tracked, and 10 who were suitable to be fast-tracked, but were not, were identified. A retrospective case note review was performed. Patient demographics, operative and postoperative management and complication data was analysed.

Results: Mean age was comparable and there was no significant difference in logistic Euroscore, cross-clamp times or bypass times between the groups. Fast-tracked patients had a significantly shorter time to extubation (CABG 3.09 vs. 5.66 hours p=0.02, AVR 2.26 vs. 5.84 hours p=0.00003) and lower volumes of intravenous fluids given post-operatively (CABG 2.95 vs. 4.00L p=0.006, AVR 2.76 vs. 3.34L p=0.018). In the CABG groups there was a significantly lower percentage of patients requiring inotropic support in the fast-tracked group, 20% vs. 70%. There was also a lower respiratory complication rate in the CABG group who were fast-tracked, zero vs. 30%.

Conclusions: Fast-track protocols should be employed for all suitable patients regardless of their position on the operating list to reduce unnecessary ICU stay and the potential complications associated with it.
068 Comparing Outcome of Patients admitted Same Day for Lung Resection with Patients admitted before the Day of Surgery

**Authors:** S. Attaran; J. McShane; M. Diab; I. Whittle; M. Carr; M. Poullis; H. El-Sayed; N. Mediratta; M. Shackcloth

Liverpool Heart and Chest Hospital

**Objectives:** Some of the complications of lung resection for lung cancer are negatively related to the period of inactivity preoperatively. This may increase the risk of postoperative thrombo-embolic events or pneumonia, which may affect the outcome, postoperatively. In this study we aimed to compare the postoperative outcome between the patients admitted for lung resection the day of surgery with those were admitted before the day of the operation.

**Methods:** In a period of 10 years, 81 patients were admitted on the day of lung resection for 68 malignant and 13 benign lesions. Their postoperative outcome was compared with 3174 patients that were admitted previous to the day of surgery.

**Results:** Preoperative and operative characteristics such as mean age, sex, lung function test and procedure type were comparable between the two groups (p>0.05). Similar pathological distribution and stage of the disease were observed between the groups, except for the secondaries, which was significantly higher in the same day admission group (p=0.02). Postoperatively, respiratory and cardiovascular complications as well as the incidence of wound infection were found to be similar between the groups. Rate of deep vein thrombosis or pulmonary embolism was <1% in both groups (p=0.8). Mortality was 4% for the same day admission compared to 2% in the other group (p=0.2).

**Conclusion:** The main factors influencing postoperative outcome and survival after lung resection are patient characteristics and the pathology/stage of the tumour. Admitting the patients for lung resection on the day of the surgery does not have any positive or negative effects on the outcome but can be cost effective.

<table>
<thead>
<tr>
<th>Postoperative outcome/ complications, n (%)</th>
<th>Same day admission n=81</th>
<th>Admission before surgery n=3174</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITU stay &gt;2days</td>
<td>15 (19.7)</td>
<td>660 (20.8)</td>
<td>0.36</td>
</tr>
<tr>
<td>ITU readmission</td>
<td>4 (4.9)</td>
<td>201 (6)</td>
<td>0.41</td>
</tr>
<tr>
<td>Respiratory complications</td>
<td>17 (21)</td>
<td>782 (24.6)</td>
<td>0.27</td>
</tr>
<tr>
<td>Cardiovascular complications</td>
<td>10 (12.3)</td>
<td>337 (10.6)</td>
<td>0.42</td>
</tr>
<tr>
<td>Wound complications</td>
<td>0 (0)</td>
<td>37 (1.2)</td>
<td>0.39</td>
</tr>
<tr>
<td>In- hospital mortality</td>
<td>3 (4)</td>
<td>70 (2)</td>
<td>0.27</td>
</tr>
<tr>
<td>Pulmonary Embolism</td>
<td>0</td>
<td>6 (0.19)</td>
<td>0.85</td>
</tr>
<tr>
<td>Deep vein thrombosis</td>
<td>0</td>
<td>1 (0.03)</td>
<td>0.97</td>
</tr>
</tbody>
</table>
069  Could Thoracoscore Accurately Predict In-Hospital, 30-Days and Midterm Mortality in Patients Undergoing Pneumonectomy?

Authors: S. S. A. Qadri¹, M. Chaudhry¹, A. Cale², M. Loubani²

1 Castle Hill Hospital, Cottingham, Hull; 2 Castle Hill Hospital, Cottingham

Objectives: Thoracoscore has been introduced to assess in-hospital mortality of patients undergoing thoracic surgery. It is now part of new British Thoracic Society guidelines to evaluate operative mortality risk. This retrospective study examines the accuracy of Thoracoscore in predicting in-hospital, 30-days and midterm mortality in patients undergoing pneumonectomy.

Methods: We analysed the data for all patients who underwent pneumonectomy for all causes, from January 1998 to March 2008. Thoracoscore was calculated based on the following variables: age, gender, priority of the procedure, malignancy, type of procedure, Zubrod score, ASA class, and number of co-morbidities.

Results: 243 patients with 81% males and mean age of 63±9 were included. The predicted in-hospital mortality based on Thoracoscore was 8±2.6% (95% confidence interval 4.56-11.43), while actual in-hospital mortality was 4.5% (11/243) (95% confidence interval 1.87-7.12). 30-days, 1 year, 2 years and 3 years observed mortality was 5.3%, 29%, 43% and 55% respectively. 54% (6/11) of in-hospital mortality was of those who were >70 years old and 73% (8/11) patients died in-hospital were male. 9/11 (82%) patients had pneumonectomies for malignancy.

Conclusions: Although with advanced age, the male population and malignancy proved to be a strong predictor for in-hospital mortality in our study, Thoracoscore failed to predict accurate risk of in-hospital, 30-days or midterm mortality in our study group. Further studies are required to validate the Thoracoscore in different sub-groups of thoracic surgery.
070 Myocardial Infarction after Thoracic Surgery: Can the Revised Cardiac Risk Index Identify Patients at Risk?

Authors: L. Okiror; L. Seow; J. Lyne; E. Lim

Royal Brompton Hospital

Objective: The Revised Cardiac Risk Index (RCRI) is recommended to screen for patients at risk for developing peri-operative cardiac complications. As much of the evidence to support this was obtained from non-thoracic surgery cohorts, we sought to evaluate the test performance of RCRI in patients undergoing thoracic (non-cardiac) surgery.

Methods: We conducted a retrospective review of patients undergoing thoracic surgery between March 2007 and August 2010. Troponin I results were obtained from electronic records on the first post-operative day and electrocardiograms obtained from patient case notes. Test performance of the RCRI to predict post-operative myocardial infarction was assessed using standard methodology of area under the receiver operator characteristic curve.

Results: A total of 510 patients’ records were reviewed. The mean age (SD) of the cohort was 57 (19) years, and 318 (62%) were men. One hundred and seventy five patients had a postoperative Troponin I performed and 60 (34%) were elevated above the reference range. Twelve patients (7%) fulfilled current ESC/ACC/AHA criteria for diagnosis of myocardial infarction. No patients developed post-operative pulmonary oedema, ventricular fibrillation, primary cardiac arrest, complete heart block or cardiac-related death. The test performance of RCRI to predict post-operative myocardial infarction was poor at 0.50 (95% CI 0.42-0.59).

Conclusions: National and international guidelines should reconsider recommendations on the use of RCRI for cardiac risk assessment in thoracic surgery as our cohort demonstrated no discriminating ability to predict who would develop peri-operative myocardial infarction.
A Propensity-Matched Comparison of Survival after Lung Resection in Patients Readmitted to Intensive Care versus Patients with No Readmission

Authors: S. Attaran; J. McShane; N. Ainsborough; I. Whittle; M. Carr; M. Poullis; N. Mediratta; H. El-Sayed; M. Shackcloth

Liverpool Heart and Chest Hospital

Objectives: Patients undergoing lung resection for cancer already suffer from several co-morbidities and may have impaired lung function. Readmission to intensive care unit (ICU) after initial recovery in these patients is not uncommon (5-9%). In this study we aimed to compare the outcome and survival rates of these patients with patients who were not readmitted to ICU after lung resection for lung cancer.

Methods: We reviewed patient data for a ten-year period; a total of 1981 patients who had lung resection for lung cancer were included. Of these patients 131 (6.6%) were readmitted to ICU due to respiratory failure. For our analysis, we excluded all the cases that died in hospital. A logistic regression model was then used to develop a propensity score for readmission to the ICU and non-readmitted patients were matched to readmitted patients based on propensity score at a ratio of 3:1. We also used the Kaplan-Meier survival curves before and after matching for the patient characteristics, procedure, type and the stage of the cancer.

Results: Mortality rate was 29.7% (n=39) in readmitted group and only 0.4% (n=8) in the non-readmitted group (p<0.001). At three years the difference in the survival between the two groups was similar after matching, however after this time, patients who were readmitted showed a worse survival rate but this did not reach the statistical significance (p=0.07).

Conclusions: ICU readmission is associated with high in-hospital mortality. However, the patients who were readmitted to ICU after lung resection and survived this episode and were discharged home had the same rate of survival rates compared to their non-readmitted counterparts. We conclude that in patients with lung cancer undergoing lung resection, readmission to ICU is an independent factor affecting short-term, but not long-term survival.

<table>
<thead>
<tr>
<th>Time</th>
<th>Raw Unmatched Groups</th>
<th>Propensity Matched Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not Readmitted, Survival %</td>
<td>Readmitted, Survival %</td>
</tr>
<tr>
<td>Time=0</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1 Year</td>
<td>87</td>
<td>63</td>
</tr>
<tr>
<td>2 Years</td>
<td>74</td>
<td>50</td>
</tr>
<tr>
<td>3 Years</td>
<td>66</td>
<td>42</td>
</tr>
<tr>
<td>4 Years</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>5 Years</td>
<td>56</td>
<td>23</td>
</tr>
<tr>
<td>Log Rank Test</td>
<td>p &lt; 0 .0001</td>
<td>p = 0.07</td>
</tr>
</tbody>
</table>
072 Predicting Risk of Intensive Care Unit Admission after Resection for Non-Small Cell Lung Cancer: a Validation Study

Authors: E. Lim; L. Okior; N. Patel; G. Ladas; M. Dusmet; S. Jordan; P. Kho; J. Cordingley

Royal Brompton Hospital

Objective: A simple model has reported good discriminating ability to predict the risk of intensive care unit (ICU) admission after lung resection, and advocated for patient management and benchmarking centre performance. However it has not been validated outside of the derivation cohort. The aim of our study was to validate the predictive model at our institution.

Methods: We conducted a retrospective review of a series of consecutive patients who underwent major lung resections at our institution over a six year period. Test performance was evaluated by area under the receiver operator characteristic (ROC) curve.

Results: Between January 2003 and July 2008, 406 patients underwent major lung resections for primary lung cancer. The mean age (SD) of the cohort was 65 (10) years and 241 (57%) were men. A total of 77 (19%) patients were admitted to ICU, 47 for elective admission and 30 (7%) for treatment of post-procedure complications. Of the 30 patients admitted for treatment (post-operative complications), the median time (IQR) to admission was postoperative day 2 (1 to 4 days) and the median length of ICU stay was 3 (1 to 15) days. The area under the ROC curve for our cohort of patients was 0.66 (95%CI 0.53 to 0.79), indicating moderate discriminating ability.

Conclusions: The Brunelli scoring system had only moderate discriminating ability to predict the risk of ICU admission.
Objective: We reviewed all thoracic surgical mortality at our institution over a five-year period. Causes of death were determined to assess whether death may have been prevented.

Methods: We undertook a retrospective review of patients undergoing thoracic surgery between January 1st, 2004 and October 1st, 2009. In-hospital mortality was identified from audit records and annual returns to the SCTS. Causes of death were identified and the post-operative course was scrutinized. All deaths were reviewed and categorized as being either preventable or unpreventable.

Results: 2705 patients underwent thoracic surgical procedures between January 1st, 2004 and October 1st, 2009. There were 23 deaths resulting in a mortality rate of 0.08%. The median time to death following surgery was 7 days (IQR 3-13). The commonest cause of death was bronchopneumonia (26%). Of the 23 deaths 6 (23%) were considered to be potentially preventable and the remaining 17 (77%) were judged to have been unpreventable.

Conclusions: Thoracic surgery in the current era is associated with a very low operative mortality. Furthermore, only a small proportion of deaths are preventable with the majority related to end-stage lung disease and advanced malignancy.
074 Is there a need for Prospective International Database for Thymomas?

Authors: K. Nagarajan; W. Dudek; M.S.K. Kalkat ; E. Bishay; R.S. Steyn; B. Naidu; PB. Rajesh; M.Z. Abdelaziz

Birmingham Heartlands Hospital

Objective: Analysis of survival outcomes following surgical treatment of thymomas is complex because of their rarity, prognosis, surgical and histological staging. Published data usually comprises single centers reports spanning many decades. We present our institution data as an illustration of some of these issues and so demonstrate the need for an international collaborative.

Methods: We retrospectively analysed our patient records and pathological database at Birmingham Heartlands Hospital from 1992-2009 to include patients who underwent surgical resection for thymomas. Data was analysed with Kaplan-Meier survival and Cox regression analysis.

Results: 75 patients were identified, with a mean age of 59 yrs (SD ± 13). The resection was complete in 72% of the patients. The mean size of the resected specimen was 86cm (SD ± 44). The capsule was minimally invaded in 30% of patients and widely in 20%. There was a wide variability in practise with respect to adjuvant chemotherapy and radiotherapy. The patients in WHO subgroups A, AB, B1, B2 and B3 were 8, 34, 4, 14 and 15 respectively. At a mean follow up of 6.7 yrs tumour related mortality was 9.3% and overall mortality was 14.7%. Further statistical analysis did not demonstrate significant association of long term survival with size of the tumour, extent of capsular invasion, WHO classification and completeness of resection.

Conclusion: Small patient numbers and variability in data recording and practise over extended time frames may make it difficult to identify prognostic factors. Groups such as ITMIG (International Thymic Malignancy Interest Group) may be able to offer standardised data collection and management protocols. This could help us identify prognostic factors and improve our understanding of this rare condition.
075 Minimally Aortic Valve Surgery through Right Anterior Thoracotomy: Early and Mid-Term Follow-Up

Authors: A.M. Miceli; D.G. Gilmanov; S.B. Bevilacqua; M.F. Ferrarini; G.C. Concistrè; M.M. Murzi; T.G. Gasbarri; P.A.F. Farneti; M.S. Solinas; M.G. Glauber; Fondazione G. Monasterio, Italy

Objectives: Outcomes after minimally invasive aortic valve replacement (AVR) via right anterior thoracotomy (RAT) have not been well described. Aim of our study was to evaluate early outcomes and midterm follow-up in patients undergoing AVR through RAT approach.

Methods: From January 2005 to June 2010, 192 consecutive patients underwent AVR through RAT approach. An incision of 5 cm was performed in all patients via the second intercostal space. Femoral venous and direct aortic cannulation were routinely used.

Results: In hospital mortality was 1.5%. Postoperative morbidity included re-exploration for bleeding (6%), conversion to sternotomy (1%), new onset atrial fibrillation (18%), stroke (0.6%), and pacemaker implantation (3%). No wound infection was reported. Median ventilation time and length of hospital stay was 6 h (5-9) and 5 days (4-6) respectively. No patients reported postoperative pain. At median follow up of 24 months (interquartile range 12-41), one non cardiac death occurred and freedom from reoperation was 99%. Ninety-five % of the patients were in NYHA functional class I, 96% felt they had an esthetically pleasing scar and 93% were back to work within 4 weeks.

Conclusions: Minimally aortic valve surgery via RAT can be performed safely with excellent results and high patient satisfaction.
076 Minimally Invasive versus Conventional Aortic Valve Replacement: A Single Centre 5-Year Experience

Authors: R. Attia; J.C. Roxburgh; C.P Young

Guy’s and St Thomas’ Hospital

Objective: Data on the impact of minimally invasive approach on clinical outcomes after isolated aortic valve replacement (MIAVR) are limited and controversial. We aimed to compare the outcomes of patients undergoing MIAVR and conventional aortic valve replacement (CAVR).

Methods: The study consisted of 152 consecutive patients undergoing first time isolated AVR between 2005 and 2010 under one surgeon. Prospectively collected data were analysed on 60 patients undergoing MIAVR (partial J sternotomy) compared to 92 patients undergoing CAVR. Univariate and multivariate analyses were performed to identify predictors of outcome.

Results: There was no in-hospital mortality in the MIAVR group vs. 2.1% in CAVR (p=0.06). Length of hospital stay and major complication rates were similar in both groups, despite the fact that MIAVR was performed in patients with a higher mean Logistic EuroScore 11.6% vs. CAVR 8.6% (p=0.02). Higher morbidity in the MIAVR group included: higher median age of 73 vs. 68 years, incidence of COPD 15/60 (25%) vs. 9/92 (9.7%) and extra-cardiac arteriopathy 10/60 (16.6%) vs. 5/92 (5.4%). There were no differences in the mean bypass time or cross clamp times MIAVR (60.4 and 45.6 mins) vs. CAVR (56.4 and 42.5 mins) respectively. Univariate analysis demonstrated that MIAVR was associated with reduced incidence of allogenic blood transfusion (27% vs. 12%, p=0.03) and chest infections (0 vs. 4.3% p=0.02). On multivariate analysis predictors for blood transfusion were increasing age (OR=2.2), prolonged bypass time (1.1) and CAVR (OR=2.3). There were no wound infections in the MIAVR group vs. 4.3% in CAVR.

Conclusion: MIAVR is safe and effective procedure that allows significant reduction in allogenic blood transfusion, wound infection and improvement of respiratory dynamics. It should be specially considered in elderly patients with poor respiratory reserve and those at high-risk of sternal wound and chest infections.
Minimally Invasive Aortic Valve Replacement (AVR) with Sutureless Valves compares well against Conventional Aortic Valves

Authors: M. Shrestha; S. Sarikouch; Y. Li; K. Hoeffler; N. Khaladj; C. Hagl; N. Koigeldiyev; A. Haverich

Hannover Medical School, Germany

Objective: The purpose of this study was to compare results of minimally invasive aortic valve replacement (AVR) with sutureless aortic valves (Sorin Perceval) against those with conventional valves.

Methods: Between 3/2009 and 7/2010, minimally invasive AVR were performed by two senior surgeons in 39 patients with symptomatic aortic valve stenosis. Of these, thirteen patients (3 females, age 74.8±10.7 years) received conventional valves (C-Group) and 26 patients (21 females, age 80±4 years) received sutureless valves (P-Group). The euroscore of C group was 7.5±3.3 and that of P group 13±9% respectively.

Results: The X-Clamp and CPB times of C group were 46.7±11.3mins and 80.3±19.4mins and that of P group were 35±10 and 71±25mins respectively. There were no mortalities within the 30 POD in either group. Two patients had to be converted to full sternotomy intra-operatively. In P group, there was one re-sternotomy due to bleeding but no stroke or conversion to sternotomy. No migration or dislodgement of the valve or paravalvular leakage was seen in follow-up.

Conclusions: This study highlights the advantages of the Perceval S sutureless valve. As the valve doesn’t need to be sutured, the minimally invasive technique is not a disadvantage, even in patients with small or calcified aortic roots. These valves may enable broader application of minimally invasive AVR.
078 Initial Experience of the Sutureless ‘ENABLE’ Valve

Authors: P.A. Gupta; P. Whitlock; K.S. Lall
St Bartholomew's Hospital

Objectives: Increasingly new methods for aortic valve replacement are being employed; interest at present is particularly focussed on alternative strategies for high risk populations. We report the use of the 3f enable aortic valve bioprosthesis (Medtronic ATS medical, Inc, Plymouth, Minnesota), a new equine pericardial self expanding valve using a sutureless implantation technique.

Methods: 5 patients with aortic valve disease underwent aortic valve replacement over a 6 month period. Mean age was 75.6 years +/- 9.78, in the group of 3 males and 2 females. The mean Euroscore was 7.2 +/- 2.94. Patients underwent post implantation TOE and ward TTE.

Results: The implanted valve diameters ranged from 21 to 29mm, with the 23mm most commonly used. Valve insertion time was 9.31mins +/- 2.25. The mean aortic cross clamp time was 43.4min +/- 5.45. Mean bypass time was 65.2min +/- 9.28. There were no major morbidities or mortalities. Intra-operative mean transvalvular pressure gradient on TOE was 5.74mmHg +/- 0.8. Post operative mean transvalvular pressure gradient on TTE was 10.99mmHg +/- 2.29. No paraprosthetic leaks were seen.

Conclusions: This new method of sutureless valve implantation is shown to be safe and efficacious. Short term follow up shows excellent haemodynamics. It has potential for use in patients requiring shorter bypass times and less invasive approaches. Medium and long term data are awaited.
Objective: The importance of minimising postoperative morbidity is widely recognised. Furthermore, enhancing clinical outcome and efficiency may reduce costs. We present a Cardiac Surgery Morbidity Database, an innovative yet simple software tool for continuous prospective monitoring of inpatient progress.

Methods: The database is written in Microsoft Access and subdivided into sections for preoperative characteristics, operative details and postoperative progress. User friendly input screens allow quick and accurate entry of data requiring less than one minute/patient/day. Within our institution, Surgical Care Practitioners have taken the lead in this role. The software provides customisable automated statistical analysis and graphical representation, making it ideal for audit purposes. Data is analysed at several tiers of complexity.

Results: For the past 6 months (May - October 2010) we have analysed data from 268 cardiac patients.

The database allows us to analyse the reasons for delays in patient progress. Some examples follow:

- 30% of patients spend more than 1 night on ITU.
- In valve replacement patients, 17% of additional HDU days were due to arrhythmia management.
- Social issues or awaiting DGH beds accounted for 8% of all ward based patient days.

Comprehensive data on preoperative co-morbidity and outcome permits anticipation of problems. Optimisation of individual patient care and overall unit performance is facilitated by this tool.

Conclusion: We have utilised a readily available database system to create an efficient tool that is modifiable to the specific user/unit needs. It can be used to focus staff efforts and thereby enhance patient outcomes and throughput efficiency.
080 Secondary Prevention following Coronary Artery Bypass Grafting: Are we Compliant with the Guidelines?

Authors: V. Joshi; B. Bridgewater

University Hospital of South Manchester

Objectives: The 2010 ESC/EACTS guidelines on myocardial revascularisation have highlighted the importance of instituting correct pharmacological therapy following CABG. Educational tools and interventional programs have been utilised towards improving awareness and compliance rates in cardiac surgical units. We undertook this study to evaluate our level of compliance with evidence based guidelines. Additionally, we wanted to see whether similar interventions could improve our discharge practices.

Methods: A case-note review of patients undergoing CABG at our centre was conducted over 11 months. Documentation in the medical records of provision of medications at the time of discharge was considered as acceptable compliance with guidelines.

Results: A total of 57 patients undergoing CABG were randomly audited. 25 case-notes were initially reviewed. Patients not discharged on an anti-platelet (1, 4%), statin (0, 0%), beta-blocker (3, 12%), or ACE-inhibitor (8, 32%) were identified. An educational lecture to junior doctors was given, which served as an intervention towards quality improvement. 32 patients undergoing CABG were then re-audited prospectively and discharge prescribing was re-evaluated. An improvement in prescribing was demonstrated as fewer patients were discharged without a beta-blocker (1, 3%, p=0.31) or an ACE-inhibitor (1, 3%, p=0.007). Anti-platelet and statin prescribing remained within acceptable standards (100% and 97 % respectively).

Conclusions: There is clearly a knowledge gap amongst health care providers in cardiac surgery in regards to secondary prevention. Our study demonstrated a significant increase of 29% in the prescribing of ACE-inhibitors from prior to post intervention, demonstrating thus the potential for implementation of change with the use of similar interventions.
A Survey of Quality of Life Following Surgery for Malignant Pleural Mesothelioma Reflects the Patients’ Commitment to Learning about the Disease

Authors: D. Raffle; A. Barua; A.E. Martin-Ucar

Nottingham City Hospital

Objective: The aim of the study is to determine response rates of a survey and the results of quality of life in patients undergoing surgery for malignant pleural mesothelioma.

Methods: The Generic EORTC QLQ-30 and the lung-specific QLQ-13 questionnaires were given to all patients with a known diagnosis of malignant pleural mesothelioma who opted for different surgery as part of their treatment under one consultant. Patients consented to receiving the questionnaire and these were initially given at the pre-operative assessment clinic. The questionnaire was then posted to the patients at 6 weeks, 3, 6, 9 and 12 months (no reminders were sent). The questionnaire had a total of 43 items to which responses were recorded using a numerical scale of 1-4 (1 is good and 4 means poor).

Results: Over a 12 month period between August 2009 and September 2010, 18 patients consented to participate (15 male and 3 female, median age 69). Among them, 12 patients underwent total pleurectomy, 3 patients had VAT debulking, and 3 patients were treated with open debulking of the tumor. At 6 weeks and 3 months postoperatively, the response was 100% with the exception of one patient who died following hospital discharge within that period. All patients who are able to respond (alive and with long enough follow-up) at 6 and 12 months, returned the questionnaire.

Conclusion: This survey reflects the commitment of patients with malignant mesothelioma to learn about the disease and its treatment. The response rate is higher than in previous similar studies performed in patients undergoing radical surgical treatment for lung and oesophageal malignancies.
082  Is Open Pleurectomy the Best Way to Manage Pneumothorax? A Contemporaneous Comparative Study

Authors: B.H. Kirmani; V. Joshi; J. Zacharias
Blackpool Victoria Hospital

Objectives: Recent British Thoracic Society guidelines recommend open pleurectomy for pneumothorax on the basis of a significantly reduced recurrence rate compared to Video Assisted Thoracoscopic Surgery (VATS). With increasing experience of minimally invasive management, we sought to determine our local rates of recurrence and complications and to perform a cost-benefit analysis.

Methods: We analysed a prospectively collected database of all procedures for pneumothoraces in our UK institution from March 2004 to September 2010. Video-assisted (VATS) procedures performed by one surgeon were compared to all open procedures. VATS pleurectomies were performed with extensive stripping of parietal pleura from the apex, antero-lateral and posterior chest wall with abrasion of the lower chest wall and diaphragmatic parietal pleura.

Results: In 77 Open and 79 VATs procedures, both groups were well matched for age, gender and laterality. Pleurectomy was the predominant procedure in both groups with some pleurodesis performed (open n=5 (7%), VATS n=14 (18%), p=0.05). Rates of recurrence were not significantly different (1.3% vs 2.5%, p=0.57) at a median follow up of 37 months. There were no conversions from VATS to Open.

![Table showing recurrence and complications](table.png)

Conclusions: VATS procedures had significantly fewer complications, ITU admissions and shorter median hospital stays than open operations with no significant difference in cost. There was no statistically significant difference in recurrence rates between the two groups. In our institution we would therefore advocate the use of VATS techniques for spontaneous pneumothorax management.
083 Angiogenic Response to Major Lung Resection for Non-Small Cell Lung Cancer: VATS versus Open

Authors: C. Ng; R.H.L. Wong; S. Wan; C.W.C. Hui; E.C.L. Yeung; M.K.Y. Hsin; I.Y.P. Wan; M.J. Underwood

Prince of Wales Hospital, The Chinese University of Hong Kong

Objectives: Angiogenesis plays a key role in tumor growth. The balance between pro- and anti-angiogenic factors may affect tumor recurrence following oncological surgery. To date, circulating angiogenic factors have not been evaluated early after major lung resection for non-small cell lung cancer (NSCLC). The potential influence of open and video-assisted thoracic surgery (VATS) approaches on postoperative angiogenic status also remains unclear.

Methods: Forty-three consecutive patients with early stage resectable primary NSCLC underwent major lung resection through either VATS (n=23) or thoracotomy (n=20) over an 8-month period. Blood samples were collected preoperatively and on postoperative days (POD) 1 and 3. Plasma levels of vascular endothelial growth factor (VEGF), soluble VEGF-receptor 1 (sVEGFR1), sVEGFR2, angiopoietin 1 (Ang-1) and Ang-2 were determined by enzyme linked immunosorbent assay.

Results: Patient demographics were comparable between the 2 groups. There was no in-hospital mortality. For all patients undergoing major lung resection, postoperative levels of Ang-1 and sVEGFR2 were significantly decreased, while Ang-2 and sVEGFR1 levels were markedly increased (Table 1). No significant peri-operative changes in VEGF levels were observed (Table 1). Interestingly, compared with those in the open group, patients in the VATS group had significantly lower plasma levels of VEGF (VATS 170 ± 93 pg/ml; Open 486 ± 641 pg/ml; p=0.04) and Ang-2 (VATS 2484 ± 1119 pg/ml; Open 3379 ± 1287 pg/ml; p=0.026) on POD3.

Conclusion: Major lung resection for early stage NSCLC can lead to a pro-angiogenic status as reflected by the increased Ang-2 and decreased Ang-1 productions. VATS approach may be associated with an attenuated angiogenic response with less postoperative release of VEGF and Ang-2. Such differences in angiogenic factors may have important clinical implications in lung cancer recurrence following surgery.

Levels of angiogenic factors in 43 patients undergoing major lung resection

<table>
<thead>
<tr>
<th>Levels of angiogenic factors in 43 patients undergoing major lung resection</th>
<th>Pre-op</th>
<th>POD 1</th>
<th>POD 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ang-1</td>
<td>7449 ± 5965</td>
<td>4632 ± 5485 †</td>
<td>5204 ± 6272 †</td>
</tr>
<tr>
<td>Ang-2</td>
<td>2166 ± 991</td>
<td>2911 ± 1255 †</td>
<td>2851 ± 1256 †</td>
</tr>
<tr>
<td>VEGF</td>
<td>248 ± 268</td>
<td>263 ± 395</td>
<td>300 ± 438</td>
</tr>
<tr>
<td>sVEGFR1</td>
<td>94 ± 34</td>
<td>141 ± 47 †</td>
<td>113 ± 48 o</td>
</tr>
<tr>
<td>sVEGFR2</td>
<td>11049 ± 2634</td>
<td>9316 ± 2271 †</td>
<td>8681 ± 1999 †</td>
</tr>
</tbody>
</table>

Data are Mean ± SD (pg/ml)

Compared with Pre-op (Wilcoxon Signed Rank) † P<0.0001, † P=0.001, o P=0.002
084  Lymphadenectomy in Video Assisted and Open Lung Resections: Is it always Useful?

Authors: M. Hughes; S.M. Woolley; Z. Qureshi; W.S. Walker
Royal Infirmary of Edinburgh

Objectives: The topic of mediastinal lymphadenectomy vs lymph node sampling remains controversial. We proposed to investigate patients undergoing mediastinal lymphadenectomy at the time of lung resection for lung cancer and investigate how often nodal involvement was picked up by this technique.

Methods: This was a retrospective study. We collected data on all patients on a single surgeons service undergoing mediastinal lymphadenectomy at the time of anatomical lung resection either by an open or VATS approach between 3/2009 and 9/2010. We looked at the pathological staging of the patients and evaluated how often nodal involvement by tumour was identified in our patient group. We also collected data on preoperative staging on radiology and following mediastinoscopy.

Results: 120 patients were identified undergoing lung resection and mediastinal lymphadenectomy during the study period. 18 were excluded as they had histology other than primary lung cancer. This left 102 patients, 57 had VATS resections and 45 had open resections. Overall 9.8% (10) patients had N2 disease picked up on pathology. Interestingly all of these patients with N2 disease were in the open resection group. No patients undergoing VATS resection had N2 disease identified following lymphadenectomy. In the open resection patients with N2 disease 6 had undergone pneumonectomy and 4 lobectomy for a proximal tumour.

Conclusions: In our study none of the patients undergoing VATS resection had occult N2 disease picked up by mediastinal lymphadenectomy. This contrasts with the open resection patients where 10 patients were found to have N2 involvement. In light of this we would suggest that in patients with early stage peripheral tumours and no obvious nodal involvement (those most suitable for VATS resection) mediastinal lymph node dissection may not be necessary as long as thorough preoperative staging has been performed. In patients with proximal tumours we would still advocate lymphadenectomy.
085 New UK Video Assisted Thoracoscopic (VATS) Lung Resection Programme: Outcomes are Encouraging for us All

Authors: V. Mehta; E. Royston; J. Nicholson; R. Sayeed; E. Black

John Radcliffe Hospital, Oxford

Objectives: The technique of VATS lung resection for some time now has been accepted as safe, sound and reliable. The small number of cases performed in the UK may be symptomatic of NHS investment, time, equipment and training. We present outcomes from our first 2 years of VATS lung resection programme to encourage wider UK adoption.

Methods: We invested in 1.3 full time VATS enthusiastic thoracic surgeons, one operating camera stack and some VATS instruments. All patients with operable lung cancer who were fit enough were offered surgery. We retrospectively reviewed our surgical database, inpatient records, x-rays and pathology reports for all patients undergoing lung resection. We compared VATS outcomes with thoracotomy, over the last 2 years.

Results: Over 2 years, a total of 180 patients underwent lung cancer resection. Excluding pneumonectomies, chest wall involvement and sleeve resections there were 121 patients. Of these 72(60%) patients underwent VATS lung resection, 49(40%) patients underwent open thoracotomy and 16(13%) patients were converted to thoracotomy. Mean age for lung cancer resection was 69.5 yr(46-85), Females were 52%(n=63). Of 56 patients who had completed VATS 43 were lobectomies, 1 bi-lobectomy, 9 segmental resections, 2 wedge resections and 1 unresectable due to multiple metastasis. The 16 conversions were performed for: dense adhesions(8 patients), bleeding(4), difficult dissection(2), jammed stapler(1) and poor lung isolation(1). The median duration of chest drainage was 3 days for successful VATS and 4 days for thoracotomy while it was 5 days in patients who underwent conversion. Median length of stay was 6, 7 and 7 for VATS, thoracotomies and conversions respectively. There were no differences in nodal harvesting between the groups (mean of 4 stations).

Conclusion: With limited investment VATS lung resection rate of 46% has been achieved. We believe that the time is right to make VATS the standard of care for primary lung cancer surgery in the UK.
**086 VATS Lobectomies in the Reoperative Setting - is it a Contraindication?**

**Authors:** K. S. Rammohan; B. Stauffer; S. Gazala; I. Hunt; A. Valji; K. Stewart; E.L.R. Bédard

Royal Alexandra Hospital

**Objectives:** The adoption of video assisted thoracoscopic (VATS) lobectomies is gradually increasing throughout Europe and North America. There is very little literature relating to the use of thoracoscopic lobectomies in a reoperative setting. We evaluated our results with VATS lobectomies in this context.

**Methods:** A chart review of all patients who underwent a VATS lobectomy at our tertiary referral, teaching hospital was undertaken. The patient cohort in the reoperative category was identified and an in depth analysis conducted.

**Results:** From January 2006 to September 2010, 837 anatomical lung resections (lobectomies, bilobectomies, pneumonectomies) were performed. 525 lobectomies and bilobectomies (63%) were done with VATS over the entire study. VATS resections account for 80% of the current practice. 29 VATS lobectomies (5.5%) were done where there had been previous operations with ipsilateral pleural breach (wedge resections (n=14), oesophagectomy (n=1), heart transplant (n=1), thoracotomies for decortication and pleurectomy(n=4), sternotomy with mediastinal resection(n=2), thoracic outlet syndrome operations (n=2), coronary artery bypass grafts (n=5)). 10 of these patients (34%) were converted to an open procedure. 5 patients (17%) went to the Intensive Care unit postoperatively for monitoring and respiratory support. The median length of hospital stay was 6 days. Chest tubes were removed at a median of 2 days and 3 patients went home with Heimlich valves. There was no in hospital mortality.

**Conclusions:** In our experience, VATS lobectomies can be successfully performed in 66% of this challenging group of patients. Being cognizant of the higher rate of conversion to thoracotomy from our established rate (11%) and slightly longer hospital stay, VATS lobectomies can be safely offered to patients in the reoperative setting.
087  Thoracoscopic Plication as a Treatment for Unilateral Diaphragmatic Paralysis - a Worthwhile Venture?

Authors: K. S. Rammohan; K. Rommens; S. Gazala; K. Stewart; E.L.R. Bédard
Royal Alexandra Hospital

Objectives: Despite the proven efficacy of plication as a treatment option in children with diaphragmatic paralysis, it remains an infrequent operation in adults. The largest published series of thoracoscopic plication has 30 patients with long term follow up. We evaluated our experience with video assisted thoracoscopic(VATS) plication and objectively quantified patient recovery with pre and post operative questionnaires and spirometry.

Methods: Patients undergoing thoracoscopic plication (n=7) were identified through the Electronic Medical Records system (HealthQuest(tm)) at our tertiary referral, teaching hospital. The case notes and questionnaires (St George Respiratory Questionnaire and London Chest Activity of Daily Living Scale) were analysed in depth following this.

Results: Between January 2006 and March 2010, 7 patients underwent thoracoscopic plication for unilateral diaphragmatic paralysis. 6 patients were male. The mean age was 52 years (41-58). The mean BMI was 32 (27-40). The aetiology was idiopathic in 4, trauma in 2 farmers, post first rib resection in 1. The mean time elapsed from diagnosis to treatment was 15 months (6-22). Thoracoscopic plication was done using 3-4 ports, with 1 Ethibond and Prolene sutures. The median chest tube duration was 1 day and the median hospital stay was 2 days. Post operative complications included: Empyema(1), Pneumonia(1), Chronic postoperative pain(1). The mean and median values for all the spirometry parameters (FEV1, FVC, FRC, TLC, DLCO) showed an increase in the postoperative studies at 6 months. The significant subjective improvement demonstrated by 6 of the 7 patients correlated well with the questionnaire analysis.

Conclusions: Thoracoscopic plication is a worthwhile venture for unilateral diaphragmatic paralysis. It confers subjective and objective improvement with a better quality of life postoperatively for the patients. Further follow up of these patients will substantiate the longevity of this procedure.
088 US-Derived Quantitative Donor Risk Score Predicts Mortality after Orthotopic Heart Transplantation in the UK

Authors: A. Emin¹, C.A. Rogers², N.R. Banner³, R. Bonser⁴

1 Clinical Effectiveness Unit, The Royal College of Surgeons of England; 2 Clinical Trials and Evaluation Unit, University of Bristol; 3 Consultant Cardiologist and Transplant Physician, Harefield Hospital; 4 Director of Cardiopulmonary Transplantation, Queen Elizabeth Hospital, Birmingham

Objectives: A donor risk score (DRS) for mortality after isolated first-time orthotopic heart transplantation (HTx) was derived from the United Network for Organ Sharing database (Weiss, ES et al. JHLT 28, S116). This DRS is applied to a UK cohort to assess if predicts mortality after HTx in the UK.

Methods: HTx in adults (≥16 yrs) from Apr 00-Mar 10 were studied. The DRS is derived from 4 variables

a) ischemia time (2 hrs 0 pts; >2-4 hrs 1 pt; >4-6 hrs 3 pts; >6 hrs 5 pts)
b) donor age (<40 yrs 0 pts; 40-50 yrs 3 pts; >50 yrs 5 pts)
c) ethnic mis-match (2 pts)
d) blood urea nitrogen (BUN) to creatinine ratio (mg/dL) (ratio 30 3 pts)

Scores are grouped into 4 pre-defined strata: 0-2 pts; 3-5 pts; 6-8 pts & 9+ pts. Mortality to 5 yrs was compared across strata.

Results: 1181 HTx were performed & data to derive the DRS was complete for 1024 (86.7%). The median donor age & ischemia times were 38 yrs (IQR 27-47) & 3.5 hrs (IQR 2.9-4.0) respectively. 44 donors had a BUN to creatinine ratio 30 & 130 HTx were ethnically mis-matched. Overall, 339 HTx (33.1%) scored 0-2 pts, 411 (40.1%) 3-5 pts, 259 (25.3%) 6-8 pts & 15 (1.5%) had 9+ pts. Mortality at 30 & 90-days, 1-yr & 5-yrs was 11.5% (95%CI 10.1-12.9), 14.2% (95%CI 12.7-15.8), 18.4% (95%CI 16.8-20.2) & 28.4% (95%CI 26.4-30.4) respectively. Mortality to 5 yrs increased with donor risk strata (15 cases with 9+ pts omitted). Each risk point corresponded to a 13% increase in mortality risk (hazard ratio 1.13 95%CI 1.07-1.19) & each strata was associated with a 40% increase in risk (hazard ratio 1.40 95%CI 1.21-1.63) (c-statistic 0.58).

Conclusions: The US-derived DRS, which is simple to calculate & employable clinically, also predicts mortality after HTx in the UK.
Minimally Invasive Bilateral Sequential Lung Transplantation (MBSLTx) is Associated with Reduced Length of Stay in ICU

Authors: A.F. Popov, D. Rajaruthnam, B. Zych, H. Krueger, M. Carby, A.R. Simon

1 Department of Cardiothoracic Transplantation & Mechanical Circulatory Support, Harefield Hospital, Middlesex; 2 Department of Cardiothoracic Transplantation & Mechanical Circulatory Support, Harefield, Middlesex; 3 Department of Transplant Medicine, Harefield Hospital, Middlesex

Objectives: Lung transplantation (LTx) is the definitive therapeutic option for patients with end-stage lung diseases. It is usually performed on cardiopulmonary bypass (CPB) via trans-sternal bilateral anterolateral thoracotomy (clamshell incision). However, this approach presents some disadvantages. For these reasons, a less invasive approach via anterolateral thoracotomies without CPB has been proposed.

Methods: We evaluated a prospective series of 47 patients, who underwent LTx at our centre from January to September 2010. Patients receiving grafts after ex-vivo-lung perfusion and previous thoracic procedures were excluded (n=5). Of the remaining patients, 26 were transplanted via a clamshell incision (group I) and 18 underwent MBSLTx (group II).

Results: The groups did not differ in age, body-mass-index, gender, indication for surgery, and time on waiting list. The difference between the ischemic time of the first and second lungs were significantly longer in group II (58 ± 33 vs. 89 ± 62 min; p=0.03). The intensive care unit (ICU) stay was significantly shorter in group II (26.5 ± 39.5 vs. 7.41 ± 9.7 days; p=0.04). The mortality was equivalent in both groups. More detailed data will be presented at the meeting.

Conclusions: MBSLTx avoids sternal complications, contributes to improved respiratory function in the early postoperative period and reduces the length of ICU stay.
090  Donor Biomarkers Associated with Primary Graft Dysfunction (PGD) in the Heart Transplant (HTx) Recipient

Authors: V.B. Dronavalli¹, D. Ward², W. Wei², P. Johnson², R.S. Bonser³

1 Queen Elizabeth Hospital, University Hospitals Birmingham. On behalf of the Steering group UK Cardiothoracic Transplant Audit; 2 University of Birmingham

Objective: PGD following HTx causes 66% of early deaths. We hypothesised that PGD-predictive biomarkers were discoverable in donor plasma.

Methods: We grouped UK HTx as PGD or non-PGD. Inotrope dose summation scores were calculated and mechanical support (MechS) use noted. On donor plasma, we performed mass spectroscopic proteomic profiling using a range of peptide-defining chips. Peak intensities in groups were compared using a t-test or Wilcoxon ranksum test.

Results: Of 152 HTx, 48 were reported as PGD. In PGD HTx, median(IQR) donor age was higher (41(32-47) vs. 37(30-42) yrs; p=0.04) but total ischemic time and recipient trans-pulmonary gradients were similar (196 (167-230) vs. 213(160-238) min; p=0.9 and 7 (2-8) v.s 7(5-10)mmHg; p=0.1). In PGD HTx, mean(SD) inotrope scores at 6, 24 and 72h were higher (151(41) vs. 58(8); p<0.01, 195(84) vs 48(7); p=0.01 and 81(19) vs. 23(8); p<0.01 respectively). MechS, IABP usage and 30-day mortality were all higher in the PGD group (26 vs. 0%, 55 vs. 22%; p<0.01 and 35 vs. 6% respectively; all p<0.01). Donor plasma analysis detected 9 peaks with different intensities between PGD and non-PGD HTx (all p <0.01) coded as IMAC 7806, 9285, 4649 and 7764, Supel 2054 and 2452 and CM 5995,4597 and 4470.

Conclusions: In this preliminary analysis, we have detected potential donor peptide biomarkers that may be predictive of PGD. These peptides require identification by tandem mass spectrometry, characterisation, quantitative assessment and validation.
**091 Intracellular Calcium Handling in the Donor Heart: Comparison between DCD and Brainstem Dead (BSD) Donor Hearts**

**Authors:** F.J. Taghavi, A. Ali, C. Woods, S.R. Large, E. Ashley

1 Stanford University Hospital; 2 Papworth Hospital

**Objectives:** Heart transplantation from DCD donors is not undertaken due to concerns over ischemic injury to the donor organ. We have demonstrated in animal models that the DCD heart can be resuscitated and transplanted, and have shown that the DCD heart functions comparably to a BSD model using pressure-volume loops. To study function of these organs at a molecular level we analyzed intracellular calcium handling and contraction in the DCD heart.

**Methods:** Male Sprague-Dawley rats were subjected to BSD or DCD heart resuscitation using ECMO 15 minutes after circulatory arrest. RV & LV myocytes were isolated separately and loaded with calcium indicator Fluo-5f. Sarcomere length was measured during contraction to assess unloaded-contractility (UC). Intracellular calcium (deltaF/F) was measured epifluorescently. Sham operated animals were used as control.

**Results:** BSD and DCD myocytes from both ventricles exhibited no statistical difference in sarcomere shortening (%SL) compared to sham controls. The shortening velocity and time to nadir of contraction was fastest in the DCD, then BSD, then sham operated myocytes (p<0.001). DeltaF/F was largest and fastest in DCD, then BSD, then sham operated.

**Conclusion:** No significant differences in %SL were observed. The shortening velocity was significantly more rapid in DCD compared to BSD, and again in both compared to sham controls. While this may seem contradictory to the impaired contractility in DCD and BSD hearts observed in PV loop measurements, it is not clear how shortening velocity relates to end-systolic force. To address this, we are studying single cell contractility under load.

We additionally found a significantly larger and more rapid rise time for the intracellular calcium transient. The mechanism for larger calcium transient is unknown. Given that it is seen in both ischemic (DCD) and non-ischemic (BSD) conditions, it is likely not related to preconditioning. We speculate that changes in the calcium transient may be a form of memory for the cells.
**092 Outcome of Lung Graft Volume Reduction for Oversized Donors during Pulmonary Transplantation**

**Authors:** S. Shanmuganathan; T. Butt; J. Dark; S. Clark

Freeman Hospital

**Objective:** Lung transplant patients were reviewed to examine the effect and outcome of Lung Graft Volume Reduction (LGVR) after pulmonary transplantation with oversized donor lungs.

**Methods:** A 10 year retrospective review of all single and bilateral lung transplant patients was performed. Patients who underwent LGVR for oversized grafts during pulmonary transplantation were identified and reviewed.

**Results:** 13 patients underwent LGVR during pulmonary transplantation from a total of 468 recipients (2.6%). There were 9 bilateral, 1 re-do bilateral and 3 single lung recipients who received oversized donor organs and required LGVR during implantation. Recipients included (6 males) with a mean age 40 years (range, 16-64 years). Pre-operative diagnoses included cystic fibrosis (4), fibrotic lung disease (4), COPD (2), primary pulmonary hypertension (1) and extrinsic allergic alveolitis (1). Donor lungs were oversized by a mean of 16% of the recipient predicted total lung capacity and 51.5% of the recipient measured total lung capacity. LGVR was carried out using linear cutting staplers in the form of bilateral apical segmentectomy in 2 cases, lingulectomy in 5 cases and multiple wedge resections of all lobes in 7 cases. 4 patients underwent formal pulmonary lobectomy. The median extubation time was 1.5 (1-21) days. One died whilst on the ventilator (24 days). The median ITU stay was 6.5 (2-56) days. 3 (25%) patients died at a mean duration of 2.3 months (range 1-5 months). 8 patients (66.67%) remain alive at a mean duration of 38 months (range 10-74 months).

**Conclusion:** LGVR in an oversized pulmonary graft is an acceptable procedure for patients undergoing lung transplantation. In our experience LGVR is associated with good outcomes in the short and long term. Surgeons should always give consideration to using lung grafts oversized for the recipient.
093 Levitronix Centrimag Third-Generation Maglev Continuous Flow Pump as Bridge to Solution

Authors: A. Loforte; M.A. Montalto; R.F. Ranocchi; L.M.P Lilla Della Monica; L.A. Lappa; C.C. Contento; M.F. Musumeci
S. Camillo Hospital

Objectives: The Levitronix ventricular assist device (VAD) is a rotary pump designed for extracorporeal support operating without mechanical bearings or seals. The rotor is magnetically levitated and rotation is achieved without friction or wear thus minimizing blood trauma and mechanical failure. The aim of this study is to report our early results with the device.

Methods: Between 02/2004 and 09/2010, 42 consecutive adult patients were supported with Levitronix at our institution (32 men; age 62.3±10.5, range: 31-76 years). Indications for support were: (Group A, n=37) failure to wean from the cardiopulmonary bypass in the setting of post-cardiotomy (n=23), primary donor graft failure (n=4) or right ventricular failure after axial LVAD placement (n=10); and (Group B, n=5) refractory heart failure after acute myocardial infarction.

Results: The mean support time was 11.2±6.8 days (range 3 to 43 days) in Group A and 8.6±4.3 days (range 5 to 11 days) in Group B. In the post-cardiotomy cohort (Group A), eleven (47.8%) patients were weaned from support as all supported graft failure patients. Eight patients of axial LVAD cohort were weaned from RVAD with removal of the temporary pump performed through a right mini-thoracotomy in 6 of them. One patient was bridged to heart transplantation (Htx). Overall 13 (35.1%) patients died on support in Group A. In Group B, one patient was bridged to Htx and four died on support. Overall bleeding requiring re-operation occurred in 15 (35.7%) cases and cerebral major events in 4 (9.5%). There were no device failures. Overall twenty-five (59.5%) patients were discharged home.

Conclusions: Levitronix CentriMag proved to be effective as a bridge to decision in patients with refractory acute cardiogenic shock in several different clinical scenarios.
A Propensity-Matched Comparison of Post Cardiac Surgery Outcome in Patients with Preoperative Atrial Fibrillation versus Patients in Sinus Rhythm

Authors: S. Attaran; M. Shaw; L. Bond; M.D. Pullan; B. Fabri
Liverpool Heart and Chest Hospital

Objectives: Around 10-15% of patients undergoing cardiac operations suffer from atrial fibrillation (AF) at the time of surgery. The current risk stratification methods do not include preoperative arrhythmias. The aim of this study was to assess the effect of preoperative AF on the immediate postoperative outcome of patients undergoing cardiac surgery.

Methods: We reviewed patient data for our institution for a ten-year period; a total of 14320 patients undergoing any cardiac operation were included; 12395 (86.5%) had sinus rhythm (SR) preoperatively and 1925 (13.5%) were in persistent AF. After propensity matching and adjusting for the preoperative and operative characteristics, 1800 patients remained in each group and were compared.

Results: Before and after adjusting for the preoperative and operative characteristics, inotropic support, ventilation time, renal failure, stroke and surgical wound infection were all significantly higher in the patients with AF (p<0.001). ICU stay and hospital stay, as well as in-hospital mortality were also significantly higher in the patients with AF group compared to SR group (p<0.001).

Conclusions: AF preoperatively is associated with higher incidence of postoperative complications. This arrhythmia is an important variable that appears to have been excluded from the current risk stratification systems. Our experience suggests that AF should be considered in the development/update in risk stratifying methodologies to improve the predictive accuracy.

<table>
<thead>
<tr>
<th></th>
<th>SR (n=1800)</th>
<th>AF (n=1800)</th>
<th>p value</th>
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</thead>
<tbody>
<tr>
<td>Inotrope support (%)</td>
<td>42.7</td>
<td>53.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Ventilation &gt; 48 hours (%)</td>
<td>4.2</td>
<td>8.9</td>
<td>&lt;0.001</td>
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<td>CK-MB (U/L)</td>
<td>17.0 (0 - 35.0)</td>
<td>22.0 (5.0 - 41.0)</td>
<td>&lt;0.001</td>
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<td>Acute renal failure (%)</td>
<td>5.7</td>
<td>10.7</td>
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<td>Surgical wound infection (%)</td>
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<td>Reexploration for bleeding (%)</td>
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<td>ICU length of stay (days)</td>
<td>1 (1 - 2)</td>
<td>1 (1 - 3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Post operative length of stay (days)</td>
<td>8 (6 - 11)</td>
<td>9 (7 - 13)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>In-hospital mortality (%)</td>
<td>4.9</td>
<td>7.4</td>
<td>0.002</td>
</tr>
</tbody>
</table>
Does the Outcome Improve after Radiofrequency Ablation in Patients Undergoing Cardiac Surgery: a Propensity-Matched Comparison

Authors: S. Attaran; M. Shaw; A. Ward; M. D. Pullan; B. Fabri
Liverpool Heart and Chest Hospital

Objectives: Atrial fibrillation (AF) preoperatively, significantly reduces the survival rate post cardiac surgery. It has been shown that patients in persistent or paroxysmal AF have higher mid- and long-term mortality post cardiac surgery compared to those in sinus rhythm. In this study we aimed to assess whether radiofrequency ablation during cardiac surgery in these patients improves the survival.

Methods: For a period of five years (2005-2010), we studied all the patients who underwent ablation for atrial fibrillation during cardiac surgery for persistent/paroxysmal AF in our institution. We used radiofrequency ablation on 113 patients who had AF for less than five years and atrial dimension measured less than 5.5cm. A 1:2 propensity matching was performed to adjust for the preoperative and operative characteristics with a group in persistent/paroxysmal AF, who had cardiac surgery during the same period of time (2005-2010) and did not undergo ablation. We compared the postoperative outcome and survival rates between the two groups.

Results: Before and after adjusting for the preoperative and operative characteristics, inotropic support, renal failure, stroke, ICU and hospital stay, as well as in-hospital mortality were similar between the two groups. After five years the difference in the survival was significant between the groups; 91.1% and 83.2%, with and without ablation, respectively (p value=0.047).

Conclusions: Despite, the similar postoperative outcome with or without ablation in persistent/paroxysmal AF, five-year survival was found to be significantly higher with the ablation during cardiac surgery. This improvement can be due to the fall in the incidence of cerebro-vascular events or bleeding with AF or warfarin. Ablation during cardiac surgery is a simple and quick procedure and should be considered if indicated.

<table>
<thead>
<tr>
<th></th>
<th>AF Ablation, % (n=113)</th>
<th>No ablation, % (n=226)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inotrope support</td>
<td>45.1 (51)</td>
<td>52.2 (118)</td>
<td>0.22</td>
</tr>
<tr>
<td>Ventilation &gt; 48 hours</td>
<td>8.9 (10)</td>
<td>6.2 (14)</td>
<td>0.37</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>11.5 (13)</td>
<td>10.2 (23)</td>
<td>0.71</td>
</tr>
<tr>
<td>Permanent stroke</td>
<td>0.9 (1)</td>
<td>1.8 (4)</td>
<td>0.67</td>
</tr>
<tr>
<td>Transient stroke</td>
<td>0.9 (1)</td>
<td>1.3 (3)</td>
<td>&gt;0.99</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>0 (0)</td>
<td>0.44 (1)</td>
<td>&gt;0.99</td>
</tr>
<tr>
<td>Post operative Length of stay (days)</td>
<td>8 (6 - 14)</td>
<td>8 (6 - 11)</td>
<td>0.55</td>
</tr>
<tr>
<td>In-hospital mortality</td>
<td>4.4 (5)</td>
<td>7.5 (17)</td>
<td>0.28</td>
</tr>
<tr>
<td>5 year mortality</td>
<td>9.9 (10)</td>
<td>16.8 (38)</td>
<td>0.047</td>
</tr>
</tbody>
</table>
**096 Phase I Results of Cox-Maze IV Surgical Bipolar Radio Frequency Ablation for Atrial Fibrillation: Eight Years Single Centre Experience.**

**Authors:** A. Khosravi; S. Rizvi; H. Abunasra; N. Sharma; D. Alexander; T. Spyt

Glenfield Hospital

**Objectives:** The Cox-maze procedure is gold standard for surgical treatment of atrial fibrillation (AF). At our institution, we analysed the results of phase I study of Cox-maze IV using bipolar radiofrequency ablation (RFA) with isolation of the pulmonary veins. This study investigates the efficacy of this technique to restore sinus rhythm, improve quality of life and morbidity, after 12-month follow up.

**Methods:** From a total of 150 study patients, who underwent cardiac surgery and RFA between 2001 to 2009, 12-month complete follow-up was available for 120 (80%) patients, 45 (37%) patients of them underwent shuttle-walk test (SWT) and plasma levels of B-type natriuretic peptide (BNP) measurements.

**Results:** Freedom from AF was 69%, 83%, and 75% at 3, 6, and 12 months respectively. The freedom from both arrhythmias and antiarrhythmic drugs was 42%, 67%, and 61% at 3, 6, and 12 months, respectively. Restoration of sinus rhythm was accompanied by significant; 1) Improvement in mean (SD) shuttle-walk distance [+281 (143)m (preop) vs +359 (140)m (12-months), P=0.0038], Reduction in the plasma level of BNP [212 (151-319) fmol/mL (preop) vs 160 (103-210) fmol/mL (12-months), P=0.02]. There was no significant difference in conversion rate for patients with paroxysmal versus long-standing AF (p=0.187). The only risk factor for AF recurrence at 12 months was LA diameter larger than 4.5 cm (p=0.001). Five patients (4%) required pacemaker insertion and 3 (2.5%) suffered TIA.

**Conclusions:** This study showed that Cox-maze IV Surgical RFA is safe and effective with symptomatic and possible prognostic benefit for patients with AF undergoing cardiac surgery.
“Mitrofix” as an Alternative Repair for Posterior Mitral Valve Leaflet Pathology; Early Results

Authors: N. Masala; H. Abunasra; E. Logtens; J. Swanevelder; J. Bence; T. Spyt

Glenfield Hospital

Objectives: The superiority of mitral valve repair over replacement for degenerative mitral valve pathology is well established. In the presence of extensive degenerative mural pathology, an alternative is MitroFix repair system, a prosthetic device consisting of artificial mural leaflet with annuloplasty ring covered with porcine pericardium. We report phase I results of our trial examining the effectiveness of this device in our patients.

Methods: Between 2007 and 2010, 77 patients (54 men), mean±SD age: 66.9±10.8 underwent mitral repair using MitroFix device at our institution. Trial registry was used to report operative, prosthesis related mortality, morbidity and survival at follow-up. Mean follow-up was 14.8 months (range 1-35 months) and was 100% complete.

Results: Mean logistic euroscore was 5.4±5.1. Operations were elective in 85.7% of cases. 44 patients (57.1%) had isolated mitral valve repair. Overall mean cross-clamp and bypass times were 61.7±19.5 and 89.2±27.6 minutes, respectively and 53.0±15.5 and 76.0±23.8 minutes for isolated mitral valve repair patients. Mean device size used was 31.6mm. There was one (1.3%) operative mortality with mean length of hospital stay 13.8±9.6 days for all patients. At follow-up, there was significant; improvement in NYHA class (all in class I, one in class III), mitral regurgitation reduction and LV recovery on echocardiography, when compared to baseline (p<0.05 in all categories). 6 patients (7.8%) developed recurrent mitral regurgitation which was severe requiring re-operation in 3(3.9%), and mild in 3(3.9%). There were 5 late deaths (4 cardiac related), with overall survival of 92%.

Conclusions: Initial results with the MitroFix mitral repair device, show acceptable early and late outcomes. Further studies are required to assess long term performance of the prosthesis in mitral valve repair patients.
098  Impact of Patient-Prosthesis Mismatch after Mitral Valve Replacement: an Australian Multicentre Analysis of Early Outcomes and Mid-Term Survival

Authors: W.Y. Shi\textsuperscript{1}, C.H. Yap\textsuperscript{2}, P.A. Hayward\textsuperscript{1}, D.T. Dinh\textsuperscript{3}, C.M. Reid\textsuperscript{3}, G.C. Shardey\textsuperscript{4}, J.A. Smith\textsuperscript{3}

1 Austin Hospital, University of Melbourne; 2 Bristol Heart Institute; 3 Monash University; 4 Monash Medical Centre

Objective: Patient-prosthesis mismatch (PPM) is characterized by cardiac impairment due to inadequate prosthesis size relative to body surface area (BSA). It is uncertain whether PPM after mitral valve replacement produces detrimental effects. We examined its impact in an Australian population.

Methods: From 2001 to 2009, 1,006 mechanical and bioprosthetic mitral valves were implanted across 10 institutions. Effective orifice areas (EOA) were obtained from a literature review of in-vivo echocardiographic studies. Non-significant, moderate and severe PPM was defined as an indexed EOA (EOA/BSA) of >1.20cm\textsuperscript{2}/m\textsuperscript{2}, \leq 1.20cm\textsuperscript{2}/m\textsuperscript{2} and \leq 0.9cm\textsuperscript{2}/m\textsuperscript{2} respectively. Early outcomes and 7-year survival were compared between the 3 groups.

Results: Non-significant, moderate and severe PPM was observed in 34\%, 53\% and 13\% respectively. Patients with increasing PPM were more likely male (42\% versus. 52\% versus. 62\%, \textit{p}<0.0001), obese (14\% vs. 20\% vs. 56\%, \textit{p}<0.0001), have diabetes (11\% vs. 15\% vs. 24\%, \textit{p}=0.002), triple vessel disease (11\% vs. 15\% vs. 20\%, \textit{p}=0.021) and have received a bioprosthesis (30\% vs. 37\% vs. 62\%, \textit{p}<0.0001). However, there were no statistically significant differences in additive (\textit{p}=0.75) or logistic (\textit{p}=0.79) EuroSCORE between groups. At 30-days, there was similar mortality (5\% vs. 5\% vs. 6\%, \textit{p}=0.83) and composite mortality/any morbidity (24\% vs. 27\% vs. 29\%, \textit{p}=0.40). Seven-year survival was also similar (72\%±4.1\% vs. 76\%±3.2\% vs. 69\%±10.3\%, \textit{p}=0.76). In those with CHF who received valves \leq 27mm, there was poorer survival with greater degrees of PPM (78\%±7.1\% vs. 55\%±10\% vs. 31\%±23\%, \textit{p}=0.047). However, PPM did not predict early or late adverse events after multivariable logistic and Cox regressions with and without propensity-score adjustment.

Conclusions: Although common, PPM was not associated with early or mid-term adverse outcomes overall. In most scenarios, surgeons may select a prosthesis for ease of implantation without prejudicing mid-term outcomes.
Is Mediastinal Lymph Node Dissection Necessary for Low-Grade Malignant Tumours of the Lung?

Authors: C. Chen¹, Z.H. Zheng¹, H.X.F. Hu¹, X.H.K. Xie², J.S. Jiang³,

¹ Department of General Thoracic Surgery, Shanghai Pulmonary Hospital, Tongji University School of Medicine, China; ² Department of Pathology, Shanghai Pulmonary Hospital, Tongji University School of Medicine; ³ Department of Radiology, Shanghai Pulmonary Hospital, Tongji University School of Medicine

Objectives: Low-grade malignant tumors (LGMT) of the lung are rare tumors that include adenoid cystic carcinoma (ACC), mucoepidermoid carcinoma (MEC) and typical carcinoid (TC). It has remained uncertain whether mediastinal lymph node dissection (MLND) will impact the long-term outcome of LGMT. This study evaluated whether MLND was necessary for LGMT.

Methods: The authors analyzed LGMT of the lung undertaken surgery in our institute from January 1997 and December 2009. Two groups were divided according to whether complete resection with or without MLND. Group A: with MLND, Group B: without MLND.

Results: 94 cases were enrolled, including 39 MEC; 15 ACC; and 40 TC, respectively. Male to female ratio 1.5 : 1, mean of age was 42 years (range 9 to 73 years). 56 patients were divided into Group A, 38 in Group B. The mean number of lymph nodes removal was of 13 (range, 8-32) per patient in Group A, which pathologic studies demonstrated lymphatic spread in 10 patients (5 N1, 5 N2). Mean survival time was 42 months (range 12-156 months). 7 patients died within follow-up. Total 5-year and 10-year survival rate was 91% and 85%, respectively, there was no significant difference between two groups (P = 0.627). It was revealed the survival of TC was significant worse than other two kinds of LGMT (P = 0.023), although lymphatic spread was revealed more frequent in ACC (P = 0.003). Multivariate analysis showed that age and pathological type had significant correlation with survival.

Conclusions: LGMT had rare mediastinal lymph node metastasis and food prognosis, MLND could be omitted during the surgical treatment on LGMT.
100  Should All Patients Undergoing Elective Mediastinoscopy be Considered for Day Case Surgery?

Authors: R. Rathore; T.J.P. Batchelor
Bristol Royal Infirmary

Objectives: Mediastinoscopy is a quick and effective method of obtaining biopsies of mediastinal lymph nodes. Serious complications are rare. Despite this, mediastinoscopy is not often performed as a day case. We sought to demonstrate that day case mediastinoscopy could be performed routinely.

Methods: We conducted a retrospective analysis of 100 consecutive elective patients admitted between January 2009 and August 2010. All patients were admitted on the day of surgery and underwent cervical video-mediastinoscopy. Patients were discharged home when they met certain pre-defined criteria.

Results: There were no deaths or major complications. 82 patients were discharged on the day of admission. Of the remaining 18, all but one was discharged on the first post-operative day. The reasons for failure of discharge on the day of surgery were: observation for transient nausea, pyrexia or hypoxia (n=9); late return from the operating theatre (n=4); inability to pass urine (n=3); sore throat (n=1); and observation for a possible pneumothorax (n=1). The average age of patients who underwent day case mediastinoscopy was significantly less than those who required an overnight stay (57.7 years vs. 67.3 years, p=0.01). There was only one readmission in the day case group (for urinary retention).

Conclusions: Mediastinoscopy can be performed safely as a day case procedure and should be considered in all elective patients. It requires careful operating list planning and strict discharge criteria. Older patients are more likely to require an overnight stay.
101 Stage Migration: Results of Lymph Node Dissection in the Era of Modern Imaging and Invasive Staging for Lung Cancer

Authors: B.H. Kirmani, R. Rintoul, T. Win, C. Magee, L. Magee, C. Choong, F.C. Wells, A.S. Coonar

1 Department of Thoracic Surgery, Papworth Hospital, Cambridge; 2 Department of Thoracic Oncology, Papworth Hospital, Cambridge; 3 Department of Respiratory Medicine, Lister Hospital, Stevenage

Objectives: Lung cancer staging is becoming more detailed. In our unit prior to potentially curative treatment, patients assessed via lung cancer MDTs systematically undergo staging CT, PET-CT and brain imaging. Enlarged and/or PET positive nodes undergo invasive evaluation as appropriate with endobronchial/oesophageal ultrasound (EBUS/EUS), mediastinoscopy, mediastinotomy, video-assisted or open techniques to establish N status. Our aim was to determine the accuracy of N-staging following optimal pre-operative staging. This is particularly important as there is interest in non-surgical treatments for early lung cancer which do not include lymph node dissection such as radiofrequency ablation and stereotactic radiotherapy.

Methods: We retrospectively analysed a prospectively captured database on all patients assessed and treated for presumed lung cancer in our unit. Data was reviewed for patients who underwent lung cancer surgery with curative intent between January 2006 and August 2010. Pre-operative clinical staging was compared with histological findings after lung resection and lymph node dissection.

Results: A total of 312 pathologically confirmed lung cancer resections were performed (mean age 68y (range 42-86), Male: Female ratio 1.14:1).

<table>
<thead>
<tr>
<th>Surgical resections</th>
<th>312</th>
</tr>
</thead>
<tbody>
<tr>
<td>N status change</td>
<td>82  (26.3%)</td>
</tr>
<tr>
<td>Upstaged</td>
<td>67  (21.5%)</td>
</tr>
<tr>
<td>Downstaged</td>
<td>15  (4.8%)</td>
</tr>
<tr>
<td>All pN2</td>
<td>37  (11.9%)</td>
</tr>
<tr>
<td>N2 newly identified by surgery</td>
<td>31  (9.9%)</td>
</tr>
<tr>
<td>cN2 “downstaged” after surgery</td>
<td>2  (0.6%)</td>
</tr>
<tr>
<td>All pN1</td>
<td>55  (17.9%)</td>
</tr>
<tr>
<td>N1 newly identified by surgery</td>
<td>34  (10.9%)</td>
</tr>
<tr>
<td>cN1 “downstaged” after surgery</td>
<td>13  (4.2%)</td>
</tr>
</tbody>
</table>

Despite thorough pre-operative evaluation, 26.3% of patients had change in nodal status. 13.7% of T1N0M0 patients were upstaged, compared to 27.6% with T2N0M0 disease. Occult N2 disease was detected in 9.9% of patients, of which 24/37 (65%) were small or micrometastatic deposits.

Conclusion: Despite optimal systematic pre-operative staging there remains a relatively high rate of stage migration. When considering treatments for early stage lung cancer the impact of this discrepancy should be considered to avoid errors in prognosis and determining candidates suitable for adjuvant treatment.
102 Re-appraisal of N2 Disease by Lymphatic Drainage Pattern for Non-Small-Cell Lung Cancers: in Terms of Zones, Chains, and Both

Authors: C. Chen⁴, Z.H. Zheng⁴, H.X.F. Hu⁴, X.H.K. Xie⁵, J.S. Jiang⁶

1 Department of General Thoracic Surgery, Shanghai Pulmonary Hospital, Tongji University School of Medicine; 2 Department of Pathology, Shanghai Pulmonary Hospital, Tongji University School of Medicine; 3 Department of Radiology, Shanghai Pulmonary Hospital, Tongji University School of Medicine

Objectives: To clarify new stratification of “nodal zones and chains” can predict survival of NSCLC patients bearing N2 disease.

Methods: From 1995 to 2005, 720 patients bearing pN2 disease (T1-4N2M0) NSCLC were enrolled. All patients were regrouped according to the new nodal stage of zones and chains by International Association for the Study of Lung Cancer (IASLC). Survival was analyzed by the Kaplan-Meier method and prognostic factors were determined by the log-rank and Cox regression methods.

Results: A total of 10199 lymph nodes were removed, at an average of 14.2 ± 6.4 nodes per patient. The mean ratio of nodal metastasis was 0.39 - 0.27 (range: 0.04-1.00). There were 413 patients had single nodal zone metastasis, 307 multi-zone metastases, 311 cases with one-chain, and 409 cases with multi-chain involvement, respectively. The overall 5-year survival was 20% and median survival time was 27.16 months. The survival was significantly better in single nodal zone/chain metastasis subgroup than that of multi-zone/chain (p < 0.0001). Significant difference of survival was shown between single-chain and two-chain involvement with two-station metastasis (p < 0.0001). However, the opposite result was obtained between single station and two-station involvement with single chain metastasis (P = 0.505). Multivariate analysis revealed that stratification of N2 chain/zone, number of positive lymph node, pT stage, tumor size, and postoperative adjuvant treatment were all closely correlated with 5-year survival rate.

Conclusions: Even though two nodal stations were involved, the outcome was favorable if the nodal stations involved were confined to a single nodal chain.
103 Pathological Staging of Malignant Pleural Mesothelioma. How Important is Nodal Disease in Selection for Radical Surgery?

Authors: K. Lau; A. Nakas; D. Waller

Glenfield Hospital, Leicester

Objective: Selection criteria for radical surgery in malignant pleural Mesothelioma (MPM) and related clinical trials remain controversial. The relative importance of nodal metastases and the need for preoperative nodal staging are undetermined.

Methods: From a prospective database we identified 203 patients (175 male and 28 female) with non-sarcomatoid MPM (Epithelioid 154 patients; Biphasic 49 patients). Preoperative staging included CT and mediastinoscopy. We investigated the effect of nodal burden and distribution on overall survival.

Results: 125 patients underwent extrapleural pneumonectomy (EPP) and 78 radical pleurectomy/decortication (RPD) all with systematic nodal dissection. There was no difference in survival between EPP or RPD: 1 year 63% vs 56%; 3 year 17% vs 15% and 5 year 8% vs 5% p=0.55. The median number of lymph nodes resected was 10(1-58); 88 (43%) patients were N0, 18(9%) N1 and 97 (48%) N2. Patients with N0 disease had the best prognosis: median survival 22 months (SE 3, 95% CI 16-28) versus 11 months (SE 3, 95% CI 4-18) for N1 and 14 months (SE 1, 95% CI 11-17) for N2, p=0.005. There was no significant survival difference between N1 and N2, p=0.85. Overall survival was associated with the absolute number of positive extrapleural lymph nodes (p=0.05) and the number of extrapleural nodal stations involved (p=0.01) but not the total (intra and extra pleural) number of involved nodes or stations (p=0.13 and 0.23).

Conclusions: Extrapleural nodal status remains one of the most important prognostic factors following radical surgery for malignant pleural Mesothelioma. These data have important implications for preoperative staging and revision to the current IMIG staging system.
104 Surgery for Pulmonary Colorectal Metastases: Factors Influencing Prognosis and Survival

Authors: M. Hawari; W. Parry; M. Van Leuven; M. Wilkinson; F. Van Tornout
Norfolk and Norwich University Hospital

Objectives: There has been lots of debate about the best management of colorectal metastases to the lungs. Randomized controlled studies are lacking and difficult to set up. In our retrospective study we review our experience with pulmonary metastasectomy, and aim to identify the factors associated with poorer prognosis.

Methods: We retrospectively analyzed our database and identified 40 patients who underwent pulmonary metastasectomy for colorectal cancer between January 2000 and September 2007. The population was analyzed for site of primary tumour, Duke staging, histopathological differentiation, adjuvant chemotherapy, resection of liver metastases, disease free interval (DFI), number of nodules, laterality, size and site of lung lesions, carcino-embryonic antigen (CEA), further metastases. Collected data was analyzed using Kaplan-Meier and Cox regression analysis.

Results: Mean age was 66 years. The primary tumour was localized in the colon in 26 patients, the rectum in 14 patients. 2 had Duke A, 16 Duke B and 22 Duke C staging. The primary tumour was poorly differentiated in 3 patients, moderately and well differentiated in 26 patients. 11 patients had liver metastasectomy. Mean DFI was 28.4 months. 62.5% of patients had one lung nodule and 82.5% had unilateral nodules. 61% of nodules occurred in the right lung. Mean of nodule size was 21.67mm. Further operable pulmonary recurrence occurred in 17.5% of patients, while inoperable metastases occurred in 37.5% of patients. Overall 5 year survival was 59%. Gender, age, site of primary cancer, chemotherapy, Duke staging, liver metastasectomy, DFI, number, size and localization of nodules did not affect survival. The only prognostic factor for survival was preoperative CEA levels (5-year survival 41.5% for high CEA, compared to 63% for low CEA, p-value 0.046).

Conclusions: Pulmonary metastasectomy has potential survival benefit with 5-year survival of 59%. Patients with high CEA levels have a poorer prognosis.
105 Outcomes of Different Surgical Approaches to Malignant Pericardial Effusion

Authors: D. Quinn¹, C. Ng², R. Wong², M. Hsin², I. Wan², S. Wan², T. Tan², M. Underwood²
1 University Hospital Birmingham; 2 Prince of Wales Hospital

Objective: Surgical pericardial window is a palliative procedure for malignant pericardial effusion. A number of surgical approaches are described. Factors determining survival time have not been described in large series that include video assisted thoracoscopic (VATS) surgery.

Methods: A retrospective notes, pathological laboratory and radiological review was conducted of 102 consecutive surgical pericardial windows performed for malignant (positive pericardial histology/cytology) and malignant associated (known malignancy negative pericardial histology/cytology) pericardial effusions in a population of predominantly Cantonese Chinese patients and analysed with an anonymous secure database (SPSS(r)). Non parametric data is presented and analysed by ÷2. Continuous and categorical data to determine survival time was analysed by Cox regression analysis.

Results:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Subxiphoid (5)</th>
<th>Mini thoracotomy (30)</th>
<th>VATS (48)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>age yrs</td>
<td>67 (51-77)</td>
<td>55 (47-62)</td>
<td>53 (46-63)</td>
<td>0.16</td>
</tr>
<tr>
<td>gender ratio M:F</td>
<td>1:4</td>
<td>2.75:1</td>
<td>1.4:1</td>
<td>0.06</td>
</tr>
<tr>
<td>tamponade yes:no</td>
<td>3:0</td>
<td>1:09</td>
<td>1.7:1</td>
<td>0.11</td>
</tr>
<tr>
<td>duration of surgery</td>
<td>45 (32-72)</td>
<td>45 (30-75)</td>
<td>55 (45-65)</td>
<td>0.48</td>
</tr>
<tr>
<td>- mins</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>in hospital stay</td>
<td>7 (3.5-20.5)</td>
<td>8.5 (4-11)</td>
<td>7 (4-9.75)</td>
<td>0.46</td>
</tr>
<tr>
<td>same admission</td>
<td>1 (20)</td>
<td>3 (10)</td>
<td>7 (14.6)</td>
<td>0.74</td>
</tr>
<tr>
<td>mortality n(%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90 day survival days</td>
<td>2 (40)</td>
<td>12 (40)</td>
<td>24 (50)</td>
<td>0.51</td>
</tr>
<tr>
<td>1 year survival</td>
<td>1 (20)</td>
<td>4 (13.30)</td>
<td>5 (10.4)</td>
<td>0.59</td>
</tr>
<tr>
<td>effusion recurrence</td>
<td>1 (20)</td>
<td>7 (23.3)</td>
<td>11 (22.9)</td>
<td>0.96</td>
</tr>
</tbody>
</table>

On Cox regression analysis no factor including operation was identified as a predictor of survival

Conclusions:

Using a tailored surgical approach to malignant pericardial surgical window creation it is possible to achieve equivalent outcomes. Survival beyond 90 days and recurrence of effusion is rare in these cases and uninfluenced by surgical approach.
**106 A Propensity-Matched Comparison of Survival after Lung Resection in Patients with High versus Low Body Mass Index**

**Authors:** S. Attaran; N. Ainsborough; J. McShane; I. Whittle; M. Poullis; N. Mediratta; H. El-Sayed; M. Shackcloth

Liverpool Heart and Chest Hospital

**Objectives:** An inverse relationship between body mass index (BMI) and the risk of lung cancer has been reported in several studies. In this study we aimed to assess whether BMI can affect the survival after lung resection for cancer.

**Methods:** We reviewed patient data for a ten-year period; 363 patients with BMI ≥ 30 that underwent lung resection for lung cancer were identified. This group of patients was matched at a ratio of 1:1 to a group with BMI<30 and with similar characteristics such as sex, age, lung function test, history of smoking, diabetes, peripheral vascular disease, stroke, myocardial infarction, COPD, procedure type, histology and stage of tumour. We also used the Kaplan-Meier survival curves before and after matching for the above patient characteristics.

**Results:** Before adjusting for the preoperative and operative characteristics, despite more history of diabetes, hypertension and renal impairment in patients with BMI ≥ 30 compared to those with BMI<30, survival rate was found to be significantly higher when analysed univariately (p=0.01). This difference remained significant after adjusting for all the characteristics, suggesting a significantly higher survival rate in the group with BMI ≥ 30 (p=0.04).

**Conclusions:** High BMI in lung cancer patients after resection has a protective effect. This may be due to better nutritional status of the patient, less aggressive cancer type that has not resulted in weight loss at the time of presentation, or may be due to certain hormones released from the adipose tissue. BMI can be a useful predictor of outcome after lung resection in cancer patients.

<table>
<thead>
<tr>
<th>Raw Unmatched Groups</th>
<th>Propensity Matched Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Survival</td>
<td>% Survival</td>
</tr>
<tr>
<td>Time=0</td>
<td>100</td>
</tr>
<tr>
<td>1 Year</td>
<td>84</td>
</tr>
<tr>
<td>2 Years</td>
<td>72</td>
</tr>
<tr>
<td>3 Years</td>
<td>64</td>
</tr>
<tr>
<td>4 Years</td>
<td>57</td>
</tr>
<tr>
<td>5 Years</td>
<td>53</td>
</tr>
<tr>
<td>Log Rank Test</td>
<td>p = 0.01</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Is Routine Cross Matching Necessary for Patients Undergoing Elective Lobectomy?

Authors: M. Devbhandari; S. Farid; C. Goatman; P. Krysiak; M.T. Jones; R. Shah

University Hospital of South Manchester

Objective: The standard practice in our Institution has been routine cross matching of two units of blood for all patients undergoing elective lobectomy. We recently changed our policy to group and save only for patients who had low likelihood peri-operative transfusion requirement. This study was designed to establish the safety and feasibility of this practice.

Methods: Group and save only policy was applied to patients undergoing first time elective lobectomy with Hb of more than 11 g/dl, aged less than 70 years, no clotting abnormality and no history of neoadjuvant therapy. A retrospective analysis of prospectively collected data was made of 208 consecutive patients undergoing elective lobectomy from November 2009 to October 2010. The patients who were group and saved (Group GS, n= 87) were compared with those who were cross matched (Group XM, n=121). The perioperative characteristics, transfusion requirements and outcomes were compared between the two groups.

Results: Preoperative characteristics of two groups were similar except that XM group were significantly older in age with lower mean preoperative haemoglobin levels (table 1). Postoperative complications and hospital mortality were similar between the two groups (0% and 0.8% in GS and XM respectively). 16 patients (13%) required transfusion in XM group. 6 patients in GS group were cross matched out of which only 3 (3.4%) actually required transfusion. The mean postoperative Hb levels in XM were also significantly lower (12.96 vs 10.88 gm/dl). In the XM group 211 units of blood were unnecessarily cross matched and had to be returned to blood bank compared to zero units in GS group. There was no delay in availability of blood at the time of clinical need.

Conclusion: It is safe and feasible to adopt a policy of group and save only in selected patients undergoing elective lobectomy who have low likelihood of transfusion requirement.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group GS (n=87)</th>
<th>Group XM (n=121)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female gender</td>
<td>58</td>
<td>58</td>
<td>0.90</td>
</tr>
<tr>
<td>Mean Age in years</td>
<td>67</td>
<td>67</td>
<td>0.001</td>
</tr>
<tr>
<td>Malignant pathology</td>
<td>115</td>
<td>115</td>
<td>0.8</td>
</tr>
<tr>
<td>COPD</td>
<td>17</td>
<td>17</td>
<td>0.6</td>
</tr>
<tr>
<td>Diabetese</td>
<td>9</td>
<td>9</td>
<td>0.7</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td>4</td>
<td>4</td>
<td>0.5</td>
</tr>
<tr>
<td>Hypertension</td>
<td>27</td>
<td>27</td>
<td>0.8</td>
</tr>
<tr>
<td>Mean preop haemoglobin (g/dl)</td>
<td>12.96</td>
<td>12.96</td>
<td>0.001</td>
</tr>
</tbody>
</table>
108  True Inter-Professional Working: A Combined Rota for Junior Doctors, Cardiac Surgical Care and Nurse Practitioners

Authors: D.A. Tragheim; G. Chilton; G. Cooper
Sheffield Teaching Hospitals NHS Foundation Trust

Objective: In response to the reduction in Junior Doctors hours (EWTD), we developed the Cardiac Surgical Care Practitioner role for theatres and clinics and the Advanced Nurse Practitioner role for the wards and High Dependency area. This resulted in the need for these personnel to work together in a combined rota. This is EWTD compliant for the Junior Doctors and met the needs of the service.

Method: Controversially this rota is organised by two non medical personnel, the Matron and the Principal Cardiac Surgical Care Practitioner. This combined rota was implemented on the 01.08.09. Since that date, six out of seven night shifts per week have been covered by ANP’s, each junior doctor only works one night and one weekend every seven weeks. This has ensured EWTD compliance.

Results: We will demonstrate that having this combined rota run by non medical staff has been

• Welcome by the Junior Doctors and Consultants
• Improved Junior Doctor Training
• Improved inter-professional working environment
• Improved continuity of care

Conclusion: Inter-professional working is often championed as a desirable goal. We have achieved this.
109 Nurse Practitioners (NPs) can safely provide Sole Resident Cover for Cardiac Intensive Care Units (CICU).

Authors: P. Nanjaiah; H. Skinner; R.S. Jutley; I.M. Mitchell; S. McCartney; D. Richens

City Hospital, Nottingham

Background: Statutory reduction in working hours and a shrinking pool of appointable candidates has created significant pressure on provision of rotas for CICU cover.

Methods: We trained seven NPs to provide first line care on CICU. The twelve month training programme encompassed drug prescription (including inotropes), patient assessment, data interpretation and advanced life support including chest reopening. Learning outcomes were formally assessed. Competencies include insertion of central venous pressure lines, advanced airway management and resuscitation.

Results: In May 2010, following risk assessment, junior doctors became non-resident and NPs now provide first-line cover. Requests by NPs for medical assistance were prospectively audited. Between May and November 2010, 356 open heart procedures were performed with mean logistic Euroscore 8.1 (range 0.88 - 84), overall mortality was 1.4%. 49 calls for medical assistance were made, major categories were; bleeding 25%, hypotension 20%, low urine output 20%. There were 3 unheralded cardiac/respiratory arrests which were managed appropriately by the NPs with good outcome. There were no reported related clinical incidents.

Conclusion: Radical changes to CICU resident medical cover seem inevitable. Our practice demonstrates a safe, viable alternative to traditional staffing models which then maximises training opportunities for surgical trainees.
Reflection on the Implementation of a Nurse Practitioner Training Programme in a Large Cardiothoracic Surgical Unit

Authors: S. Laidler; F. Thompson; L. Clarke; R. MacFarlane; S. Naden; G. Newberry; S.A. Stamenkovic; S. Clark

Freeman Hospital

Objectives: Driven by EWTD, junior doctors training and cost cutting, the nurse practitioner role was expanded with acquisition of new skills.

Methods: 10 experienced cardiothoracic nurses with degree level education were appointed to work with the CT1’s on the wards. Although initially supernumerary this has become a fully independent practice with a 24hour shift pattern. Foundation training was given in e.g. history taking, physical examination and management of post operative complications. University courses were undertaken including non medical prescribing and CALS. Additional training was provided by the team of consultant cardiothoracic surgeons in house and at the medical school.

Results: There have been challenges including role expedition, role acceptance, role blurring, and embracing computerised paperless management of patients. Also the challenges of achieving the academic requirement for the post should not be underestimated. Gradually our role has changed with ongoing support and training, and we have had the unique opportunity to develop the service. Patients and nursing staff have benefited from the continuity of care and there has been no conflict of interest between service and training commitment.

Conclusion: Despite many challenges, the programme has been successfully implemented and continues to develop with increasing nurse-led audit and research.
The Role of Nurse-led Post-Operative Cardiac Clinics: a Fifteen Month Experience in Wales

Authors: A. Parkes; M. Jenkins; D. Mehta

University Hospital of Wales

Objective: In recent years, the role of the Specialist Nurse has been nurtured. The driving forces behind this have been reduction in junior doctors’ working hours, the national service frameworks and NICE guidelines.

Method: In June 2009, we implemented a pathway to enable post-operative patients recovering after coronary artery bypass surgery (CABG) to be followed-up in a Nurse-led clinic. Patients were fully examined, had review of their wounds and optimization of medication. We have observed the outcomes of this clinic over the first fifteen months. Between June 2009 and September 2010, 183 patients who underwent purely coronary artery bypass surgery were referred to the nurse-led post-operative clinic. 155 (84.7%) were male; the median age was 72 years (range 35-83). The majority of patients underwent three (n=60, 32.8%) or four (n=90, 49.2%) coronary bypass grafts.

Results: Of the 183 patients, 53 patients (30%) had post-operative complications prior to clinic. 17 patients (9.3%) were re-admitted to hospital. 15 had wound related problems and 21 patients complained of other complications not requiring hospital admission (see table). Eight (4.4%) patients were in atrial fibrillation and three (1.6%) were in atrial flutter in clinic. The majority of patients (n= 122, 66.7%) had changes made to their medication: the majority of changes to heart failure or anti-hypertensive medications (n=67, 35.8%). Of the 183 patients, only three were admitted from clinic, after review by an SpR. Seven patients were booked to see a consultant surgeon and 173 (94.5%) were discharged back to their GP. Specialist referrals were made directly by the nurse in clinic.

Conclusion: The nurse-led follow-up clinic for post-operative CABG patients is an excellent use of a valuable commodity. It frees up the medical staff, which will have long-term financial benefits. This clinic is effective and comprehensive. Complications are clearly highlighted and managed with the full support from the surgical team as necessary.

<table>
<thead>
<tr>
<th>READMISSION TO HOSPITAL</th>
<th>17</th>
<th>WOUND COMPLICATIONS (NO RE-ADMISSION)</th>
<th>15</th>
<th>AT HOME COMPLICATIONS (NO RE-ADMISSION)</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia</td>
<td>3</td>
<td>Sternal wound</td>
<td>9</td>
<td>Pain</td>
<td>4</td>
</tr>
<tr>
<td>Urinary Retention</td>
<td>1</td>
<td>Donor leg wound</td>
<td>6</td>
<td>Chest infection</td>
<td>6</td>
</tr>
<tr>
<td>AF</td>
<td>6</td>
<td></td>
<td></td>
<td>Hyperkalaemia</td>
<td>1</td>
</tr>
<tr>
<td>Pleural effusion</td>
<td>3</td>
<td></td>
<td></td>
<td>Persistent cough</td>
<td>4</td>
</tr>
<tr>
<td>CVA</td>
<td>1</td>
<td></td>
<td></td>
<td>Hoarse voice</td>
<td>1</td>
</tr>
<tr>
<td>Vomiting</td>
<td>1</td>
<td></td>
<td></td>
<td>Dyspnœa</td>
<td>2</td>
</tr>
<tr>
<td>Chest pain</td>
<td>1</td>
<td></td>
<td></td>
<td>Urinary tract infection</td>
<td>1</td>
</tr>
<tr>
<td>Leg wound infection</td>
<td>1</td>
<td></td>
<td></td>
<td>AF/atrial flutter</td>
<td>2</td>
</tr>
</tbody>
</table>
**112 Innovative and Practical Approach to Multidisciplinary Teaching in the Area of Thoracic Surgery using Simulation Techniques**

**Authors:** P. Agostini; T. Starkey-Moore; S. Rathinam; B. Naidu; R. Steyn; E. Bishay; M. Kalkat; P. Rajesh

Heartlands Hospital

**Objective:** We aimed to deliver a teaching programme to multidisciplinary UK thoracic surgical professionals in order to enhance knowledge with a novel approach using simulation. Health professionals working in surgery often have limited knowledge of surgical procedures. Opportunities to observe surgery are limited, and may not provide the best learning environment. Lack of knowledge may impact on patient care as it limits ability to convey information regarding patient condition, postoperative care, and also impacts upon clinical reasoning. Previously in the UK no thoracic surgery courses were available to address these issues.

**Methods:** A multidisciplinary faculty developed a programme in a centre with wetlab facilities. Educators were challenged to provide the unique opportunity to see and rehearse surgical procedures, and delegates rotated around practical stations taught by consultant surgeons. Stations included thoracotomy, video assisted thorascoscopic surgery (vats), lung resection, bronchial surgery, glues/sealants, mini-tracheostomy and chest drain insertion. We used sheep lungs, chest wall cavities and trachea/larynx specimens, and industry provided glues, sealants, staples and VATS equipment reflective of current practice.

**Results:** 74% of delegates strongly agreed that the content met their needs. Testimonials include; ‘able to explain more to patients now’, ‘will change the way I look after patients’, ‘increased awareness of the patients’ journey before, during and after surgery’, ‘I have learnt more in this day than in 20 years.

**Conclusion:** We successfully delivered a multidisciplinary, simulation programme for thoracic surgical professionals. Delegate reflection demonstrated after accessing this programme their practice and approach to patient care would change, this may be due to enhanced clinical reasoning and communication skills.
**Objective:** Hypothermic Cardiopulmonary Bypass (CPB) remains the standard in Paediatric Cardiac Surgery. Although associated with a reduction in oxygen requirement, hypothermia has a number of disadvantages including detrimental effects on enzymatic function, energy generation and cellular integrity. Normothermic perfusion is a potentially more physiological method to maintain the functional integrity of major organ systems. The aim of this study was to compare normothermic and hypothermic CPB and their effect on renal injury in paediatric patients undergoing cardiac surgery.

**Method:** Fifty-nine children (median age 78 months; interquartile range, 39-130) undergoing correction of simple congenital heart defects were randomized to receive either hypothermic (28°C) or normothermic (35 - 37°C) CPB. Urinary albumin, retinal binding protein (RBP) and N-acetyl-β-glucosaminidase (NAG) were measured preoperatively, end of CPB, 4, and 24 hours postoperatively. All urinary markers were expressed as a ratio of urinary creatinine. Serum creatinine was measured preoperatively, end of CPB, 24 and 48 hours postoperatively. Data are expressed as mean (SE) or geometric mean in the table. Statistical analysis was performed using repeated measures ANOVA.

**Results:** Baseline and operative characteristics were similar in both groups. There was no significant interaction between treatment and time in any of the 4 variables, data from post intervention time points were therefore pooled to estimate the overall effect for these outcomes. Pooled estimates of Serum Creatinine, Urinary albumin, RBP and NAG demonstrated no significant difference between both groups.

**Conclusion:** Normothermic CPB is associated with similar renal outcomes to hypothermic CPB in children undergoing heart surgery. This study is the first to demonstrate the impact of normothermic bypass on renal injury and contributes to the accumulating evidence of the safety of normothermic CPB.

<table>
<thead>
<tr>
<th>Hypothermic CPB, Mean (SE)</th>
<th>Normothermic CPB, Mean (SE)</th>
<th>Mean Difference /Ratio of Geometric Means</th>
<th>95% CI</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>¥Serum Creatinine (umol/L)</td>
<td>60.0 (1.5)</td>
<td>58.6 (1.7)</td>
<td>+1.4</td>
<td>-3.2</td>
</tr>
<tr>
<td>§Urinary Albumin: Creatinine ratio (mg/mmol)</td>
<td>9.02</td>
<td>6.49</td>
<td>1.39</td>
<td>0.95</td>
</tr>
<tr>
<td>§Urinary RBP: Creatinine ratio (mg/mmol)</td>
<td>21.09</td>
<td>19.95</td>
<td>1.06</td>
<td>0.67</td>
</tr>
<tr>
<td>§Urinary NAG: Creatinine</td>
<td>2.88</td>
<td>2.46</td>
<td>1.17</td>
<td>0.77</td>
</tr>
</tbody>
</table>

¥ Least squares means, adjusted for baseline Serum Creatinine estimated at 59.2.

§ Non normally distributed data expressed as geometric means, adjusted for baseline values

The test for an interaction between treatment and time was non-significant for all variables. Data from post intervention time points were therefore pooled to estimate the overall effect for these outcomes.
Cardiac Surgery and Veno-Arterial Extracorporeal Membrane Oxygenation [ECMO]. A Single Centre Experience

Authors: A. Khosravi; A. Capuani; A. Noah; R.K. Firmin; G.J. Peek

Glenfield Hospital

Objectives: Veno-arterial (VA) extracorporeal membrane oxygenation support is used in patients undergoing cardiac surgery either pre-operatively to achieve stability or post-operatively in patients requiring some support after bypass. Previous reviews of use of ECMO post cardiac surgery have reported survival of 36 to 49%. We hereby review our outcomes with patients who had ECMO support in the perioperative period.

Methods: Retrospectively we analysed the results of all our patients (47) who underwent VA-ECMO between 2004 - 2009. There were 27 neonates (57%), 17 paediatric (36%) and 3 adults (6%).

Results: In the neonatal group, 5 had ECMO support prior to surgery, 9 were weaned from bypass to ECMO and 13 had ECMO commenced from a few hours to 2 days post surgery. The mean duration of ECMO run was 8.5 (1-32) days. Of the paediatric age group, one patient had ECMO support for 5 days prior to cardiac surgery, 4 were weaned from bypass to ECMO and 12 were put on ECMO at few hours to 7 days post surgery. The mean duration of ECMO run in the paediatric age group was 5.7 (2-13) days. All the adults were put on ECMO support after coming off bypass. Survival to discharge was 55% in the neonates, 65% in the paediatric and 66% in the adult group.

Conclusions: ECMO is an extraordinary therapy applied in selected critically ill patients with severe cardiopulmonary failure. The results in our centre compare favourably with results reported in literature.
Atrial septal defect and patent foramen ovale closure are associated with a reduced prevalence of atrial tachyarrhythmia: a meta-analysis

Authors: O.A. Jarral, S. Saso, J.A. Vecht, C. Rao, M.A. Gatzoulis; T. Athanasiou

1 Department of Biosurgery and Surgical Technology, St. Mary's Hospital, Imperial College London; 2 Department of Cardiothoracic Surgery, National Heart and Lung Institute, Imperial College London, The Hammersmith Hospital

Objective: To determine the effect of atrial septal defect (ASD) and patent foramen ovale (PFO) closure on pre-existing atrial tachyarrhythmias (AT).

Methods: Medline, EMBASE, Cochrane Library and Google Scholar databases were searched between 1967 and 2010. All studies reporting pre- and post- closure incidence of AT in the same patient groups were included. Data were independently extracted by two authors according to a pre-defined protocol. ASD closure and PFO closure analysis were performed separately.

Results: Twenty six studies were identified investigating ASD closure, including 1841 patients who underwent surgical closure and 945 who underwent percutaneous closure. Meta-analysis using a random effects model demonstrated a reduction in the prevalence of AT following ASD closure (OR=0.66 [95% CI 0.57-0.77]). This effect was demonstrated after both percutaneous (OR=0.49 [95% CI 0.32-0.76]) and surgical closure (OR=0.72 [95% CI 0.60-0.87]). Immediate (<30 days) and mid-term (30 days - 5 years) follow-up also demonstrated a reduction in AT prevalence (ORs of 0.80 [95% CI 0.66-0.97] and 0.47 [95% CI 0.36-0.62] respectively). Six studies were identified investigating PFO closure. Meta-analysis using a fixed effects model demonstrated a significant reduction in the prevalence of atrial fibrillation with an OR of 0.43 (95% CI 0.26-0.71). When using the random effects model, OR was 0.44 (95% CI 0.18-0.14) with a statistically significant trend (test for overall effect: Z=1.87, p<0.06).

Conclusion: ASD and PFO closure is associated with a reduction in prevalence of pre-existing atrial tachyarrhythmias in the short to medium term.
116  The Outcome of 278 Cases of Atrial Isomerism Heart: Transition of Surgical Strategy in Three Decades

Authors: H. Ichikawa; K.K. Kagisaki; T.H. Hoashi; I.S. Shiraishi

National Cerebral and Cardiovascular Center

Objective: The surgical treatment of univentricular heart has improved by the successful treatment strategy to leads to single ventricular repair. However, the survival rate of the patients with atrial isomerism is inferior to that without.

Method: We have reviewed the 278 patients’ charts in our center retrospectively and analysed the long term outcome. From 1978 to 2009, patients with right atrial isomerism (RAA; n = 201) and left atrial isomerism (LAA; n = 77) are treated surgically in our institution. Two hundred forty one patients are indicated for univentricular repair and 37 patients were indicated for biventricular repair. Among them, 178 patients tolerated any kinds of operative procedure and survived. Operative death was seen 36 out of 201 in RAA and 5 out of 77 in LAA. The outcome is analyzed by dividing the decades from 1978-1989, 1990-1999 and 2000-present.

Results: The operative mortality improved by time (17%, 7% and 2%, respectively). The late mortality to present date are 13%, 7% and 2%, respectively. The mean ages at the initial surgical procedure are 1.59y, 0.94y and 0.22y, respectively. The choice of BT shunt as an initial palliative surgery was decreased by decades (37, 25 and 20 %, respectively). Contrarily, the choice of bidirectional Glenn procedure increased (2, 10 and 17%). The ratio of TCPC completion was improved by decades (23%, 38% and 51%, respectively). The average oxygen saturation after the first palliation was higher in the earliest decades and lowest in the recent decades. The significant risk factor for operative and late death is the TAPVC repair as the first palliative procedure and a severe common AV valve regurgitation. With these two factors, there was no improvement in the survival among three decades.

Conclusion: The low pulmonary blood flow strategy might improve the surgical outcome possibly due to the prevention of high pulmonary vascular resistance and volume overload to the systemic ventricle to prevent AV valve regurgitation.
An Ovine Model of Postoperative Dilated Right Ventricular Outflow Tract and Pulmonary Insufficiency

Authors: J.D. Robb¹, M.A. Harris², M. Minakawa¹, K. Koomalsingh¹, A. Jassar¹, A.C. Glatz², J.J. Rome², R.C. Gorman¹, J.H. Gorman², M.J. Gillespie²

1 University of Pennsylvania; 2 Children’s Hospital of Philadelphia

Objectives: To establish an ovine model of the dilated right ventricular outflow tract (RVOT) and pulmonary insufficiency commonly seen following repair of tetralogy of Fallot and to quantify the pulmonary insufficiency and right ventricular failure seen using MRI.

Methods: 5 sheep were subjected to baseline MRI scanning. Weight-indexed right ventricular end diastolic volume (RVEDV), end systolic volume (RVESV), stroke volume (RVSV), ejection fraction (EF) and regurgitant fraction (RF), were measured at baseline. The animals then underwent left thoracotomy, pulmonary valvectomy and transannular patch repair of the RVOT. 8 weeks later repeat measurements were obtained by repeat MRI.

Results: At baseline, indexed RVEDV increased from a mean of 49 ±4.0mls/ m2 to a mean of 80 ±10.3mls/m2 at follow up (p=0.01). Indexed RVESV increased from a mean of 13 ±3.4mls/ m2 to a mean of 33 ±8.8mls/ m2 at follow up, (p=0.01). The mean indexed RVSV was 36 ±3.7mls/m2, whereas at post valvectomy follow up scanning the mean indexed RVSV was 47 ±1.7mls/m2 (p=0.01). Mean RVEF at baseline was 74 ±6% reducing to 59 ±5% at follow up (p=0.02). The mean RF in animals at baseline was 0 ±0% and in animals at follow up scanning post valvectomy, it was 37 ±3% p< 0.001.

Conclusions: The treatment of pulmonary insufficiency following reconstructive surgery of the right ventricular outflow tract in repair of tetralogy of Fallot remains a challenge. Conventional surgery involving a homograft conduit or bioprosthetic valve involves the risk of redo surgery and of failure due to prosthetic valve degeneration. Current transcatheter pulmonary valve replacement is not applicable to patients with dilated RVOT. In this animal study, all five animals developed pulmonary regurgitation sufficient to cause right ventricular dilatation and reduced ejection fraction. This model may be used to investigate further novel therapeutic approaches in the treatment of this difficult clinical problem.
118 Right Ventricular Outflow Tract Cryoablation for Ventricular Tachycardia in Patients undergoing Pulmonary Valve Replacement

**Authors:** T. Khan¹, J. Kadlec², S. Congiu³, M. Blackburn³, K. English³, N. Weerasena³

1 Department of Congenital Cardiac Surgery; 2 Norfolk and Norwich University Hospital; 3 Leeds General Infirmary

**Objectives:** Chronic pulmonary regurgitation is associated with impairment of right ventricular function and an increased risk of ventricular tachycardia (VT) and sudden cardiac death. Cryoablation of arrhythmogenic focus in right ventricular outflow tract (RVOT) may protect against VT. We report our experience of RVOT cryoablation at the same time as pulmonary valve replacement (PVR) in patients at risk of ventricular arrhythmias.

**Methods:** Between 2007 and 2010, eighteen patients (11 males, 7 females) underwent PVR and RVOT cryoablation. Mean age was 29.6 yrs (+/- 7.3 SD). All patients had previous Tetralogy of Fallot repaired in childhood. Six patients had inducible or spontaneous VT preoperatively and 4 had symptoms of syncope or presyncope. One patient had multiple catheter ablations in the past. Six had QRS duration > 180ms. Mean preoperative right ventricular end diastolic volume index on magnetic resonance scan was 198.6ml/sq m.

**Results:** There were no deaths in the series. Post operative complications included atrial flutter in two, left pleural effusion and diaphragmatic palsy in one and pneumothorax in one patient. Average period of follow up was 7.4 months (range 2-38 months). Overall, 3 patients had VT on follow up. Of the 6 patients with preoperative VT, 2 had VT stimulation studies. One was positive for VT and had an automatic internal cardiac defibrillator (AICD) three years after operation. The other one was negative. Two patients with no preoperative VT developed this rhythm and have been managed medically.

**Conclusion:** 83% of patients following RVOT cryoablation were free of ventricular arrhythmias in the early follow up period. This simple additional procedure during PVR may have a positive impact on survival in these patients. However, further studies are required to delineate the most effective ablation lines.
Sildenafil Citrate, a Phosphodiesterase-5 Inhibitor, prevents Post Cardiopulmonary Bypass Acute Kidney Injury

Authors: N. Patel¹, H. Lin¹, T. Toth², C. Jones¹, P Ray³, G.I. Welsh⁴, S.C. Satchell⁴, G.D. Angelini¹, G.J. Murphy¹

1 Bristol Heart Institute, University of Bristol; 2 Department of Histopathology, North Bristol NHS Trust, Southmead Hospital, Bristol; 3 Department of Anaesthesia & Critical, Weston General Hospital, Weston-Super-Mare; 4 Academic Renal Unit, University of Bristol, Southmead Hospital, Bristol

Objective: To determine whether administration of a phosphodiesterase-5 inhibitor (PDE-5) would prevent the development of post cardiopulmonary bypass (CPB) acute kidney injury in swine.

Methods: Adult White-Landrace pigs (50-70kg, n=24) were randomised to undergo either: a) sham procedure, b) 2.5 hours of CPB, or c) 2.5 hours of CPB + Sildenafil (10mg). 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. Data were analysed using ANOVA with post-hoc bonferroni tests.

Results: CPB caused significant renal dysfunction and an increase in urinary IL-18 excretion when compared to sham controls at 24 hours, 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, Sildenafil prevented AKI by preserving creatinine clearance, reducing 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. Absolute mean differences are presented in the table.

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

<table>
<thead>
<tr>
<th>Mean (SEM)</th>
<th>Sham (n=8)</th>
<th>CPB alone (n=8)</th>
<th>CPB + Sildenafil (n=8)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine Clearance - 24 hrs (ml/min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>+22.2 (11.6)</td>
<td>-29.1 (13.1)*</td>
<td>+19.3 (7.8)**</td>
<td>0.009</td>
</tr>
<tr>
<td>Urinary IL-18 Post CPB (pg/ml)</td>
<td>27.5 (13.5)</td>
<td>236.9 (37.0)*</td>
<td>0.02 (0.003)**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Medullary Oxygen Tension (mmHg)</td>
<td>97.4 (12.0)</td>
<td>22.9 (2.6)*</td>
<td>79.4 (0.4)**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Oxygen Extraction Ratio (%)</td>
<td>19.8 (0.6)</td>
<td>49.1 (8.6)*</td>
<td>10.6 (0.1)**</td>
<td>0.001</td>
</tr>
<tr>
<td>Intrarenal ATP/ADP ratio</td>
<td>0.79 (0.04)</td>
<td>0.25 (0.08)*</td>
<td>0.92 (0.22)**</td>
<td>0.003</td>
</tr>
<tr>
<td>Nitric Oxide Bioavailability Post CPB</td>
<td>174.8 (24.1)</td>
<td>39.9 (10.7)*</td>
<td>286.0 (19.9)**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>(Urinary Nitrate:Creatinine Ratio)</td>
<td></td>
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</tr>
<tr>
<td>Renal Blood Flow (% Change in response to Acetylcholine)</td>
<td>+79.5 (15.1)</td>
<td>-9.3 (18.7)*</td>
<td>+18.5 (12.5)**</td>
<td>0.006</td>
</tr>
<tr>
<td>Intrarenal Adenosine/ATP ratio</td>
<td>0.10 (0.32)</td>
<td>2.42 (0.67)*</td>
<td>0.12 (0.01)**</td>
<td>0.003</td>
</tr>
</tbody>
</table>

*p<0.05 vs sham  **p<0.05 vs CPB
Hypercholesterolaemia Protects against Cardiopulmonary Bypass induced Endothelial Dysfunction and Acute Kidney Injury

Authors: P. Sleeman¹, N. Patel¹, C. Jones¹, H. Lin¹, T. Toth², P. Ray³, G.I. Welsh⁴, S.C. Satchell⁴, G.D. Angelini¹, G.J. Murphy¹

1 Bristol Heart Institute, University of Bristol; 2 Department of Histopathology, North Bristol NHS Trust, Southmead Hospital; 3 Department of Anaesthesia & Critical Care, Weston General Hospital, Weston Super Mare; 4 Academic Renal Unit, University of Bristol, Southmead Hospital, Bristol

Objective: We have previously demonstrated that cardiopulmonary bypass (CPB) causes acute kidney injury (AKI) by inducing renal endothelial cell injury and dysfunction. The aim of the present study was to determine the impact of hypercholesterolaemia (HC) on post-CPB AKI in a porcine recovery model.

Methods: Adult White-Landrace pigs (50-70kg, n=28) were randomised to undergo either: a) sham procedure, b) 2.5 hours of CPB, c) HC + sham procedure or d) HC + 2.5 hours of CPB. HC pigs were administered a high-fat diet for 3 months prior to intervention. 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. Data was analysed using ANOVA.

Results: Serum cholesterol concentrations were significantly higher in HC pigs as compared to non-HC pigs at baseline. CPB in non-HC pigs caused significant renal dysfunction and proteinuria when compared to sham controls at 24 hours. CPB resulted in significant changes in renal tubular morphology with marked tubular dilatation 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, eNOS and dBA lectin staining, endothelial dysfunction characterised by renal vasoconstriction in response to acetylcholine, and endothelial activation characterised by upregulation of endothelin-1 and the vasoconstrictor adenosine. When compared to non-HC pigs, CPB in HC pigs prevented AKI by preserving creatinine clearance, renal high-energy phosphates, NO bioavailability and endothelial function, and reducing proteinuria, endothelial cell injury and activation, and intra-renal adenosine concentrations. Absolute mean differences are presented in the table.

Conclusions: Hypercholesterolaemia protects against CPB induced AKI and endothelial dysfunction.

<table>
<thead>
<tr>
<th></th>
<th>Sham (n=8)</th>
<th>CPB Alone (n=8)</th>
<th>HC (n=6)</th>
<th>CPB + HC (n=6)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine Clearance</td>
<td>+22.2 (11.6)</td>
<td>-29.1 (13.1)*</td>
<td>+28.3 (11.3)</td>
<td>+32.1 (28.9)**</td>
<td>0.042</td>
</tr>
<tr>
<td>δ 24 hrs (ml/min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Proteinuria δ 24 hrs (mg/mmol)</td>
<td>+6.0 (2.0)</td>
<td>+27.0 (7.1)*</td>
<td>+4.4 (2.5)</td>
<td>+7.8 (2.5)**</td>
<td>0.004</td>
</tr>
<tr>
<td>Renal Blood Flow δ Post Ach (%)</td>
<td>+79.5 (15.1)</td>
<td>-9.3 (18.7)*</td>
<td>+116.9 (32.3)</td>
<td>+66.3 (9.2)**</td>
<td>0.004</td>
</tr>
<tr>
<td>Cortical Perfusion δ Post Ach (%)</td>
<td>+80.5 (1.2)</td>
<td>+18.2 (13.3)*</td>
<td>+78.2 (8.8)</td>
<td>+50.4 (12.8)</td>
<td>0.011</td>
</tr>
<tr>
<td>(Urinary Nitrate/Nitrite Concentration)</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Post CPB Nitric Oxide Bioavailability</td>
<td>174.8 (24.1)</td>
<td>39.9 (10.7)*</td>
<td>233.1 (35.1)</td>
<td>245.1 (20.4)**</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Adenosine/ATP ratio</td>
<td>0.10 (0.03)</td>
<td>2.42 (0.67)*</td>
<td>0.49 (0.29)</td>
<td>0.18 (0.03)**</td>
<td>0.002</td>
</tr>
<tr>
<td>ATP/ADP ratio</td>
<td>0.79 (0.04)</td>
<td>0.25 (0.08)*</td>
<td>0.57 (0.15)</td>
<td>0.65 (0.10)**</td>
<td>0.046</td>
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<tr>
<td>O2 ER (%)</td>
<td>19.8 (0.60)</td>
<td>49.1 (8.6)*</td>
<td>28.1 (0.00)</td>
<td>18.0 (11.3)**</td>
<td>0.040</td>
</tr>
<tr>
<td>Post-hoc Bonferroni</td>
<td>* p&lt;0.05 vs sham</td>
<td></td>
<td></td>
<td>**p&lt;0.05 vs CPB</td>
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</table>
121 Increased Preoperative B-Type Natriuretic Peptide Levels Predict Early Clinical Outcomes and Midterm Survival After Aortic Valve Replacement

Authors: A. Miceli; A.G.C. Cerillo; D.G. Gilmanov; E.V. Varone; G.C. Concistrè; F.C. Chiaramonti; T.G. Gasbarri; S.B. Bevilacqua; P.A.F. Farneti; M.G. Glauber

Fondazione G. Monasterio CNR-regione Toscana

Objectives: Plasma levels of B-type peptide (BNP) have been shown to predict development of symptom onset and survival in patients with aortic stenosis (AS). However, in setting of aortic valve replacement (AVR), BNP prognostic value is not well defined. This study evaluates the effect of preoperative BNP levels on early clinical outcomes and midterm survival in patients with AS after AVR.

Methods: A retrospective, observational, cohort study was undertaken of prospectively collected data on 421 consecutive patients with AS undergoing isolated AVR between January 2005 and July 2010. Patients were divided into quartiles according to BNP levels.

Results: Overall in-hospital mortality was 2.6%. The incidence of death, atrial fibrillation (AF), and postoperative renal dysfunction (PRD) was 0.9%, 21.9% and 1.9% in the lowest quartile (BNP < 88 pg/mL), 0%, 35.6% and 2.9% in the second quartile (BNP > 89 to < 191 pg/mL), 1.9%, 40.5% and 3.8% in the third quartile (BNP > 192 to 417 pg/mL), 7.5%, 44.2% and 9.5% in the highest quartile (BNP > 418 pg/mL). In a multivariate logistic regression, BNP > 418 pg/mL was an independent predictor of mortality (OR 5.4, 95%CI 1.13-26.2, p=0.02) and AF (OR 1.7, 95%CI 1.04-2.88, p=0.03). Moreover, when modelled as continuous variable, probability of mortality and AF increased with increasing BNP levels. Cumulative 5-years survival of patients with BNP > 418 pg/mL was 64.5±10% vs 79±6.5% with BNP < 418 pg/mL (p<0.0001).

Conclusion: Increased plasma level of B-type peptide (BNP > 418 ng/mL) in patients with AS undergoing AVR is a predictor of poor early outcomes and midterm survival.
122 Predictive Value of Nt-proBNP in the Occurrence of Postoperative Atrial Fibrillation in Cardiac Surgery with Cardiopulmonary Bypass

Authors: S. Kallel; M.H. Ben Soltana; R. Barkia; S. Ghariani; K. Ghrairi; S. Akrout; A. Karoui; I. Frikha; Z. Triki

Academic Medical Center Habib Bourguiba of SFAX

Objective: One of the feared complications with the waning of cardiac surgery is atrial fibrillation (AF). The value of Nt-pro BNP in predicting that complication is not well studied. Our objective is to determine its predictive role in the occurrence of postoperative AF after heart surgery with cardiopulmonary bypass (CPB).

Methods: This is a prospective study. It involved patients proposed for programmed or semi-urgent cardiac surgery with normo-thermal CPB. We performed seven blood samples for each patient: the first one immediately after the induction of anesthesia and before CPB. The following samples were made at the end of the CPB (H0), 4 hours later (H4) and every day during the first four days (H24, H48, H72 and H96). Nt-proBNP and cTnI were measured in each sample.

Results: A total of 42 patients were selected. Two patients were excluded because they died on the first postoperative day. The average age and the sex ratio were respectively 56.1 ± 14.9 years and 1 .3. Our population was divided into 23 coronary artery bypass graft and 17 valve replacements. The most common cardiovascular complication was the AF (17.5%). Rates of Nt-proBNP were significantly increased in patients who developed postoperative AF. The ROC analysis of NT-proBNP at different times studied for the prediction of AF showed that assays at the end of the CPB and those of the 4th postoperative hour (H4) had the best area under the curve (AUC) A threshold value of 353.5 mg / ml of Nt-proBNP at the end of the CPB has a sensitivity of 71% and a specificity of 84% for the prediction of AF and an area under the curve (AUC) of 0.711. The threshold value (307.5 mg / ml) of Nt-proBNP measured at H4 has the same sensitivity but with a lower specificity (74%) and AUC = 0.709.

Conclusion: Our study showed that early assays made at the end of the CPB or four hours later could predict the occurrence of the AF. In this case, primary prevention would be considered.
123 Peri-Adventitial Human Stem Cells for the Prevention of Vein Graft Disease in Pig Vein-into-Artery Interposition Grafts

Authors: D. Wei-Chun Huang; G. Newby; A.C. Newby; G.J. Murphy

Bristol Heart Institute

Objective: Neointima formation and atherosclerosis compromise long-term graft patency in aorto-coronary vein bypass grafts. Our previous work has suggested that accelerated neoangiogenesis in the vein graft adventitia may inhibit atherosclerosis by reducing graft hypoxia. We investigated the effect of peri-adventitial application of microbeads composed of immortalised human stem cells that release proangiogenic peptides on the progression of vein graft disease in experimental pig vein-into-artery-grafts. Immune mediated destruction of these cells is prevented by encapsulation in alginate (CellBeads®; Cellmed AG, Alzenau, Germany).

Methods: Peri-adventitial application of CellBeads® at a dose of 20,000 cell.cm-2 to porcine saphenous vein to carotid artery interposition grafts was compared to grafts coated with non-stem cell containing alginate only beads and to grafts receiving no treatment.

Results: Cellbeads resulted in a significant reduction in neointimal area compared to both control groups (Cellbead versus Alginate only bead control mean difference 4.1mm2, 95%CI 0.3 to 7.9, p=0.033). This was associated with a significant increase in vein graft adventitial neoangiogenesis (Cellbead versus Alginate only bead mean difference mean difference 16.8 vessels/mm2 95%CI 3.4 to 30.3, p=0.012). Cellbeads had no effect on vessel remodelling and promoted adventitial collagen deposition. Non-stem cell containing alginate only beads significantly reduced graft patency (6/17 grafts patent) versus Cellbead treated (6/7 grafts patent) or untreated grafts (7/8 grafts patent), Fishers’s Exact test p=0.032.

Conclusions: Induction of accelerated neoangiogenesis by periadventitial human stem cells inhibits neointima formation in porcine saphenous vein to carotid artery interposition grafts after 4 weeks. Potential local toxicity attributable to the alginate vehicle limits the translational development of this mode of delivery.
124 Regeneration of $\alpha$-Adrenergic Receptors following Phenoxybenzamine Treatment in the Human Radial Artery

Authors: R. Warwick; M. Shackcloth; A. Oo

Liverpool Heart and Chest Hospital

Objective: Phenoxybenzamine (PhB) has been recommended to prevent spasm in radial artery (RA) conduits for CABG. In smooth muscle cells cultured in the presence of angiotensin II, adrenoceptor regeneration occurs to levels beyond that originally present. The aim of this study was to determine whether following treatment with PhB and incubation in angiotensin II there is an up-regulation of the $\alpha$-adrenergic receptors.

Methods: Radial artery smooth muscle cells (RASMC) were cultured from arterial explants. When confluent, they were reseeded onto five 96 well plates. Following treatment of half of each plate with 1µM PhB, concentration response curves were obtained from cultured cells over a period of five days to measure the regeneration of functional adrenergic receptors. The experiment was then repeated with cells incubated in the presence of 100nM angiotensin II, 100nM endothelin-1, 100nM vasopressin and 10µM noradrenaline to measure whether receptor regeneration is affected. Functional adrenergic receptors were determined by calcium imaging.

Results: The noradrenaline rise in $[\text{Ca}^{2+}]_c$ was completely abolished by PhB treatment and returned to control levels by 48 hours. PhB treatment did not affect the response to angiotensin II. Receptor regeneration in the presence of angiotensin II and other vasoconstrictors was unaffected.

Conclusion: In human RASMC there is not an up-regulation of the $\alpha$-adrenergic receptors following treatment with PhB and incubation in angiotensin II. This is important clinically as plasma levels of angiotensin II are raised following CABG.
125 Estimation of Coronary Artery Strain from the Natural Torsional Frequency of Long Saphenous Vein and its Relationship with Coronary Artery Disease

Authors: L. John

Kings College Hospital

Objectives: Biomechanical factors are an important but under appreciated cause for coronary artery and bypass graft disease. Local wall strain is perhaps the most important and is the relative amount of vessel wall distortion during the cardiac cycle. It depends upon the type of movement, the force exerted and the vessel elasticity. A technique was developed for estimating the relative coronary artery strains of cardiac surgical patients by using segments of long saphenous vein. The aim of the study was to determine if there was a relationship between this estimate of coronary artery strain and the severity of coronary artery disease.

Methods: The natural frequency of torsional resonance (NF) was measured for different lengths and inflation pressures of long saphenous vein (LSV) taken from 74 patients undergoing coronary artery bypass graft surgery. From this the torsional elastic modulus of LSV was derived ($k = NF^2 \times 10^{-4} \text{N.m/rad}$) for a 5 cm length of vein and inflation pressures of 60, 80 and 100 mmHg ($k_{60}$, $k_{80}$, $k_{100}$). The cardiac output ($Q$) was estimated for each patient from their body surface area (BSA) ($Q = 2.4 \times \text{BSA}$). Relative coronary artery strain ($S$) was estimated from: $S_{60} = Q/k_{60}$, $S_{80} = Q/k_{80}$, $S_{100} = Q/k_{100}$. These parameters were compared between patients with 2 vessel coronary artery disease ($n = 13$) and those with 3 vessel disease ($n = 61$).

Results: The mean relative coronary artery strains were significantly greater in patients with 3 vessel disease than with 2 vessel disease: $S_{60} (4.83 \pm 0.38 \text{ vs. } 3.54 \pm 0.23, p = 0.005)$, $S_{80} (4.29 \pm 0.34 \text{ vs. } 3.11 \pm 0.21, p = 0.004)$, $S_{100} (3.91 \pm 0.30 \text{ vs. } 2.79 \pm 0.18, p = 0.003)$

Conclusions: A simple method for estimating relative coronary artery strain is described. This measure varies between individuals and is a risk factor for severity of coronary artery disease. Its measurement raises the possibility of individually modifying bypass techniques to reduce graft disease.
126 Selective Replacement of the Ascending Aorta and Non-Coronary Sinus of Valsalva (Hemi-Root) for Bicuspid Aortic Valve Associated Aortopathy

Authors: M.M. Sabetai; G. Belitsis; M. Petrou

Royal Brompton & Harefield NHS Foundation Trust

Objective: The ideal surgical strategy for patients with bicuspid aortic valve (BAV) associated aortopathy is controversial. Prophylactic full aortic root replacement can seem over-aggressive, particularly in older patients with co-morbidity and/or when the aortic root (ARo) is only moderately dilated. Objective: We evaluated the role of selective replacement of the ascending aorta (AA) and the non-coronary sinus of Valsalva (“hemi-root”) in BAV patients with ARo dimensions measuring <4.5 cm in diameter.

Methods: Between July 2002 and October 2010 we performed 58 aortic root procedures including total replacement, valve-sparing, root enlargement and selective sinus remodeling. 4 patients (all male) with a mean age of 55 years (range 39-71) underwent “hemi-root” replacement, 3 of whom also had AVR for pathological BAV and 1 had a valve-sparing procedure. Other concomitant procedures included CABG and myectomy of the LVOT. The mean diameters of the ARo and AA were 4.1 (3.8-4.4) and 4.6 (4.4-5.2) cm, respectively. Selective replacement of the AA and “hemi-root” was performed using a Gelseal(tm) graft (30-32 mm) fashioned proximally with a “tongue extension”.

Results: In hospital survival was 100%. Mean bypass and cross-clamp times were 149 (109-166) and 113 (85-134) min, respectively. None of the patients required re-exploration for bleeding. All patients remain clinically well at follow-up with stable ARo dimensions on surveillance imaging.

Conclusions: Prophylactic replacement of the AA and “hemi-root” using an appropriately tailored tube graft is a relatively simple solution in patients with BAV associated aortopathy with moderately enlarged aortic diameters. Although this technique may be criticised for leaving residual pathological tissue in the left and right coronary sinuses we know from other studies that the greatest haemodynamic stresses occur in the antero-lateral (greater curve) of the aortic root and ascending aorta. Long-term follow is essential.
127 Nursing Care of Spinal Drains Following Aortic Surgery

Authors: J. Doolan; M.L. Field; M. Kuduvalli; A. Oo; J. Kendall; M. Desmond

Liverpool Heart and Chest Hospital

Objective: Paraplegia is a devastating complication which may occur following surgery on the thoracic aorta. The use of a cerebrospinal fluid drain (CSFD) has helped reduce the incidence of neurological deficit, however the management of patients with a CSFD post surgery requires nurses and doctors to have expertise and awareness of the associated complications. To this end we have introduced several protocols for safe CSFD management.

Methods: Interventions undertaken during the development of the policy were: 1. The National Patient Safety Agency (NPSA) was contacted and asked if they recommended that manometer tubing used for Spinal Drains should be colour coded. They stated that at present there are no recommendations. It was therefore decided by the Trust would use an individual white manometer tube that is separate form all other manometer lines. 2. Due to inadvertent spinal injections throughout the NHS, manufacturers have been tasked by the NPSA with providing dedicated/unique equipment by 2011. To reduce the risk large red labels are attached next to all ports associated with the spinal drain warning staff no to use for injection. 3. Clear guidance given within the policy of the standards expected when caring for the line and dressing at the insertion site.

Results: Protocol 1 was developed which is a checklist, communication tool and aide-memoire to ensure effective management, when the patient arrives on Critical Care Area from Theatre. Protocol 2 ensures that early detection of a neurological deficit is noted and with Protocol 1 is acted upon immediately and that the modified “COPS” (Estrera et al 2009) protocol (Protocol 3) is initiated to reverse the injury. Protocol 4 provides information on the safe administration of analgesia via the spinal drain and has reference to the Glasgow Coma Scale.

Conclusion: The protocol has resulted in a reduction in spinal cord injury and critical incidents and increased staff awareness.
128  Pain Control in Cardiac Surgery Patients: Prospective Study of Intrathecal Morphine versus Patient-Controlled Analgesia

Authors: R Haris Bilal; N. Nazeakor; M.N. Bittar; J. Zacharias; R. Millner; P. Saravanan; D. Ngaage

Blackpool Victoria Hospital

Objective: To compare the efficacy and safety of Intrathecal Morphine (ITM) versus Patient Controlled Analgesia (PCA), after cardiac surgery.

Methods: A prospective series of 76 consecutive patients who received Intrathecal Morphine and 72 who received PCA after cardiac surgery via median sternotomy from Aug 2010-Oct 2010. The ITM group received 0.04 mg/kg intrathecal morphine at induction and PCA group received, 1 mg of Morphine, lock-out interval 7 min, 0.1 mg/hr. The adequacy of pain control was measured with the Visual analogue scale (VAS). We compared use of vasoconstrictors, colloids, fluid balance in the first 24 hours, time-to-extubation, and requirement for additional analgesia on day 0, day 1 and before discharge, and pain team referral pattern, between the groups.

Results: Coronary artery bypass grafting was the predominant procedure (80%) and was equally distributed amongst the groups. Patients in ITM group had better mean pain score on day one, (0.8 vs.1.5, p=0.02) but there was no difference in additional analgesia requirement throughout hospital stay. Mean time-to-extubation for the cohort was 7.9 hours; there was no difference between the groups (ITM 7.7 vs.PCA 8.1 hours, p=0.7). There was a significant increase in the use of noradrenaline in ITM group (96%, n=69, vs. 77%, n=59, in the PCA group, p=0.001). Colloid input in the first 24 hours was similar in the two groups; 1.9 vs. 1.7 litres in PCA group (p=0.13). Patients in ITM group were found to be more positive (Fluid Balance) after first 24 hours, 1.5 vs. 1.2 Litres (p=0.02). Mean hospital stay (p=0.3) and the incidence of post operative arrhythmias were similar for the groups.

Conclusion: Intrathecal morphine provides superior pain control in the immediate post operative period compared to PCA. However it is associated with greater use of vasoconstrictors.
129 How Good is Your Local Anticoagulation Clinic? Audit of Time in Therapeutic Range of Patients Discharged on Oral Anticoagulation Therapy

Authors: I. Ahmed; A. Foster; S. Asopa; S. Hunter

James Cook University Hospital

Objectives: Oral anticoagulation therapy is effective following cardiac surgery in those patients with mechanical heart valves and also those in atrial fibrillation (AF). Maintaining time in therapeutic range (TTR) is essential to avoid the risk of thromboembolism or bleeding complications. It is well documented that for patients in AF TTR should be maintained over 58%[1].

Methods: Retrospective analysis was made of 30 consecutive patients who were on warfarin for either mechanical heart valves or due to AF. All patients attended the same anticoagulation clinic. International normalized ratio (INR) values were analysed for the first 6 months following discharge and TTR was calculated for each patient.

Results: Reason for anticoagulation included AF (n=7), Aortic Valve replacement (n=10) and Mitral Valve replacement (n=13). Median age of patients was 71 (range 41-79). Overall median TTR was only 53% (range 18-71%). There was no preponderance to achieving better TTR in the latter 3 months as opposed to the first 3 months. For those patients in AF median TTR was 50% (range 29-61%).

Conclusion: There is a wide variation in INR control between individual patients as measured by TTR. This impacts on treatment benefit of oral anticoagulation therapy. Warfarin is the most commonly prescribed oral anticoagulant world wide, however its usefulness is overshadowed by its problems of unstable pharmacokinetics. Although newer agents are emerging which are more stable, this study suggests that while warfarin is the standard agent, better monitoring (such as point of care testing) should be more routinely available. These results have been highlighted within the department and the study is being extended to other regional anticoagulation clinics.

130 Introduction of an End of Life Care Process

Authors: L. Truesdale; T. Williamson; K. Mouats

Golden Jubilee National Hospital

Objectives: To improve our care at the End of Life, and for those bereaved.

Methods: A Multi-Disciplinary team End of Life group established, which reviewed the research and examples of best practice across the UK.

4 main work streams identified:

A, Enrolment on Liverpool Care Pathway, which involved an initial audit, then an adaptation of the prescribed paperwork, an education programme and an implementation process.

B, The introduction of a bereavement follow up service which utilises a dedicated answering service, that enables contact when it is requested. The distribution of sympathy cards which again offer support from staff the individuals had met previously. Involvement of the hospitals spiritual care adviser.

C, Improvement in the facilities and information sharing as treatment changes from restorative to palliative.

D, Standardisation of best practice care at the time of death. Using better documentation, training DVDs and feedback information.

Results: As we are in the midst of this change in our End of Life Care audit information is planned but not yet complete. There is, however, a feeling of improved care and staff satisfaction, that we can concentrate resources and have improved expertise in this area of our care. The Scottish Government is targeting bereavement care across the country, and our approach is in line with their recommendations.
Flat Trachea Syndrome - Under-Diagnosed and Under-Treated?

Authors: G. Niranjan; J.K. Marzouk

University Hospital of Coventry & Warwickshire

Objectives: Flat Trachea Syndrome is a central airway disease characterised by wall weakness and dynamic decrease in the tracheal lumen and large bronchi. It remains under-diagnosed unless clinicians are acquainted with its peculiar symptomology, being confused with COPD or asthma. Surgery with posterior tracheobronchial splinting using a polytetrafluoroethylene Teflon patch has been considered a treatment option.

Methods: A retrospective series of twenty-eight patients that underwent tracheobronchoplasty using a Teflon patch between 1998 and 2010 were evaluated for symptoms, lung and exercise capacity.

Results: Age range was 24 to 82. 61% treated were male, with all cases diagnosed with obstructive airways disease on spirometry, with FEV1 ranging from 34-65% pre-operatively. 89% presented with severe dyspnoea, 82% with uncontrollable cough, and 75% reported recurrent pulmonary infections. After surgery symptomatic improvement in dyspnoea was reported in 86%, (p<0.001), cough disappeared in 90%, (p<0.001). The mean exercise capacity was improved in 61% patients.

Conclusions: The condition of tracheobronchomalacia is a misnomer and we propose the term “Flat Trachea syndrome”. It is a rare but debilitating condition, diagnosed easily by a non-paralysing bronchoscopy and dynamic biphasic inspiratory/expiratory CT. Airway splinting with a Teflon patch improves symptoms, quality of life and functional status in selected patients.
132 Digital Chest Drains Expedite Patient Recovery and Discharge after Thoracic Surgery - Single Centre Experience

Authors: L. Srinivasan; A. Alzetani; D. Danitsch; A. Lea; S. Ghosh

University Hospital North Staffordshire

Objective: Post-operative air leak is a common complication in thoracic surgery and prolongs patients’ recovery. Mobile digital chest drainage systems improve the patient’s management and facilitates early mobilization thus aiding in early recovery and discharge from hospital.

Methods: A retrospective review of all patients admitted for any lung resection/biopsy or bullectomy & pleurectomy under one surgeon over a 2 year period, the first from September 2007 to September 2008 before the introduction of mobile digital chest drainage system and the second period after the introduction of the system from October 2009 to October 2010.

Results: In the first period (September 07-08) there was 35 lobectomies 19 wedge resections, 20 lung biopsies and 18 bullectomy & pleurectomies compared to 49 lobectomies, 36 wedge resections, 15 lung biopsies and 15 bullectomy & pleurectomies in the 2nd period (October 09-10). The demographics and comorbidities were similar between the two groups. The mean postoperative stay was significantly reduced from 7.12 to 5.6, 4.68 to 2.8, 2.21 to 2.06 days for the first three subsets but remained at 4.66 compared to 4.63 days in the bullectomy/pleurectomy category.

Conclusions: The duration of hospital stays of the patients in patients having a lung resection/biopsy were reduced but there was no significant change in the group undergoing bullectomy/pleurectomy. We conclude that the use of mobile digital drainage systems facilitates early mobilization and reduces hospital stay in the majority of patients. Further prospective studies are under way to establish a pioneering protocol for nurse led management of digital chest drains that will have a major impact on reducing hospital stay and increasing the throughput of the unit.
133 Does use of VAT Port Sites for Chest Drains Increase Complications Post-Operatively?

Authors: E. Ward¹, S. Barnard²

1 Sunderland Royal Hospital; 2 Freeman Hospital

Objectives: Basic surgical principles teach us that insertion of a drain should be separate from the site of surgical wound. VAT surgery is a minimally invasive procedure causing less trauma to patients with a faster recovery and often fewer complications in the post-operative period, thereby shortening inpatient stay. The aim of this case series was to determine whether there is a difference in healing between port sites after primary closure, and those used for chest drains post-operatively. The patients therefore act as their own controls.

Methods: Data was collected from patients undergoing VAT procedures over a 4 month period. Complications related to delayed healing were documented on day 1, 3, 5 and day 7 post-operatively. The presence of exudate and a score of the patient’s pain were separately recorded for the drain site and the primary closed port sites. Data was collected for a total of 37 patients. Of the 37, 15 were excluded as they only had one port site, so provided no control for comparison. Of the 22 patients, 68% underwent a procedure using a three port technique, and 32% using two ports. This left 27 drain sites to compare with 31 primary closed port sites.

Results: The most commonly documented complications were pain and serous exudate from the wounds. For serous exudate this was found to be significant in the drain site.

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<tr>
<th></th>
<th>Drain</th>
<th>Primary Closure</th>
<th>p-value</th>
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<tbody>
<tr>
<td>% with serous exudate from wound, day 3</td>
<td>48</td>
<td>3.5</td>
<td>&lt;0.002</td>
</tr>
<tr>
<td>% with pain score &gt;1, day 1</td>
<td>88</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>% with pain score &gt;1, day 3</td>
<td>91</td>
<td>31</td>
<td></td>
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Erythema was found to be more significant to the drain site on day 1 only (p-value 0.023) No statistical significance was seen for purulent exudate, or separation of deep tissues. No statistical significance was seen when comparing the procedure type or the position of the port.

Conclusion: Recent literature supports avoiding insertion of chest drains at all, following VAT procedures unless there is a persistent air leak or the likelihood of high drainage post-operatively. This study highlights the delay in healing and associated morbidity in the post-operative period. In addition there is increased pain hindering mobility and recovery.
**134 Single Centre Experience with Mediastinal Masses over Ten Years**

**Authors:** R. Birla; S. Hosmane; V. Tentzeris; A. Khaksarian; Y. Awan; A. Marchbank; J. Unsworth-White; J. Rahamim

Derriford Hospital

**Objectives:** Mediastinal masses occur in a heterogeneous group of patients with varied presentation. We present our ten year experience of such patients.

**Method:** The epidemiological profile, presentation, operative approach and histopathology in patients presenting between January 2000 and July 2010 were studied. Data was collected retrospectively from the case notes, discharge summaries and computerised database. The closing date was 15th October 2010. The dataset was 78% complete. Median follow up was 3.68 years (range 3 months to 10 years).

**Results:** Of the 100 patients who presented with mediastinal masses, 32 patients had biopsy either by mediastinoscopy or guided by Computerised Tomography (CT) scan and were managed conservatively. 68 patients underwent surgical excision. Male: female ratio was 63:37. The mean age was 57 years (range 17 to 89). Amongst the 58 (74.35%) symptomatic patients, main complaints were dyspnoea (44.82%), chest pain (25.86%), cough (27.58%), and neurological symptoms (20.68%). All the patients underwent CT scan preoperatively. The surgical approaches included median sternotomy (44.12%), right thoracotomy (17.64%), left thoracotomy (11.76%) and other (26.47%). Histopathologically, 57% masses were malignant. 40% patients were found to have a mass of thymic origin, 25% had lymphoma, 9% cyst, 6% teratoma, 4% sarcoma and others 14%. Of the 34 thymomas only 7(20.6%) presented with myasthenic symptoms. The mortality as per histological subtypes of thymic masses is tabulated. There were two post operative deaths. In total follow up of 419 patient-years, 76% are alive.

**Conclusions:** Mediastinal masses are a heterogeneous group and can have a wide variety of presentation necessitating multidisciplinary approach for management. The definitive management in most cases remains surgical. The results from our study suggest that the World Health Organisation Thymoma classification is a good predictor of prognosis.

<table>
<thead>
<tr>
<th>Thymic Masses</th>
<th>WHO classification</th>
<th>Number of Patients</th>
<th>Total Mortality</th>
<th>2 year survival</th>
</tr>
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<tbody>
<tr>
<td>Thymoma (n=34)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>3</td>
<td>0</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>AB11</td>
<td>1</td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>11</td>
<td>1</td>
<td>85.72%</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>9</td>
<td>4</td>
<td>58.14%</td>
<td></td>
</tr>
<tr>
<td>Thymic Hyperplasia</td>
<td>NA</td>
<td>4</td>
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<td>100%</td>
</tr>
<tr>
<td>Thymic Carcinoids</td>
<td>NA</td>
<td>2</td>
<td>0</td>
<td>100%</td>
</tr>
</tbody>
</table>
135  Thoracoscopic Thyroidectomy-a Novel Approach to the Retrosternal Goitre

Authors: S.I.A. Rizvi¹, A. Pajaniappane¹, K. Lau¹, I. Oey¹, N. London², D.A. Waller¹

¹ Glenfield Hospital; ² Leicester General Hospital

Objective: To evaluate the use of a combined thoracoscopic and cervical approach as an alternative to sternotomy in the management of retrosternal goitre.

Methods: We reviewed a consecutive series of patients referred for thoracic surgical input for benign retrosternal goitre. The surgical approach was decided during preoperative discussion between endocrine and thoracic surgeon. In the majority of cases the operation commenced with trial cervical dissection. Our surgical intent was to mobilise the intrathoracic thyroid component by video assisted thoracoscopic surgery (VATS) if inferior excision could not be completed. VATS was performed via three 2cm ports under single lung ventilation using sharp and blunt dissection. In all VATS cases a right axillary approach was used. In selected cases primary open surgery was performed due to the size and location of the gland.

Results: Of 22 patients (7 male:15 female) referred by endocrine surgeons: 9 patients had cervical incision alone; 7 patients required open thoracic surgery (two converted VATS) and in 6 successful VATS mobilisation was achieved. VATS thyroidectomy took no longer than cervical or open surgery: 180(120-240) min vs 165(90-240) min and patients were discharged a day earlier: 4.5(3-7) days vs 6(3-66) days. There was one perioperative death following thyroidectomy and associated tracheal resection via sternotomy. There was a trend towards smaller glands being suitable for VATS: maximum diameter 6.25(4-14.5) vs 11(5.5-15) cm, p=0.08. There was no significant difference in epidural analgesic requirement between the VATS and open groups.

Conclusion: VATS thyroidectomy is a feasible alternative to sternotomy in selected cases of retrosternal goitre where the gland is small enough to be delivered through thoracic inlet. In many suspected cases of thoracic entrapment thoracic input is not required- a fact which should be considered in logistic planning.
136 Does Extrapleural Pneumonectomy have any Role in the Treatment of Malignant Mesothelioma after MARS Trial?

Authors: Q. Syed SA; M. Loubani; M. Chaudhry; A. Cale; M. Cowen

Castle Hill Hospital

Objectives: The MARS trial has shown no survival benefit of extrapleural pneumonectomy for treatment of malignant mesothelioma. We aim to present our results and contrast it with MARS trial results.

Methods: Patients who underwent extrapleural pneumonectomy for malignant mesothelioma during March 1999 to February 2008 were analysed retrospectively and their survival was observed until 15th October 2010. Risk was calculated by using thoracoscore.

Results: Twenty-four patients underwent extrapleural pneumonectomies during this period. Median age was 61±9 years with 23 male: 1 female. Mean thoracoscore was 7.9±2.5. There was no operative mortality. Overall, median survival was 2 years while 6 (25%) patients survived ± 4 years. Two patients are still alive after 3.5 and 4.5 years. Survival was longer in epitheloid versus biphasic mesotheloma, right versus left pneumonectomy, age below 70 years and with negative extrapleural lymph nodes. Comparison with MARS has given in table 1.

Conclusions: Epitheloid mesothelioma, right pneumonectomy, negative extrapleural lymph nodes and age below 70 were associated with prolong survival. Extrapleural pneumonectomy has a definite role in the management of malignant mesothelioma in selected patients by experienced surgeons.

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<tr>
<td>No of Patients</td>
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<td>24</td>
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<tr>
<td>6 months survival</td>
<td>65.20%</td>
<td>79.10%</td>
</tr>
<tr>
<td>12 months survival</td>
<td>52.20%</td>
<td>62.50%</td>
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<td>18 months survival</td>
<td>37.40%</td>
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<td>?</td>
<td>45.80%</td>
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<tr>
<td>3 years survival</td>
<td>?</td>
<td>29%</td>
</tr>
<tr>
<td>4 years survival</td>
<td>?</td>
<td>25%</td>
</tr>
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137 Contemporary Outcomes of Urgent CABG following NSTEMI; Urgent CABG Consistently Outperforms GRACE Predicted Survival

Authors: E. Senanayake; J. Evans; N.J. Howell; R.S. Bonser; U. Dandekar; J. Mascaro; T.R. Graham; S.J. Rooney; I.C. Wilson; D. Pagano

Queen Elizabeth Hospital

Introduction: The GRACE registry has shown that the in-hospital risk of death from NSTEMI is 5%, with a 11% mortality by 6 months. PRAIS UK demonstrated that the overall risk of death from NSTEMI over 4 years is 25%. In GRACE, whilst 31% of patients received PCI, only 7% received CABG. To help identify patients at the highest risk following ACS the GRACE score was developed. This identified a highest tertile of patients who had an in-hospital death rate of 6.7% and a six-month death rate of 14%. The data on the results of urgent CABG following NSTEMI are difficult to interpret as these often mix patients who have had STEMI and NSTEMI and include urgent surgery for failed revascularisation. Now multidisciplinary assessment of patients with ACS has been established, it is vital that accurate data on the outcome of such patients is known to facilitate selection of the correct revascularisation strategy.

Methods: 332 consecutive patients who had undergone CABG following a NSTEMI from 2005 to 2009 were identified. In all cases surgery was performed at least 48 hours following admission. The GRACE score was calculated from hospital notes at the time of admission, and late survival data obtained from CCAD.

Results: There were 6 deaths following surgery (1.8%). Survival at 6 months was significantly higher than predicted by the GRACE score in all groups. In patients with a predicted GRACE mortality of 0-10% the 6 month mortality was 0.7%, with a predicted mortality of 10-20% the mortality was 2.6%, and in patients with a predicted mortality of >20% the mortality was 0. In patients with a EuroSCORE of <8, 5 year survival was 95%.

Conclusion: All patients discussed at the cardiac MDT should have revascularisation decisions documented and the late results audited. In hospital CABG performed 48 hours after NSTEMI is associated with a low mortality risk and significant improvements in the GRACE predicted survival.
Reappraisal of Coronary Endarterectomy: 20 Year Survival of 956 Patients Undergoing 338 LAD and 562 RCA Endarterectomies

Authors: S. C. Papaspyros; K. Javangula; P. Ariyaratnam; A. Petsa; R. U. Nair

Leeds General Infirmary

Objectives: Increasing incidence of diffuse coronary artery disease presents a challenge for accomplishing complete revascularization. This is also relevant in cases of in-stent re-stenosis following percutaneous coronary intervention (PCI). Coronary endarterectomy (CE) is not widely practiced due to high incidence of operative mortality and poor long-term survival reported in the literature. Our objective was to re-evaluate the role of CE in modern cardiac surgery.

Methods: Between February 1988 and September 2010, 956 patients had adjunctive CE. Of those, 338 had CE to the left anterior descending artery (LAD) and 562 to the right coronary artery. Median age was 67 years (range 32 - 86 yrs), mean number of grafts 3.2 ± 0.9. 780 patients underwent CABG only and 176 had associated valve replacement. 736 patients had single vessel and 220 had more than one vessel CE.

Results: 30 day mortality was 3.7%. Actuarial survival was 87% at 5 yrs, 69% at 10 yrs, 58% at 15 yrs and 47% at 20 yrs. Multivariate Cox regression analysis showed worse survival when associated with peripheral vascular disease, poor LV, high (>5) Euroscore, and emergency operation. Use of LIMA was associated with improved survival.

Conclusions: Our results demonstrate that coronary endarterectomy is safer than previously thought and can be used effectively to achieve complete revascularization in selected patients. CE can also be considered for patients with previous PCI that need repeat surgical intervention.
Contemporary Use of On-Pump and Off-Pump CABG in the Arterial Revascularisation Trial (ART)

Authors: D.P. Taggart, f.o.r. ART Investigators

1 John Radcliffe Hospital; 2 Royal Brompton Hospital

Objectives: The Arterial Revascularisation Trial (ART) is a randomised trial of bilateral internal mammary artery (BIMA) grafts versus single internal mammary artery (SIMA) grafts following CABG. We examined the use of on-pump and off-pump CABG in this trial.

Methods: 28 centres worldwide randomised 3102 CABG patients to SIMA or BIMA grafting with supplementary grafts. CABG could be performed as an on-pump or off-pump procedure. The primary outcome is survival at 10 years. The effect of age, LV function, diabetes and off-pump surgery are pre-specified subgroups.

Results: The overall 30 day mortality was 1.2% and the 1 year mortality was 2.4%. 41% of the CABG procedures were performed off-pump. Mean age was 64 years (range 35-85) with 86% males. With respect to on-pump and off-pump CABG for both SIMA and BIMA groups the patients were well matched regarding age, gender, BMI, diabetes (approximately 25% of all patients), peripheral and cerebral vascular disease, previous myocardial infarction and previous stenting. The median duration of operation was shorter by approximately 25 minutes for off-pump CABG (p<0.05). 84% of all on-pump patients had 3 or more grafts versus 79% of all off-pump patients (both p<0.05). There was significantly less red blood cell and platelet transfusion for off-pump CABG (p<0.05). The median duration of ventilation was significantly lower for off-pump CABG (p<0.05) but there was no difference in the incidence of return to theatre, use of balloon pumps or renal support between the groups.

Conclusions: Off-pump CABG was used in a relatively high proportion (40%) of patients in the ART trial. Baseline characteristics of each group were very similar. Off-pump CABG resulted in a small reduction in operation time and number of grafts. Off-pump CABG reduced duration of ventilatory support and blood product requirement but did not reduce other adverse surgical events.
A Randomised Controlled Trial of Median Sternotomy vs. Anterolateral Left Thoracotomy in Off-Pump Coronary Artery Bypass Surgery (the STET trial)

Authors: C.S. Rogers; K. Pike; D. Kounali; B.C. Reeves; S. Tomkins; L. Culliford; G.D. Angelini; G.J. Murphy

Bristol Heart Institute

Objectives: The aim of this randomised controlled trial was to compare morbidity and healthcare resource use when off-pump coronary artery bypass surgery is carried out via a conventional median sternotomy (OPCAB-St) or via a left anterolateral thoracotomy (OPCAB-Th).

Methods and Results: 184 undergoing surgery were randomised to OPCAB-S (n=93) or OPCAB-Th (n=91). Patient characteristics were similar in the two groups. The duration of surgery was longer for patients in the OPCAB-Th group (median 4.1 hours versus 3.3 hours). There were fewer patients in the OPCAB-Th group with >3 grafts (2% vs. 17%). The primary outcome was time to fitness for hospital discharge as defined by objective criteria. The observed median time from surgery to fitness for discharge was 6 days, IQR [4 to 7] in the OPCAB-Th group versus 5 days, IQR [4 to 7] in the OPCAB-St group (Time ratio OPCAB-Th/OPCAB-St 1.03 (95%CI [0.94, 1.14], p=0.53). The intubation time was shorter, by on average 65 minutes, for patients in the OPCAB-Th group (TR=0.75, 95% CI [0.60, 0.95], p=0.017), although the time in intensive care was similar (median 22.4 hours versus 23.0 hours, Hazard Ratio (HR)=0.98, 95% CI [0.73, 1.33], p=0.91). Pain scores were similar in the two groups (average difference (OPCAB-Th - OPCAB-St) -0.063 (95% CI [-3.85, 3.72], p=0.97) although there was a greater requirement for analgesia (duration of patient controlled analgesia median 38.8 hours versus 35.5 hours, ratio 1.37 95% CI [1.25, 1.49], p<0.001, use of Tramadol 66% versus 49%, p=0.024). OPCAB-Th was associated with significantly worse lung function (FEV, FVC) at discharge.

Conclusion: OPCAB surgery performed through a lateral thoracotomy resulted in shorter time to extubation, greater analgesia requirements and no overall benefit in terms of clinical outcomes or resource utilisation relative to conventional OPCAB surgery performed via a median sternotomy.
141 En Bloc Resection for Lung Cancer with Chest Wall Invasion via the Chest Wall Resection Site. How to Do it?

Authors: E. Addae-Boateng¹, S.H. Dasanayake Mudiyanselage², N. Johnstone², K. Pointon², A.E. Martin-Ucar²

1 Nottingham University Hospitals NHS Trust; 2 Nottingham City Hospital

Background: About 5%-8% of lung cancers have infiltration of the chest wall. What is the best resection for these patients is still debated. Careful selection of patients taking into consideration age, nodal status, lung function and weight loss of patients is required. We describe an alternative method of estimating the boundaries of chest wall resection employing VATS and hypodermic needles.

Method: Epidural catheter is placed for analgesia. After anesthesia using a double lumen tube, patient is placed in the lateral decubitus position. A single port VATS is performed to facilitate demarcation of the extent of chest wall resection. Hypodermic needles are pinned into the chest wall from outside under VATS guidance to mark the extent of resection. The chest wall resection is then completed with at least a two centimetre margin, followed by the appropriate lung resection through the void created in the chest wall.

Conclusion: 1. Use of VATS prevents the rare patient with pleural metastases or otherwise inoperable tumour from undergoing an exploratory thoracotomy. 2. Accurate detection of margins allows for complete resection. 3. Depending on the site of tumour a formal thoracotomy may be avoided Key words: lung cancer, chest wall infiltration, en bloc resection, VATS, hypodermic needles.
142  Left Anterior Descending Artery Endarterectomy by Hydrodissection

Authors: S. Papaspyros; K. C. Javangula; R. U. Nair

Leeds General Infirmary

Background: Diffuse atherosclerosis of the LAD artery remains a challenge as the absence of lumen makes it unsuitable for revascularisation. Under these circumstances complete myocardial revascularisation with an adequate distal runoff can only be achieved by extensive manual endarterectomy and a reconstructive procedure prior to conduit placement. We describe a simple, effective, and safe technique of performing LAD endarterectomy by hydrodissection.

Technique: The LAD is isolated as high as possible. An incision is made on its anterior aspect which does not exceed twice the vessel diameter. A plane of dissection is created between the atheroma and the vessel wall using a fine dissector. Cold saline is injected into this space towards the distal artery using a 20F Abbocath cannula at a steady pressure until a loss of resistance is felt, indicating separation of the atheroma from the vessel wall. The proximal part of the atheroma is divided at a convenient level with scissors or blade. The distal end of the atheroma is milked out of the LAD by gentle traction and massage. The newly developed arterial lumen is cleaned of debris and thrombin, using small pieces of wet cotton wool. Subsequently this endarterectomised LAD is grafted with pedicled LIMA (mostly) or vein graft (rarely).
143 An Alternative Approach for Valve Sparing Aortic Root Stabilisation in Acute Aortic Dissection Type A

Authors: M. Shrestha; N. Khaladj; C. Hagl; A. Haverich

Hannover Medical School

Objective: The standard approach for repair of acute aortic dissection type A (AADA) involving the aortic root is the Bentall procedure. David or Yacoub procedures have become valve-sparing alternatives. We present an alternative, valve-sparing aortic root stabilising technique in AADA involving the aortic root.

Method: After median sternotomy and CPB, the aorta is transected just above the valve commissures. The aortic root is mobilised up to the level of the aortic annulus and measured. The Dacron graft is implanted outside the native aortic cylinder by using braided 2-0 polyester mattress sutures placed in the left ventricular outflow tract in a horizontal plane just below the lowest level of the valve leaflets. The graft is incised twice vertically to create an opening in the prosthesis to correspond with the right and left coronary ostia. Thereby the graft covers the entire native aortic root cylinder from outside. Proximally, the two incisions in the graft for the coronary ostia are closed by corresponding sutures of the proximal suture line. The coronary ostia do not have to be re-implanted.

Conclusion: The new approach as described here is a technically simple alternative valve sparing method for stabilization of the aortic. Although the dissected aortic wall of the aortic sinus is retained, no dilatation of the aortic sinus or the root has been observed in follow-up.
Aortic Arch Replacement for False Aortic Aneurysm after Catheter Induced Injury

Authors: M. Shrestha; O. Teebken; N. Khaladj; C. Hagl; A. Haverich
Hannover Medical School

Objective: False aneurysms of the thoracic aorta are potentially life threatening. We present a video showing the replacement of the aortic arch in a case of huge false aneurysm after diagnostic coronary angiography.

Methods: The false aneurysm (7x7x6.5cm) was treated by replacement of the distal ascending aorta and sub-total aortic arch using a 28mm Dacron prosthesis under moderate hypothermic circulatory arrest (HCA). For better organ protection, selective antegrade cerebral perfusion (SACP) as well as lower body perfusion (LBP) was performed.

Results: The peri-operative course was uneventful. X-clamp and CPB times were 88 minutes and 163 minutes respectively. SACP and LFBP times were 41 minutes and 34 minutes respectively. The ICU stay was 2 days. The further post-operative course was uneventful. Patient was discharged from the hospital on POD 8.

Conclusions: The surgical approach described here is a technically simple method allowing for complex procedures requiring prolonged periods of HCA under optimal organ protection.
145  Redo Aortic Root Surgery: a Technical Challenge

Authors: M. Shrestha; N. Khaladj; N. Koigeldiyev; C. Hagl; A. Haverich

Hannover Medical School

Objective: Re-Do Aortic Root Replacement remains a formidable technical challenge. Here we present our concept (with videos) for operating this high risk patient group.

Surgical Technique: Our concept involves, Safe rethoracotomy, adequate organ protection and pathology related extension of surgery. The sternum is divided using the oscillating saw. Usually, the ascending aorta and the right atrium are cannulated to initiate Cardio-pulmonary bypass (CPB). In patients with high risk of aortic injury during sternotomy, peripheral cannulation is done either through the groin or the subclavian artery prior to sternotomy. The myocardial protection is achieved by antegrade administration of cold blood cardioplegia (6-8°C) directly into the coronary ostia. Extensive excision of all the infected tissue is accomplished in endocarditis patients. All previous graft material is debrided leaving coronary ostial buttons with mobilisation of the proximal coronary arteries checking the position of both coronary ostia from inside. In all patients, the mobilized ostial buttons are reattached to the new graft end to side.

Conclusions: Redo aortic root replacement can be done with low peri-operative mortality and morbidity. In our opinion, pre-operative diagnostics including CT scanning to identify possible pitfalls during resternotomy and adequate myocardial and organ protection are the major goals of our concept.
146 A Simple Set up for Minimally Invasive Mitral Valve Surgery

Authors: M. Solinas; M. Moscarelli; R. Casula; PP. Punjabi; F.M. Ryba; G. Angelini

Imperial College of London Hammersmith Hospital

A 5-Fr catheter introducer sheath is placed percutaneously in the right femoral vein. A right thoracotomy (6-7 cm) incision in made in the 3rd or 4th intercostal space. Two ports are inserted in the mid-axillary line for video assistance, the cardiotomy vent and CO2 insufflation. The soft tissue retractor is positioned and the pericardium opened 3-4 cm above the phrenic nerve. The guide wire is passed through the introducer sheath on the femoral vein and under TOE guidance (bicaval view 120°) positioned into the superior vena cava. The venous cannula is advanced over the guide wire and positioned in the superior vena cava. The ascending aorta is cannulated under direct vision. A cardioplegia catheter is placed in the ascending aorta, the aorta is clamped with a flexible cross-clamp and cardioplegia delivered. The systemic temperature during CPB is 34 °C. The left atrium is opened and repair or replacement carried out. A left ventricular vent is positioned through the mitral valve, the left atriotomy closed and residual air is aspirated by both the aortic root and ventricular vents. After protamine administration the venous cannula is removed and compression applied on the groin for a few minutes to prevent bleeding.
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ATMOS MEDICAL  

ATMOS Medical Limited (UK subsidiary of ATMOS MedizinTechnik GmbH & CO.KG) are delighted to be attending the SCTS annual meeting again in 2011 and welcome you to visit them at stand 17 to view the latest innovations in the use of active thoracic drainage systems.

ATMOS are committed to developing and manufacturing innovative medical devices that will improve the clinicians ability to offer the highest standards of care while striving to improve the treatment outcome and quality of care for patients.

The ATMOS E 201 and ATMOS S 201 Thorax provide precision controlled active thoracic drainage, this provides the clinician with real time flow measurement and enables him to understand the exact status of an Airleak at all times. Combined with the direct vacuum measurement at the patient side that removes the siphon effect and any temporary drop in vacuum, the ATMOS system enables the clinician to apply reliable, safe, precision therapy.

Rapid mobilisation is the key to faster healing of a patient who has undergone an interventional thoracic procedure. The ATMOS thoracic drainage systems provide the patient with the ability to be fully mobile thus assisting in the prevention and treatment of postoperative complications, pulmonary function and general physical activity are also improved and promoted as a result.

ATMOS UK look forward to welcoming you to SCTS 2011.

ATMOS Medical Limited, Head Office  
Tel: +44 (0)1329 220 866  
Web: info@atmosmedical.com

BAXTER HEALTHCARE LTD  

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.

Baxter Healthcare Ltd  
Wallingford Road  
Compton RG20 7QW  
Customer Services Tel no: +44 (0)1635 206 074  
Customer Services Fax no: +44 (0)1635 206 126
CALMEDICAL

CalMedical is a distribution company offering new technologies to Cardiothoracic Surgeons, Respiratory Physicians and Anaesthetists 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), Calmed Laborotories (Cannulation Products), Pnuemrx (Endobronchial Lung Volume Reduction), Cardiamed (Mechanical Valves), Kips Bay Medical (Saphenous Vein Support Mesh) and CASmed (Foresight Cerebral Oximetry Systems).

We look forward to seeing you on our stand at the SCTS Meeting.

Contact Details:
Phone 0800 954 9212
Email info@calmedical.co.uk
Web www.calmedical.co.uk

CARDIAC SURGERY ADVANCED LIFE SUPPORT COURSE (CALS)

We have written and teach the official 2009 EACTS guidelines for resuscitation after cardiac surgery which have also been ratified by the ERC in 2010 on our 3 day course 3 times per year. The 2011 dates are 18th April to 19th of April 2011 at St Georges in London, 21st of July to 23rd of July 2011 in Penrith and the 17th of November to 19th of November 2011 in Penrith. You will not only learn every aspect of this protocol including how to perform an emergency resternotomy on our own resternotomy 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 16 ‘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.csuals.com, or join us on facebook!

CARDIOLOGIC LTD

Cardiologic Ltd is proud to present the latest products developed by Atricure for Atrial Fibrillation surgery.

The Cosgrove-Gillinov Atriclip, launched in 2010 has been a popular device to close the LAA simply and safely. This year we are launching the newest Atriclip, specially designed to make it even easier for open chest placement.
We will also launch the second generation Cryo2 flexible probe that is more flexible and easier to handle in both open chest and minimally invasive cases.

The new Ice Box cryo machine will be on display, taking cryoablation to the next level of user friendliness.

The complete range of Osypka temporary pacing wires and pacing boxes will also be on the stand, including the new Triple Chamber pacing box.

Cardiologic Ltd.
Hillside House
Cowesby
Thirsk
North Yorkshire YO7 2JL
UK
Tel: +44 (0)1845 537 870
Fax: +44 (0)1845 537 872
Website: www.cardiologic.co.uk
Contact: Andrew Coane, Sales and Marketing Director
Mobile: 07870 255 786
Email: andrewcoane@cardiologic.co.uk

CARDIO SOLUTIONS UK LTD

Cardio Solutions is a UK based company dedicated to the supply and sales management of Cardiothoracic equipment to the UK health market. Established in 2005, Cardio Solutions Ltd 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 High Intensity Focused Ultrasound (HIFU) ablation device; Medical Concepts Temporary Pacing Wires and Disposable Patient Cables; Cormatrix ECM Tecnology to repair and remodel damaged cardiovascular tissue; Porter Medical Inc. Aortic Punches; FLEXIGRIP- Nitinol Sternal Closure Clips from Praesidia S.r.l; Terumo VirtuoSaph an Endovascular Vein Harvesting system and The Terumo Duraheart, third generation, magnetically levitated centrifugal pump. One recent addition to the CS portfolio is Integuseal from Kimberly Clarke that helps reduce surgical site infection in all disciplines.

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CAREFUSION STANDS 47/62

ChloraPrep® is a medicinal product containing a solution of 2% chlorhexidine gluconate (w/v) in 70% isopropyl alcohol (v/v). The solution is sterile and contained within a glass ampoule which is housed within an applicator. ChloraPrep is available in a range of applicators containing either 0.67ml, 1.5ml, 3ml, 10.5ml or 26ml of solution and is indicated for the disinfection of skin prior to invasive procedures.

Patient’s skin dwelling bacteria are the major source of infections associated with medical and surgical invasive procedures. Normally ‘harmless’, these bacteria live in the top cell layers of the epidermis and can enter the bloodstream whenever the integrity of the skin is breached, for example ‘cannulation.’ Whilst hand washing and appropriate environmental cleaning are essential to the prevention of cross-contamination and limiting the spread of the usual suspects - MRSA, C-Diff, and their cousins - the patient and their skin should not be left out of the prevention equation. Blood stream and surgical site infections remain a significant burden to the NHS, patients and their families. The use of all appropriate, evidence based measures to prevent the avoidable infections is paramount.

Further information links and downloads:-

www.chloraprep.co.uk

CASMED STAND 58

CASMED, a leader in vital signs monitoring systems, presents the innovative FORE-SIGHT(r) Absolute Cerebral Oximeter. This non-invasive device provides immediate, reliable data for assessing a patient’s cerebral oxygenation status, allowing clinicians to quickly react to reverse potentially harmful events before they become critical. FORE-SIGHT is the first and only device in its class that provides a non-trend, absolute measure of cerebral tissue oxygen saturation for all patients, regardless of age or weight.

* Intelligent SctO2 monitoring system features patient-based algorithms
* Proven precision from LASER-SIGHT® technology - no baseline is needed
* Full line of optimized sensors including Small Non-Adhesive (for fragile skin), Small, Medium, and Large Sensors

CHALICE MEDICAL LTD STAND 18

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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Shireoaks Fax: +44 (0)1909 470888
Worksop W.Site: www.chalicemedical.com
Email: enquiries@chalicemedical.com

CLS SURGICAL
CLS Surgical Ltd is proud to represent FEHLING INSTRUMENTS GmbH, manufacturers of superb micro-surgical instruments and retractor systems for both open and minimally invasive cardiac surgery.

Please stop by the stand to see the new MIDCAB and MICS-Valve Retractor and Instrumentation Sets which will be on display.
When your patient needs remote (femoral or neck) cannulation, the Smartcanula offers significantly improved flow rates. There will be a working hydrodynamic model comparing the flow achieved through a self-expanding Smartcanula with that possible using a standard solid wall version inserted through the same size access. Please ask for a demonstration of the insertion technique and take a couple of minutes to learn how to insert a Smartcanula.

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Website: www.cls-surgical.com
Contact: Chris Bond BSc BA, Director Mobile: 07768 271 791

Covidien is proud to sponsor the Society of Cardiothoracic Surgery in Great Britain and Ireland meeting 2011.

Covidien recognises the challenges faced in modern day surgery and we continue to develop innovative products and solutions in response to feedback from our customers. We constantly strive to improve our products to enable consistent patient outcomes of surgery in Cardiac and Thoracic procedures.

We are honoured to partner with the Cardiothoracic surgical community in the development and promotion of best practices, and are proud to develop resources and education programmes.

Please visit Covidien and be introduced to our 2010 MDEA, Medical Design Excellence Award Duet TRS(tm) Reload, as well as our new extended surgical solutions of Tri-Staple(tm) Technology, V-Loc(tm) Wound Closure Device, LigaSure(tm) Vessel Sealing devices and ForceTriad(tm) Energy platform, SILS(tm) product portfolio.

COVIDIEN, COVIDIEN with logo, Covidien logo and positive results for life are U.S. and/or internationally registered trademarks of Covidien AG. Other brands are trademarks of a Covidien company. 2010. Covidien

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CRYOLIFE EUROPA LTD

STAND 27

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, and vascular surgeries. Across Europe, the company’s focus is on BioGlue® Surgical Adhesive, which is CE marked for use as a sealant, adhesive and for tissue reinforcement. Clinically proven in over 580,000 procedures worldwide, BioGlue is available in fully disposable syringes in 10mL, 5mL and 2mL volumes. The Company also distributes PerClot®, which is CE marked as an adjunctive hemostatic device for the control of surgical bleeding. PerClot, The Next Generation HemostatTM is available in 1g, 3g, and 5g volumes and with multiple tip lengths for open or laparoscopic procedures.

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Email: Europa@cryolife.com

DENDRITE CLINICAL SYSTEMS LTD

STANDS 25/26

Dendrite Clinical Systems Ltd. is a specialist supplier of clinical databases, analysis software and consultancy services for the international healthcare sector. With installations in >250 hospitals, across 40 different countries, the company has an unmatched client base and unrivalled experience.

Our latest international registry project is for Euromacs where Dendrite’s web registry software will drive the European Database for patients requiring Mechanical Circulatory Support.

Please come and visit our exhibition stand to hear about more about this new registry 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.

Dendrite Clinical Systems
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Email: info@e-dendrite.com
Website: www.e-dendrite.com
Head Office Contact: Dr Peter K H Walton, Managing Director
EDWARDS LIFESCIENCES

From Edwards Lifesciences UK & Ireland

Wishing our valued customers every success for 2011

For 50 years, Edwards Lifesciences has been dedicated to providing innovative solutions for people fighting advanced cardiovascular disease, the world's leading cause of death and disability. Our 6,600 employees, working together with our trusted clinician partners, are unified in their mission to help patients resume fuller, happier and more active lives. Edwards’ legacy of leadership has produced a number of novel heart valve therapies and critical care technologies, and our results are benefiting customers, patients and employees.

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Please visit our websites at www.edwards.com and www.lifeisnow.com

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ETHICON LIMITED

ETHICON Products, part of the JOHNSON & JOHNSON Family of Companies is the worldwide leader in suture products and suture technology. ETHICON has a long history of innovation in providing products-including sutures, topical adhesives and wound drains, that enhance patient care.

Since its founding over 120 years ago, the Company has worked in partnership with clinicians, aligning our technological innovation to support the ever-evolving standards of surgery. We consider it our mission to be a valuable partner at every step of every CV surgical procedure.

Our tradition of innovation has resulted in introductions that include PROLENE* Polypropylene Sutures, BV-175 Series Needles, ETHIBOND* Excel Polyester Sutures and our new Plus Sutures that provide antibacterial protection to prevent bacterial colonisation on the suture. We also offer DERMABOND* Topical Skin Adhesive, providing comfortable, secure wound closure with a microbial barrier and excellent cosmetic results.
ETHICON Biosurgery has the most comprehensive range of Haemostasis Solutions and has continued to bring to market innovative technologies including EVICEL® fibrin sealant (Human) and SURGICEL® NU-KNIT® and SURGICEL® FIBRILLAR™ to the Topical Absorbable Haemostat sector.

With this broad range of products, ETHICON is present at every step of coronary artery bypass graft, valve, and closure procedures, from pericardial retraction to chest closure.

Ethicon Products
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EUSA PHARMA

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

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G & N MEDICAL

G & N Medical, established in 1974, is a supplier of medical equipment and consumables to NHS hospital trusts and healthcare institution in the UK and globally. We specialise in products which allow costs to be controlled, while improving patient care. The BracePlus is a highly effective aid to support patients recovering from cardio-thoracic surgery. ThorAcc is an innovative device which assists in the opening and closing of the thoracic cavity during open stenotomy procedures. Both products have recently achieved regulatory approval in the UK and will be available for demonstration on the stand.
G & N Medical
Griffiths and Nielsen Ltd
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GUNZE LIMITED STAND 54

GUNZE Medical Division mainly manufactures and sells bioabsorbable medical devices using highly biocompatible polymers and porcine-derived collagen. GUNZE is the only company in Japan with such a comprehensive range of absorbable medical materials including suture threads and aiming to implement a more proactive global business strategy. Our progressive R&D efforts are also moving toward tissue engineering, which is attracting growing attention.

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Website: www.gunze.co.jp

HEARTWORKS STAND 36

Inventive Medical Ltd presents HeartWorks, an innovative virtual heart model and mannequin TEE simulator which have been developed by three cardiothoracic anesthesiologists from the Heart Hospital in London, UK, in conjunction with award winning computer graphics firm Glassworks. The anatomical accuracy and surface rendering of this computer generated beating heart are superlative; the simulated TEE procedure extraordinarily realistic. Our new TTE simulator will be available in early 2011.

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Tel: +44 (0) 207 380 9360
Website: www.heartworks.me.uk
HILL-ROM

STAND 50

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

JOTEC

STAND 59

JOTEC is a European manufacturer of medical devices specifically designed for aortic and peripheral vascular disease. Our product portfolio includes conventional grafts and interventional implants for cardiovascular surgery, radiology and cardiology.

We aspire to offer the best solutions for both, patients and physicians, and target this vision through continuous innovation and development.

The E®-vita Open Plus system by JOTEC is a modified vascular graft prosthesis, specifically designed for one-stage repair in complex thoracic aortic disease such as:

- long-range aortic aneurysms
- aortic dissections through median sternotomy in an elephant trunk like fashion.

The E®-vita Open Plus vascular graft consists of a one piece circular woven polyester fabric tube. The proximal segment is crimped identically to a conventional vascular graft prostheses commonly used in classic elephant trunk procedures. Distally the vascular graft is supported by nitinol springs sewn to the polyester tube.

The crimped proximal vascular graft segment serves as a connection for vascular reconstruction of the aortic arch. The supported elephant trunk section allows repair of the descending aorta during the first stage procedure avoiding a second stage intervention.

www.JOTEC.com
KARL STORZ

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.

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E-mail: customerservice@karlstorz.com
Contact: Steve Anderson

LEMONCHASE

Lemonchase are the exclusive UK distributors of Designs for Vision loupes. Designs 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 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 lights, for up to 12 hours of continual use.

Please contact 01892 752305 or info@lemonchase.com/www.lemonchase.com
MANTIS SURGICAL

Mantis surgical are pleased to announce the launch of the Gore Propaten Paediatric Surgical Graft.

The GORE® PROPATEN® Vascular Graft harnesses the anticoagulant properties of heparin directly at the luminal surface of the graft. The proprietary end-point attachment mechanism serves to anchor heparin molecules to the luminal surface while still maintaining heparin’s intrinsic bioactive properties. The result: a thromboresistant, BioActive graft that retains its bioactive properties over time, is kink resistant, has improved handling and better tissue approximation in neonates.

The GORE® PROPATEN® Vascular Graft has demonstrated improved thromboresistance and patency compared to standard ePTFE grafts in pre-clinical in vivo tests and extensive use within infrapopliteal grafts showing bioactivity three years post implant. The thromboresistant surface technology employed on the GORE® PROPATEN® Vascular Graft is designed to maintain bioactivity over an extended time period, thus increasing the potential for sustained performance improvement and increased patency.

Along with Preclude pericardial membrane, the Gore-Tex vascular Patch, the Gore-Tex Acuseal Patch and Stretch Vascular grafts and the Chordae Tendineae repair/replacement suture, we aim to offer you the leading products to enhance your surgical technique.

Please call round to stand 55 to discuss these products in greater depth.

MAQUET

Maquet is featuring the VASOVIEW™ Endoscopic Vessel Harvesting system, ACROBAT and HEARTSTRING equipment for clampless beating heart surgery as well as the revolutionary CARDIOHELP life support system.

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 continues to focus on safety and superior conduit quality with the addition of HEMOPRO 2 to the VASOVIEW range. HEMOPRO 2 is leading the way in redefining best practices for harvesting conduit endoscopically.

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 manouevrability 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.
CARDIOHELP system is designed to treat and transport patients who require pump supported cardiac and/or respiratory assist. With its wide range of therapy options, Cardiohelp system is an invaluable addition for intensive care units, emergency rooms, catheter laboratories, and operating rooms.

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MEDELA  STAND 24

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: 07816 640 250 / ruth.drewery@medela.co.uk (Scotland and North East)
Sue Oliver  Mob: 07990 594 102/ sue.oliver@medela.co.uk (Midlands and the South)
MEDISTIM STANDS 14/15

Bypass doubt

Studies have shown that as much as 3% of all CABG grafts have compromised flow due to graft patency issues. The new VeriQC TM system by MediStim combines the proven technique of Transit Time Flow Measurement (TTFM) with Epiaortic- and Epicardial Ultrasound Imaging enabling planning, navigation, verification and documentation for ultimate control.

TTFM is the most accurate and commonly used method for graft patency verification. A real time blood flow curve is displayed together with Mean Flow, Pulsatility Index (PI) and Diastolic Filling (DF%). ESC/EACTS Guidelines on Myocardial Revascularization states that “Flow <20 mL/min and PI >5 predict technically inadequate grafts, mandating graft revision before leaving the operating theatre.”*

By introducing VeriQC, MediStim is combining Ultrasound Imaging and proven TTFM in one unique system specifically designed for cardiovascular procedures. Scanning the aorta for the optimal cannulation site and scanning the coronary to plan the optimal graft placement become easy.

Attend the Lunch Box Session “Evaluation of Graft Patency: Valuable Quality Assurance or an Unnecessary Expense?” with Dr Theresa Kieser, Prof David Taggart and Dr Philip Hayward on Sunday, March 20th.

Join MediStim in booth #14-15 and visit our web page www.medistim.com to learn how to bypass doubt.

Footnote:

MEDTRONIC LTD STAND 4

Medtronic offer a comprehensive range of tissue valves, repair products, DLP cannulae, OPCAB products and Atrial Fibrillation pens, bi-polar clamps, generators and products specifically designed for Lone AF. We have over 60,000 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. Medtronic has recently launched two new repair products and a new range of products to support Minimally Invasive surgery.

Medtronic are pleased to announce the successful acquisition of ATS Medical last year, further complimenting their already extensive product portfolio with the addition of; amongst other things; the innovative 3f pericardial platform which includes the Enable Sutureless Prosthetic Tissue Heart Valve and the Open Pivot Mechanical Heart Valve. They now also offer a comprehensive Cryoblation system.
Please visit our stand where the team will be happy to discuss the above along with some other exciting new products.

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Website: www.medtronic.co.uk
www.heartvalverepair.net
www.innovatingforshd.com
Contacts: Craig Lock & Maggie Hodkinson

NHS BLOOD & TRANSPLANT

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)

Simon Ellison Specialist Services Commercial Manager
Mob: +44 (0)7515 761 089
Email: Simon.ellison@nhsbt.nhs.uk

NHS HEART PROGRAMME

NHS Improvement works with partners across the health sector to develop and deliver sustainable service improvements bringing about high quality care for patients.
NHS Improvement Heart works closely with the Department of Health, aligning all work to national priorities and supporting delivery of key national strategies, including the National Service Framework for Coronary Heart Disease. Our work has been nationally recognised to assist the NHS in meeting the Quality, Innovation, Productivity and Prevention national agenda.

Following the successful 2009/10 national project which focused on improving local cardiac surgery services, our work now focuses on the development of a clinically validated HES derived resource, linking the non elective cardiac patient journey by procedure across the shared pathway of care. The outcome of this work is to define QIPP, benchmarking and service opportunities to improve the patient experience by reducing avoidable delays in care, resulting in shorter length of stay.

In addition, the Heart Improvement programme is helping to deliver key strategies and policies, to improve the delivery and implementation of improved cardiac services for clinical teams and their patients involved in delivering on a range of national initiatives and bespoke pieces of work, including:

* Supporting national implementation of primary angioplasty as stated in Department of Health Treatment of Heart Attack National Guidance, the final report of the National Infarct Angioplasty Project (NIAP).

* Supporting the development, implementation and roll out of the Department of Health commissioning pack for cardiac rehabilitation in the NHS, by recruiting a number of project sites to help test the utility of the pack in real life settings.

* Supporting organisations to implement the NICE clinical guideline for Chronic Heart Failure by using computer simulation software to model the costs involved with introducing natriuretic peptide testing

For further information about our work contact wendy.gray@improvement.nhs.uk

NHS Improvement
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Leicester LE1 6NB
Tel: +44 (0)116 222 5184
Website: www.improvement.nhs.uk

PIERSON SURGICAL LIMITED STAND 44

Pierson Surgical Ltd is a specialist surgical products distributor, our current product range for Cardiac Surgery includes:

* BioIntegral Surgical Heart Valves - we are the UK Agent for the BioIntegral range of all-biological cardiac devices. BioIntegral Surgical manufactures devices using the No-React® treatment. No-React® is a proprietary detoxification of glutaraldehyde-treated tissue. 12 years of clinical experience with No-React® devices shows reduced toxicity, enhanced biocompatibility, lower rates of infection, adhesion, calcification, and the promotion of endothelial lining.
* LeGoo Vessel Occlusion Gel - a unique product which enables atraumatic, clampless surgery. LeGoo™ is a water-soluble, low-viscosity gel which forms a gel plug at body temperature and is dissolved by applying ice directly to the vessel. Allows the creation of a superior blood-free field without the use of any clamps for coronary bypass grafts, via Off-Pump (Beating Heart) or On-Pump CABG. Visit our stand to see LeGoo being demonstrated and try it for yourself in our flow model.

* Delacroix-Chevalier Surgical Instruments - made to the highest standards of design and craftsmanship to provide the very best instruments available. The range includes Minimally Invasive instruments for Valve Surgery and Video Assisted Thoracic Surgery, designed in conjunction with Professor Obadia of Lyon Hospital.

* 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.

* Advanced Bone Haemostat - Ostene® is a unique malleable, water-soluble synthetic polymer that provides immediate bone haemostasis without any of the complications of Bone Wax or other haemostasis agents. It is made from advanced alkylene oxide copolymers and contains no plant or animal products

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Email: sales@piersonsurgical.com
Website: www.piersonsurgical.com

PULSE SURGICAL LTD

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.

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Contact: Mr. Steve Chaplin
REDAX S.R.L.

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. Recently we developed an innovative Percutaneous Centesis Kit for pleural effusion and emergency application.

REDAX S.r.l.
Via A. Volta, 51,
MIRANDOLA (MO) 41037 ITALIA
Tel: +39 0535 611673
Fax: +39 0535 23224
Email: info@redax.it
Contact: silvio.sacco@redax.it
Website: www.redax.it

SCTS LTD WEBSITE

SCTS Ltd is a new professional website for the Society for Cardiothoracic Surgery in Great Britain & Ireland. It has been established to constantly inform surgeons about professional issues, job opportunities and facilitate discussions among them. Most importantly, it intends to promote the relationship between the industry and the Society. Facilities are available at stand 56 to ensure your profile picture is up to date.

It also offers great opportunities to advertise products for Cardiothoracic Surgery via sponsorship. If you are interested in advertising on the new website then please visit stand 56.

Society for Cardiothoracic Surgery
35-43 Lincoln’s Inn Fields
London WC2A 3PE
Phone: +44(0) 207 869 6894
Email: sctsadmin@scts.org
Website: www.sctsltd.co.uk

SORIN GROUP UK

Sorin Group is a global medical device company and a leader in the treatment of cardiovascular diseases. The Company focuses on three therapeutic areas that include: cardiopulmonary bypass (extracorporeal circulation and autotransfusion systems) cardiac rhythm disorders, (heart failure, tachyarrhythmia and bradyarrhythmia systems) heart valve repair and replacement. More than 40 years of expertise, and the broadest range of tissue and mechanical heart valves and annuloplastic rings, make Sorin Group a reliable partner for Cardiac Surgeons worldwide.
SYNTHES

Synthes is a leading global medical device company with a 50 year history of working closely with orthopaedic surgeons to develop the best possible solutions for patient care.

Synthes develop, produce and market instruments, implants and biomaterials for surgical fixation, correction and regeneration of the human skeleton and its soft tissues.

Synthes are a strong advocate of education for the application of appropriate surgical techniques best suited to the patient. Synthes also offer a broad range of solutions to support and enhance operating room efficiency.

SYNTHES
20 Tewin Road
Welwyn Garden City
Hertfordshire
AL7 1LG
www.synthes.com

TELEFLEX

Every day, hospitals around the world rely on Teleflex products. Highly motivated employees and a dedicated sales network ensure that the right product is at the right place at the right time - anywhere in the world. Committed to partnering with healthcare providers in anaesthesia, critical care, urology, surgical and cardiac care applications, we aim to offer the optimum solution for any requirement. We welcome the opportunity to collaborate with hospitals to meet their unique challenges.

SUPPORT FOR PATIENTS

Teleflex is dedicated to providing products and services that save lives, reduce costs and deliver superior patient outcomes by reducing infections, enabling less invasive procedures and improving patient safety and comfort.

SUPPORT FOR CLINICIANS

As your partner in healthcare, we provide high quality services, products and programmes. From custom-configured kits to evaluation services and training, we continually strive to help you meet your needs.
CARDIAC CARE

Our cardiac care team develops, manufactures, and supports technologically advanced left heart products for critically ill cardiac patients.

The AutoCat 2 offers a simplistic and smarter solution in intra-aortic balloon pump therapy.

We also offer right heart catheters products such as:
* Thermodilution and Berman catheters
* Pacing catheters
* Radial access kits for radiological intervention procedures
* Kink-resistant sheath products.

For more information on our complete range please visit www.teleflexmedical.com

THORATEC

Thoratec® Corporation innovates and delivers technologies that enable a full range of therapies to save, support and restore failing hearts, allowing patients to reclaim their lives. With over 12,000 patient implants and three decades of experience, Thoratec offers the broadest portfolio of ventricular assist devices. Thoratec’s product line includes the HeartMate® LVAS, Thoratec PVAD™ and IVAD™, and the HeartMate II® LVAD.

Company details:

Head Office: Thoratec Corporation
6085 Stoneridge Drive
Pleasanton
94588 CA, USA
Tel: +1 925 847 8600
Email: sandie.hastings@thoratec.com
Website: www.thoratec.com

UK Office: Thoratec Europe Ltd
Burnett House, Lakeview Court
Ermine Business Park
Huntingdon, Cambs PE29 6UA
Tel: +44 (0)1480 455 200

TISSUEMED

Tissuemed Ltd is a UK based company with expertise in developing synthetic, absorbable surgical sealant films using its proprietary advanced adhesive polymers and Tissuebond technology. The company has successfully introduced a portfolio of surgical sealant films for different applications following the principle that clinicians want immediately available; easy to apply; functionally and economically effective methods of sealing tissues against leakage. Air leaks are an occupational hazard for the thoracic surgeon. At Tissuemed we believe we have the perfect answer in TissuePatchThoracic™, a self-adhesive film that covalently bonds to the lung tissue sealing against leaks without the need for preparing and mixing liquid glues.
TissuePatchThoracic™ is ready to use the only preparation required is to remove the patch from the sterile packaging. At only 40µm in thickness it has the advantage of giving uniform coverage to seal the suture; staple line or fissure against air leakage, with the reassurance that a large “bulk” of foreign body material isn’t being introduced. The Patch conforms like a “second skin” with a transparency which enables the visualisation of the underlying tissue.

Tissuemed™ now has a dedicated VATS applicator to ensure ease of use for the surgeon to efficiently place TissuePatchThoracic™ for VATS surgery.

Please visit our stand 53.

Our website: www.tissuepatchthoracic.com
Customer Services: 0113 2000500

UK MEDICAL

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: +44 (0)114 268 8880
Email: info@ukmedical.com
Website: www.ukmedical.com

VASCUTEK

Significant advances in valved conduit design are rare, however BioValsalva(tm), a radically new design of valved conduit is without doubt an exception.
BioValsalva™ is the first 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™ 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 (0)141 812 5555
Fax: +44 (0)141 812 7170
Email: www.vascutek.com

WISEPRESS ONLINE BOOKSHOP LTD
The Old Lamp Works
25 High Path
Merton Abbey
London
SW19 2JL
Tel: +44 (0) 20 8715 1812
Fax: +44 (0) 20 8715 1722
Email: bookshop@wisepress.com
Website: www.wisepress.com
General Information

The 2011 Annual Meeting of the Society is at Excel London from Sunday 20th March - Tuesday 22nd March 2011.

CONTINUING PROFESSIONAL DEVELOPMENT

Delegates will be awarded 22 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 22nd March between 19:30hrs and 23:30hrs on the Silver Sturgeon luxury river yacht. You will be taken by coach the short distance to Canary Wharf where you will embark on to the boat and be taken for a beautiful cruise along the River Thames taking in some of the most iconic sites of the centre of London. An evening not to be missed, this year, the black-tie dinner includes champagne on arrival and a three-course meal including wine.

Professor Sir Magdi Yacoub will be presented with his Lifetime Achievement Award.

Tickets are £60 per head and can be purchased from the registration desk until 18:00hrs on Monday 20th March.

SOCIAL EVENT FOR CARDIOTHORACIC FORUM DELEGATES

There will be a Caribbean themed dinner on Monday 21st March supported by Cardiac Advanced Life Support (CALS). Tickets cost £10 and cover all food and drink at the event.

BUSINESS MEETING

The Annual Business Meeting will be held on Sunday 20th March 2011 between 18:00hrs and 19:30hrs.

Please note that the Business Meetings are open to Society members only.

HEART RESEARCH UK LECTURE

Professor Lars Svensson will deliver his lecture on Monday 21st March 2011 at 11:45hrs.
MEDELA / TUDOR-EDWARDS THORACIC SURGICAL LECTURE

Professor Robert McKenna will deliver his lecture on Tuesday 22nd March 2011 at 11:45hrs.

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 20th March 16:00 - 20:00hrs
Monday 21st March 08:30 - 18:00hrs
Tuesday 22nd March 08:30 - 14:00hrs

POSTERS

All posters should be mounted in their indicated space before 08:30hrs on Monday 21st March and should be removed between 15:15hrs and 16:00hrs on Tuesday 22nd 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 21st March

07:30 - 08:30  Education Sub-Committee
Zinc Room
Chairman:  Professor John Pepper

Monday 21st March

08:45 - 10:00  Thoracic Sub-Committee
Zinc Room
Chairs:  Mr Graham Cooper/ Mr John Duffy/ Mr Rajesh Shah
Monday 21st March

12:30 - 13:30 Surveys and MBA
Titanium Room
Chairman: Mr David O'Regan

Monday 21st March

15:45 - 17:00 Data Committee
Zinc Room
Chairman: Mr Ben Bridgewater

Tuesday 22nd March

12:30 - 13:30 CRISP Collaborators
Titanium Room
Chairman: Professor David Taggart

Tuesday 22nd March

12:30 - 13:30 Congenital Data Meeting
Room 5
Chairman: Mr Nihal Weerasena

Tuesday 22nd March

13:30 - 15:00 Exhibitors' Meeting
Room 7
Chairmen: Mr Simon Kendall and Mr Ian Wilson
(attending: Miss Tilly Mitchell)

16:45 - 18:30 Presentation Grading Meeting
Zinc Room
Chairman: Mr Simon Kendall
(attending: President, President-elect, Chairman of the
Intercollegiate Board Chairman of the SAC Cardiothoracic Dean)

SPEAKER’S ROOM

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 18:30 to 20:00 Sunday 20th March and 08:30hrs Monday 21st March to 15:30hrs on Tuesday 22nd March 2011.

WELCOME RECEPTION

There will be a Welcome Reception in the Trade Exhibition, Excel London on the evening of Sunday 20th March 2011 between 19:00hrs and 20:00hrs. The Welcome Reception is included in the registration fee.

SCTS 2010 Prize Winners

Ronald Edwards Medal M Zakkar
John Parker Medal A Kourliouros
Society Thoracic Medal E Belcher
Best CT Forum Presentation J Davis

The winners will be presented with their medals at the annual dinner

SCTS 2011 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

The winners will be announced at the annual dinner

SCTS 2010 Scholarships

Society Cardiac Scholarship J Nowell
Society Thoracic Scholarship K Rammohan
The Marian & Christina Ionescu Travelling Scholarship N Briffa S Nair

SCTS 2011 Scholarships

Society Cardiac Scholarship
Society Thoracic Scholarship
The Marian & Christina Ionescu Travelling Scholarship

The winners of the 2011 scholarships will be announced at the annual dinner
## Committees

### Executive Committee 2010–2011

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Term</th>
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<tbody>
<tr>
<td>Professor David Taggart</td>
<td>President</td>
<td>2010 - 2012</td>
</tr>
<tr>
<td>Mr James Roxburgh</td>
<td>President Elect</td>
<td>2010 - 2012</td>
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<tr>
<td>Mr Graham Cooper</td>
<td>Honorary Secretary</td>
<td>2008 - 2013</td>
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<tr>
<td>Mr Malcolm Dalrymple-Hay</td>
<td>Honorary Treasurer</td>
<td>2009 - 2014</td>
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<tr>
<td>Mr Simon Kendall</td>
<td>Meeting Secretary</td>
<td>2007 - 2012</td>
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<tr>
<td>Professor John Pepper</td>
<td>Education Secretary</td>
<td>2009 - 2014</td>
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<tr>
<td>Mr Sunil Ohri</td>
<td>Communications Secretary</td>
<td>2005 - 2014</td>
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<tr>
<td>Miss E Belcher</td>
<td>Trainee Representative</td>
<td>2011 - 2014</td>
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<tr>
<td>Mrs Tara Bartley</td>
<td>Nursing Representative</td>
<td>2006 - 2012</td>
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<tr>
<td>Mr Tim Graham</td>
<td>Chairman of the SAC</td>
<td>2007 - 2010 (demitted office Sept 2010)</td>
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<tr>
<td>Mr Steven Livesey</td>
<td>Chairman of the SAC</td>
<td>2010 - 2013 (commenced office Sept 2010)</td>
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<tr>
<td>Mr Ben Bridgewater</td>
<td>Chairman of the Data Committee</td>
<td>2008 - 2014</td>
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<tr>
<td>Mr David Geldard</td>
<td>Patient Representative</td>
<td>2008 - 2014</td>
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<tr>
<td>Mr John Duffy</td>
<td>Elected member</td>
<td>2008 - 2011</td>
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<tr>
<td>Mr Neil Moat</td>
<td>Elected member</td>
<td>2008 - 2011</td>
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<tr>
<td>Professor Marjan Jahangiri</td>
<td>Elected member</td>
<td>2009 - 2012</td>
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<tr>
<td>Mr Ian Wilson</td>
<td>Elected member</td>
<td>2009 - 2012</td>
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<tr>
<td>Mr Rajesh Shah</td>
<td>Elected member</td>
<td>2010 - 2013</td>
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<tr>
<td>Mr Stephen Westaby</td>
<td>Elected member</td>
<td>2010 - 2013</td>
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### Board of Representatives 2010–2011

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<thead>
<tr>
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<tbody>
<tr>
<td>Mr Tim Graham</td>
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<tr>
<td>Mr Steven Livesey</td>
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<tr>
<td>Mr John Smith</td>
<td>Chairman of Inter-Collegiate Board</td>
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<tr>
<td>Mr Sion Barnard</td>
<td>Cardiothoracic Dean</td>
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<tr>
<td>Mr Michael Lewis</td>
<td>Cardiothoracic Tutor</td>
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<td>Mr Richard Page/</td>
<td>Thoracic Audit</td>
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<tr>
<td>Mr Jim McGuigan</td>
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<tr>
<td>Mr Hussein El-Shafei</td>
<td>Aberdeen Royal Infirmary</td>
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<tr>
<td>Mr Nelson Alphonso</td>
<td>Alder Hey Children’s Hospital</td>
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<td>Mr Tim Jones</td>
<td>Birmingham Children’s Hospital</td>
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<td>Mr Richard Steyn/</td>
<td>Birmingham Heartlands Hospital</td>
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<td>Mr Pala Rajesh</td>
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<tr>
<td>Name</td>
<td>Hospital</td>
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<tr>
<td>Mr Franco Sogliani</td>
<td>Blackpool Victoria Hospital</td>
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<tr>
<td>Mr Gavin Murphy</td>
<td>Bristol Royal Infirmary</td>
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<td>Mr Mike Cowen</td>
<td>Castle Hill Hospital</td>
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<td>Mr Aonghus O’Donnell</td>
<td>Cork University Hospital</td>
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<td>Mr Clinton Lloyd</td>
<td>Derriford Hospital</td>
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<td>Mr Edward Brackenbury</td>
<td>Edinburgh Royal Infirmary</td>
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<td>Mr Andrew Ritchie</td>
<td>Essex Cardiothoracic Centre</td>
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<tr>
<td>Mr Sion Barnard</td>
<td>Freeman Hospital</td>
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<td>Mr David Waller</td>
<td>Glenfield Hospital</td>
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<tr>
<td>Mr Geoff Berg</td>
<td>Golden Jubilee National Hospital</td>
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<tr>
<td>Mr Victor Tsang/</td>
<td>Great Ormond Street Hospital</td>
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<tr>
<td>Mr Martin Kostolny</td>
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<tr>
<td>Mr Christopher Blauth</td>
<td>Guy’s and St Thomas’ Hospital</td>
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<tr>
<td>Miss Karen Harrison-Phipps</td>
<td>Guy’s Hospital</td>
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<tr>
<td>Mr Jon Anderson/</td>
<td>Hammersmith Hospital</td>
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<tr>
<td>Mr Prakash Punjabi</td>
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<td>Mr Ashgar Khaghani</td>
<td>Harefield Hospital</td>
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<tr>
<td>Mr Andrew Goodwin</td>
<td>James Cook University Hospital</td>
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<td>Mr Chandi Ratnatunga</td>
<td>John Radcliffe Hospital</td>
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<tr>
<td>Mr Jatin Desai</td>
<td>King’s College Hospital</td>
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<tr>
<td>Mr David O’Regan</td>
<td>Leeds General Infirmary</td>
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<tr>
<td>Mr John Chalmers</td>
<td>Liverpool Heart &amp; Lung Hospital</td>
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<tr>
<td>Mr Graham Venn</td>
<td>London Bridge Hospital</td>
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<tr>
<td>Mr Nick Odom</td>
<td>Manchester Heart Centre</td>
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<tr>
<td>Vacant</td>
<td>Mater Misericordiae Hospital</td>
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<td>Mr Aprim Youhana</td>
<td>Morriston Hospital</td>
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<tr>
<td>Mr Adrian Levine</td>
<td>North Staffordshire Royal Infirmary</td>
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<tr>
<td>Mr Moninder Bhabra</td>
<td>New Cross Hospital</td>
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<tr>
<td>Mr David Hopkinson</td>
<td>Northern General Hospital</td>
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<tr>
<td>Mr David Richens</td>
<td>Nottingham City Hospital (Cardiac)</td>
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<tr>
<td>Mr John Duffy</td>
<td>Nottingham City Hospital (Thoracic)</td>
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<tr>
<td>Mr David Jenkins</td>
<td>Papworth Hospital</td>
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<tr>
<td>Mr Simon Jordan</td>
<td>Royal Brompton Hospital</td>
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<tr>
<td>Mr Richard Berrisofrd</td>
<td>Royal Devon &amp; Exeter Hospital</td>
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<tr>
<td>Mr Jim McGuigan/</td>
<td>Royal Victoria Hospital, Belfast</td>
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<tr>
<td>Mr J Mark Jones</td>
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<tr>
<td>Mr Clifford Barlow</td>
<td>Southampton General Hospital</td>
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<tr>
<td>Mr Alan Wood</td>
<td>St Bartholomews Hospital</td>
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</tbody>
</table>
Committee Chairs

Mr Patrick Magee CEA Committee 2002 - continuing
Mr Ben Bridgewater Data Committee 2008 - continuing
Professor John Pepper Education Committee 2008 - continuing
Mr Graham Cooper/Thoracic Sub-Committee 2010 - continuing
Mr John Duffy

Working Group Chairs

Mr Graham Venn Job Planning Guidelines 2007-
Mr Steven Livesey Revalidation 2008 - continuing
Mr Graham Cooper Risk Averse Behaviour 2010 -
Professor David Taggart Safe Surgery 2010 -

Presidential Objectives

1. Improving quality of care for patients: exploring different outcome measures
2. Promoting multidisciplinary teams to bring cardiac surgeons back to the centre of the decision making process
3. Improving communication with members – strengthening the Board of Representatives
4. Database committee: establishment and development
5. Developing data collection in thoracic surgery
6. Raising the professional profile of the Society
7. Exploring mechanisms to ensure safer surgery out of hours
8. To seek financial recognition through job planning for cardiothoracic surgery data collection, analysis and publication
Programme Committee 2011 Meeting

Programme Committee 2011 Meeting

Lead Reviewers

Mr Simon Kendall Meeting Secretary Mr Steve Clark Transplantation
Mr Malcolm Dalrymple-Hay Adult Cardiac

Mr Ian Wilson Deputy Meeting Secretary Mr Sion Barnard Thoracic
Mr Brian Fabri Adult Cardiac
Mr Adrian Marchbank Experimental & Miscellaneous

Mr Andrew Parry Congenital
Mrs Tara Bartley CT Forum

Abstract Reviewers 2011 Meeting

Abstract Reviewers 2011 Meeting

Adult Cardiac Mr Brian Fabri (lead) Thoracic Mr Sion Barnard (lead)
Mr Malcolm Dalrymple-Hay (lead) Miss Juliet King
Mr Vinny Bapat Mr Geoff Berg Mr Jagan Rao
Mr Geoff Berg Mr Rajesh Shah
Mr Peter Bradley Mr David Waller
Mr Ben Bridgewater Transplantation Mr Steve Clark (lead)
Mr Kulvinder Lall Mr Jorge Mascaro
Mr Unnikrishnan Nair Ms Karen Redmond
Mr Mark Pullan Mr Steven Tsui
Mr Joseph Zacharias Mr Nizar Yonan

Congenital Mr Andrew Parry (lead) Forum Ms Tara Bartley (lead)
Mr Olivier Ghez Ms Georgina Aldous
Mr Asif Hasan Mr Calum Buchanan
Mr Giles Peek Ms Linda McKee
Mr James Pollock Ms Helen Munday

Experimental Mr Adrian Marchbank (lead) Mr Tobias Rankin
Dr David Chambers
Mr Jonathan Hyde
Mr Clinton Lloyd
Mr Alex Shipolini
### Specialist Advisory Committee in Cardiothoracic Surgery 2010–2011

(A Sub-committee of the Joint Committee for Higher Surgical Training)

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Tim Graham</td>
<td>(Chairman) Royal College of Surgeons – demitted post September 2010</td>
<td>2007 - 2010</td>
</tr>
<tr>
<td>Mr Steve Livesey</td>
<td>(Chairman) Society for Cardiothoracic Surgery – commenced post September 2010</td>
<td>2010 - 2013</td>
</tr>
<tr>
<td>Mr John Anderson</td>
<td>Joint Royal Colleges Representative</td>
<td>2008 - 2013</td>
</tr>
<tr>
<td>Mr Sion Barnard</td>
<td>Cardiiothoracic Dean, Society for Cardiiothoracic Surgery</td>
<td>Oct 2009 - Sept 2014</td>
</tr>
<tr>
<td>Mr David Barron</td>
<td>Congenital Surgery Representative, Society for Cardiiothoracic Surgery</td>
<td>2007-2012</td>
</tr>
<tr>
<td>Miss Betsy Evans</td>
<td>Trainee Representative</td>
<td>2010 - 2013</td>
</tr>
<tr>
<td>Mr Steve Hunter</td>
<td>National Recruitment Officer</td>
<td>2004 - 2012</td>
</tr>
<tr>
<td>Mr John Smith</td>
<td>Chairman of the Intercollegiate Examinations Board</td>
<td>2010 - 2013</td>
</tr>
<tr>
<td>Mr Alan Kirk</td>
<td>Joint Royal Colleges Representative</td>
<td>2008 - 2013</td>
</tr>
<tr>
<td>Dr Vicky Osgood</td>
<td>Lead Dean</td>
<td>2008 - 2013</td>
</tr>
<tr>
<td>Professor John Pepper</td>
<td>Education Secretary, Society for Cardiiothoracic Surgery</td>
<td>2007 - 2012</td>
</tr>
<tr>
<td>Mr Pala Rajesh</td>
<td>Lead Thoracic Surgery Representative, Joint Royal Colleges Representative</td>
<td>2006 - 2011</td>
</tr>
<tr>
<td>Professor John Wallwork</td>
<td>Academic Surgery Representative, Society for Cardiiothoracic Surgery</td>
<td>2007 - 2012</td>
</tr>
<tr>
<td>Mr Lars Nolke</td>
<td>Royal College of Surgeons in Ireland Representative</td>
<td>2008 - 2013</td>
</tr>
<tr>
<td>Mr Jonathan Hyde</td>
<td>Joint Royal Colleges Representative</td>
<td>2009 - 2014</td>
</tr>
<tr>
<td>Mr Jonathan Unsworth-White</td>
<td>Society for Cardiiothoracic Surgery representative</td>
<td>2009 - 2014</td>
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<tr>
<td>Mr Peter O’Keefe</td>
<td>Joint Royal Colleges Representative</td>
<td>2009 - 2014</td>
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<tr>
<td>Mr Philip Kay</td>
<td>Society for Cardiiothoracic Surgery representative</td>
<td>2009 - 2014</td>
</tr>
<tr>
<td>Mr Domenico Pagano</td>
<td>Academic Surgery Representative (co-opted member)</td>
<td>2009 - 2011</td>
</tr>
<tr>
<td>Professor Cliff Shearman</td>
<td>Head of School of Surgery representative</td>
<td>2009 - 2014</td>
</tr>
<tr>
<td>Mr Michael Lewis</td>
<td>Intercollegiate specialty tutor and MRCS representative lead (co-opted member)</td>
<td>2010 - 2013</td>
</tr>
<tr>
<td>Mr Geoff Tsang</td>
<td>Joint Royal Colleges Representative</td>
<td>2011 - 2016</td>
</tr>
<tr>
<td>Mr Stephen Rooney</td>
<td>Society for Cardiiothoracic Surgery Representative</td>
<td>2011 - 2016</td>
</tr>
</tbody>
</table>
### Intercollegiate Board in Cardiothoracic Surgery 2010–2011

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr John Smith</td>
<td>Chairman</td>
<td>2010 - 2013</td>
</tr>
<tr>
<td>Professor John Pepper</td>
<td>Representative of the Society for Cardiothoracic Surgery</td>
<td>2007 - 2012</td>
</tr>
<tr>
<td>Mr Steve Livesey</td>
<td>Chairman SAC in Cardiothoracic Surgery</td>
<td>2010 - 2013</td>
</tr>
<tr>
<td>Mr Jonathan Anderson</td>
<td>Representative of the Royal College of Surgeons of England</td>
<td>2007 - 2012</td>
</tr>
<tr>
<td>M Vincent Young</td>
<td>Representative of the Royal College of Surgeons in Ireland</td>
<td>2008 - 2013</td>
</tr>
<tr>
<td>Mr David Richens</td>
<td>Representative of the Royal College of Physicians and Surgeons of Glasgow</td>
<td>2007 - 2012</td>
</tr>
<tr>
<td>Mr Pala Rajesh</td>
<td>Representative of the Royal College of Surgeons of Edinburgh</td>
<td>2007 - 2012</td>
</tr>
<tr>
<td>Mr Sion Barnard</td>
<td>Representative of the Society for Cardiothoracic Surgery</td>
<td>2009 - 2014</td>
</tr>
</tbody>
</table>

### Society Representatives on Other Bodies

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Representative</th>
<th>Tenure (Inclusive)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senate and Federation of Surgical Specialist Associations</td>
<td>David Taggart <a href="http://www.sts.org/home/chilton">www.sts.org/home/chilton</a></td>
<td>2010 - 2012</td>
</tr>
<tr>
<td>Council of the Royal College of Surgeons of England</td>
<td>David Taggart</td>
<td>2010 - 2012</td>
</tr>
<tr>
<td>Surgical Sub-Committee of the Central Consultants and Specialists Committee</td>
<td>David Taggart</td>
<td>2010-2012</td>
</tr>
<tr>
<td>Expert Group for Cardiac Surgery at NCEPOD</td>
<td>Steven Livesey, James Roxburgh</td>
<td>Not defined</td>
</tr>
<tr>
<td>Council of the College of Clinical Perfusion Scientists of GB &amp; Ireland</td>
<td>David Jenkins, Tim Jones</td>
<td>2009 -</td>
</tr>
<tr>
<td>British Standards Authority</td>
<td>Chandi Ratnatunga</td>
<td>Not defined</td>
</tr>
<tr>
<td>Medical Devices Agency (MHRA)</td>
<td>Steven Hunter</td>
<td>Not defined</td>
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<tr>
<td>Outpatient HRG Group project</td>
<td>Ben Bridgewater</td>
<td>For duration of</td>
</tr>
<tr>
<td>Strategic Group for National Heart Valve Contracts</td>
<td>Steven Livesey</td>
<td>Not defined</td>
</tr>
<tr>
<td>Professional Standards and Peer Review Committee (British Cardiac Society)</td>
<td>Graham Cooper</td>
<td>2008 - 2013</td>
</tr>
<tr>
<td>Role/Group</td>
<td>Name</td>
<td>Years</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
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<tr>
<td>Childrens’ Surgical Forum</td>
<td>Andrew Parry</td>
<td>2007 -</td>
</tr>
<tr>
<td>Joint Advisory Group for Upper GI Endoscopy</td>
<td>Jim McGuigan</td>
<td>2004 -</td>
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<tr>
<td>RCSE Specialty Advisory Board</td>
<td>Graham Cooper</td>
<td>TBC</td>
</tr>
<tr>
<td>TEARS</td>
<td>Christopher Blauth</td>
<td>Not defined</td>
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<tr>
<td>Intercollegiate Lung Cancer Group (LUCADA data project)</td>
<td>Richard Berrisford</td>
<td>2001</td>
</tr>
<tr>
<td>Tripartite Group (Dept of Health, Healthcare Commission and SCTS)</td>
<td>Ben Bridgewater</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Angioplasty Guidelines and Practice Sub-committee of the BCS</td>
<td>Graham Venn</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Specialist Adviser to NICE’s Interventional Procedures Programme</td>
<td>Simon Kendall</td>
<td>2007-2010</td>
</tr>
<tr>
<td>Academic Research Board Royal College of Surgeons of England</td>
<td>Domenico Pagano</td>
<td>2007-</td>
</tr>
<tr>
<td>UEMS</td>
<td>Patrick Magee</td>
<td>2008-</td>
</tr>
<tr>
<td>UEMS</td>
<td>Neil Moat</td>
<td></td>
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<tr>
<td>UEMS</td>
<td>John Duffy (thoracic)</td>
<td>2008 -</td>
</tr>
<tr>
<td>BMA Consultants Committee</td>
<td>Marjan Jahangiri</td>
<td>2009 - 2011</td>
</tr>
<tr>
<td>BTS (Lung Cancer Guidelines)</td>
<td>John Duffy, Jim McGuigan</td>
<td></td>
</tr>
<tr>
<td>BTS (Recommendations on Air Travel and Lung Disease)</td>
<td>Richard Berrisford, Richard Page</td>
<td></td>
</tr>
<tr>
<td>Royal College of Surgeons in Ireland Vice President</td>
<td>Eilis McGovern</td>
<td></td>
</tr>
<tr>
<td>Royal College of Surgeons in Ireland Member of Council</td>
<td>A E Wood</td>
<td></td>
</tr>
<tr>
<td>Royal College of Surgeons of England Working Party on the International Role of the College</td>
<td>David Anderson</td>
<td>2009 -</td>
</tr>
<tr>
<td>Healthcare for London Steering Group</td>
<td>Andrew Cohen</td>
<td>Sept 2009-Sept 2010</td>
</tr>
<tr>
<td>CORESS</td>
<td>Stephen Clark</td>
<td>2010 -</td>
</tr>
<tr>
<td>CCAD – Paediatric Representative</td>
<td>Andrew McLean</td>
<td>2010 -</td>
</tr>
</tbody>
</table>
Past Presidents
List of Presidents of the Society since 1934

1934  Mr H Morrison Davies
1936  Mr J R H Roberts
1938  Mr A Tudor Edwards
1945  Mr J B Hunter
1947  Mr W M Anderson
1948  Mr R B Purse
1950  Mr A Graham Bryce
1952  Sir C Price Thomas
1954  Mr H Reid
1956  Mr B Dick
1958  Sir R Brock
1959  Mr G A Mason
1961  Sir T Holmes Sellors
1963  Mr R F J Henry
1964  Mr N R Barrett
1966  Mr V C Barrett
1968  Mr P R Allison
1969  Mr A L d’Abreu
1970  Mr A Logan
1971  Mr O S Tubbs
1972  Mr F R Edwards
1973  Mr J L Collis
1974  Mr R H R Belsey
1975  Mr R S Barclay
1976  Mr W P Cleland
1977  Mr H R S Harley
1978  Mr R Abbey-Smith
1979  Mr R P Moore
1980  Mr J R Belcher
1981  Mr M Bates
1982  Mr J M Hill
1983  Mr J F Dark
1984  Mr D N Ross
1985  Mr M Paneth
1986  Mr M V Baimbridge
1987  Sir K Ross
1988  Professor W H Bain
1989  Mr W G Williams
1991  Professor D I Hamilton
1992  Professor G H Smith
1994  Mr B Ross
1995  Mr J Bailey
1996  Professor H Matthews
1997  Professor D Wheatley
1999  Mr J Dussek
2000  Mr J Monro
2002  Mr C Hilton
2004  Mr P Magee
2006  Professor Sir B Keogh
2008  Mr L Hamilton
2010  Professor D Taggart
### SCTS Annual Meeting History

<table>
<thead>
<tr>
<th>Year</th>
<th>Location</th>
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<tbody>
<tr>
<td>1999</td>
<td>East Midlands Conference Centre</td>
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<tr>
<td>2000</td>
<td>Business Design Centre</td>
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<tr>
<td>2001</td>
<td>East Midlands Conference Centre</td>
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<tr>
<td>2002</td>
<td>Bournemouth International Centre</td>
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<tr>
<td>2003</td>
<td>Edinburgh International Conference Centre</td>
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<td>2004</td>
<td>Beau Sejour Centre</td>
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<td>2005</td>
<td>Olympia Conference Centre</td>
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<tr>
<td>2006</td>
<td>CityWest Conference Centre</td>
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<tr>
<td>2007</td>
<td>Manchester International Convention Centre</td>
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<tr>
<td>2008</td>
<td>Edinburgh International Conference Centre</td>
</tr>
<tr>
<td>2009</td>
<td>Bournemouth International Centre</td>
</tr>
<tr>
<td>2010</td>
<td>Arena &amp; Convention Centre</td>
</tr>
<tr>
<td>2011</td>
<td>ExCel Centre</td>
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</table>

The locations are as follows:
- Nottingham
- London
- Bournemouth
- Edinburgh
- Guernsey
- Dublin
- Manchester
- Edinburgh
- Bournemouth
- Liverpool
- London
2012 Meeting -

Annual Meeting 2012 will be held at Manchester Central, 18th – 20th April 2012
(This is a combined meeting with ACTA)
Annual Meeting Organisation:

Simon Kendall - Meeting Secretary  
Email: Simon.Kendall@stees.nhs.uk

Ian Wilson - Deputy Meeting Secretary  
Email: ian.c.wilson@uhb.nhs.uk

Isabelle Ferner - Society Administrator & Conference Organiser  
Email: sctsadmin@scts.org

Tilly Mitchell - SCTS PA Exhibition and Accounts  
Email: tilly@scts.org

Tara Bartley - Nursing Representative  
Email: tara.bartley@ntlworld.com

Sunil Ohri - Communications Secretary  
Email: sunil@ohri.co.uk

Vipin Zamvar - Publications Secretary  
Email: zamvarv@hotmail.com
Society for Cardiothoracic Surgery in Great Britain and Ireland

SUMMARY MEETING PROGRAMME

Sunday 20 March
08:30-09:00 SCTS University Welcome
09:00-12:00 SCTS UNIV Ischaemic Mitral Valve Regurgitation
09:00-12:00 SCTS UNIV Aortic Dissection
09:00-12:00 SCTS UNIV Off-Pump Coronary Artery Revascularisation
09:00-12:00 SCTS UNIV Contemporary Thoracic Surgical Practice
09:00-12:00 SCTS UNIV Innovative Options in Aortic Valve Surgery
09:00-12:00 SCTS UNIV The Small Aortic Root
12:00-13:45 Lunch Box Session Endoscopic Conduit Harvesting
12:00-13:45 Lunch Box Session Hybrid Interventions are the future of Congenital Cardiac Surgery
14:00-17:00 SCTS UNIV Ischaemic Mitral Valve Regurgitation
14:00-17:00 SCTS UNIV Aortic Dissection
14:00-17:00 SCTS UNIV Off-Pump Coronary Artery Revascularisation
14:00-17:00 SCTS UNIV Contemporary Thoracic Surgical Practice
14:00-17:00 SCTS UNIV Innovative Options in Aortic Valve Surgery
14:00-17:00 SCTS UNIV The Small Aortic Root
17:30-19:00 Annual Business Meeting
17:30-19:00 Moderated Movies
19:00-20:00 WELCOME RECEPTION
19:00-20:00 EXHIBITION HALL OPEN

Monday 21 March
07:15-08:30 Medtronic Cardiac Breakfast Symposium
07:00-08:00 Education Sub-Committee
08:00-09:00 Scientific Session: Myocardial Protection
08:50-10:00 Dendrite Database Managers Meeting
09:00-10:00 Patients' Forum Meeting Area
08:50-10:00 PULSE Surgical Opening Session
08:30-10:00 Thoracic Sub-Committee
10:45-11:45 Cardiac Surgical Papers
10:45-12:30 Dendrite Database Managers Meeting
10:45-11:45 Cardiac Aortic Surgery
10:45-11:45 Thoracic Mixed Session
11:45-12:30 Thoracic Surgery: Chest Wall Deformity and Reconstruction: Prof Whim
11:45-12:30 Patients' Forum
11:45-12:30 Heart Research UK Lecture: Thoracic Aortic Stenting: Prof. Lars Svensson
12:30-13:30 Surgeons and MBA
12:35-13:55 Patients' Forum
13:30-15:00 "Address by the Secretary of State for Health Rt Hon. Andrew Lansley, Trauma Reconfiguration, and UK Cardiothoracic Surgical Activity"
13:30-17:30 The Society of Clinical Perfusionists Scientists
13:30-18:00 Macquet ACSA Association of Surgical Care Practitioners Session
15:30-18:00 ACSA AGM
15:00-15:45 Data Committee
15:45-16:25 Thoracic Surgery: Research Trial Papers
15:45-17:00 Cardiothoracic Forum
15:45-18:00 Management of the High-Risk Patient
15:45-18:00 Cardiothoracic Surgical Trainees Meeting
16:25-18:00 Thoracic Surgery: Research Collaborative
18:30-20:30 Ethicon Symposium Morbidity after Cardiac Surgery
18:30-20:30 Synthes Symposium Rib Fixation and Stabilisation

Tuesday 22 March
07:00-08:30 Medela Thoracic Surgical Symposium
07:45-10:15 Edwards TAVI Surgical Symposium
08:00-09:15 Cardiac Surgical Papers
07:30-08:45 Vascutek Congenital Symposium
08:00-08:50 Cardiac Surgical Papers: Post-Operative Management
09:00-10:00 Cardiopulmonary Transplantation Papers
08:45-10:00 Cardiothoracic Forum
08:45-10:00 Congenital Cardiac Surgery: Reconfiguration
08:45-10:00 Thoracic Surgery: Risk
11:00-12:30 SORIN Seminar: Minimal Invasive AVR
10:45-12:30 Cardiothoracic Forum
10:45-12:30 Congenital Cardiac Surgery Complex Transposition with VSD and LVOT Obstruction
10:45-11:45 Thoracic Surgical VATS
10:45-11:15 Contemporary Mitral/Atrial Fibrillation Surgery
11:00-11:45 Guest Lecture State of the Art Mitral Fibrillation Surgery: Dr Ardawan Rastan
11:45-12:00 Cardiac papers: Mitral Surgery
12:00-12:30 Guest Lecture State of the Art Mitral Valve Surgery: Contemporary Practice and Future Development: Prof Irving Kron and Mr Ani Anyanwu
11:45-12:30 Cardiac Papers: Atrial Fibrillation and Mitral Surgery
11:45-12:30 Medela/Tudor Edwards Thoracic Surgical Lecture: Thoracic Surgery: Surgery for Emphysema Professor Robert McKenna
12:30-13:30 Medical Students Poster Presentations
12:30-13:30 CRISP Trial - Collaborators Meeting
12:30-13:30 Congenital Meeting
13:30-17:00 College Council of Clinical Perfusion Scientists
13:30-15:00 Thoracic Surgical Papers: Mediastinal Staging
13:30-15:00 Cardiothoracic Forum
13:30-15:00 St Jude Symposium ESC/EACTS Guidelines for Revascularisation
14:00-14:30 Exhibitors Meeting
15:30-16:40 Scientific Session: Prognostic Markers and Conduits
15:30-16:40 Congenital Cardiac Surgery Papers - Management of the Bicuspid Aortic Valve
15:30-16:40 Cardiothoracic Forum
15:30-16:40 Thoracic Miscellaneous
15:30-16:40 Cardiac Surgery Papers
16:10-16:40 Current and Future Status of OPCAB: Dr John Puskas
15:30-16:40 Scholarship Meeting
16:45-18:15 EWTD Symposium
18:00-18:30 Presentation Meeting
19:15-23:59 Annual Dinner Thames River Cruise

Wednesday 23 March
09:00-12:30 Board of Representatives’ Meeting