ANNUAL SCIENTIFIC MEETING & AGM

69th

4–6 October, 2018
Galway Bay Hotel, Galway, Ireland

Programme

www.irishcardiacsociety.com
Irish Cardiac Society
69th Annual Scientific Meeting & AGM

in association with
Irish Nurses Cardiovascular Association
Cardiac Clinical Physiologists
Irish Atherosclerosis Society

Thursday, 4 October – Saturday, 6 October 2018
Galway Bay Hotel, Galway, Ireland

PROGRAMME
Welcome

Welcome to Galway for this our 69th Annual Scientific Meeting and Annual General Meeting of the Irish Cardiac Society. Thank you to all who have contributed: those who have submitted and assessed abstracts, our chair persons and our guest speakers. It is a particular pleasure to welcome our international speakers: Dr C Michael Valentine, current President of the American College of Cardiology, Professor Nick Linker, secretary of the British Cardiovascular Society, Professor Pepe Zamorano, Vice President of the European Society of Cardiology, Professor James Moon, University College London and Prof Chris Packard, Professor of Vascular Biochemistry, Senior Research Fellow, University of Glasgow, and also our local speaker Dr Faisal Sharif from the National University of Ireland in Galway. I am also delighted that my friend and one time mentor Dr Janet McComb, Consultant Cardiologist in the Freeman Hospital in Newcastle agreed to give the Stokes’ Lecture.

Once again it has been an honour for me to represent the Society internationally over the past year. At the American College of Cardiology congress in Orlando in March we had a special reception for Irish American Cardiologists and we were delighted that many of our American colleagues took time from their very busy schedule to honour us with their presence. I co-chaired a joint session with our Society, the British Cardiovascular Society and the Lebanese Society of Cardiology. Dr Conor McCann from the Belfast Trust represented our Society and gave an insightful analysis of various guidelines for device management in arrhythmias.

In June I attended the Council Meeting of the British Cardiovascular Society at the annual meeting in Manchester and co-chaired a joint meeting with the British Cardiovascular Society. This year the theme of our session was heart failure and our Society was well represented by Dr Niall Mahon.

The Annual Congress of the European Society of Cardiology which this year was in Munich remains the biggest gathering of cardiovascular specialists world-wide and I would encourage those involved in research to submit abstracts and at our AGM I will address the issue of promoting the role of Irish Cardiologists within the ESC. Barbra Dalton gave an informative and very well received presentation on her work on the development and introduction of a trainee feedback system; the data is very useful in terms of planning training in the South and I would hope that a similar data set could be obtained from the Northern Ireland trainees.

Once again it is my sad duty to draw your attention to the death of a former President of this Society, Dr Michael Scott. Michael was highly regarded not only for his clinical skills and his kindness to patients but also as one of the pioneers of Belfast Cardiology and for his wit and his many interests outside medicine. We send our sincere condolences to his wife Maureen and his family.

As I come to the end of my two year term as President I want to thank all the council members for their hard work and support, and my heartfelt and sincere thanks go to Barbra Dalton, without whose help we would not have the flourishing active Society of this current national and international profile.

I particularly convey my best wishes to Dr Jim Crowley the incoming President and I have no doubt that Jim will continue to promote the Society both nationally and internationally and build on the success which we have enjoyed over recent years.

I hope you enjoy both the academic and social aspects of the meeting and of this scenic and historic city.

Dr Albert McNeill
President, Irish Cardiac Society
Irish Cardiac Society Council 2016 – 2018
Irish Cardiac Society Council 2017–2018

President:  Dr Albert McNeill
Honorary Secretary: Dr Stephen McMechan
Honorary Treasurer: Prof Vincent Maher
Council Members: Dr James Crowley
(In-coming President)
Prof Ken McDonald (Past President)
Dr Lana Dixon
Dr John Erwin
Dr Paul Horan
Dr Caroline Daly
Prof Aaron Peace
Mr Michael Tolan
Dr Angie Brown (IHF Representative)

Download the conference app:
www.icsapp2018.com
WiFi is complimentary throughout the venue
and there is no password required.

Meeting Locations

Thursday, October 4

09.30–15.45 MEETING OF IRISH NURSES CARDIOVASCULAR ASSOCIATION
Location: Ballyvaughan Suite
18.30–21.00 ICS SESSION 1: EP SUBGROUP MEETING
Chair: Prof David Keane
Location: Inishmann Suite
18.30–21.00 ICS SESSION 2: INTERVENTION SUBGROUP MEETING AND CASE COMPETITION
Chairs: Prof Aaron Peace & Prof Tom Kiernan
Location: Inishturk Suite

Friday, October 5

08.30–14.30 IRISH CARDIAC PHYSIOLOGISTS’ MEETING
Location: Inishturk Suite
09.00–17.00 IRISH CARDIAC SOCIETY SESSION 3–6
Location: Ballyvaughan Suite
14.00–15.30 IRISH ATHEROSCLEROSIS ASSOC. (SESSION 5)
Location: Ballyvaughan Suite
17.00–18.00 2018 STOKES’ LECTURE
Location: Ballyvaughan Suite
18.00–18.30 ANNUAL GENERAL MEETING
Location: Ballyvaughan Suite

Saturday, October 6

09.30–13.00 IRISH CARDIAC SOCIETY SESSION 7–8
Location: Ballyvaughan Suite

EXHIBITOR AREA
Location: Lettermore Suite
MODERATED POSTER AREA
Location: Lettermore Suite
GENERAL POSTER AREA
Location: Lettermore Suite (Conservatory)
# Cardiovascular Nurses Scientific Conference

**THE CARDIAC JOURNEY – FROM NOVICE TO EXPERT**  
Thursday, 4 October 2018

<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>09.30–10.00</td>
<td><strong>Registration and coffee</strong></td>
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<tr>
<td>10.00–10.05</td>
<td><strong>Welcome and Opening Address:</strong> Bernadette Hannon, President, INCA</td>
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<tr>
<td>10.05–10.15</td>
<td><strong>Welcome:</strong> Dr Albert McNeill, President, Irish Cardiac Society</td>
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<tr>
<td>10.15–10.45</td>
<td><strong>Be Smart Guidelines:</strong> Ms Mary Shine, St James’s Hospital</td>
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<td>10.45–11.15</td>
<td><strong>ESC Guidelines and INCA Study</strong></td>
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<td>11.15–11.55</td>
<td><strong>Cardiac Nursing the Career Pathway</strong></td>
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<td>11.55–12.20</td>
<td><strong>EuroHeart Update</strong></td>
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<td>12.20–13.00</td>
<td><strong>Lunch/Poster viewing</strong></td>
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<td>13.00–13.30</td>
<td><strong>Patients Experience of Living with Heart Failure</strong></td>
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<td>13.30–14.00</td>
<td><strong>Care of the Heart Failure Patient</strong> Ms Norma Caples, Heart Failure CNS, Waterford Regional Hospital</td>
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<td>14.00–14.30</td>
<td><strong>Workshop:</strong> Acute MI</td>
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<td>14.30–15.00</td>
<td><strong>Workshop:</strong> Rhythm analysis</td>
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<tr>
<td>15.00–15.00</td>
<td><strong>Workshop:</strong> Structural A&amp;P</td>
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<tr>
<td>15.30–15.45</td>
<td><strong>Announcement of Best Poster / Close of Meeting:</strong> Bernadette Hannon, President, INCA</td>
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# The 19th Annual Cardiac Clinical Physiology Meeting

**At the Irish Cardiac Society Meeting**  
Friday, 5 October 2018

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08.30</td>
<td><strong>Registration</strong></td>
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<tr>
<td>09.25</td>
<td><strong>Opening of meeting</strong></td>
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<td>9.30</td>
<td><strong>Update from the National HSCP Office</strong> Jackie Reed, National Lead,. National HSCP Office</td>
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<tr>
<td>10.00</td>
<td><strong>Post Graduate Module in Practice Education</strong> Maria McNeill, Practice Education Coordinator, DIT</td>
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<tr>
<td>10.20</td>
<td><strong>Post Graduate Research Opportunities</strong> Prof Pat Goodman, DIT</td>
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<td>10.40</td>
<td><strong>CPD Opportunities with the IICMS</strong> Karen Dobbyn, IICMS</td>
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<td>11.00</td>
<td><strong>Coffee and trade stands</strong></td>
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<td>11.30</td>
<td><strong>BSE in Africa – my experience</strong> Sarah Gallagher, Senior Cardiac Physiologist, OLCHC</td>
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<td>12.00</td>
<td><strong>Atrial Fibrillation and NOAC Update</strong> Prof Martin O'Donnell, Director of the HRB Clinical Research Facility</td>
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<td>12.30</td>
<td><strong>Dr Gerard King Award – Best Research/Case Presentation</strong></td>
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<tr>
<td>13.00</td>
<td><strong>Lunch and trade stands</strong></td>
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<td>14.00</td>
<td><strong>Effect of CPAP on LA mechanics – a speckle tracking study</strong> Mr Peter Coss, Chief Respiratory Physiologist, St James’s Hospital, Dublin</td>
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<td>14.30</td>
<td><strong>Cardiac Devices – Interactive EGM Session</strong> Paul Doherty, CRM Education Specialist, Abbott</td>
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<tr>
<td><strong>IRISH CARDIAC SOCIETY SESSION 3</strong></td>
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<td><strong>Chair:</strong> Dr Caroline Daly</td>
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<tr>
<td><strong>Location:</strong> Ballyvaughan Suite</td>
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**09.00–09.30** **MYOCARDIAL TISSUE CHARACTERISATION TO IMPROVE OUTCOMES**
Prof James Moon, Professor of Cardiology UCL, London; Clinical Director Imaging, Barts Heart Centre, London, United Kingdom

**09.30–10.20** **ORAL PRESENTATIONS 1**

1. **PICTORIAL EVOLUTION OF FOCAL MYOCARDIAL FIBROSIS IN DUCHENNE MUSCULAR DYSTROPHY (DMD)**
M Connolly, A Fallon, R O’Hanlon, D Waterhouse
Blackrock Private Clinic, Dublin, Ireland

2. **INFEROLATERAL T-WAVE INVERSION IN ATHLETES: A PHENOTYPE-GENOTYPE CORRELATION**
1H Cronin, 2G Fahy, 1D Kerins, 1C Vaughan, 3D Crinion
1Mercy University Hospital Cork, Ireland
2Cork University Hospital, Cork, Ireland
3Mater Misericordiae University Hospital, Dublin, Ireland

3. **BASELINE B-TYPE NATRIURETIC PEPTIDE IS THE STRONGEST PREDICTOR OF TRANSITION TO STAGE C HEART FAILURE IN AN AT-RISK POPULATION; RESULTS FROM THE STOP-HF PREVENTION PROGRAMME**
1,2S McCleland, 1S Zhou, 1E O’Connell, 1M Ledwidge, 2R Murphy, 3C Watson, 1L Healy, 1F Ryan 1,2J Gallagher, 1,2K McDonald
1St Vincent’s Healthcare Group, Dublin, Ireland
2School of Medicine, University College Dublin, Ireland
3Centre for Experimental Medicine, Queen’s University Belfast, Northern Ireland

**10.20–10.30** **Local Update:** Dr Paul Horan

**10.30–11.00** **Exhibition / Coffee / Posters**

**MODERATED POSTER SESSION 1**

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<tr>
<th><strong>4. CHARACTERISATION OF THE STRUCTURAL AND ELECTRICAL IMPACT OF AN ATRIAL SEPTAL DEFECT: CMR EVALUATION OF THE ARRHYTHMIA SUBSTRATE</strong></th>
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<tbody>
<tr>
<td>L O’Neill, S Williams, O Razeghi, J Whitaker, I Sim, R Mukherjee, S Niederer, M Wright, H Alam, A Frigiola, M O’Neill</td>
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<tr>
<td>King’s College London, United Kingdom</td>
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<tr>
<th><strong>5. CHARACTERISATION OF THE STRUCTURAL AND ELECTRICAL IMPACT OF AN ATRIAL SEPTAL DEFECT: PATTERNS OF ATRIAL ECTOPY ON CONTINUOUS HOLTER MONITORING</strong></th>
</tr>
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<tbody>
<tr>
<td>L O’Neill, S Williams, J Whitaker, I Sim, R Mukherjee, J Harrison, J Julia, C Sugihara, S Niederer, M Wright, A Frigiola and M O’Neill</td>
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<tr>
<td>King’s College London, United Kingdom</td>
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<tr>
<th><strong>6. CORRELATION BETWEEN INCIDENTAL CORONARY CALCIFICATION ON NON-GATED CTS WITH FINDINGS AT ANGIOGRAPHY</strong></th>
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<tbody>
<tr>
<td>S Kelly, A McInerney, M Walsh, J Jefferies, D Kerins, C Vaughan</td>
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<tr>
<td>Mercy Hospital, Cork, Ireland</td>
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<tr>
<th><strong>7. CORRELATION OF AORTIC VALVE ANNULAR PLANE ASSESSMENT BY PRE-PROCEDURAL COMPUTED TOMOGRAPHY VERSUS ON-TABLE 3-DIMENSIONAL ROTATIONAL ANGIOGRAPHY</strong></th>
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<tbody>
<tr>
<td>S Murphy, C Malone, R Tanner, G Blake, D Sugrue, R Byrne, C McGrory, D Barton, R Margey, I Casserly</td>
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<tr>
<td>Mater Misericordiae University Hospital, Dublin, Ireland</td>
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</tbody>
</table>
8. AORTIC ASSESSMENT AT TIME OF TOE / DCCV – AN OVERLOOKED COMPONENT OF THE CHA2DS2-VASC SCORE
D O’Hare, K McDonald, M Quinn, D Kelly, S Mubarak, D Cadogan, L Murphy, M Omar
St Vincent’s University Hospital, Dublin, Ireland

9. IMAGING IN HEREDITARY HAEMOCHROMATOSIS: ESTABLISHING A LOCAL GUIDELINE FOR CARDIAC AND HEPATIC SURVEILLANCE
BP Traynor, K Hazel, J O’Donnell, RJ Farrell, C Smyth, O Kelly
Connolly Hospital Blanchardstown, Dublin, Ireland

10. HEART FAILURE FIRST DIAGNOSED IN THE COMMUNITY AND MANAGED IN A DISEASE MANAGEMENT PROGRAMME (DMP) IS AT LOW RISK OF PROGRESSION TO HOSPITALISATION
L Healy, R Murphy, K McDonald, J Gallagher, S McClelland, S Zhou, M Ledwidge
St Vincent University Hospital, Dublin Ireland
2St Vincent’s Healthcare Group, Dublin Ireland

GENERAL POSTER SESSION 1
Location: Lettermore Suite (Conservatory)

11. TIGER VERSUS JUDKINS DIAGNOSTIC CATHETERS IN TRANS-RADIAL CORONARY ANGIOGRAPHY
D Cadogan, D O’Hare, L Murphy, S Mubarak, C McCreery
St Vincent’s University Hospital, Dublin, Ireland

12. A SINGLE CENTRE EXPERIENCE OF STEMI IN THE ELDERLY POPULATION (>80 YEARS)
I Yearoo, S Teehan, B Hennessey, N Fitzpatrick, A Brennan, L Brandon, B Kerr, M Alshammari, P Srinivas, C Daly, P Crean, J Cosgrave, R Murphy
St James’s Hospital, Dublin, Ireland

13. IN-HOSPITAL STEMI MORTALITY: REPATRIATION CAN LEAD TO INVALID CONCLUSIONS
1University College Dublin, Dublin, Ireland
2Mater Misericordiae University Hospital, Dublin, Ireland
3Our Lady of Lourdes Hospital, Drogheda, Co Louth, Ireland
4Connolly Hospital, Blanchardstown, Dublin, Ireland
5Beaumont Hospital, Dublin, Ireland

14. UNDERUTILISATION OF THROMBOLYSIS IN THE NATIONAL ACS PROGRAMME; THE ST JAMES EXPERIENCE
I Yearoo, S Teehan, B Hennessey, N Fitzpatrick, A Brennan, L Brandon, B Kerr, M Alshammari, P Srinivas, C Daly, P Crean, J Cosgrave, R Murphy
St James’s Hospital, Dublin, Ireland

15. NON-ISCHAEMIC CARDIOMYOPATHY AND CARDIAC RESYNCHRONIZATION THERAPY– REVISITING THE ‘AT RISK’ PATIENT PROFILE
V Voon, A Shamsi, W Lau, H Pereira, N Shanmugam, R Ray, L Anderson
St George’s University Hospital NHS Foundation Trust, London, United Kingdom

16. PROGNOSTIC VALUE OF HIGH-SENSITIVITY CARDIAC TROPONIN T IN PATIENTS WITH ST-SEGMENT-ELEVATION MYOCARDIAL INFARCTION
N Khullar, A Ibrahim, J Saunders, C Ahern, K Mannix, C Cahill, TJ Kiernan
1Graduate Entry Medical School, University of Limerick, Limerick, Ireland
2Department of Cardiology, University Hospital Limerick, Limerick, Ireland
3Department of Mathematics and Statistics, University of Limerick, Limerick, Ireland
17. 24 HOUR-ABPM REVIEW ON VASOACTIVE THERAPY IN HFREF
   T Hennessy
   St Vincent University Hospital, Dublin, Ireland

18. ROTATIONAL AHERECTOMY IN THE MODERN CARDIAC CATHETERISATION LABORATORY
    PATIENT DEMOGRAPHICS, PROCEDURAL CHARACTERISTICS AND CLINICAL OUTCOMES
   JJ Coughlan, S Arnous, T Kiernan
   Cardiology Department, University Hospital Limerick, Ireland

19. ABLATION OF ISOLATED VENTRICULAR ARRHYTHMIAS FROM THE LEFT VENTRICULAR APEX IN
    PATIENTS WITHOUT ISCHEMIC HEART DISEASE
   K Walsh, G Supple, F Garcia, D Callans, E Zado, D Lin, F Marchlinski
   Hospital of the University of Pennsylvania, Electrophysiology Division, Pennsylvania, United States of America

20. THE ROLE OF SCN5A MUTATIONS IN HYPERTROPHIC CARDIOMYOPATHY
   1H Cronin, 1D Kerins, 2G Fahy, 1C Vaughan
   1Mercy University Hospital, Cork, Ireland
   2Cork University Hospital, Cork, Ireland

21. EVALUATION OF THE RAPID ACCESS CHEST PAIN SERVICE
   L McGovern, G Madders, J Kelly, C Keady, E McIntyre, B Hynes, J Crowley
   University Hospital Galway, Galway, Ireland

22. LOW DOSE COLCHICINE POST MYOCARDIAL INFARCTION-LODOC MI
   1T Hennessy, 2G Hillis
   1St Vincent University Hospital, Dublin Ireland
   2Royal Perth Hospital, Perth, Australia

23. A SINGLE CENTRE EXPERIENCE OF VASCULAR ACCESS COMPLICATIONS OF TRANSCATHETER
    AORTIC VALVE REPLACEMENT PROCEDURES
   B Hennessey, I Yearoo, R Murphy, S Teehan, N Connolly,
   S O'Connor, B Kerr, N Fitzpatrick, L Brandon, M Ali,
   B Foley, A Brennan, P Crean, A Maree
   St James’s Hospital, Dublin, Ireland

24. ANTI-MICROBIAL ENVELOPES ARE ASSOCIATED WITH VERY LOW DEVICE INFECTION RATE FOR
    CARDIAC IMPLANTABLE ELECTRONIC DEVICES
   M Murphy, J Galvin, P Ryan, E Keelan, N Mahon, J O’Neill, J Keaney
   Mater Misericordiae University Hospital, Dublin, Ireland

25. MANAGING CARDIOVASCULAR DISEASE (CVD) RISK FACTORS IN STROKE AND TIA PATIENTS AS
    PART OF AN INTEGRATED COMMUNITY BASED PREVENTIVE CARDIOLOGY PROGRAMME
   1M Gorecka, 2,3I Gibson, 4G Flaherty, 1T Walsh,
   1M O’Donnell, 3,5J Jones, 6Susan Connolly, 1,2J Crowley
   1University Hospital Galway, Galway, Ireland
   2Croi, West of Ireland Cardiac Foundation, Galway, Ireland
   3National Institute for Preventive Cardiology, Galway, Ireland
   4National University of Ireland, Galway, Ireland
   5Brunel University of London, London, United Kingdom
   6Imperial College Healthcare, NHS Trust, United Kingdom
29. THE IMPACT OF TEICOPLANIN IN PREVENTION OF IMPLANTABLE CARDIAC ELECTRICAL DEVICES INFECTION. A SINGLE CENTRE QUALITY IMPROVEMENT AUDIT
RB Pharithi, P Flynn, L Murphy, M Hensey, D O’Hare, S Mubarak, F Rathore, M Omar, S Morad, D Cadogan, M Quinn, C McCreery, J Erwin
Cardiology Department, St Vincent University Hospital, Elm Park, Dublin 4, Ireland

30. EARLY EFFECT OF CONTINUOUS POSITIVE AIRWAY PRESSURE THERAPY ON LEFT ATRIAL MECHANICS IN PATIENTS WITH OBSTRUCTIVE SLEEP APNOEA: ASSESSMENT BY CONVENTIONAL AND TWO-DIMENSIONAL SPECKLE-TRACKING ECHOCARDIOGRAPHY
P Coss, G King, AM McLaughlin, R Murphy
Medical Directorate and RCDH Research @education Institute, St James’s Hospital, Dublin, Ireland

IRISH CARDIAC SOCIETY SESSION 4

Chair: Dr James Crowley
Location: Ballyvaughan Suite

11.00–11.30 ROLE OF HEI’S AND HOSPITALS IN DEVELOPING MEDTECH ECO SYSTEM IN IRELAND
Dr Faisal Sharif
Consultant Interventional Cardiologist, Soalta Group, Galway, Ireland, Senior Lecturer in Regenerative Medicine, National University of Ireland Galway, Ireland, Executive Director, BioInnovate Ireland

11.30–12.20 ORAL PRESENTATIONS 2

26. EXENATIDE ALLEVIATE ADRIAMYCIN-INDUCED CARDIAC INJURY
F Juntao, W Lijuan, Z Xiaoman, L Shangyu, L Hui, L Tiewei, L Ping
Peking Union Medical College, State Key Laboratory of Cardiovascular Disease, Fu Wai Hospital, National Center for Cardiovascular Disease, China

27. SEVEN-YEAR REVIEW OF MITRAL VALVE REPAIR RATES AND EARLY OUTCOMES FOR DEGENERATIVE MITRAL DISEASE
L Casey, A Hayes, J McCarthy
Mater Misericordiae University Hospital, Dublin, Ireland

28. BIORESORBABLE VASCULAR SCAFFOLDS – A TALE OF TWO-HUNDRED AND FIFTEEN SCAFFOLDS FROM A SINGLE CENTRE REVIEW
A McInerney, E McFadden
Cork University Hospital, Cork, Ireland

12.20–12.30 Local Update: Prof Aaron Peace

12.30–14.00 LUNCH / EXHIBITION / POSTER VIEWING
Location: Lettermore Suite

IRISH CARDIAC SOCIETY SESSION 5: JOINT IRISH ATHEROSCLEROSIS SOCIETY / IRISH CARDIAC SOCIETY SESSION

Chair: Prof Ian Menown/Prof Vincent Maher
Location: Ballyvaughan Suite

14.00–14.30 HORIZONS IN LIPID LOWERING THERAPY
Prof Chris Packard, Professor of Vascular Biochemistry, Senior Research Fellow, University of Glasgow, United Kingdom
35. A RE-EVALUATION OF UNSTABLE ANGINA BRAUNWALD CLASSIFICATION IN CHINESE PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION
S Jia, J Yuan
Fuwai Hospital, China

15.20–15.30 Local Update: Prof Ian Menown and Prof Vincent Maher

15.30–16.00 Exhibition / Coffee / Posters

MODERATED POSTER SESSION 2
Chair: Dr Stephen McMechan
Adjudicator: Dr. Brian McNeill
Location: Lettermore Suite

36. EVALUATION AND IMPLEMENTATION OF THE HEART FAILURE VIRTUAL CONSULTATION – A POWERFUL TOOL FOR THE DELIVERY OF EXPERT CARE AND THE DEMOCRATISATION OF KNOWLEDGE IN THE COMMUNITY
C Keane, M Ledwidge, M Hammond, J Gallagher, K McDonald
St Vincent’s Healthcare Group, Dublin, Ireland
St Vincent’s University Hospital, Dublin, Ireland

37. TEMPORAL PATTERN OF VITAMIN D IN AMBULATORY HEART FAILURE PATIENTS
S James, K Millar, L O’Connor, T Mannion, B McAdam
Beaumont Hospital Dublin, Ireland

38. DIVERTING THE RISING TIDE: THE IMPACT OF A MODERN HEART FAILURE COMMUNITY OUTREACH PROGRAMME
C O’Connor, N C aples, E Cronin, J Kumar, H Chui, C Herlihy, A Hennessy, J O’Dea, P O’Callaghan, P Owens
University Hospital Waterford, Waterford, Ireland
### 39. GETTING IT “RIGHT”
J Kumar, C O’Connor, E Cronin, N Caples, S Asgedom, P Owens, P O’Callaghan, J O’Dea  
University Hospital Waterford, Waterford, Ireland

### 40. THE BNP GENETIC VARIANT RS198389: HYPERTENSION RISK AND CARDIOVASCULAR PHENOTYPE IN STAGE A AND STAGE B HEART FAILURE SUBJECTS FROM THE STOP-HF TRIAL
1M Ledwidge, 2V Cannone, 1C Watson, 2J Burnett, 1K McDonald  
1STOP-HF Unit and School of Medicine and Medical Science, University College, Dublin, Ireland  
2Mayo Clinic, Rochester Minnesota, United States of America  
3St Vincent’s University Hospital, Dublin, Ireland

### GENERAL POSTER SESSION 2

#### Location: Lettermore Suite (Conservatory)

#### 41. A COMPARISON OF FFR AND IFR ASSESSMENT OF INTERMEDIATE CORONARY LESIONS
G Fitzgerald, T Kiernan  
University Hospital Limerick, Limerick, Ireland

#### 42. FACTORS INFLUENCING TOTAL ISCHAEMIC TIME IN STEMI
G Fitzgerald, A Ibrahim, J Coffey, J Saunders, C Cahill, Z Satti, I Ullah, T Kiernan  
University Hospital Limerick, Limerick, Ireland

#### 43. PRE PRIMARY PERCUTANEOUS CORONARY INTERVENTION TIMI FLOW GRADES IN STEMI PATIENTS PRE-LOADED WITH TICAGRELOR
Z Jan, I Ullah, M Ibrahim, T Kiernan  
University Hospital Limerick, Limerick, Ireland

#### 44. APPROPRIATE USE CRITERIA FOR TRANSTHORACIC ECHOCARDIOGRAPHY: ARE THEY RELEVANT OUTSIDE THE UNITED STATES?
R Kerley, S O’Flynn  
Cork University Hospital, Cork, Ireland

#### 45. PROGRESSION OF CARDIAC AMYLOID FIBRIL INFILTRATION IN CARDIAC AMYLOIDOSIS USING CARDIAC MAGNETIC RESONANCE
M Connolly, A Fallon, D Waterhouse, R O’Hanlon  
Blackrock Clinic Dublin, Ireland

#### 46. THE ROLE OF CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY IDENTIFYING CORONARY ARTERY DISEASE IN PATIENTS WITH CHEST PAIN IN A PERIPHERAL HOSPITAL IN IRELAND
1J Buckley, 2H Hafiz, 1J Hayes  
1Cavan General Hospital, Cavan, Ireland  
2Beaumont Hospital, Beaumont, Ireland

#### 47. ARNI ‘TERMINATES’ TRADITIONAL HEART FAILURE TREATMENT
C O’Connor, J Kumar, N Caples, E Cronin, S Asgedom, P O’Callaghan, P Owens  
University Hospital Waterford, Ireland

#### 48. EVALUATING COMMUNITY HEALTH PRACTITIONERS PERSPECTIVE OF THE HEART FAILURE PATHWAY
1E Lennon, 2P Kalra, 3R Reily 1R Kernan, 4J Gallagher, 4M Ledwidge, 4C Keane, 4M Cowie 4K McDonald  
1STOP-HF Unit and School of Medicine and Medical Science, University College, Dublin, Ireland  
2Mayo Clinic, Rochester Minnesota, United States of America  
3St Vincent’s University Hospital, Dublin, Ireland  
4St Vincent’s Healthcare Group, Dublin, Ireland

#### 49. LEFT ATRIAL VOLUME AND ITS CORRELATION TO ISCHEMIC STROKE
D Ranganathan, K Granville, D Ryan, C O’Connor, R Sheahan  
Beaumont Hospital, Dublin, Ireland
50. RISK OF VENTRICULAR ARRYTHMIA IN AJMALINE TESTING: SIGNIFICANT VARIATION IDENTIFIED IN SAFETY PROFILE OF THE TWO MOST PREVALENT INFUSION PROTOCOLS
L Byrne, D Crinion, E Keelan, J Keaney, J Galvin, N Mahon, C McGorrian
Mater Misericordiae University Hospital, Dublin, Ireland

51. EXPLORING SMOKING AND ALCOHOL BEHAVIOURS IN A LARGE OPPORTUNISTIC SCREENING PROGRAMME FOR ATRIAL FIBRILLATION IN THE ELDERLY IN IRELAND
M Gorecka, G McDarby, B Smyth
1Department of Cardiology Galway University Hospital, Galway, Ireland
2Public Health Department, Galway University Hospital, Galway, Ireland

52. RETROSPECTIVE ANALYSIS OF THE EFFECTIVENESS OF NURSE-LED CLINIC FOR PATIENTS POST PERCUTANEOUS CORONARY INTERVENTION
A Ibrahim, M Heelan, J Coffey, H McElligott, C Coyne, C Cahill, K Mannix, C Ahern, T Kiernan
University Hospital Limerick, Limerick, Ireland

53. ACUTE PROCEDURAL OUTCOMES AND CMR APPEARANCES OF PVI USING A POINT BY POINT WORKFLOW – A COMPARISON STUDY
L O’Neill, S Williams, R Karim, J Whitaker, R Mukherjee, J Harrison, I Sim, J Julia, M Wright, M O’Neill
King’s College London, London, United Kingdom

54. ADVANCING THE MANAGEMENT OF TYPE 2 DIABETES THROUGH AN INTEGRATED COMMUNITY BASED CARDIOVASCULAR DISEASE PREVENTION PROGRAMME
1I Gibson, 2J Crowley, 3D Dunne, 4S Connolly, 5G Flaherty, 5J Jones
1Croí, West of Ireland Cardiac Foundation & National Institute for Preventive Cardiology, Galway, Ireland
2University Hospital Galway, Galway, Ireland
3Imperial College Healthcare, NHS Trust, United Kingdom
4National University of Ireland, Galway, Ireland
5National Institute for Preventive Cardiology, Brunel University of London, London, United Kingdom

55. THE NEED FOR AMBULATORY BLOOD PRESSURE MONITORING TO ACCURATELY ASSESS BLOOD PRESSURE CONTROL IN PATIENTS WITH TYPE 2 DIABETES
R Kerley, Y Tan, H Cronin, A Tuthill
1Cork University Hospital, Cork, Ireland
2Mercy Hospital, Cork, Ireland

IRISH CARDIAC SOCIETY SESSION 6: BRIAN MAURER YOUNG INVESTIGATOR AWARD

Chair: Dr Albert McNeill
Adjudicators: Dr C Michael Valentine and Dr Janet McComb
Location: Ballyvaughan Suite

The Brian Maurer Young Investigator Award, is aimed at promising young investigators, to encourage and promote quality and original research in Cardiology. The award is named in honour of the late Dr Brian Maurer who was President of the Irish Cardiac Society from 1988 to 1990 and who, throughout his career, was a strong advocate for research and very supportive to all young cardiologists as they embarked on their careers.
### 16.00–17.00  **FINALIST PRESENTATIONS**

<table>
<thead>
<tr>
<th>56. ROLE OF ZFHX3 IN ATRIAL FIBRILLATION</th>
<th>57. THE CLINICAL COURSE OF HEART FAILURE PATIENTS MANAGED IN A DISEASE MANAGEMENT PROGRAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Hanley, E Ronzier, W Hucker, H Jameson, S Clauss, M Barraza, E Abraham, L Xiao, D Milan, P Ellinor Massachusetts General Hospital, Boston, United States of America</td>
<td>R Murphy, L Healy, S Zhou, S McCleland, J Gallagher, M Ledwidge, K McDonald St Vincent’s Healthcare Group, Dublin, Ireland</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>58. FACTORS CONTRIBUTING TO LEFT ATRIAL REMODELLING AND THE DEVELOPMENT OF ATRIAL FIBRILLATION IN HYPERTROPHIC CARDIOMYOPATHY</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Cuddy, E Kaynor, K Nutakki, C Yung Ho, N Lakdawala, A Crino Brigham and Womens Hospital, Boston, United States of America</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>59. AN INVESTIGATION OF GLOBAL LONGITUDINAL STRAIN IN PRIMARY MITRAL REGURGITATION: A RETROSPECTIVE COHORT OF PATIENTS WITH MITRAL REGURGITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Lavery, C Vaughan, C O’Herlihy, A Amaro, M Hinds, D M Kerins Mercy University Hospital, Grenville Place, Cork, Ireland University College Cork, College Road, Cork, Ireland</td>
</tr>
</tbody>
</table>

### 17.00–18.00  **2018 IRISH CARDIAC SOCIETY STOKES’ LECTURE**

*Chair:* Dr Albert McNeill  
*Location:* Ballyvaughan Suite

**STOKES, ADAMS, WARD AND MANY OTHERS: ARRHYTHMIAS AND SYNCPE**

Dr Janet McComb, Consultant Cardiologist, Freeman Hospital, Freeman Road High Heaton, Newcastle, United Kingdom.

### 18.00–18.30  **AGM**

<table>
<thead>
<tr>
<th>19.45</th>
<th>PRE-DINNER RECEPTION</th>
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<tr>
<td>20.30</td>
<td>GALA DINNER</td>
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</table>

### Saturday, 6 October 2018

#### IRISH CARDIAC SOCIETY SESSION 7

*Chairs:* Prof Brendan McAdam and Dr James Crowley  
*Location:* Ballyvaughan Suite

<table>
<thead>
<tr>
<th>09.30–10.30</th>
<th><strong>Cardiology Education &amp; Training Update:</strong> Irish Board for Training in Cardiovascular Medicine</th>
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</thead>
<tbody>
<tr>
<td>10.30–10.45</td>
<td><strong>Brian McGovern Fellowship Update:</strong> Dr Katie Walsh</td>
</tr>
<tr>
<td>10.45–11.15</td>
<td><strong>Exhibition / Coffee / Posters</strong></td>
</tr>
</tbody>
</table>

#### MODERATED POSTER SESSION 3

*Chair:* Prof Ken McDonald  
*Adjudicator:* Dr Yvonne Smyth  
*Location:* Lettermore Suite

<table>
<thead>
<tr>
<th>60. TRANSRADIAL ACCESS FOR COMPLEX CHRONIC TOTAL OCCLUSION – 6 YEAR STUDY DEMONSTRATES SIMILAR SUCCESS RATES TO TRANSFEMORAL ACCESS WITH DECREASED COMPLICATIONS</th>
</tr>
</thead>
</table>
| 1D Hughes, 2H Hafiz, 3B Traynor, 2D Foley, 2M Kennedy  
1Cardiology Department Galway University Hospital, Galway, Ireland  
2Dept of Cardiology Beaumont Hospital, Dublin, Ireland  
3Connolly Hospital Blanchardstown, Dublin, Ireland |

<table>
<thead>
<tr>
<th>61. CARDIAC SURGERY IN NORTHERN IRELAND: STILL EVOLVING AFTER 50 YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Graham, R Jeganathan, A Gregg Belfast Health and Social Care Trust, Belfast, Northern Ireland</td>
</tr>
</tbody>
</table>
62. OUTCOMES OF DELAYED STERNAL CLOSURE IN PAEDIATRIC PATIENTS UNDERWENT CARDIAC SURGERY IN OUR LADY’S CHILDREN’S HOSPITAL CRUMLIN
A Khan, G Kane, S Mohamed, M Elrih, M Yamin, D Vondrys, R Weedle, B Kis, E Abdelrahman, L Nolke, M Redmond, J McGuinness
Department of Paediatric Cardiac Surgery, Our Lady’s Children’s Hospital Crumlin, Dublin, Ireland

63. TRANSCATHETER AORTIC VALVE IMPLANTATION FOR AORTIC BIOPROSTHETIC FAILURE; A SINGLE CENTRE VALVE-IN-VALVE EXPERIENCE
P Brennan, R McMullan, R Jeganathan, N Johnston, C Owens, G Manoharan, M Spence
Department of Cardiology and Cardiothoracic Surgery, Royal Victoria Hospital Belfast, Belfast, Northern Ireland

64. WAITING TIMES FOR URGENT INPATIENT CARDIAC SURGERY: THE EFFECT OF SERVICE MODERNISATION
A Graham, A Cassidy, G Dunwoody
Belfast Health and Social Care Trust, Belfast, Northern Ireland

IRISH CARDIAC SOCIETY SESSION 8: INTERNATIONAL SESSION

Chair: Dr James Crowley
Location: Ballyvaughan Suite
11.15–12.45
Dr C Michael Valentine, American College of Cardiology
Prof Pepe Zamorano, European Society of Cardiology
Prof Nick Linker, British Cardiovascular Society

12.45–13.00 Closing Comments
Dr James Crowley, President, Irish Cardiac Society

ORAL ABSTRACT PRESENTATIONS 1

1. Pictorial evolution of focal myocardial fibrosis in Duchenne muscular dystrophy (DMD)
M Connolly, A Fallon, R O’Hanlon, D Waterhouse
Blackrock Private Clinic, Dublin, Ireland

Introduction: Interstitial myocardial fibrosis is best detected and quantified by cardiovascular magnetic resonance (CMR). It may be accurately detected by late gadolinium enhancement (LGE) and T1 relaxation mapping. Duchenne muscular dystrophy (DMD) is an X-linked recessive disease that occurs in males leading to cardiomyopathy and death in early adulthood. This report describes the use of CMR to detect early cardiac manifestations in DMD and to evaluate its progression over a five-year period in two young patients.

Methods: Yearly CMR was performed on two brothers (patient one aged 16 and patient two aged 14) from 2013 until 2017. All patients underwent LGE imaging for myocardial scar using a segmented Inversion recovery-technique 10 to 15 min after injection of 0.1 mmol/kg of gadolinium. Myocardial enhancement was assessed visually and interpreted by two cardiac CMR-trained physicians. T1 mapping techniques were used on the latest scan in November 2017.

Results: A short axis stack of LGE imaging from patient one is shown in figure 1 which demonstrates significant, confluent myocardial fibrosis in the anterolateral, lateral and inferolateral walls from base through to the distal LV segments. The total gadolinium volume was 15g (24% of the total myocardium), with a T1 mapping value of 1105ms (normal local mean 957ms), figure 2. Figure 3 highlights the evolution of DMD in these two patients from 2013 – 2017 which shows a gradual increase in LGE throughout the horizontal long axis (HLA) and short axis (SA) images of each patient. There has been a clear deterioration in appearances with the most striking images of LGE seen in November 2017. Figure 1: Short axis images of in November 2017. Figure 2: Total gadolinium volume (15g, 24%) and T1 mapping (1105ms) of patient two in November 2017. Figure 3: Progression of LGE. Columns 1-2 represent HLA and SA images from patient one from 2013 – 2017 with respective images of patient two in columns 3-4.
Conclusion: LGE is a sensitive parameter for the early diagnosis of cardiomyopathy in DMD and can be used to show progression of disease.

Abstract 1 Figure 1: Short axis images of Patient 1 in November 2017.

Abstract 1 Figure 2: Total gadolinium volume (15g, 24%) and T1 mapping (1105ms) of patient two in November 2017.

Abstract 1 Figure 3: Progression of LGE. Columns 1-2 represent HLA and SA images from patient one from 2013 – 2017 with respective images of patient two in columns 3-4.

Abstract 1 Figure 4: Short axis images of Patient 2 in November 2017.

Abstract 1 Figure 5: Total gadolinium volume (15g, 24%) and T1 mapping (1105ms) of patient two in November 2017.

2. Inferolateral T-wave inversion in athletes: a phenotype-genotype correlation

H Cronin, G Fahy, D Kerins, C Vaughan, D Crinion

1 Mercy University Hospital Cork, Ireland
2 Cork University Hospital, Cork, Ireland
3 Mater Misericordiae University Hospital, Dublin, Ireland

Introduction: Significant T-wave inversion in young asymptomatic athletes is rare, but poses a significant clinical challenge. Pre-participation sports screening programs often identify such subjects. The clinical suspicion that such ECG changes represent an occult cardiomyopathy leads to diagnostic and therapeutic dilemma. It has been suggested that such ECG changes may be due to mutations in genes encoding myofilament proteins and forme fruste hypertrophic cardiomyopathy. We sought to genotype a prospective cohort of such subjects with no discernible phenotype identified in our unit over a 3-year period.
Methods: Ten athletes were referred from external pre-participation screening. All exhibited prominent deep symmetrical T wave inversion in the inferolateral leads (Figure 1). All had negative family history for sudden death and had a normal phenotype based on 2D transthoracic echocardiography, Holter monitoring, stress testing and cardiac MRI. Next generation DNA sequencing was used to screen a panel of 133 cardiac-specific genes associated with cardiomyopathy and/or channelopathy. Results were confirmed by standard Sanger sequencing.

Results: All subjects were male with a mean age of 39 years (age range 18 – 54 years). 7 had no evidence of sequence variation in the genetic panel. 3 patients demonstrated variants of uncertain significance in 5 different cardiac genes (Table 1): alpha-2-actinin (ACTN2), myopalladin (MYPN), the calcium channel genes CACNA1C and TRPM4 and potassium channel gene KCNQ1. Both ACTN2 and MYPN genes code for structural proteins in the sarcomeric complex and other variants in these proteins have been described in hypertrophic and dilated cardiomyopathy cases. The 3 other variants found in ion channel genes have not been described in cardiomyopathies. At 3 year follow up, one patient had undergone detraining and his ECG interestingly showed complete resolution of all T wave changes. He did not have any demonstrated variants.

Conclusions: The substantial absence of mutations in cardiac myofilament genes and the heterogeneous sequence variations identified in this study suggest that inferolateral repolarization abnormalities in athletes without a phenotype do not represent HCM or a cardiomyopathy. Moreover, the absence of a family history and the benign clinical course of the subjects in this study also suggest that this is a benign athletic repolarization syndrome. This was the first study to assess a phenotype-genotype correlation in this population. Further genetic studies need to be undertaken in this area.

Abstract 2 Figure 1: T wave inversion in the inferolateral leads

Abstract 2 Table 1: Variants of Uncertain Significance

<table>
<thead>
<tr>
<th>Patient age</th>
<th>Mutation(s) identified</th>
<th>DNA</th>
<th>Protein</th>
<th>Consequence</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>ACTN2 c.1058G&gt;A p.(Arg353Gln)</td>
<td>Missense</td>
<td>VUS*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>MYPN c.2829T&gt;G p.(Ile943Met)</td>
<td>Missense</td>
<td>VUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>KCNQ1 c.1246G&gt;A p.Val416Met</td>
<td>Missense</td>
<td>VUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>CACNA1C c.2340G&gt;A p.(=)</td>
<td>Splice region, synonymous</td>
<td>VUS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>TRPM4 c.2953+5G&gt;C</td>
<td>Splice region, intron</td>
<td>VUS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Variant of uncertain significance

3. Baseline B-type natriuretic peptide is the strongest predictor of transition to stage C heart failure in an at-risk population; Results from the STOP-HF prevention programme

1,2S McCleland, 1S Zhou, 1E O’Connell, 1M Ledwidge, 2R Murphy, 3C Watson, 1L Healy, 1F Ryan 1,2J Gallagher, 1,2K McDonald

1 St Vincent’s Healthcare Group, Dublin, Ireland
2 School of Medicine, University College Dublin, Ireland
3 Centre for Experimental Medicine, Queen’s University Belfast, Northern Ireland

Background: Heart Failure (HF) is a global epidemic with multiple prevalent risk factors, resulting in a large at-risk population. Within this population, prevention programmes must be targeted to those at highest risk of HF development. However, the incidence of HF within a prevention service remains unknown, as does the phenotype of those at-risk patients most likely to develop HF.

Aim: This study aimed to determine the incidence of stage C HF in an asymptomatic population with risk factors (stage A) and/or
4. Characterisation of the structural and electrical impact of an atrial septal defect: CMR evaluation of the arrhythmia substrate

L O'Neill, S Williams, O Razeghi, J Whitaker, I Sim, R Mukherjee, S Niederer, M Wright, H Alam, A Frigiola, M O'Neill
King’s College London, United Kingdom

Introduction: Atrial septal defects (ASDs) are associated with atrial arrhythmias (AAs) however little is known about the arrhythmia substrate in these patients. Left atrial (LA) fibrosis, detected by cardiac MRI (CMR) is well described in patients with atrial fibrillation and structurally normal hearts but fibrosis has not been described in either atria in the ASD cohort.

Hypothesis: We hypothesised that right atrial (RA) fibrosis is present in patients with ASDs and that the right atrium is important for arrhythmogenesis in this cohort.

Aims: To evaluate the presence of bi-atrial fibrosis in patients with ASDs and to identify MRI parameters associated with the presence of atrial arrhythmias.

Methods: Patients with uncorrected ASDs underwent CMR imaging with dedicated atrial sequences on a 1.5T MRI scanner. MR angiography was performed 90 seconds after infusion of 0.2ml/kg Gadovist. 3D LGE imaging using a respiratory navigated, ECG triggered inversion recovery sequence was performed 20 minutes post contrast administration. The right and left atria were semi-automatically segmented using in house software. Fibrosis maps were generated from the LGE images using a maximum intensity projection technique. Fibrosis scores were generated by thresholding the maps using the image intensity ratio with a fibrosis cut off point of 0.97 times blood pool SI. Right and left atrial and ventricular dimensions were quantified from short and long axis cine imaging and aortic and pulmonary flows measured to calculate shunt fraction (Qp:Qs). Presence of atrial arrhythmias was documented for each patient.

Results: 14 patients were included (52 3.7 years, 10 female). Four patients had a history of atrial arrhythmia (2 atrial flutter, 1 atrial fibrillation, 1 atrial flutter and fibrillation). Mean Qp:Qs was 2.3:1. RA area was significantly greater than LA area (53.1 ± 7.5 vs 26.6 ± 6.8 cm², P = 0.012). RA fibrosis burden was significantly greater than LA fibrosis burden (69.7 ± 13.1% vs 52.7 ± 8.1%, p < 0.001). A positive correlation was noted between the degree...
of right and left atrial fibrosis but this did not reach statistical significance (R=0.511). Presence of AAs was associated with RA size (P=0.011) but not fibrosis burden. (Figure 1)

Conclusions: Right atrial fibrosis is present in ASD patients to a significantly greater degree than left atrial fibrosis. RA size is significantly greater in ASD patients with than without atrial arrhythmias. Further work is needed to fully define the arrhythmia substrate in terms of structural and electrical remodelling in these patients.

Abstract 4 Figure 1: Boxplots demonstrating differences in fibrosis burden and dimensions between RA and LA in ASD patients. C- Relationship between RA and presence of AAs.

Abstract 4 Figure 2: MRI analysis of right atrial fibrosis. A – 3D LGE images demonstrating areas of high SI (red arrows) in the RA wall. B – Fibrosis maps generated from LGE images above. Red star – Tricuspid annulus, green star – ASD. Red arrow indicating area of high SI in the anterolateral wall.

5. Characterisation of the structural and electrical impact of an atrial septal defect: patterns of atrial ectopy on continuous Holter monitoring

L O’Neill, S Williams, J Whitaker, I Sim, R Mukherjee, J Harrison, J Julia, C Sugihara, S Niederer, M Wright, A Frigiola and M O’Neill
Kings College London, United Kingdom

Background: Atrial fibrillation (AF) is common in atrial septal defect patients (ASD) but little is known about the triggers for these arrhythmias.

Hypothesis: Since right atrial dilatation is well described in ASD patients we hypothesised that atrial ectopy in ASD patients would be predominantly right-sided in origin.

Objective: (1). To determine the origin of ectopy recorded on continuous Holter monitoring in ASD patients compared to atrial fibrillation (AF) patients with structurally normal hearts. (2). To
identify echo and CMR parameters associated with ectopy in an ASD population.

Methods: The origin of atrial ectopic beats was determined by measuring P wave amplitude in three Holter leads and calculating the axis for each ectopic beat. Invasive validation was performed by calculating P wave axes as recorded on Holter monitoring during intracardiac pacing from multiple right and left atrial sites in patients with structurally normal hearts undergoing catheter ablation. Haemodynamic parameters from echo/MRI and invasive catherisation, when available, were recorded in the ASD patients and correlated with arrhythmia occurrence and atrial ectopic burden. (Figure 1)

Results: Analysis of Holter monitoring P wave vectors during intra-cardiac pacing across 35 sites demonstrated that a vector between 90° and 270° had a 90.5% sensitivity and 85.7% specificity for predicting an ectopic beat of left sided (vs right sided) origin. Therefore, ectopic P waves with a vector angle of 90-270° were considered left sided while those with an angle of 0-90° or 270-360° were considered right sided. 189 ectopic beats were analysed in 33 ASD patients (14 male, mean age 50.1±16.9 years). 149 ectopic beats were analysed in 37 control patients (21 male, mean age 61.6±10.5) (Table 1). Right sided ectopy accounted for 71.4% of all ectopic beats studied in the ASD population and was significantly more prevalent in the ASD population than in the control population (p=0.003). Qp:Qs was significantly associated with the presence of documented atrial arrhythmias in the ASD population (P=0.04). Overall ectopic burden over 24 hours correlated significantly with LA size by 2D echo (R=0.464, P=0.008).

Conclusion: Right sided ectopy is more prevalent in ASD patients compared to non-ACHD AF patients. This data suggests that arrhythmia triggers are more likely to be right sided in origin compared to NCHD AA patients This observation may have implications for arrhythmia intervention strategies in this cohort. Further investigation is required to determine the role of right-sided ablation as an adjunct to pulmonary vein isolation in ASD patients with AF.

Abstract 5 Figure 1: A: An example of a holter recording generated during right sided intra-cardiac pacing. B: An example of a holter recording generated during left sided intra cardiac pacing. C: Holter lead configuration. D: Diagram indicating the vectors identified from intracardiac pacing. E: Distribution of right and left sided ectopy across ASD and control populations.
**Abstract 5 Table 1:** Baseline demographics and measured parameters in ASD vs control population.

<table>
<thead>
<tr>
<th></th>
<th>ASD</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>50.1±16.9</td>
<td>61.6±10.5</td>
</tr>
<tr>
<td>Male (n)</td>
<td>14 (42%)</td>
<td>21 (57%)</td>
</tr>
<tr>
<td>PAC burden (n)</td>
<td>198.7±660.9</td>
<td>448.6±1100.7</td>
</tr>
<tr>
<td>History of AAs(n)</td>
<td>11(33.3%)</td>
<td>37(100%)</td>
</tr>
<tr>
<td>LA size (cm)</td>
<td>3.8±0.7</td>
<td>4.06±0.6</td>
</tr>
<tr>
<td>Dilated RA (n)</td>
<td>21(72.7%)</td>
<td>16(43.2%)</td>
</tr>
<tr>
<td>LVEF (%)</td>
<td>56.2±4.7</td>
<td>58.4±11.2</td>
</tr>
<tr>
<td>Dilated RV</td>
<td>20(60.6%)</td>
<td>3(8.1%)</td>
</tr>
<tr>
<td>Qp:Qs</td>
<td>2.4:1</td>
<td>N/A</td>
</tr>
<tr>
<td>PAP (mmHg)</td>
<td>31.5±8.6</td>
<td>28.7±6.5</td>
</tr>
</tbody>
</table>

**6. Correlation between incidental coronary calcification on non-gated CTs with findings at angiography**

*S Kelly, A McInerney, M Walsh, J Jefferies, D Kerins, C Vaughan
Mercy Hospital, Cork, Ireland*

**Introduction:** Coronary calcification is frequently reported on non-gated CT thoraces performed for various indications. It remains unclear what further investigations (if any) are warranted when this finding is reported. In our institution we perform diagnostic coronary angiograms on patients with significant coronary calcification on non-gated CT thorax. We decided to review the angiographic findings to determine the accuracy of detection of significant coronary artery disease on non-gated CT thorax.

**Methods:** All coronary angiograms performed for the incidental finding of coronary calcification on non-gated CT thorax between November 2017 and March 2018 were reviewed. Demographics, findings and patient management plans were obtained. Corresponding non-gated CT thorax reports were obtained, reviewed and correlated with angiographic findings.

**Results:** Eight patients had a coronary angiogram performed due to incidental coronary calcification on CT thorax (7) or CTPA (1). 50% were male. The average age was 64 years (range 50-77). Indications for CT thorax were COPD (4), interstitial lung disease (1), sarcoidosis (1), recurrent infections (1) and pulmonary embolism (1). Coronary calcification was reported as "heavy" in 5 patients and unspecified in 3. Seven reports identified multi-vessel disease. Four referred to the vessels most affected: LAD (4) and LMS (2). Many patients had known cardiovascular risk factors; hypertension 75%, hyperlipidaemia 75%, diabetes mellitus 25% and smoking history 50%. 87.5% were overweight. Coronary angiogram was performed via the radial artery in 6 cases and femoral artery in 2 cases. Seven (87.5%) patients were found to have coronary artery disease. Four had mild non-obstructive disease warranting medical management only. Three (37.5%) patients had significant coronary artery disease; two requiring PCI and one being medically managed. Both PCIs correlated were reported "heavily" calcified on CT thorax. No patient had a complication from their diagnostic coronary.

**Discussion:** Coronary artery calcification is often reported on non-gated CT thoraces. Although there is emerging evidence that incidentally detected coronary calcification can predict adverse cardiovascular outcomes in small single centre studies, it remains unclear what further investigations should be performed in this cohort. Our study demonstrates a high positive correlation between the findings on non-gated CT thoraces and the presence of atheroma on coronary angiogram, however, there is poor correlation with the severity of the atheroma with only 37.5% having disease warranting treatment. The risk: benefit ratio of subjecting all patients with incidental coronary calcification on non-gated CT thorax to invasive coronary angiography has yet to be defined.

**Conclusion:** While the identification of coronary calcification on non-gated chest CT has a low correlation with significant coronary artery disease in this study, the identification of coronary calcification by non-gated CT thorax may provide an opportunity for early intervention and risk factor modification.
7. Correlation of aortic valve annular plane assessment by pre-procedural computed tomography versus on-table 3-dimensional rotational angiography

*S Murphy, C Malone, R Tanner, G Blake, D Sugrue, R Byrne, C McGorrigan, D Barton, R Margey, I Casserly*
Mater Misericordiae University Hospital, Dublin Ireland

**Background:** Accurate assessment of the aortic valve annular plane (AVAP) is critical during transcatheter aortic valve Implantation (TAVI) procedures, particularly for placement of balloon-expandable TAVI valves. Pre-procedural computed tomography (CT) angiography has typically been used to determine the AVAP. However, this may differ from the in-lab AVAP determined during the TAVI procedure due to differences in patient position between the two assessments or compromised quality of the CT dataset. The aim of this study was to assess the correlation between the AVAP obtained by pre-procedural CT angiography with in-lab AVAP assessment using 3-dimensional rotational angiography (3DRA).

**Methods:** Using a prospective TAVI database, patients undergoing trans-femoral TAVI who had had both pre-procedural CT angiography and on-table 3DRA were identified. The AVAP assessment by CT angiography was performed using 3Mensio software (Pie Medical Imaging). 3DRA assessment was performed using DynaCT (Siemens). Correlation was reported according to the concordance correlation coefficient ($\rho_c$).

**Results:** From a total of 113 patients undergoing TAVI between June 2014 and August 2017 in the Mater Private Hospital, 100 patients were eligible for inclusion in the analysis. The mean AVAP as assessed by CT angiography was LAO $8.6^\circ \pm 10.5^\circ$ and caudal $1.8^\circ \pm 10.7^\circ$. The mean AVAP as assessed by 3DRA was LAO $9.9^\circ \pm 9.2^\circ$ and caudal $5.11^\circ \pm 8.7^\circ$ (Figure 1). The concordance correlation coefficients for the LAO/RAO and cranial/caudal planes of the AVAP were 0.52 (95% CI 0.38-0.66) and 0.56 (95% CI 0.43-0.68), respectively. The proportion of patients in whom there was a $\geq 5^\circ$ and $\geq 10^\circ$ discrepancy between the CT and 3DRA assessments of the AVAP for the LAO/RAO, the cranial/caudal, and both LAO/RAO and cranial/caudal planes is shown in Figure 2.

**Conclusions:** In this large consecutive patient series, correlation between pre-procedural CT and on-table 3DRA in the prediction of the AVAP was moderate. In approximately one-quarter of patients, there was a $\geq 10^\circ$ discrepancy in either the LAO/RAO or cranial/caudal plane, while in 10% of patients there was a $\geq 10^\circ$ discrepancy in both planes. These data support the value of an in-lab assessment of the AVAP to optimize clinical outcomes during TAVI procedures.

**Abstract 7 Figure 1:** Mean AVAP as assessed by CT angiography
Abstract 8 Table 1: Aortic Atheroma by severity at time of TOE / DCCV

<table>
<thead>
<tr>
<th>Severity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade I</td>
<td>50%</td>
</tr>
<tr>
<td>Grade II</td>
<td>32%</td>
</tr>
<tr>
<td>Grade III</td>
<td>18%</td>
</tr>
</tbody>
</table>

8. Aortic Assessment at time of TOE / DCCV – an overlooked component of the CHA\textsubscript{2}DS\textsubscript{2}-VASc score

D O’Hare, K McDonald, M Quinn, D Kelly, S Mubarak, D Cadogan, L Murphy, M Omar
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Introduction: Transoesophageal echocardiography (TOE) is the modality of choice for diagnosing aortic atheroma. This is characterized by irregular intimal thickening of at least 2mm, and has been shown to be associated with an increased risk of ischaemic stroke. Based on the association between aortic atheroma and ischaemic stroke, the 2016 European Society of Cardiology guidelines allocate of a CHA\textsubscript{2}DS\textsubscript{2}-VASc score of one for patients with documented evidence of aortic atheroma. During TOE guided direct current cardioversion (DCCV) for atrial fibrillation or atrial flutter, the primary goal is to assess for intra-cardiac thrombus, primarily in the left atrial appendage. Additional assessment of the aorta during this procedure provides valuable information in a patient group that require accurate assessment of their long-term stroke risk.

Methods: This single centre retrospective analysis assessed all TOE guided cardioversions performed in a tertiary referral centre between 1st January 2017 and 31st December 2017. Images from the procedures were assessed by a Consultant cardiologist who was blinded from the patient’s clinical information. The degree of Aortic atheroma was assessed according to the five-point Katz grading criteria. A score of 2 or more on the Katz grading system was used to determine clinically significant atheroma.

Results: A total of 97 TOE guided cardioversions were performed during the 15 month period. Full clinical information was available 90 patients. 28 studies (31%) had adequate visualisation of the aorta to allow atherosclerotic severity to be graded. 41 of 90 patients were low risk patients, with a CHA\textsubscript{2}DS\textsubscript{2}-VASc score of 0 or 1 (45%). The average CHA\textsubscript{2}DS\textsubscript{2}-VASc score of all patients was 1.8 (± 1.6) prior to assessment of the aorta. 14 of 28 patients (50%) had aortic atheroma grade 2 or more (Figure 1), the likelihood finding atheroma and the severity increased with age (Figure 2). When aortic atheroma was assessed, the average CHA\textsubscript{2}DS\textsubscript{2}-VASc score increased to 2.25 (± 1.8). Recalculation of the patient’s CHA\textsubscript{2}DS\textsubscript{2}-VASc score with this additional information increased the score in 11 of 14 cases.

Conclusions: Assessment of aortic atheroma at time of TOE guided cardioversion provides important information that can enable a more accurate assessment of a patient’s long-term stroke risk. It is present in a significant proportion of patients undergoing TOE guided cardioversion and therefore should be routinely assessed and documented. We have shown that aortic atheroma can be present in low risk patients, and this can transition the patient from a low to medium risk group requiring long term anticoagulation.
9. Imaging in hereditary haemochromatosis: establishing a local guideline for cardiac and hepatic surveillance

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Introduction: Hereditary haemochromatosis (HH) is an autosomal recessive condition, most commonly caused by HFE gene mutations. The prevalence of HH in Ireland is 1 in 83 per head of population. Untreated HH may lead to cirrhosis, hepatocellular carcinoma (HCC), diabetes and non-dilated cardiomyopathy. Hepatic and myocardial iron deposition can be reproducibly quantified using T2* MRI. Echocardiography can identify early pathophysiology due to iron overload. Iron overload cardiomyopathy can be effectively managed with conventional heart failure treatment along with venesection or iron chelation.

Aim: There are no definitive guidelines in HH for the frequency of liver or cardiac imaging to assess for complications of iron overload. Our aim was to assess our patient cohort in order to establish a local guideline for interval surveillance.

Methods: Data were collated for those attending for venesection at Connolly Hospital. Our laboratory system was used to attain genotype, ferritin at diagnosis and liver function tests. NIMIS was used to determine if patients had undergone liver or cardiac imaging. Chi-squared analyses were employed to evaluate a correlation between ferritin at diagnosis and evidence of hepatic or cardiac dysfunction.

Results: 279 patients were included, 80 female and 199 male with a median age of 52 years. 264 ferritin results were recorded. 155 patients had ferritin levels over 500 at diagnosis and 109 less than 500. Of the ferritin <500 group, 70 underwent liver imaging, 32 having normal and 38 having abnormal results. In the ferritin >500 cohort, 105 underwent liver imaging, with 34 normal and 71 abnormal results. Ferritin >500 at diagnosis is not indicative of end stage liver dysfunction (p=0.08). Ferritin >500 at diagnosis is associated with abnormal liver imaging, most commonly hepatosteatosis. Four patients had radiological signs consistent with cirrhosis (p=ns). No patients were diagnosed with HCC. 42 patients had undergone echocardiography. 19 had structural abnormalities, while 23 had normal studies. Left ventricular diastolic dysfunction was reported in 17 of the 19 abnormal studies. Ferritin >500 showed a statistically insignificant correlation with cardiac structural abnormality (p=ns), likely due to low patient numbers with imaging. Males were more likely to undergo echocardiography.

Conclusion: Ferritin level >500 at diagnosis is not associated with an increased risk for liver dysfunction and, therefore, interval for liver screening may be decreased to 18-monthly, yielding cost savings. Although numbers are small, there appears to be a correlation between high ferritin levels and cardiac structural abnormality. Therefore, we recommend that all patients undergo echocardiography at diagnosis and every 1-2 years thereafter. Patients who demonstrate abnormalities on echocardiography should be referred to specialist cardiac services and undergo cardiac MRI with T2* imaging.

10. Heart failure first diagnosed in the community and managed in a disease management programme (DMP) is at low risk of progression to hospitalisation

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2 St Vincent’s Healthcare Group, Dublin Ireland

Introduction: The progression of a community diagnosis of heart failure portends a poor clinical prognosis, highlighting the need to consider advanced heart failure therapies or palliative care. Defining
11. Tiger versus Judkins diagnostic catheters in trans-radial coronary angiography

*D Cadogan, D O’Hare, L Murphy, S Mubarak, C McCrery*

St Vincent’s University Hospital, Dublin, Ireland

**Aims:** To retrospectively compare performance outcomes and cost with use of Tiger versus Judkins diagnostic catheters in trans-radial diagnostic coronary angiography.

**Methods:** The hospital’s electronic database was used to review diagnostic coronary angiograms performed by four cardiology registrars, each acting as first operator under consultant supervision. Fifty-four days were reviewed between 16/10/17 and 23/4/18. First-choice catheter(s) used were reviewed and performance outcomes assessed were 1) need for additional catheters 2) total Dose Area Product (DAP) 3) total fluoroscopy time 4) contrast volume used 5) duration of catheterisation 6) radial spasm/complications 7) cost. Duration of catheterisation was defined from injection of radial cocktail to recorded case ending/TR band application. Cost was assessed based on net cost of each catheter used. Procedures involving graft studies, fractional-flow reserve, ad-hoc PCI, ventriculography and femoral access were excluded.

**Results:** 373 cases were performed during the study days, of which 217 were eligible for inclusion. 140 were male, 77 female. Mean age was 64.6 years (±12.5). Tiger catheter was first-choice catheter in 135 cases (62.2%), Judkins catheters in 82 cases (37.8%). First-catheter choice size was 5Fr. in 205 cases (94.4%). 52 cases (38.5%) in the Tiger group required use of additional catheters. 37 of these required use a single Judkins catheter for case completion and 2 cases required use of non-Judkins catheters. 14 cases (17.1%) in the Judkins cohort required use of additional catheters. 9 of these required a third Judkins catheter for case completion and 4 cases required use of non-Judkins catheters. Mean requirement for additional catheter(s) was lower in the Judkins group (1.26 vs 1.58, p<0.005). Total DAP, fluoroscopy time, contrast volume used and duration of catheterisation were similar between the two groups (Judkins vs Tiger; 2635.9 cGycm² vs 2704.9cGycm² (p=0.77), 229seconds (±181) vs 229seconds (±171) (p=0.96), 63ml vs 67ml (p= 0.13), 12.9mins (±5.7) vs 12.6mins (±6.9) (p=0.68). Radial spasm was documented in three cases only and was likely underreported. No other complications were encountered. Total average cost of all...
catheters used was less in the Judkins group (€101.1 vs €112.54 (p=0.024)).

**Conclusions:** Use of Judkins catheters as first choice catheter among cardiology trainees resulted in less requirement for additional catheters and showed significant cost benefit when compared to Tiger catheters. The remaining performance outcomes assessed showed similarity between the two groups. This similarity contradicts recent studies which have shown favour towards Tiger catheters in terms of radiation exposure, contrast volume required and procedure duration.

**GENERAL POSTER SESSION 1**

12. A single centre experience of STEMI in the elderly population (>80 years)

_I Yearoo, S Teehan, B Hennessey, N Fitzpatrick, A Brennan, L Brandon, B Kerr, M Alshammari, P Srinivas, C Daly, P Crean, J Cosgrave, R Murphy_

St James’s Hospital, Dublin, Ireland

**Introduction:** The elderly population (aged 80 years or older) with acute coronary syndrome is a heterogeneous group with variable frailty and differences in physiological ageing, comorbidity and functional status. Treatment of elderly patients is challenging because they are more likely than younger patients to have atypical symptoms.

**Methods:** We undertook a review of the elderly population that were diagnosed as an inpatient with a ST elevation MI (STEMI). We collected data from October 2016 to October 2017. We examined how many over 80’s patients had invasive angiography and looked at key performance indicators such as ECG to door time (DDT) and ECG to reperfusion time (RT) and the inpatient mortality rate. Our aim was to see if these patients are less likely to receive invasive treatment within the ESC recommendations and if they are at a higher risk for adverse events.

**Results:** In the 1 year review of our database, there were 480 patients referred as a code STEMI to our cardiology service or diagnosed as an inpatient. The average age was 61.2 years (median 60, range 18-94 years), 18% (88) female. This included 34 patients aged 80 years and older, average age 85 (range 80-94). 19 (56%) were male with an average age of 84.6 years (median 84, range 80-93). The average female age was 85.6 years (median 85, range 80-94). The average DDT was 100 minutes (range 25-455, 47% were over 90 minutes). In our Emergency Department, the average door to ECG time was 10 minutes (range 8-13). Baseline comorbidities in this cohort included diabetes 22%, Current or ex-smokers were 36%, dyslipidaemia 38% and known hypertension in 38%. STEMI was the confirmed diagnosis in all 34 patients who underwent invasive coronary angiography and the preferred route was the right radial artery in 91% of cases (31 patients). The average Reperfusion time (RT) was 133 minutes (range 45-335, 60% over 120 minutes). Nine patients did not survive to discharge, a mortality rate 26% versus 3% in the under 80’s. Four patients (12%) arrested and died during primary PCI having been in cardiogenic shock on arrival to the Cath lab. These patients were evaluated with a mean follow-up of 11 months (range 5-15 months) and we report an all cause 26% all-cause mortality rate. We used hospital and general practice records and the national mortality data.

**Conclusion:** Time-to-admission and reperfusion time for ST-segment elevation myocardial infarction in the elderly (>80 years) are still prolonged. Resources should be directed to early recognition of the acute myocardial infarction, improved utilization of emergency services for transportation, and prehospital diagnosis and triaging. Ambulances equipped with wireless capability to transmit electrocardiograms to the on-call cardiologist have achieved earlier diagnosis and triaging with high diagnostic sensitivity and specificity. It is important to identify STEMI in this high-risk group early to achieve higher rates of reperfusion times within 120 minutes.
13. In-hospital stemi mortality: repatriation can lead to invalid conclusions

Conclusions: At our PPCI centre overall STEMI in hospital mortality rates are increased by a cohort of patients who are more clinically unstable than the majority of STEMI patients. Crude comparison of in-hospital mortality rates can be misleading, particularly with an active repatriation STEMI program.

Abstract 13 Figure 1: A comparison of clinical characteristics between the MMUH catchment group

Abstract 13 Figure 2: In hospital mortality
14. Underutilisation of thrombolysis in the National ACS programme; the St James’s experience

I Yearoo, S Teehan, B Hennessey, N Fitzpatrick, A Brennan, L Brandon, B Kerr, M Alshammari, P Srinivas, C Daly, P Crean, J Cosgrave, R Murphy
St James’s Hospital, Dublin, Ireland

Optimal reperfusion in STEMI is the key goal of the National ACS programme. The aims of the programme are a diagnosis to door time (DDT) of <90 minutes and a reperfusion time (RT) of <120 minutes, with a goal of Primary PCI (PPCI) as the method of reperfusion in over 80% of STEMI patients. Thrombolysis is an important reperfusion strategy where primary PCI cannot be offered to STEMI patients within recommended timelines. The aim of this study was to examine the number of patients outside the recommended time goals being referred to St James’s from other hospitals and hence to estimate the potential patient cohort that should be considered for thrombolysis prior to transfer to the Primary PCI centre. We used the Code STEMI database collected prospectively and HIPE data to identify our patient cohort.

From October 2016 to October 2017, 480 patients in total were identified as diagnosed with a STEMI or transferred to St James as part of the National ACS programme. Looking at all-comers; 176 (37%) were transferred from another hospital, 273 (57%) from the field, 31 (6%) from our ED and hospital. The average DDT of the patients from outside hospitals was 130 minutes (median 110, range 25-645), 64% were outside the 90 minutes DDT. The average RT was 150 minutes (median 130, range 37-665), 60% of the patients were outside the recommended 120 minutes for RT. Only 7 patients (4%) were thrombolysed prior to transfer. There are inevitable delays when arranging transfer of Code STEMI patients from an outside hospital to the primary PCI centre. It is expected that a proportion of patients will have to undergo thrombolysis as the initial reperfusion strategy. The data we collected in the largest PPCI centre in the country highlights that thrombolysis is being under-utilised and needs to be considered in all inter-hospital STEMI transfers.

15. Non-ischaemic cardiomyopathy and cardiac resynchronization therapy– revisiting the ‘at risk’ patient profile

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Background: Non-ischaemic cardiomyopathy has been associated with better left ventricular (LV) remodeling and outcomes post-cardiac resynchronization therapy (CRT) but has separately been linked to poorer outcomes when associated with mid-wall fibrosis (MWF) on cardiac magnetic resonance. Therefore, we aimed to confirm the impact of MWF in patients with non-ischaemic cardiomyopathy and CRT.

Methods: We retrospectively evaluated data from 110 consecutive patients with a diagnosis of non-ischaemic cardiomyopathy and CRT implants. Non-eligible patients were excluded (eg. ischaemic, amyloid or sarcoid cardiomyopathy, missing data). Patients with or without mid wall fibrosis (MWF+, n=57 vs MWF-, n=53), were compared and evaluated for long-term outcomes of all-cause mortality or hospitalizations for ventricular arrhythmia or heart failure over the follow-up duration.

Results: Mean age of patient cohort was 67 ± 14 years with total follow-up duration of 900 ± 692 days. Between the groups, no significant difference in baseline demographics was observed in terms of age, gender, comorbidities (hypertension/ diabetes), medication profiles, electrocardiographic measures (intrinsic rhythm and QRS duration), and LV ejection fraction. However, MWF+ demonstrated higher LV end-diastolic volume and LV end-systolic volume compared to MWF- (271 ± 81 vs. 232 ± 85ml; 193 ± 79 vs 160 ± 79 ml, respectively, all p<0.05). Despite that, there were no significant between-group differences in all-cause mortality or hospitalizations for ventricular arrhythmia or heart failure over the follow-up duration.

Conclusion: This retrospective study showed that MWF+ was associated with higher LV end-diastolic volumes and end-systolic volumes compared to MWF-. However, no significant impact was observed in MWF+ on long-term cardiac outcomes in patients with
non-ischaemic cardiomyopathy and CRT. Further evaluation in larger studies is warranted.

**Abstract 15** Figure 1. Kaplan-Meier demonstrating no significant difference in all cause mortality between patients with non-ischaemic cardiomyopathy and cardiac resynchronization therapy implants with or without mid wall fibrosis (MWF+ vs MWF-) over follow-up.

16. Prognostic value of high-sensitivity cardiac troponin T in patients with ST-segment-elevation myocardial infarction

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^2 Department of Cardiology, University Hospital Limerick, Limerick, Ireland
^3 Department of Mathematics and Statistics, University of Limerick, Limerick, Ireland

**Background:** The clinical significance of high-sensitivity cardiac troponin T (hs-cTnT) following acute ST-segment-elevation myocardial infarction (STEMI) has not been well established. The aim of this study was to determine the prognostic value of hs-cTnT in the prediction of one-year mortality and repeat revascularisation in STEMI patients.

**Methods:** Single center retrospective observational study of patients presenting with STEMI in 2016. Demographic, angiographic, and peak hs-cTnT data were obtained. The relationship between peak hs-cTnT and all-cause mortality and repeat revascularisation was examined.

**Results:** 208 patients were included. Mean age was 63.56 years (±12.56), and 73% were males. 78 (37.5%) patients had inferior STEMI and 76 (36.5%) patients had anterior STEMI. 193 (92.8%) patients received primary percutaneous coronary intervention. Median peak hs-cTnT was 2908 ng/L (IQR: 1095, 5485) (<14 ng/L), measured at a median of 1 day from admission; median creatinine of 75 μmol/L (IQR: 68, 95). 18 (8.7%) patients died, and 35 (16.8%) had repeat revascularisation within one year. No significant relationship between peak hs-cTnT and one-year mortality (p=0.150) (Figure 1) or repeat revascularisation (p=0.204) (Figure 2) was found.

**Conclusion:** Peak hs-cTnT measurements did not predict all-cause mortality or repeat revascularisation. The significance of performing routine peak hs-cTnT measurements in STEMI patients should be investigated further in larger studies.

**Abstract 16** Figure 1: 1Year Mortality
17. 24-Hour-ABPM review on vasoactive therapy in HFrEF

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While conferring morbidity and mortality benefit, potential exists for significant day time or night time hypotension culminating in organ hypoperfusion. The advent of sacubitril/valsartan (S/V) may potentiate the risk, impacting on diurnal BP pattern which has not to our knowledge been assessed. We previously analysed 24-hour ABPM pattern in this population on maximum tolerated disease modifying therapies. A debate is generated as to whether the benefits of vasoactive therapy may be mitigated by pronounced hypoperfusion compromising coronary or cerebral blood flow.

Methods: From the ABPM readings at the Heartbeat Trust, this ongoing study is assessing the difference between the clinic systolic BP and mean daytime systolic BP, and the fraction of the monitored time spent below the critical cut off readings of 100, 90 mmHg systolic and 70, 60 mmHg diastolic.

Results: To date, 22 patients (average age 71) have been analysed with a predominant ischaemic aetiology (68%). The mean clinic SBP is 22 mmHg and 24 mmHg higher than mean daytime SBP and average 24 hr SBP respectively. 75% patients were on maximal tolerated S/V in addition to standard therapy with the remaining on maximal tolerated ACEi, B blocker and mineralocorticoid receptor antagonist. The percentage time spent below vital blood pressure thresholds was as follows; SBP<100 = 24%, DBP< 70=63%, SBP<90=6%, DBP<60=32%. This ongoing study shows two initially interesting observations. Firstly, a sizeable proportion of this population spend a significant time duration under key BP cut offs. Also, there is a substantial difference between the clinic SBP and daytime SBP, potentially underscoring the need to be careful when increasing therapy strength in borderline acceptable readings. Further work is needed to determine if documented hypotension has meaningful clinically impact.

18. Rotational atherectomy in the modern cardiac catheterisation laboratory patient demographics, procedural characteristics and clinical outcomes

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Cardiology Department, University Hospital Limerick, Ireland

Aim: The objective of this study was to define the patient demographics, periprocedural characteristics and mid to long term outcomes associated with rotational atherectomy in modern clinical practice in Ireland.

Methods: We performed a retrospective analysis of all patients who underwent rotational atherectomy in two Irish centres. Data on all patients was collected from the electronic patient records system. Baseline characteristics were collected for all patients. This included demographic and procedural characteristics. Demographic characteristics included age, co-morbidities, medications and presentation. Long term follow up was obtained at 3 and 12 months to assess clinical response. NYHA functional class and CCS angina scores were evaluated at 3 months and 12 months post procedure. 66 cases were identified over the study period and a database of patients was produced.

Results: 66% of patients were male. Mean age was 72 ± 8.12 years (Range 54-86 years). 90.6% of our patients were hypertensive, 32.3% were diabetic. 28.33% had CKD and 96.88% had hypercholesterolaemia. 44% were current smokers,
19. Ablation of isolated ventricular arrhythmias from the left ventricular apex in patients without ischemic heart disease

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Introduction: The left ventricular apex (LVA) is an uncommon isolated source of ventricular arrhythmias (VA), in patients without coronary artery disease (CAD). We aimed to characterize the incidence, clinical and ECG features of this type of VA in a tertiary referral ablation center.

Methods: We retrospectively reviewed the medical records of ablation cases from 1999 to 2016 at our center. We identified VA cases and then identified those with isolated VA from LVA in the absence of CAD. We recorded patient demographics, clinical and characteristic ECG features for each of these cases.

Results: 2779 VA ablations were performed between 1999 and 2016. 20 (0.7%) of these were performed for isolated LVA VA in the absence of CAD. 3 distinct groups with isolated LVA VA were identified: idiopathic (ID), dilated cardiomyopathy (DCM) and hypertrophic cardiomyopathy (HCM). Isolated LV VA accounted for 9/19 (47%) of HCM, 4/566 (0.7%) of DCM and 7/1371 (0.5%) of ID VA ablations. The patient demographics, clinical and characteristic ECG morphology for each of these cases are summarized in table 1. An example of the VA morphology with LV voltage map and cardiac MRI in an ID case are shown in figure 1.

Conclusions: The LVA in the absence of CAD is a rare source of VA. LVA VA has a characteristic ECG morphology, that facilitates localization. The presence of associated LV apical aneurysm is common in those with HCM and DCM. An epicardial origin may be present, with patchy, isolated, apical epicardial scar rarely identified.
Abstract 19 Figure 1: Characteristic VT morphology. Cardiac MRI shows epicardial layered scar which correlates with the corresponding bipolar and unipolar voltages maps in this patient with idiopathic LVA VA.

Abstract 19 Table 1. Clinical, ECG and electrophysiological characteristics of LVA VA

<table>
<thead>
<tr>
<th></th>
<th>HCM</th>
<th>DCM</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>9/19 (47%)</td>
<td>4/666 (0.7%)</td>
<td>7/1371 (0.5%)</td>
</tr>
<tr>
<td>Age (years); median (IQR)</td>
<td>64 (58-71)</td>
<td>51 (26-65)</td>
<td>50 (47-58)</td>
</tr>
<tr>
<td>Gender (males)</td>
<td>6</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>LVEF; median (IQR)</td>
<td>42.5 (26-56)</td>
<td>22 (15-34)</td>
<td>60 (56-62)</td>
</tr>
<tr>
<td>VA PVC (n,%)</td>
<td>1, 11%</td>
<td>2, 50%</td>
<td>3, 43%</td>
</tr>
<tr>
<td>VT (n,%)</td>
<td>8, 89%</td>
<td>2, 50%</td>
<td>4, 57%</td>
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<tr>
<td>VT CL (ms)</td>
<td>486</td>
<td>280</td>
<td>355</td>
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<tr>
<td>Right Superior Axis (n,%)</td>
<td>8, 89%</td>
<td>4, 100%</td>
<td>7, 100%</td>
</tr>
<tr>
<td>S II/III &gt; 1</td>
<td>9, 100%</td>
<td>4, 100%</td>
<td>7, 100%</td>
</tr>
<tr>
<td>aVR +ve</td>
<td>9, 100%</td>
<td>4, 100%</td>
<td>7, 100%</td>
</tr>
</tbody>
</table>

20. The role of SCN5A mutations in hypertrophic cardiomyopathy

*H Cronin, D Kerins, G Fahy, C Vaughan

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2 Cork University Hospital, Cork, Ireland

Introduction: The SCN5A gene encodes the α-subunit of the voltage gated sodium channel (NaV1.5), responsible for regulating inward sodium current. Mutations in the SCN5A gene cause cardiac ion channelopathies with diverse phenotypes including long QT syndrome, Brugada syndrome, familial atrial fibrillation, progressive cardiac conduction disorders and sudden infant death syndrome. SCN5A mutations also cause dilated cardiomyopathy (DCM), arrhythmogenic right ventricular cardiomyopathy (ARVC) and atrial cardiomyopathy causing atrial standstill. To date, no study has confirmed SCN5A mutations as causative in hypertrophic cardiomyopathy (HCM).

Clinical Investigation/ Methods: A family of four individuals with complex hypertrophic and restrictive cardiomyopathy phenotypes was subjected to genetic screening. Each individual had an ECG, echo, Holter monitor and cardiac MRI performed in advance of the genetic testing. Three individuals (mother, father and son) met diagnostic criteria for HCM. A maternal aunt had restrictive cardiomyopathy. Peripheral blood lymphocytes were used for genomic DNA extraction by standard methods. Samples were analyzed using the Blueprint Genetics Pan Cardiomyopathy Panel
Sequence Analysis encompassing 133 genes. A proprietary method was used for targeted sequencing performed using an Illumina sequencing device.

**Results:** The father demonstrated a mutation in the SCN5A gene c.2614G>A, p.(Asp872Asn). His son demonstrated the same mutation. The mother demonstrated a troponin mutation TNNI3 c.422G>A, p.(Arg141Gln). Her sister demonstrated two pathogenic variants, the same troponin mutation as well as a mutation in the sulfonylurea receptor 2 (SUR2) gene ABCC9 c.4103-3C>T, a subunit of ATP-sensitive potassium channels. Figure 1 demonstrates the family pedigree. Troponin I mutations are well documented to cause HCM and restrictive cardiomyopathy however mutations in SCN5A have not yet been confirmed to cause HCM. The mutation demonstrated in the sodium channel-coding gene SCN5A resulted in a heterogeneous missense variant with a substitution of a negatively charged aspartic acid with an uncharged asparagine residue. Mutations in surrounding codons have been reported in association with Brugada syndrome, supporting the functional importance of this region of the protein. The mutation was classified as a variant of uncertain significance by the sequencing database because it has not been observed previously in sufficient numbers.

**Discussion:** There is considerable overlap between the clinical presentations associated with SCN5A mutations. This has given rise to the term ‘cardiac sodium channel overlap syndrome’, resulting from the variability of the biophysical defects caused by sodium channel mutations. There is also considerable overlap between various forms of cardiomyopathy caused by the same gene mutations. Reduced penetrance and modifier effects of other genes are postulated to account for this. This report is the first to examine whether an SCN5A mutation is potentially causative in cases of familial hypertrophic cardiomyopathy. The absence of mutations in a comprehensive array of genes encoding myofilament proteins may suggest a wider range of influence of the sodium channel than currently recognised and raises the possibility that mutations in SCN5A may now cause HCM too. Further work needs to be done to confirm this observation.

**Abstract 20 Figure 1:** Family Pedigree:

21. **Evaluation of the rapid access chest pain service**

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**Introduction:** Rapid access chest pain clinics (RACPC) provide an important service for the timely assessment of patients with recent onset chest pain of possible cardiac origin. As current guidelines on stable chest pain shift towards the use of non invasive imaging, we sought to critically evaluate our contemporary RACPC as part of plans to develop and improve our service.

**Methods:** We conducted a retrospective review of patients attending the RACPC in University Hospital Galway from 1st January 2016 to the 31st December 2016. Data including
baseline demographics, cardiovascular risk factors, subsequent investigations and patient outcomes were collated from patient medical records. European Society Guidelines (ESC) pre test probability scoring system was applied.

**Results:** 640 patients presented to RACPC over the 1 year study period. 56% (n=358) were male with an average age of 55 years. In terms of risk factor profile; 18% (n=118) were current smokers, 64% (n=412) had a family history of CAD, 5% (n=29) were known diabetics, 35% (n=226) had hypertension and 48% (n=305) had dyslipidaemia. Table 1 shows pre test probability calculated by ESC scoring system.

**Abstract 21 Table 1:** Pre-test probability scoring by ESC

<table>
<thead>
<tr>
<th>ESC pre-test Probability Score</th>
<th>No. Patients (22 unsuitable for score)</th>
</tr>
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<tbody>
<tr>
<td>&lt;15%</td>
<td>80</td>
</tr>
<tr>
<td>15–65%</td>
<td>420</td>
</tr>
<tr>
<td>66–85%</td>
<td>102</td>
</tr>
<tr>
<td>&gt;85%</td>
<td>16</td>
</tr>
</tbody>
</table>

**Abstract 21 Figure 2:** Summary of patients investigations. CTCA – CT coronary angiogram.

Figure 2 above illustrates the investigations conducted in the RACPC. From the total group, 5% (n=31) of patients were referred directly for angiography; 6% (n=41) had other investigations for non chest pain symptoms. The remaining 89% (n=568) underwent exercise treadmill testing (ETT). A total of 389 patients had an ETT and 98% of these were discharged. 116 patients had a positive ETT and 99% of these had a further investigation. 91% of this group (n=106) had invasive angiography and 8% (n=9) had CT angiography. 63 patients had an inconclusive ETT. Ultimately, only 38 patients (22% of all angiograms) had evidence of significant
heart disease which required further intervention. All CTCAs performed showed normal coronaries/non-obstructive disease.

Interestingly, in the group with a pre test probability of <15%, 95% (n=76) of patients underwent exercise treadmill test as an initial investigation. Of these, 92% (n=70) were negative. Of the 8% (n=6) that had a positive stress, 1 patient had significant CAD. Ultimately, 99% of this group had a negative test.

**Conclusion**: The chest pain clinic provides a useful pathway for evaluation of low risk chest pain. Most patients were evaluated and discharged to their GP avoiding the need for outpatient or ED review. Exercise treadmill testing remains a useful test to help stratify patients according to risk of CAD however a significant number of patients continue to require invasive angiography. Selective referral of patients with abnormal ETTs for CT angiography may help to reduce this number significantly. In this study group, use of the ESC pretest probability score would potentially reduce the need for any investigation in up to 12% of patients.

### Abstract 22 Table 1. Patient characteristics according treatment group

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (n = 238)</th>
<th>Colchicine (n = 121)</th>
<th>Placebo (n = 117)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years, median (IQR)</td>
<td>61 (52-70)</td>
<td>61 (52-69)</td>
<td>61 (53-70)</td>
</tr>
<tr>
<td>Male</td>
<td>182</td>
<td>90</td>
<td>92</td>
</tr>
<tr>
<td>Diabetes</td>
<td>53</td>
<td>27</td>
<td>26</td>
</tr>
<tr>
<td>Hypertension</td>
<td>112</td>
<td>64</td>
<td>48</td>
</tr>
<tr>
<td>Prior or current smoking</td>
<td>144</td>
<td>75</td>
<td>69</td>
</tr>
<tr>
<td>ST-elevation myocardial infarction</td>
<td>134</td>
<td>64</td>
<td>70</td>
</tr>
<tr>
<td>Previous myocardial infarction</td>
<td>36</td>
<td>18</td>
<td>18</td>
</tr>
<tr>
<td>Prior myocardial revascularization</td>
<td>27</td>
<td>13</td>
<td>14</td>
</tr>
</tbody>
</table>
### Abstract 22 Table 2. Adverse events, tolerability, acceptability of study procedures and concomitant medications at follow up.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Total (n = 238)</th>
<th>Colchicine group (n=113)</th>
<th>Placebo group (n=117)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary angiogram during index admission</td>
<td>237</td>
<td>120</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>PCI during index admission</td>
<td>213</td>
<td>107</td>
<td>106</td>
<td></td>
</tr>
<tr>
<td>Aspirin</td>
<td>237</td>
<td>120</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>Second anti-platelet agent</td>
<td>233</td>
<td>117</td>
<td>116</td>
<td></td>
</tr>
<tr>
<td>Beta blocker</td>
<td>220</td>
<td>113</td>
<td>107</td>
<td></td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>224</td>
<td>116</td>
<td>108</td>
<td></td>
</tr>
<tr>
<td>Statin</td>
<td>234</td>
<td>117</td>
<td>117</td>
<td></td>
</tr>
<tr>
<td>Body mass index, median (IQR)</td>
<td>28 (26-30)</td>
<td>28 (25-30)</td>
<td>27 (26-30)</td>
<td></td>
</tr>
<tr>
<td>Baseline haemoglobin, g/L</td>
<td>140 (131-151)</td>
<td>140 (133-151)</td>
<td>141 (128-151)</td>
<td></td>
</tr>
<tr>
<td>Baseline white cell count,</td>
<td>9.0 (7.4-10.7)</td>
<td>8.9 (7.4-10.9)</td>
<td>9.2 (7.4-10.6)</td>
<td></td>
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<tr>
<td>Baseline neutrophil count</td>
<td>6.0 (4.7-7.7)</td>
<td>5.7 (4.7-7.6)</td>
<td>6.1 (4.8-7.8)</td>
<td></td>
</tr>
<tr>
<td>Baseline lymphocyte count</td>
<td>1.9 (1.5-2.4)</td>
<td>1.8 (1.5-2.4)</td>
<td>1.9 (1.5-2.3)</td>
<td></td>
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<tr>
<td>Baseline creatinine</td>
<td>76 (68-86)</td>
<td>75 (68-88)</td>
<td>77 (69-84)</td>
<td></td>
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<tr>
<td>Baseline estimated GFR</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline creatine kinase</td>
<td>249 (112-832)</td>
<td>208 (108-590)</td>
<td>325 (116-920)</td>
<td></td>
</tr>
<tr>
<td>Baseline high sensitivity CRP</td>
<td>7.4 (3.0-16.9)</td>
<td>7.5 (3.1-15.6)</td>
<td>7.3 (3.0-18.8)</td>
<td></td>
</tr>
</tbody>
</table>

- Any adverse event: 17 (Colchicine) vs. 21 (Placebo), P-value = 0.51
- Re-admission to hospital: 3 (Colchicine) vs. 12 (Placebo), P-value = 0.02
- Adverse event not requiring hospitalisation: 15 (Colchicine) vs. 9 (Placebo), P-value = 0.09
- Gastrointestinal: 12 (Colchicine) vs. 6 (Placebo), P-value = 0.37
- Other: 3 (Colchicine) vs. 3 (Placebo), P-value = 1.00
- Discontinued treatment: 5 (Colchicine) vs. 3 (Placebo), P-value = 0.64
- Took ≥25 days of study treatment: 104 (Colchicine) vs. 103 (Placebo), P-value = 0.93
- Morisky Medication Adherence score
- Willing to continue with study medication
- Other medications being taken at follow up: 112 (Colchicine) vs. 109 (Placebo)

- Aspirin: 112 (99%) (Colchicine) vs. 109 (100%) (Placebo), P-value = 0.92
- Second anti-platelet agent: 108 (96%) (Colchicine) vs. 108 (99%) (Placebo), P-value = 0.43
- Statin: 109 (96%) (Colchicine) vs. 107 (98%) (Placebo), P-value = 0.46
- Beta-blocker: 107 (95%) (Colchicine) vs. 107 (98%) (Placebo), P-value = 0.45
- ACE inhibitor or ARB: 106 (94%) (Colchicine) vs. 104 (95%) (Placebo), P-value = 0.56
23. **A single centre experience of vascular access complications of transcatheter aortic valve replacement procedures**

*B Hennessey, I Yearoo, R Murphy, S Teehan, N Connolly, S O’Connor, B Kerr, N Fitzpatrick, L Brandon, M Ali, B Foley, A Brennan, P Crean, A Maree*

St James’s Hospital, Dublin, Ireland

**Introduction:** The rates of transcatheter aortic valve implantation (TAVI) in comparison to surgical aortic valve replacement have steadily increased in the last ten years for treatment of severe symptomatic aortic stenosis in high-risk surgical candidates who would have otherwise been managed conservatively. Methods of vascular access management have also changed.

**Aim:** The aim of our study was to assess the vascular access routes, closure device methods, individual failure rates of each device and the need for vascular surgical intervention for TAVI cases at our single centre in the Republic of Ireland.

**Methods:** A retrospective data collection was conducted of elective TAVI procedures performed from December 2008 to February 2018 at a single centre in Dublin. All patients had severe symptomatic aortic stenosis as per international guidelines and were deemed unsuitable for surgical aortic valve replacement by the local heart team. The angiographic, echocardiographic, laboratory and radiographic data as well as access route, closure device type and mode of failure were recorded in a database.

**Results:** A total of 129 patients (mean age 81.4 ± 5.96 years of age, 51% female) had a TAVI implantation at our centre between December 2008 and February 2018. In 120 (93.02%) cases, the right femoral artery was the access site for the valve delivery sheath. In 117 (90.69%) of the total cases, the access was percutaneous. Four patients (3.10%) required vascular cut down, 6 cases (4.65%) required mini thoracotomy and 3 patients (2.32%) required mini sternotomy. Twenty -two patients (18.80%) experienced closure device failure, of which 18 patients (81.81%) had a leak, one patient (4.45%) had a dissection, one patient (4.45%) had an occlusion and two patients (9.09%) had a perforation. Of those twenty -two patients who had a closure device failure, 10 patients (45.45%) were treated successfully with pressure haemostasis and 4 cases (18.81%) were treated successful with balloon inflation. Seven patients (31.81%) required vascular surgery and one patient (4.45%) was treated by an interventional radiologist. In 111 of the cases, the closure device was recorded. 26 Proglide devices, 9 Vivasure devices and 76 Prostar devices were used. The Vivasure devices had a 55.55% failure rate. Five of the Proglide devices failed (19.23%) and 11 (of the Prostar devices failed (14.47%). Of the 7 people requiring urgent vascular surgery, 5 had a failed Prostar device, one had a Vivasure device and in the last case the closure device was not documented.

**Conclusion:** The majority of our cases were performed via the right Femoral artery with percutaneous access. While vascular closure device failures remain a clinically important complication of TAVI procedures, the need for surgical repair is low.

24. **Anti-microbial envelopes are associated with very low device infection rate for cardiac implantable electronic devices**

*M Murphy, J Galvin, P Ryan, E Keelan, N Mahon, J O’Neill, J Keaney*

Mater Misericordiae University Hospital, Dublin, Ireland

**Background:** Device Infection is a recognised complication of cardiac implantable electronic device (CIED) insertion. Reported incidence of CIED infection vary widely, and range from 1.0% for pacemakers to up 9.5% for cardiac resynchronisation defibrillators (CRT-d). The risk of infection is 2-4-fold higher for CIED replacement. CIED infection is associated with significant patient morbidity and mortality rate of up to 27% at 2 years. Recently an antibacterial pouch (Tyrx TM, Medtronic) has been developed. This absorbable pouch elutes rifampicin and minocycline from a monofilament polypropylene mesh. Use of the TYRX pouch has been associated with reduced CIED infection. Real-world data on the efficacy of the envelope remains limited.

**Methods:** We performed an retrospective review of the CIED infection rate for all devices implanted with a Tyrx TM pouch from September 2015 to October 2017 in our institution. Patient or procedural factors known to increase the risk of infection were documented in each case.

**Results:** 63 patients had CIEDs implanted along with a Tyrx TM pouch during the period under review. 14 (22%) were
female. The average age at implant was 64 years ± 13. Five patients had chronic kidney disease (eGFR< 30mls min⁻¹), and 1 had a prior kidney transplant. 20 (32%) of the patients were diabetic. 2 patients were on chronic steroid therapy and 3 were on other immunosuppressants. 20 patients (32%) were on oral anticoagulants. Only 5 cases were de-novo device implants and the remaining 58 were device generator changes, pocket revisions or upgrades. 12 cases involved CRT-ds. 50 were for insertion or replacement of an ICD, 35 of which were dual-chamber devices. The mean length of follow-up was 367 ± 225 days. There were no CIED pocket infections on follow-up. No CIED pocket re-explorations were required. 2 patients received short-courses of antibiotics for suspected suture-site infections. One patient on warfarin received prophylactic antibiotics for a site-hematoma; the patient remained afebrile with a CRP <1.

**Conclusion:** Our study included many patients with factors associated with increased infection rate. Over a mean follow-up period of > 1 year, no patients with a CIED implanted along with a TyrxTM antibacterial pouch had CIED pocket infection. Though the numbers under review were small, our results compare very favourably with previously published rates of CIED infection, and lend further support to the use of antibacterial pouches to reduce the risk of device infection.

## 25. Managing cardiovascular disease (CVD) risk factors in stroke and TIA patients as part of an integrated community based preventive cardiology programme

1M Gorecka, 2,3I Gibson, 4G Flaherty, 1T Walsh, 1M O’Donnell, 3,5J Jones, 6Susan Connolly, 1,2J Crowley

1 University Hospital Galway, Galway, Ireland
2 Croi, West of Ireland Cardiac Foundation, Galway, Ireland
3 National Institute for Preventive Cardiology, Galway, Ireland
4 National University of Ireland, Galway, Ireland
5 Brunel University of London, London, United Kingdom
6 Imperial College Healthcare, NHS Trust, United Kingdom

**Introduction:** Stroke is the leading cause of long-term morbidity in the developed world. Despite advances in medical care the absolute number of strokes is likely to increase in the coming decades as a result of ageing population. Furthermore, up to 25% of strokes occur in patients who previously suffered a stroke or a transient ischaemic attack (TIA). Effective stroke prevention strategies are therefore crucial. Whilst the evidence for stroke rehabilitation is well established, the evidence for structured secondary prevention programmes that address the risk factors for stroke (smoking, poor diet, sedentary behaviour, blood pressure, dyslipidaemia) is less well so. Here, we describe the results of a community-based preventive cardiology programme on a stroke/TIA population.

**Methods:** Patients who had either a stroke or a TIA were invited to attend a community-based 16-week preventive cardiology programme delivered by a multi-disciplinary team (nurse, dietician, and physiotherapist) which included a weekly education and supervised exercise session. The foundation of the programme was healthy lifestyle change, but also the management of risk factors through the prescription of appropriate cardioprotective medication. An assessment was undertaken at baseline, end of programme (EOP) and 1 year follow up (FU) (Table 1).

**Results:** Between 2009 and 2016 a total of 227 patients were invited to the programme and 224 agreed to participate (response rate 98.7%). Referrals were received from the community and from hospitals. The majority were males (67.8%) with a mean age 65.1±10.6 years. 73.4% attended EOP assessment and 64.7% attended 1 year follow up. Table 1 summarises changes in lifestyle and medical risk factors between initial assessment and EOP and between IA and 1 year FU. By the end of the programme there was evidence of significant improvement in lifestyle, medical risk factors and psychosocial outcomes. The majority of these were maintained at one year.

**Conclusions:** These data show that a nurse-led, community-based multidisciplinary preventive cardiology programme can provide effective secondary prevention for a stroke/TIA population. The improvements in both lifestyle and medical risk factors will also reduce their risk of a future cardiovascular event in the longer term.
Exenatide (Exe) is a glucagon-like peptide-1 (GLP-1) analog, it can not only regulate blood glucose, but protect the myocardium by reducing inflammation, oxidative stress and cell apoptosis. Since adriamycin-induced cardiac injury is currently thought to be mainly caused by inflammation, oxidative stress and cell apoptosis, we hypothesized that prophylactic treatment with exenatide may alleviate adriamycin-induced cardiac injury.

**Methods:** In vitro experiments, we divided H9C2 cells into control group, adriamycin group and exenatide intervention group. After starvation of H9C2 cells for 24 h, the adriamycin group was given adriamycin (10 μM) for 24 h, and the exenatide intervention group was pretreated with exenatide (30 nM) half an hour before adriamycin administration. After treatment, CCK-8 and Annexin V/PI staining were used to detect H9C2 cells activity and apoptosis. In vivo experiments, we randomly assigned 18 C57BL/6J mice to control group, adriamycin group and exenatide intervention group (n=6 each). Adriamycin group was intraperitoneally injected with adriamycin (2 mg/kg), exenatide intervention group was given subcutaneous injection of exenatide (5 μg/kg) 1 h before adriamycin injection, and the control group was given only equal volume of Normal saline. After treatment, echocardiography was performed to evaluate exenatide-induced changes in cardiac performance on the 20th day after beginning ADR administration, and the levels of LDH, CK-MB, SOD and MDA in plasma were observed. The mRNA expression of TNF-α, IL-6, Bcl-2 and Bax in myocardial tissue were detected by RT-PCR. The protein expression levels of NF-κB and P53 in myocardial tissue were detected by Western Blot.

**Results:** In vitro, compared with the control group, the H9C2 cells activity in the adriamycin group was significantly decreased (P<0.001). In addition, the number of Annexin V+/PI— and Annexin V+/PI+ cells increased from 16.7% (control group) to 73.1% after adriamycin administration. After treatment, CCK-8 and Annexin V/PI staining were used to detect H9C2 cells activity and apoptosis. In vivo experiments, we randomly assigned 18 C57BL/6J mice to control group, adriamycin group and exenatide intervention group (n=6 each). Adriamycin group was intraperitoneally injected with adriamycin (2 mg/kg), exenatide intervention group was given subcutaneous injection of exenatide (5 μg/kg) 1 h before adriamycin injection, and the control group was given only equal volume of Normal saline. After treatment, echocardiography was performed to evaluate exenatide-induced changes in cardiac performance on the 20th day after beginning ADR administration, and the levels of LDH, CK-MB, SOD and MDA in plasma were observed. The mRNA expression of TNF-α, IL-6, Bcl-2 and Bax in myocardial tissue were detected by RT-PCR. The protein expression levels of NF-κB and P53 in myocardial tissue were detected by Western Blot.

**ORAL ABSTRACT PRESENTATIONS 2**

26. Exenatide alleviate adriamycin-induced cardiac injury

*F Juntao, W Lijuan, Z Xiaoman, L Shangyu, L Hui, L Tiewei, L Ping*

Peking Union Medical College, State Key Laboratory of Cardiovascular Disease, Fu Wai Hospital, National Center for Cardiovascular Disease, China

**Introduction:** Adriamycin (ADR) is an effective antitumor drug, which is limited due to its lethal cardiac injury in clinical application.
Results: 238 patients underwent mitral valve surgery for severe degenerative MR, of whom 99% (n=235) were successfully repaired. A concomitant procedure was performed in 70% (n=166) of cases. Systolic anterior motion was noted on the immediate post-repair trans-oesophageal echocardiogram in 0.8% (n=2) of cases, necessitating re-establishment of cardiopulmonary bypass and re-repair. 100% (n=238) of patients had no MR, trivial MR, or MR of 1+ on their post-operative echocardiography. The in-hospital mortality was 0.4% (n=1) in this population. The mortality occurred in an 85-year-old female patient due to CVA day 5 post-op.

Conclusion: Severe degenerative mitral regurgitation may be repaired with good outcomes for the vast majority of the population with the disease, when repair is performed in a specialist centre.

27. Seven-year review of mitral valve repair rates and early outcomes for degenerative mitral disease

L Casey, A Hayes, J McCarthy
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Introduction and Aims: Degenerative disease remains the most common underlying pathology of primary mitral regurgitation (MR) in our region. Guidelines for management of the condition advise that, when surgical management is indicated, mitral valve repair should be the first line approach. A seven-year review was conducted of mitral valve repair for degenerative MR performed by a single surgeon. We aim to determine repair rates and early results.

Methods: The operative notes, discharge summaries and echo findings of all patients who underwent elective or scheduled mitral valve surgery from January 2011 until April 2018 were reviewed. Cases of degenerative disease were reviewed to compare actual versus predicted repair rates.

Results: 238 patients underwent mitral valve surgery for severe degenerative MR, of whom 99% (n=235) were successfully repaired. A concomitant procedure was performed in 70% (n=166) of cases. Systolic anterior motion was noted on the immediate post-repair trans-oesophageal echocardiogram in 0.8% (n=2) of cases, necessitating re-establishment of cardiopulmonary bypass and re-repair. 100% (n=238) of patients had no MR, trivial MR, or MR of 1+ on their post-operative echocardiography. The in-hospital mortality was 0.4% (n=1) in this population. The mortality occurred in an 85-year-old female patient due to CVA day 5 post op.

Conclusion: Severe degenerative mitral regurgitation may be repaired with good outcomes for the vast majority of the population with the disease, when repair is performed in a specialist centre.

28. Bioresorbable vascular scaffolds – a tale of two-hundred and fifteen scaffolds from a single centre review

A McNerney, E McFadden
Cork University Hospital, Cork, Ireland

Introduction: Bioresorbable vascular scaffolds (BVS) held great promise of overcoming the shortfalls of metallic stents. Significant concerns regarding device thrombosis has quelled this enthusiasm. Some observers have linked this complication to implantation technique. In our institution, bioresorbable vascular scaffolds were predominantly deployed by a single operator in a uniform manner. We reviewed patients who received bioresorbable vascular scaffolds to ascertain our complication rate.

Methods: A retrospective review of the case notes of all patients receiving BVS in Cork University Hospital since the date of first to last stent use (October 2013 to March 2017). Demographic, procedural and follow up data was collated.

Results: Between October 2013 and March 2017, 249 BVS were deployed in 154 patients giving an average of 1.6 scaffolds per patient. Follow up data was available on 215 scaffolds (86.4%) deployed in 127 patients (average 1.7 scaffolds per patient, range 1-5). One-hundred (79%) were male. The average age was 58 years (±10). The indication was STEMI 50 patients (39.5%), NSTEMI 37 patients (29%), unstable angina 24 patients (18.9%),
stable angina or silent ischaemia 16 patients (12.6%). A single operator was responsible for >99% of procedures. Access was via the radial artery for 104 (48%) of the scaffolds deployed and femoral for the remaining 111 (52%) scaffolds. Of the 215 scaffolds, 107 were to the LAD, 38 to the left circumflex, 64 to the right coronary artery, one to a ramus intermedius, one to a diagonal, 2 to an obtuse marginal, and 2 to vein grafts. All lesions were predilated prior to deployment of the BVS. The median scaffold diameter used was 3.5 mm. Half of all scaffolds were deployed with imaging guidance: 85 with OCT and 22 with IVUS. Ninety-six percent were post dilated. The median post dilation pressure was 20 atmospheres.

Two patients were found to have inadequate aposition of stent struts despite high post dilation inflation pressures on OCT and both had deployment of metallic drug eluting stents inside the BVS at the index procedure. One patient had a dissection into the LMS and also received metallic DES. All patients received dual antiplatelets.

The average duration of follow up was 587 days (range 1-1448). One in-hospital death occurred. No evidence of stent thrombosis was found at post mortem. Two (1.5%) patients had unplanned target lesion revascularisation (TLR). One had an acute stent thrombosis 4 days after his initial stenting procedure requiring primary balloon angioplasty. This occurred in the context of non-compliance with dual antiplatelets. The second had angina and severe in stent restenosis requiring deployment of metallic drug eluting stents. These subsequently also became stenosed ultimately requiring coronary artery bypass grafting. One patient had a repeat coronary angiogram at 18 months and was found to have a focal aneurysmal segment inside the BVS and was prescribed prolonged antiplatelet therapy.

**Discussion:** Despite initial promise the increased rates of stent thrombosis found in several studies has raised concern such that the use of bioresorbable scaffolds has gone into rapid decline. Rates of up to 2.1% at 6 month follow up have been reported. In our study, one patient experienced a stent thrombosis at 4 days post index procedure representing a rate of 0.78% over an average of 19 months of follow up. This occurred in the context of non-compliance with antiplatelet therapy. A high rate of pre and post dilation as well as high rates of intravascular imaging guided deployment and optimisation may explain our low rates of stent thrombosis.

**Conclusion:** Further study is required to ascertain the cause of increased stent thrombosis with the use of bioresorbable scaffolds.

Our study suggests that meticulous pre and post dilation with the use of intravascular imaging may decrease the risk of this complication.

**29. The impact of Teicoplanin in prevention of implantable cardiac electrical devices infection. A single centre quality improvement audit**

RB Pharithi, P Flynn, L Murphy, M Hensey, D O'Hare, S Mubarak, F Rathore, M Omar, S Morad, D Cadogan, M Quinn, C McCreery, J Erwin

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**Background:** Infection of implantable cardiac electrical devices (ICEDs) is associated with increased morbidity and mortality. The rates are higher with devices’ replacement than with primary device implantation.

**Aims and objectives:** The aim of this project was to identify the rates of ICEDs and develop and implement strategies to reduce ICEDs infection in our centre in compliance with best practice.

**Methods:** This is a complete audit cycle completed in a cardiac tertiary centre to assess the impact of change from cefuroxime 1.5g to Teicoplanin 10mg/kg as our prophylactic antibiotic for device implantation. A total of 314 patients were involved. The first part of audit from 28/04/2016 to 07/3/2017 and re-auditing was from 1/8/2017 to 31/3/2018. The main devices reviewed were primary Cardiac Re-synchronization therapy devices (CRTs), primary implantable cardiac defibrillators/ permanent pacemakers (ICD/PPM), and All CRTs, PPM, and ICD generators changes. We also reviewed Implantable loop recorders for best practice even though no prophylactic anti-biotics were required for their implantation.

**Results:**

(a) First part of the audit.

208 devices were implanted during this period. There were 9 (4.4%) infected ICEDs and had to be explanted. Only 4 of 9 (44.4%) had positive blood cultures. Figure 1 summarises the most likely risk factors.
(b) Intervention

Pre-procedure antibiotics, cefuroxime 1.5mg given less than an hour prior to device implantation was changed to Teicoplanin 10mg/kg rounded to the nearest 200mg.

(c) Re-audit

108 devices were implanted. The rate of ICED infections had decreased from 4.4% to 0% (p=<0.05) by 31st March 2018. Figures 2a and 2b compare all the ICED implanted during the audit cycle. Figure 3 illustrates the results post prophylactic anti-biotic change.

Discussion and conclusion: Continuous audit for quality improvement is beneficial, important and should always be encouraged. Teicoplanin is better than Cefuroxime as a prophylactic antibiotic in prevention of cardiac implantable electrical devices.

Abstract 29 Figure 1: Contributing risk factors in infected devices

Abstract 29 Figure 2a: Implanted Cardiac Devices in both audit terms

Abstract 29 Figure 2b: Percentage comparison of device implantation during each audit term
30. Early effect of continuous positive airway pressure therapy on left atrial mechanics in patients with obstructive sleep apnoea: assessment by conventional and two-dimensional speckle-tracking echocardiography

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Medical Directorate and RCDH Research at Education Institute
St James’s Hospital, Dublin, Ireland

Abstract Objective: Inspiratory efforts against an occluded airway lead to a swift drop in intrathoracic pressure with a subsequent increase in afterload leading to increased left atrial (LA) stiffness and impaired compliance over time. Therefore the object of the study was to evaluate LA ejection force (LAEF), LA contractile peak strain and basic diastolic left ventricular parameters in patients with obstructive sleep apnoea (OSA) before and after continuous positive airway pressure therapy (CPAP), using two-dimensional speckle-tracking Echocardiography and conventional Echocardiography.

Methods: Newly diagnosed patients with OSA were selected. Eleven patients with a respiratory disturbance index (RDI) greater than 10 were enrolled to receive CPAP therapy with follow-up assessment after 12 weeks. Echocardiography including deformation imaging was performed at baseline and after 12 weeks of CPAP therapy. LAEF was calculated by the formula by Manning et al, LAEF = 0.5 × 1.06 × MOA × (peakA velocity)²

Results: LA peak contractile strain and left atrial ejection force reduced over the 12 weeks (p<.05) and (p< 0.001) respectively. Left ventricular filling pressure (E/E') also reduced (p<.05) along with an increase in the surrogate for early diastolic untwisting tissue velocity (Ea.) (p <.05).

Conclusions: LA mechanics can improve as early as 12 weeks into CPAP as assessed by conventional Echocardiography and deformation imaging.

31. Assessing the long-term cost-effectiveness of natriuretic peptide-based screening and collaborative care in at risk population: analysis from the STOP-HF (St Vincent's screening to prevent heart failure) study

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2London School of Economics - Department of Health Policy, London, United Kingdom

Background: Cardiovascular disease (CVD) and heart failure (HF) are associated with significant morbidity, mortality and costs in the developed world. Ischemic heart disease is the leading cause of death in the USA and combined with HF is predicted to cost >$320 billion per annum by 2030. Whilst there is evidence to suggest that secondary preventative strategies are cost effective, there is little research addressing primary cardiovascular prevention strategies in at risk populations. The St Vincent’s Screening To Prevent Heart Failure (STOP-HF) study was the first study to demonstrate
the benefits of screening and collaborative primary and secondary care of an at risk population using naturetic peptide. A detailed cost effectiveness analysis using the timeframe of the study and direct costs from the perspective of the healthcare provider has shown that the intervention is cost effective. However, the long-term outcomes and associated costs have not been modeled in a large population. The purpose of this study is to establish the costs, benefits and cost-effectiveness of implementing a STOP-HF program in a large population over a 20 year timeframe.

**Methods and Results:** A Markov state-transition model was used to extrapolate results beyond the follow-up period of the STOP-HF trial to a horizon of 20 years from the Irish health service perspective. The model included four states, which provided for progression from an “At risk” status to progressively worsening stages of heart failure. Figure 1. Transition probabilities were derived from the STOP-HF trial, a comprehensive meta-analysis and Irish life tables. Costs were calculated using a micro costing approach. A sensitivity analysis was performed using a second order probabilistic sensitivity analysis based on 1000 iterations using distributions appropriate to the variable, log-normal distributions for the ORs, and gamma distributions for the costs. Table 1. In our model, the age of enrolment was 60 years old, with a 20 year life span simulation. Preliminary results suggest that for every 1000 patients enrolled in STOP HF, approximately 418 life years (±6.8 years 95%CI) are gained over a 20 year period. Enrolling 1000 patients in STOP HF and following that population over 20 years results in a cost saving of $2.4 million (± 0.22 million 95%CI). 91.1% of trials in the probabilistic sensitivity analysis supported this finding suggesting a high level of certainty in this interpretation. Table 2. Figure 2.

**Conclusion:** These findings suggest that the STOP-HF program is both cost saving and life prolonging. The majority of the savings are from maintaining patients in better health states by predicting those who would benefit most from collaborative care; enrolling them in the program; protecting them from developing Stage B heart failure or hospitalization and preventing increased morbidity and mortality.
Abstract 31 Table 1: Transition probabilities and costs

<table>
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<th>Range</th>
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<tr>
<td>Transition probability from A to D</td>
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<tr>
<td>Transition probability from B to B</td>
<td>0.921</td>
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<tr>
<td>Transition probability from B to C</td>
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</tr>
<tr>
<td>Transition probability from B to D</td>
<td>0.023</td>
</tr>
<tr>
<td>Transition probability from C to C</td>
<td>0.87</td>
</tr>
<tr>
<td>Transition probability from C to D</td>
<td>0.13</td>
</tr>
<tr>
<td>Direct medical costs associated with state A</td>
<td>$1740</td>
</tr>
<tr>
<td>Direct medical costs associated with state B</td>
<td>$3500</td>
</tr>
<tr>
<td>Direct medical costs associated with state C</td>
<td>$12000</td>
</tr>
<tr>
<td>STOP HF Intervention Cost</td>
<td>$250</td>
</tr>
<tr>
<td>Treatment effect (RR)</td>
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</tr>
<tr>
<td>Treatment effect (RR)</td>
<td>0.69</td>
</tr>
<tr>
<td>Annual discount rate - costs</td>
<td>0.03</td>
</tr>
<tr>
<td>Annual discount rate - benefits</td>
<td>0.03</td>
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Abstract 31 Table 2: Cost effectiveness Results

<table>
<thead>
<tr>
<th>Cost Effectiveness Results</th>
<th>Control</th>
<th>STOP-HF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average LYs</td>
<td>11361</td>
<td>11779</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>37825171</td>
<td>35642235</td>
</tr>
<tr>
<td>STD</td>
<td>465</td>
<td>484</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>13472688</td>
<td>11823618</td>
</tr>
<tr>
<td>Confidence</td>
<td>29</td>
<td>30</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>835030</td>
<td>732822</td>
</tr>
<tr>
<td>Upper Bound</td>
<td>11390</td>
<td>11809</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>38660201</td>
<td>36375057</td>
</tr>
<tr>
<td>Lower Bound</td>
<td>11332</td>
<td>11749</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>36990140</td>
<td>34909413</td>
</tr>
<tr>
<td>Difference LYG IncCost ($)</td>
<td>418</td>
<td>-2182936</td>
</tr>
<tr>
<td>ICER</td>
<td>-4947</td>
<td>-5487</td>
</tr>
<tr>
<td>STD</td>
<td>112</td>
<td>3622673</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>324531</td>
<td>540</td>
</tr>
<tr>
<td>Confidence</td>
<td>6.8</td>
<td>4407</td>
</tr>
<tr>
<td>Upper Bound</td>
<td>425</td>
<td>-1958405</td>
</tr>
<tr>
<td>Cost ($)</td>
<td>-2407468</td>
<td>-5487</td>
</tr>
</tbody>
</table>

32. False alarms: Code STEMI activation’s by STEMI mimics – a primary PCI Centre experience

D Hughes, G Madders, M Gorecka, J Crowley
University Hospital Galway, Galway, Ireland

Introduction: ST Elevation has a high sensitivity but a relatively low sensitivity of diagnosing an acute myocardial infarction (MI). STEMI (ST Elevation Myocardial Infarction) mimics are cases that have ST segment elevation on a 12 lead ECG but where occlusive coronary artery disease is out ruled as the cause of presentation. International literature suggests that these cases represent approximately 7-14% of all code STEMI activation’s.
These represent an important cohort as they cause a significant workload for a primary PCI centre and expose patients to the risk of an invasive procedure.

Methods: We conducted a retrospective review of all consecutive CODE STEMI activation’s in our institution from 1st January 2016 to 31st December 2017. A STEMI mimic is defined as an activation of the STEMI pathway with ST segment elevation on a 12 lead ECG without angiographic evidence of occlusive coronary artery disease, or an acute MI being ruled out on clinical or biochemical grounds. We collected demographics on the patients and divided the cohorts by the location of the activation. Patients who were assessed by a physician prior to activation of the pathway were designated hospital activation (HA) and patients assessed by ambulance personal were designated field activation (FA).

Results: During the 2 year period of our study we had 586 activation’s of the code STEMI pathway. 451 (77%) patients had a final diagnosis of a STEMI, of the remaining 135 there were 21 acute coronary syndrome patients, 2 aborted STEMI’s and 29 NSTEMI’s. Therefore there were 83 STEMI mimics cases representing 10.5% of all activation’s. Table 1 details the demographics and results of the study. The vast majority, 89%, of the mimic group underwent an angiogram. The subsets were very similar in terms of percentage of men, 74% for the STEMI group versus 75% for the mimic group and the number of field activations, 46% in the STEMI group versus 40% for the mimic group. The only significant difference between the cohorts was that the mimic group were younger with a mean age of 58 versus a mean age of 66 in the STEMI group. Image 1 details the final diagnosis for each mimic case. The most common diagnosis was of non-cardiac pain (53%), followed by pericarditis (24%), arrhythmia (10%), myocarditis (7%) and takotsubo cardiomyopathy (6%).

Conclusions: False activation of the code STEMI pathway is a significant concern due to the exposure of unnecessary risk of the procedure to the patient and also the resource implications. The only significant difference between the cohorts was that the STEMI mimics patients were younger. There was no difference statistical between field activation and hospital activation, which may reflect that in our institution all ECG’s are reviewed by a cardiology registrar prior to activation of the code STEMI pathway. During our study our false activation’s accounted for 10% of all cases, which correlates well with international standards, however it highlights an area for further educational work with ambulance paramedics, general practitioners and emergency department staff.

Abstract 32 Figure 1: Breakdown of Final Diagnosis of STEMI Mimic’s

Abstract 32 Table 1: Demographics and Results of STEMI vs MIMIC Cases

<table>
<thead>
<tr>
<th>Patients</th>
<th>STEMI No. (%)</th>
<th>MIMIC No. (%)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>371 (74)</td>
<td>62 (75)</td>
<td>0.86</td>
</tr>
<tr>
<td>Age (mean, yrs)</td>
<td>66</td>
<td>58</td>
<td>0.019</td>
</tr>
<tr>
<td>Field Activation</td>
<td>233 (46)</td>
<td>40 (48)</td>
<td>0.75</td>
</tr>
<tr>
<td>HA</td>
<td>270 (54)</td>
<td>43 (52)</td>
<td>0.75</td>
</tr>
<tr>
<td>Angiogram</td>
<td>74 (89)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Regular Hrs</td>
<td>257 (51)</td>
<td>47 (57)</td>
<td>0.35</td>
</tr>
</tbody>
</table>
33. Assessing the impact of a novel community based education programme on the self management of hypertension

I Gibson, M Rabbitte, Darrat, Houlihan, Hearn, Flaherty, Sharif

Croi, West of Ireland Cardiac Foundation & National Institute for Preventive Cardiology, Galway, Ireland
School of Medicine, NUI Galway, Galway, Ireland
Health Service Executive, Ireland
National Institute for Preventive Cardiology (NIPC), Galway, Ireland
National University of Ireland, Galway, Ireland

Background: Hypertension is a leading modifiable risk factor for cardiovascular disease and is estimated to be responsible for at least 45% of ischaemic heart disease mortality and 51% of stroke mortality globally. Irish studies indicate a prevalence of 64% of hypertension amongst adults over 50 years with accompanying low levels of patient knowledge, and sub-optimal clinical management.

Purpose: This study was designed to explore the impact of a structured hypertension educational intervention on patient knowledge, lifestyle behaviours and blood pressure (BP) control.

Methods: Participants were recruited through community-based screening events; and those with hypertension were randomly assigned to control and intervention groups. At baseline, both groups received standard care which included; completing a knowledge questionnaire, BP assessment supported by lifestyle advice and referral to General Practice in accordance with ESC best practice guidelines. The intervention group received an additional educational intervention delivered by a multidisciplinary team. Educational topics included understanding and taking control of BP, the effects of exercise and diet on BP, smoking cessation, stress management, and medication updates and adherence. Both groups were followed up at 4 months.

Results: 200 individuals were recruited to the study with 118 meeting the eligibility criteria and being randomised to the intervention (n=59) and control group (n=59). Significant improvements (p< 0.001) were found in the intervention group compared with the control group across all 9 knowledge questions. Greater improvements were noted in the intervention group across a number of lifestyle variables. Mean exercise levels increased from 30 minutes/day to 45 minutes/day (p<0.002), mean weight reduced from 77.0kgs to 70.6kgs (p<0.003), and a significant number of intervention participants reduced their salt intake in comparison to control participants. Participants who received the intervention showed a greater reduction in both systolic (SBP) and diastolic (DBP) blood pressure (SBP 158.8mmHg to 141.6mmHg, p<0.0001 and DBP 84.7mmHg to 77.7mmHg, p<0.001).

Conclusion: Providing tailored education to individuals with hypertension can positively impact patient knowledge, engagement and self-care management thus leading to improved BP control. Given that elevated BP is a leading risk factor for disease burden globally, it is imperative that new models of care are developed to improve hypertension management in the community.

34. High intake of coffee positively correlated with total and LDL cholesterol in healthy young adults


Department of Molecular and Cellular Therapeutics, Royal College of Surgeons in Ireland, Dublin, Ireland

It is known that coffee consumption has a J shaped relationship with mortality – while moderate coffee drinking may be protective, drinking more than 4 cups of coffee each day results in excess cardiovascular deaths. It has been suggested that this relationship may be due to coffee containing cholesterol raising diterpenes (cafestol and kahweol). Certainly higher cholesterol levels have been reported in middle-aged and older coffee drinkers. This study aimed to test if elevated cholesterol levels are also present in younger coffee drinkers. This was a cross-sectional study of 116 healthy students. All participants completed a 1 week coffee diary. Coffee consumption was quantified in expresso equivalents – a single expresso, 100ml filtered coffee, or 1.5 teaspoons instant coffee, all contain approximately 75mg caffeine. Fasting total, LDL and HDL cholesterol and triglycerides were measured. Age ranged from 18-34 years and coffee drinking habits ranged from 0-12 expresso equivalents/day. There were significant positive correlations between daily intake of coffee with both total and LDL cholesterol (correlation coefficients [p-values]; 0.24, [0.008],
and 0.27 [0.004] respectively). Drinking just 1 Venti Starbucks Americano coffee per day (4 expresso equivalents) was on average associated with 0.3mmol/l increments in both total and LDL cholesterol. Coffee is a widely consumed beverage worldwide, and coffee consumption habits are evolving towards drinking greater quantities of espresso based drinks, which contain higher quantities of diterpenes than filtered or instant coffee. Hence, our observation of a statistically significant positive correlation, of a clinically relevant magnitude, between coffee consumption and cholesterol, amongst young people, may have considerable implications for public health and demands further scrutiny.

35. A re-evaluation of unstable angina Braunwald Classification in Chinese patients undergoing percutaneous coronary intervention

S Jia, J Yuan
Fuwai Hospital, China

Objective: There has been substantial improvement of treatment strategies since the creation of Braunwald Classification of unstable angina, yet rare recent evidence exists in terms of the predictive value of Braunwald Classification of unstable angina. We aim to re-evaluate the Braunwald unstable angina (UA) classification on its predictive value of clinical characteristics, angiographic features, and occurrence of future adverse events.

Methods: We prospectively included 4508 patients diagnosed with unstable angina presenting for PCI between December, 2012 and December, 2013 in Fuwai hospital. Patients were first divided into three groups according to their Braunwald clinical circumstance of development (A, B or C) (Table 1), and then divided into three groups according to their Braunwald Grade of Severity (I, II or III) (Table 2). We compared clinical and angiographic features in these groups, and evaluated the 1-year and 2-year incidence of major adverse cerebrocardiovascular events, including all-cause death, myocardial infarction, revascularization, stroke and MACCE composite endpoint event.

Results: Respectively, 106, 4346 and 56 patients belong to Braunwald classification of clinical circumstance A, B and C, while 987, 2515 and 1006 patients belong to Braunwald grade of severity I, II and III. Proportion of male, current smoker, previous myocardial infarction, β-blocker usage and presence of chronic total occlusion are significantly different across Braunwald clinical circumstance groups (A, B, C groups) (p<0.05). Proportion of male, current smoker, diabetes, hyperlipidemia, previous myocardial infarction and stroke, β-blocker and calcium channel blocker usage and successful PCI are significantly different across Braunwald grade of severity groups (I, II, III groups) (p<0.05). 2-year event occurrence comparison revealed significant difference in bleeding across A, B, C groups and in myocardial infarction across I, II, III groups (p<0.05). 1-year event occurrence comparison revealed significant stepwise increase in death (0%, 0.9%, 5.4%, p=0.023), in-stent thrombosis (0%, 1.3%, 5.4%, p=0.039) and bleeding (0.9%, 5.9%, 7.1%, p=0.044) across A, B, C groups. After confounding factors adjustment by Cox regression analysis, Braunwald A, B, C groups is independently associated with death (95% CI 2.106-22.009, HR 6.808, p=0.001), myocardial infarction (95% CI 1.173-7.409, HR 2.948, p=0.022) and in-stent thrombosis (95% CI 1.566-13.782, HR 4.646, p=0.006) in 1 year.

Conclusion: In our large single-centre prospective Chinese patient cohort, higher Braunwald unstable angina classification is generally associated with worse clinical and angiographic characteristics. Braunwald clinical circumstance classification (A, B, C) is an independent risk factor for death, myocardial infarction and in-stent thrombosis in one year, but not an independent risk factor for these adverse events in 2 years. Braunwald Grade of Severity (I, II, III) is not an independent risk factor for these adverse events in one year and 2 years.
Abstract 35 Table 1: Cox Regression Analysis of Event Occurrence across different Braunwald Clinical Circumstance of Development (A, B, C) groups

<table>
<thead>
<tr>
<th></th>
<th>2 year</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard Ratio (95% Confidence Interval)</td>
<td>P value</td>
</tr>
<tr>
<td>Death</td>
<td>2.201 (0.678-7.148)</td>
<td>0.189</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>1.064 (0.357-3.170)</td>
<td>0.912</td>
</tr>
<tr>
<td>Revascularization</td>
<td>0.950 (0.563-1.605)</td>
<td>0.849</td>
</tr>
<tr>
<td>In-stent Thrombosis</td>
<td>1.534 (0.396-5.938)</td>
<td>0.535</td>
</tr>
<tr>
<td>Stroke</td>
<td>2.219 (0.662-7.435)</td>
<td>0.196</td>
</tr>
<tr>
<td>Bleeding</td>
<td>1.362 (0.711-2.608)</td>
<td>0.351</td>
</tr>
<tr>
<td>MACCE</td>
<td>1.162 (0.751-1.797)</td>
<td>0.501</td>
</tr>
</tbody>
</table>

Abstract 35 Table 2: Cox Regression Analysis of Event Occurrence across different Braunwald Grade of Severity (I, II, III) groups

<table>
<thead>
<tr>
<th></th>
<th>2 year</th>
<th>1 year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard Ratio (95% Confidence Interval)</td>
<td>P value</td>
</tr>
<tr>
<td>Death</td>
<td>0.827 (0.535-1.280)</td>
<td>0.395</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>0.927 (0.667-1.308)</td>
<td>0.666</td>
</tr>
<tr>
<td>Revascularization</td>
<td>1.078 (0.924-1.257)</td>
<td>0.342</td>
</tr>
</tbody>
</table>

In-stent Thrombosis | 0.852 (0.520-1.399) | 0.527 | 1.037 (0.693-1.554) | 0.858 |
Stroke              | 1.032 (0.713-1.495)   | 0.866 | 0.980 (0.675-1.424) | 0.917 |
Bleeding            | 0.948 (0.794-1.131)   | 0.551 | 0.925 (0.765-1.118) | 0.418 |
MACCE               | 1.024 (0.898-1.168)   | 0.721 | 1.049 (0.896-1.228) | 0.555 |

MODERATED POSTER ABSTRACTS 2

36. Evaluation and implementation of the heart failure virtual consultation – a powerful tool for the delivery of expert care and the democratisation of knowledge in the community

1C Keane, 1M Ledwidge, 2M Hammond, 1J Gallagher, 1S McCleland, 1K McDonald

1 St Vincent’s Healthcare Group, Dublin, Ireland
2 St Vincent’s University Hospital, Dublin, Ireland

Introduction: As a chronic illness, Heart Failure (HF) should ideally be managed in the community setting with ease of access to specialist opinion and investigations at critical stages of the illness. A recent national GP survey has highlighted problems with access to specialist investigations and opinion as well as comfort in managing HF. More recently we have carried out a project looking forensically at HF pathways and in particular at the barriers to optimal interaction between primary and secondary care. From this work we have developed the Heart Failure Virtual Consultation concept (HFVC), a method of primary-secondary care interaction characterised by on-line, real time, interactive case discussion between the GP and the specialist team. The HFVC provides access for GPs to specialist opinion and thus assists
with the management of patients in the community. Importantly the HFVC also facilitates GP empowerment and education by providing support within the community thus reducing the need for secondary/tertiary care referrals. The HFVC is distinct from other eHealth initiatives as it has a dual function. Not only does it provide an appropriate health care intervention but also acts as a system for knowledge dissemination and improving GP confidence levels. This work reports on the initial experience with this intervention in terms of impact on patients outcomes and the view of the GP.

Method: The clinic utilises a Skype-like software. GPs refer cases which are prepared in Powerpoint format with anonymised information and returned to the GP for presentation at the clinic. GPs are asked where they would have referred the GP if the HFVC were not available. At the end of the clinic reports of the decision are sent to the GP. To assess the impact of the HFVC on GP capacities and their comfort in HF care an online questionnaire was distributed to users and returned anonymously.

Results: The HFVC is available in two geographical regions. From December 2016 to date the clinic has been used to discuss 610 cases; 60% being first consultations and 40% being follow-up consultations. These cases have been referred by 76 GPs. Case questions have dominantly related to diagnostic and therapeutic challenges. Based on the GPs stated intentions, 22% of cases discussed would have been sent to the acute services, 61% to general outpatient clinics and the remaining 17% would have remained within the primary care system with no onward referral. Following the HFVC, 1% of the patients were referred to the acute services and 8% to general outpatient clinics, representing a significant reduction in use of acute and general OPD services. In the month following the HFVC only one patient has required unanticipated hospital admission. The questionnaire response indicated overwhelming positive view on the clinical usefulness of the HFVC and on the impact of the clinic on GP level of comfort. For example, 83% of GPs said “The HFVC had impacted their ability to identify HF patients to a high degree”, 80% said “Due to participation in the HFVC they are now very competent in their ability to treat HF patients and manage side effects”. In relation to usability and technology, 100% if respondents “Found participating in the clinic easy”. Patient testimonials indicated strong positive reaction to the service and appreciation of the efforts to avoid needless travel. In that regard the HFVC has saved approximately 21,000 Km in patient travel through avoiding referral to secondary services.

Discussion: This strong preliminary experience indicates that the HFVC will likely fill a major need in improving doctor-doctor communication between primary and secondary care. The impact on patient outcomes, the improved confidence of GPs with the routine aspects of HF care and the positive impact on the patient through avoiding unnecessary travel indicate that this approach is ideally suited for maintaining patient well-being in the community. Wider use of this platform to include education classes form allied health care professionals will likely further enhance the benefits within HF care while the process is likely also of benefit in the management of other chronic diseases.

37. Temporal pattern of vitamin D in ambulatory heart failure patients

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Beaumont Hospital Dublin, Ireland

Introduction: Vitamin D insufficiency is common within the Irish population and heart failure (HF) patients are particularly at risk. Moreover, elderly HF patients are at risk of reduced sun exposure leading to reduction in vitamin D level. Various studies had investigated the role of vitamin D in improving outcome in heart failure and low vitamin D correlates to poor prognosis in patients with left ventricular assist device. Routine vitamin D blood measurement is not part of HF follow-up as per ESC guidelines, yet it is vital in general well-being of patients. The aim of this study is to examine temporal vitamin D pattern in all heart failure subtypes patients attending the Heart Support Unit (HSU) Beaumont Hospital.

Method: 343 consecutive patients attending HSU from period January to December 2017 were included. Vitamin D, nProBNP, eGFR, creatinine, calcium, phosphate, and albumin levels was extracted. Descriptive statistical analysis was calculated. Range was described as median with inter-quartile range.

Result: Data was available in 294 of the 343 heart failure patients, 170 male (77 [65:83] years, 57.8%) and 124 female (81 [74:85] years, 42.2%) patients. Only 91 (30.9%) patients (48 were female) had vitamin D level checked at least once within the year. Female patients display bimodal dipping of vitamin D concentration reaching the level of insufficiency (<50umol/L) during winter and autumn (Figure 1). In the female cohort, vitamin D level was deficient at 15
38. Diverting the rising tide: the impact of a modern heart failure community outreach programme

C O’Connor, N Caples, E Cronin, J Kumar, H Chui, C Herlihy, A Hennessy, J O’Dea, P O’Callaghan, P Owens
University Hospital Waterford, Waterford, Ireland

**Background:** There are 90,000 patients in Ireland suffering from heart failure, with a further 10,000 being diagnosed every year. This places significant burden on hospital resources nationally, resulting in the use of 231,042 bed days at a total cost of €277 million. Various models of heart failure service have been suggested; primary care centred, community centred and hospital centred. Our unique community outreach model (south Eastern Community Heart failure Outreach clinic (ECHO clinic)) strength lies in the maintaining of close links with specialised staff in a hospital setting whilst providing accessible care for patients with severely reduced functional status.

**Aims:** To study the impact of a community heart failure outreach programme in admission/ readmission rates and improvement in left ventricular ejection clinic (LVEF).

**Methods:** Both retrospective and prospective cohort analyses was performed on patients attending the south Eastern Community Heart failure Outreach ‘ECHO’ clinic over a period of one year. Each patient was given likert patient satisfaction questionnaires. Additional patient level data was sourced from electronic and written records. Standard Bayesian statistics were employed to conduct the analysis.

**Results:** A total of 74 patients were recruited from the ECHO clinic. Of these, complete datasets for 34 patients were available for analysis. Before enrolment, patients had an average of 1.3 admissions and after enrolment had an average of 0.5 admissions. Unequal variance was proven by Anderson-Darling and so Wilcoxon rank sum test was performed with a p value of 0.001533. There was also an associated reduction in bed days following recruitment into the ECHO clinic (407 vs 105) which was significant with use of Wilcoxon rank sum test (p=0.000302). On an individual patient level, this equates to a reduction in average length of stay per heart failure admission from 9.25 to 5.5 days, which was significant by signed rank test (p-value 0.05). Specialised outreach heart failure management was also associated with an increase in LVEF (26.6% vs 36.8%, p-value 0.00672). Regarding patient’s experience
of attending the ECHO clinic, 88% of respondents strongly agreed that it was easily at access and 89% of respondents strongly agreed that it was preferable to attend the local outreach programme rather than the local hospital (see figure 1).

Conclusion: Implementation of a novel ‘community outreach’ heart failure programme significantly reduces hospitalisation and inpatient bed days but also reduced length of stay per admission after enrolment. Enrolment was associated with an improvement in LVEF. Patient satisfaction ranked highly with the community outreach model of heart failure management.

Abstract 38 Figure 1: Patient Experience

39. Getting it “right”

J Kumar, C O’Connor, E Cronin, N Caples, S Asgedom, P Owens, P O’Callaghan, J O’Dea

University Hospital Waterford, Waterford, Ireland

Introduction: In Ireland about 90,000 patients are suffering from heart failure, with a further 10,000 being diagnosed every year. This places significant burden on hospital resources nationally, resulting in 231,042 use of bed days and a total cost of €277 million. As a result of Paradigm HF clinical trial Sacubitril/Valsartan combination was recommended for treatment in Heart Failure guideline in 2016. Since then there have been studies on the effect of Sacubitril/ Valsartan on LV function which appears to be positive, but very little research done on the effect of this combination on right ventricular function. Due to the complex right ventricular anatomy, only a few echocardiographic parameters are reliable and easily obtainable.

Methods: Retrospective cohort analyses was performed on patients with heart failure with reduced ejection fraction (HFrEF) attending the Heart failure clinic in University Hospital Waterford. Electronic and written patient records were sourced for patient level data. Echocardiographic parameters of right ventricular systolic function used were 1) tricuspid annular planar systolic excursion (TAPSE), 2) Tricuspid sub-annular diameter and 3) Right ventricular systolic pressure. Those taking sacubitril/valsartan ‘ARNI group’ (n= 51) were compared with age matched controls (n=20) on maximal medical treatment not including sacubitril/valsartan (‘standard treatment group’).

Results: Of the 51 patients enrolled who were taking Sacubitril/ Valsartan with one year of follow-up, complete data was available for 28 patients (17 male and 11 female). These were then compared with age-matched controls from the standard treatment group (n=20). Treatment with Sacubitril/Valsartan was associated with an increase of 22.6% (1.51 to 1.852) in TAPSE (Wilcoxon rank sum p =< 0.00056), decrease in Tricuspid sub-annular diameter of 7.1% (4.22 to 3.92) (Wilcoxon rank sum p =< 0.00014) and increase in Right ventricular systolic function of 22.5% which was statistically significant.

Conclusions: From this study we found that treatment with Sacubitril/Valsartan significantly improves TAPSE, Tricuspid sub-annular diameter and systolic function of right ventricle.
40. The BNP genetic variant rs198389: hypertension risk and cardiovascular phenotype in stage A and stage B heart failure subjects from the STOP-HF trial

1M Ledwidge, 2V Cannone, 1C Watson, 2J Burnett, 1K McDonald

1STOP-HF Unit and School of Medicine and Medical Science, University College, Dublin, Ireland
2Mayo Clinic, Rochester Minnesota, United States of America
3St Vincent’s University Hospital, Dublin, Ireland

Background: Heritability is estimated to account for up to half of hypertension risk, yet relatively few single nucleotide polymorphisms have been associated with blood pressure in genome wide studies. B-type natriuretic peptide (BNP) possesses blood pressure lowering, natriuretic, antifibrotic and aldosterone suppressing properties. In the general population, the minor G allele of the BNP genetic variant rs198389 is associated with higher circulating values of BNP, lower blood pressure and odds of hypertension.

Purpose: We aimed to investigate the clinical phenotype and cardiovascular risk associated with rs198389 genotypes in subjects at risk for heart failure (HF) dependent on whether they were stage A or B.

Methods: We genotyped 971 subjects with stage A or B HF from the cohort of the STOP-HF Trial defined as the presence of at least one risk factor for the development of HF in the absence (stage A) or presence (stage B) of cardiac structural or functional abnormalities.

Results: The frequencies of the rs198389 genotypes were AA: 38% (n=367), AG: 47% (n=455), GG: 15% (n=149). All subsequent analyses are AA vs GG. The two genotypes did not differ in terms of age and sex. In the multivariate adjusted analysis, the GG genotype had significantly higher circulating levels of BNP (36.3 vs 50.7 pg/mL, p value < 0.001). When we evaluated the change in BNP levels over the same time period, the two groups increased by similar amount (around 5 pg/mL per annum) maintaining their significantly different set point over time. The two genotypes did not differ in terms of blood pressure, body mass index, creatinine levels at baseline. However, prevalence of hypertension was significantly lower among the homozygotes for the G allele (77.7% vs 67.1%, p value: 0.01). In the 4.95 (IQR 3.26-6.61) years follow-up analysis, the carriers of the GG genotype had lower risk of new onset left ventricular systolic dysfunction with ejection fraction <50% and more than 5% decrease (4.4% vs 0.67%, p value: 0.03). Greater differences between AA and GG genotypes, in terms of BNP levels and baseline hypertension, were seen in patients with stage B vs stage A at baseline.

Conclusion: In the STOP-HF Trial cohort, the G allele of the BNP genetic variant rs198389 is associated with higher circulating BNP, lower prevalence of hypertension and lower risk of incident left ventricular systolic dysfunction over time. These associations were stronger in stage B versus stage A patients at baseline. Our findings may support the concept of a natriuretic peptide-based therapy for prevention of early stage HF in patients with stage B HF, currently under investigation in the PARABLE study.

41. A comparison of FFR and iFR assessment of intermediate coronary lesions

G Fitzgerald, T Kiernan
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Introduction: Functional analysis of coronary artery stenosis is an important tool in the assessment of angiographic intermediate lesions. The deferral of treatment with percutaneous coronary intervention (PCI) of angiographic intermediate but functionally insignificant lesions has been shown to be non-inferior to optimal medical management. Deferral of PCI of a functionally non-significant stenosis is associated with a favourable very long-term follow-up without signs of late ‘catch-up’ phenomenon at 15 years. However assessment with FFR and selection of appropriate patients for intervention has been shown to improve outcomes in large studies demonstrating patients with stable CAD and FFR ≤0.80, PCI reduces the composite rate of death, nonfatal MI, and urgent revascularization, compared to OMT alone, driven primarily by a reduction in urgent revascularization. FFR is generally safe
and effective, however it must be measured during maximum hyperemia induced by a vasodilator such as adenosine. This has cost and time implications, and can be unpleasant for patients. Recently a novel tool in the assessment of intermediate lesions has become available in the form of instantaneous free wave ratio (iFR). This measures the difference between pressure distal to the coronary stenosis and aortic pressure (Pd/Pa) in the diastolic wave free period of the cardiac cycle where there is a linear relationship between pressure and flow. In large randomised control studies iFR has proven non inferior to FFR with respect to the risk of major adverse cardiac events at 1 year in both patients with stable angina and ACS. The rate of adverse procedural effects was lower and the procedural time was shorter with iFR than with FFR leading to a modest cost benefit and a reduction in patient discomfort. Despite this, when assessing this new tool in our cath lab, we noticed some discordance between results, when iFR suggested treating or deferring and this was not corroborated by FFR. This discordance can have far reaching consequences for the patient and deserves careful consideration with a clear plan to uniformly approach such patients. One such option is to use a hybrid approach of iFR and FFR in patients with borderline measurements which has shown favourable results in similar studies. The level of discordance seen in our lab was similar to other large studies at 22.5%. Interestingly the large randomised control trials of iFR mentioned previously suggested that using iFR alone may also be a reasonable option.

Methods: A total of 40 patients who had intermediate grade coronary stenosis visually were studied with both iFR and FFR measurements. The results were then compared in a hybrid fashion and the correlation between iFR and FFR was examined and the results graphed (fig 1). The cost benefit of not using adenosine was also considered.

Results and conclusions: A total of 40 patients were included in the study. Of the 40 patients there was discordance in the iFR and FFR measurements noted in 9 patients (22.5%). 7 patients were negative when initially studied with iFR (mean 0.92) and subsequently had positive FFR measurements mean (0.73). 2 patients were initially positive with iFR (mean 0.89) and subsequently had negative FFR studies (mean 0.87).

Implications: The use of pressure wire measurements to assess intermediate lesions is a valuable tool available to cardiologists. The advancement in technology and the introduction of iFR allows quicker assessment of lesions as well as almost real-time assessment of multiple vessels and sequential lesions and improved patient comfort as well as reduced costs. This technology has been validated in large randomized control trials, however there exists an approximately 20% discordance in FFR and iFR measurements which can have implications for revascularization strategy. As iFR becomes more ubiquitous, clarity on how to best assess intermediate lesions is important. Our study highlights this discordance and demonstrates that whilst technological innovation is always welcome, a clear understanding of the technology and how to deal with any potential results is crucial.

Abstract 41 Figure 1: FFR Vs iFR Correlation

42. Factors influencing total ischaemic time in STEMI

G Fitzgerald, A Ibrahim, J Coffey, J Saunders, C Cahill, Z Satti, I Ullah, T Kiernan

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Introduction: Acute coronary syndrome is a major cause of morbidity and mortality in the developed world. Timely intervention in ST elevation myocardial infarction is one of the major success stories of
interventional cardiology. Delays in reperfusion negatively influence 1 year mortality, and prompt recognition of symptoms and activation of the emergency response is critical. Traditional treatment targets include a “door to balloon time” of 90 minutes or less, with updated guidelines of a 90 minute target from ECG to vessel opening cited in the most recent ESC guidelines. This is only one component of ischaemic time however, and delay from symptom onset to call for help as well as delays in recognizing the symptoms of acute coronary syndrome and subsequent ECG can add significantly to the ischemic time and potentially impact on adverse outcomes. Potential delays pre hospital can lead to larger infarct size and subsequent complications leading to poorer outcomes (4).

**Methods:** Prospective data was collected on 99 patients who presented to our service with acute STEMI between October and March 2017 in order to analyse the performance of the service and highlight potential areas for improvement. The patient demographics were analysed and total ischaemic time calculated based on the time from symptom onset to wire crossing of the lesion. Pre hospital metrics were also recorded and potential sources of delay highlighted. Data was then pooled and analysed with SPSS to give examine baseline characteristics of the patient group (Table 1).

**Results and conclusions:** A total of 99 patients were included in the study. The mean total ischaemic time was 425 minutes (51–3009). Mean symptoms to first call for help was 211 minutes (0–2550) and mean first call for help to first medical contact 18 minutes (0–270). The mean first medical contact to ECG time 56 minutes (1–1440) and the mean ECG to wire cross time was 108 minutes (19–624) and the mean PCI centre to wire cross time was 64 minutes (5–756). The results are summarised in table 2. The data demonstrates that there is still a considerable total ischaemic time for patients with acute STEMI, and whilst door to revascularization metrics are readily emphasized in healthcare centres, better education of the public regarding symptoms of STEMI and emphasizing the importance of rapid appropriate ECGs by paramedics are important factors to consider.

**Implications:** The traditional metric of door to revascularisation time remains an essential element of primary PCI. However the importance of patient education in recognizing potential acute coronary syndromes is an important consideration to reduce overall ischaemic time in STEMI. Whilst our ECG to wire cross time of 108 minutes was just slightly above target, there was a large delay in symptom onset to first call to help. This is likely a combination of varying severity of symptoms and a broad patient cohort with different thresholds for seeking medical assistance. Our study emphasizes the importance of improving total ischaemic time not just within hospital but in educating the public regarding prompt activation of the emergency response team if they have symptoms of acute coronary syndrome.

**Abstract 42 Table 1:** Baseline Characteristics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Mean time (range)</th>
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<tbody>
<tr>
<td>Total ischaemic time</td>
<td>425 minutes (51–3009)</td>
</tr>
<tr>
<td>Symptoms to first call for help</td>
<td>211 minutes (0–2550)</td>
</tr>
<tr>
<td>Call for help to first medical contact</td>
<td>18 minutes (0–270)</td>
</tr>
<tr>
<td>First medical contact to ECG</td>
<td>56 minutes (1–1440)</td>
</tr>
<tr>
<td>ECG to wire cross</td>
<td>108 minutes (19–624)</td>
</tr>
<tr>
<td>PCI centre to wire cross</td>
<td>64 minutes (5–756)</td>
</tr>
</tbody>
</table>

**Abstract 42 Table 2:** Results

<table>
<thead>
<tr>
<th>Baseline Characteristics</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Males</td>
<td>81%</td>
</tr>
<tr>
<td>Mean Age</td>
<td>62 (29–96)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>36%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>16%</td>
</tr>
<tr>
<td>Significant Smoking Hx</td>
<td>62%</td>
</tr>
<tr>
<td>Family Hx IHD</td>
<td>37%</td>
</tr>
<tr>
<td>Peak Troponin Mean</td>
<td>6494</td>
</tr>
<tr>
<td>Dyslipidemia</td>
<td>30%</td>
</tr>
<tr>
<td>Pre hospital ASA and Ticagrelor</td>
<td>98%</td>
</tr>
<tr>
<td>Radial Access</td>
<td>95%</td>
</tr>
<tr>
<td>Crossover</td>
<td>4%</td>
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<tr>
<td>TIMI 3 flow achieved</td>
<td>96%</td>
</tr>
<tr>
<td>In-hospital mortality</td>
<td>4%</td>
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</tbody>
</table>
43. Pre primary percutaneous coronary intervention TIMI flow grades in STEMI patients pre-loaded with ticagrelor
Z Jan, I Ullah, M Ibrahim, T Kiernan
University Hospital Limerick, Limerick, Ireland

Background: Ticagrelor, a potent P2Y12 receptor inhibitor, is recommended along with Aspirin as initial therapy for ST Segment Elevation Myocardial Infarction (STEMI). Whether Ticagrelor can improve coronary patency before Primary percutaneous coronary intervention (PPCI) intervention in STEMI patients is not well known. Our aim was to analyse initial TIMI (Thrombolysis In Myocardial Infarction) flow grades in infarct related artery (IRA) in STEMI patients preloaded with Ticagrelor who presented to our unit between January 1st 2016 and December 31st 2017.

Methods: We retrospectively conducted this single centre observational study after spotting STEMI patients using heart beat and HIPE (Hospital in patient enquiry) data bases. We reviewed their hospital notes and coronary angiograms. We analysed TIMI flow grades in the infarct related artery (IRA) on initial angiography prior to any intervention. The primary end point was the comparison between the proportion of patients who did not have TIMI flow grades I-III in the IRA at initial angiography in the prehospital and in-hospital ticagrelor treated patients. Multivariate statistical analysis was performed using SPSS-22.

Results: A total of 328 patients with STEMI who received Ticagrelor prior to arrival in the catheterization laboratory were enrolled, 258 were given Ticagrelor pre hospital (by ambulance crew or in other Hospital) and 70 in the Hospital (In the emergency department or in catheter laboratory). 62 (18.90%) were females and 266 (81.10%) males. Mean age was 62.78±11.85 years range 31-91 years. TIMI flow grade 0,I,II and III were 57%, 7.8%, 7.8% and 27.5% respectively in the pre hospital Ticagrelor treated and 71.4%, 10%, 4.3% and 14.3% in the In hospital Ticagrelor treated patients. TIMI flow grades I-III were 43% and TIMI flow grade 0 at 57% in the pre hospital Ticagrelor treated, while TIMI flow grade I-III were 28.6% and TIMI flow grade 0 was 71.4% respectively in patients who were given Ticagrelor in the Hospital (p =0.029).

Conclusions: Our findings of better pre intervention TIMI flow grades I-III in STEMI patients pre-treated with Ticagrelor in the field suggests that Ticagrelor appears to improve pre intervention coronary reperfusion in the Infarct related artery (IRA) in STEMI patients.

44. Appropriate use criteria for transthoracic echocardiography: are they relevant outside the United States?
R Kerley, S O'Flynn
Cork University Hospital, Cork, Ireland

Background: There is a growing interest in appropriate use criteria (AUC) for cardiovascular imaging referrals in Europe. These criteria, developed by American subspecialty societies, have been in use since 2007 and show a temporal reduction in inappropriate transthoracic echocardiogram (TTE) requests. When applied to European centres, inappropriate referral rates as high as 15% have been observed (Figure 1).

Methods: We retrospectively conducted this single centre observational study after spotting STEMI patients using heart beat and HIPE (Hospital in patient enquiry) data bases. We reviewed their hospital notes and coronary angiograms. We analysed TIMI flow grades in the infarct related artery (IRA) on initial angiography prior to any intervention. The primary end point was the comparison between the proportion of patients who did not have TIMI flow grades I-III in the IRA at initial angiography in the prehospital and in-hospital ticagrelor treated patients. Multivariate statistical analysis was performed using SPSS-22.

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Conclusions: Our findings of better pre intervention TIMI flow grades I-III in STEMI patients pre-treated with Ticagrelor in the
Abstract 45 Figure 1: Progression of cardiac amyloid fibril infiltration in cardiac amyloidosis using cardiac magnetic resonance

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Introduction: The prognosis and treatment of the two main types of cardiac amyloidosis, immunoglobulin light chain (AL) and transthyretin (ATTR) amyloidosis, are substantially influenced by cardiac involvement. Focal myocardial fibrosis is best detected and quantified by cardiovascular magnetic resonance (CMR) and late gadolinium enhancement (LGE) technique. Diffuse subendocardial and transmural LGE is a marker of late cardiac amyloidosis. This report describes the use of CMR to detect early cardiac manifestations in amyloidosis and to evaluate its progression over a five-year period.

Methods: Mr GS is a 77 year old gentleman who was diagnosed with cardiac amyloidosis in 2012. He attends follow-up annual review appointments at the National Amyloid Centre in University College London. He has undergone annual CMR at Blackrock clinic Dublin from 2014 until 2017. GS underwent LGE imaging for myocardial scar using a segmented Inversion recovery-technique 10 to 15 min after injection of 0.1 mmol/kg of gadolinium. Myocardial enhancement was assessed visually and interpreted by two cardiac CMR-trained physicians.

Results: A short axis of LGE imaging from GS is shown in figure 1 which demonstrates significant, confluent myocardial fibrosis throughout the myocardium. Figure 2 highlights the evolution of amyloidosis from 2014 – 2017 which shows a gradual increase in LGE uptake throughout the vertical long axis (VLA), horizontal long axis (HLA) and short axis (SA) images. There has been a clear deterioration in appearances with the most striking images of LGE seen in November 2017. The findings correspond with functional deterioration in heart failure symptoms and increasing B-type natriuretic peptide (BNP), peaking at 7,500pg/ml. Figure 1: Short axis image showing transmural LGE throughout the myocardium in November 2017. Figure 2: Progression of LGE. Each column represents annual VLA, HLA and SA images from 2014 – 2017 with the 2017 images now showing transmural LGE.

Conclusion: LGE is a sensitive parameter for the early diagnosis of cardiomyopathy in amyloidosis and can be used to show progression of disease.
46. The role of coronary computed tomography angiography identifying coronary artery disease in patients with chest pain in a peripheral hospital in Ireland

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1 Cavan General Hospital, Cavan, Ireland
2 Beaumont Hospital, Beaumont, Ireland

Introduction: The aim of this study was to assess the clinical role of CCTA in assessing CAD in patients with chest pain in Cavan General Hospital, RCSI Hospital Group.

Background: Chest pain is a frequent clinical presentation to an emergency department. CCTA correctly identify those with CAD has become ever more relevant. NICE guidelines recommend CCTA as the first line diagnostic test in the assessment of CAD.

Methods: A single centre retrospective review of the results of CCTA in those presenting with chest pain from March 2015 to December 2017. All patients underwent a non-enhanced calcium scan and a CCTA. The degree of stenosis on CCTA was compared to results of those who were identified as requiring invasive coronary angiography (ICA). All patients who presented with typical chest pain reported within a calendar year. Data was extracted from patient records, hospital in patient enquiry (HIPE) and from order procurement data. Information was recorded on age, date of imaging, risk factors for CAD, degree of stenosis, calcium scoring and recommended follow up.

Results: A total of 29 patients underwent CCTA. The age of patients ranged from 34-83 years and the majority had more than one risk factor 16 (55%). The majority received their imaging within three weeks of referral. 22 patients (76%) with reassuring results showing no obstructive plaques and did not require further intervention. 3 patients (10%) images revealed pulmonary nodules and were recommended for follow up. One patient showed bihilar adenopathy, mediastinal adenopathy and fibrotic changes in the right lower lung with subsequent respiratory follow up. 7 patients (24%) were referred for ICA. Two patients (7%) were referred for ICA on the basis of a high Agaston score, with moderate stenosis on CCTA. Subsequent ICA, showed approximately 40% stenosis and for medical management. One patient (3%) with extensive calcified and non-calcified stenosis on CCTA had percutaneous coronary intervention to the lesions. CCTA identified one patient (3%) with three-vessel coronary artery disease and a large ascending aortic aneurysm. This patient had coronary artery bypass grafting and a metallic aortic root valve replacement. Of the 7 patients referred for angiography, three are still awaiting their procedure with an average waiting time of six months. CCTA was carried out in two private institutions. The average cost was €565, range €325-650. 1,121 patients presented to Cavan General Hospital with cardiac type chest pain in 2017. Their average length of stay was 2.72 days. This compares with diagnostic ICA with an average cost of €1,500. Baseline Demographics Table 1N (%) Male sex 20 (69) Median age 54 Hypertension 9 (31) Diabetes 2 (7) Smoker 8 (28) Hyperlipidaemia 7 (24) Family history of IHD 11 (38) BMI > 30 3 (10) Discussion Exercise ECG has a low sensitivity in diagnosing CAD, ranging between 45-60% 2,3. This leads to a significant proportion of at risk patients being missed while others with normal coronary vessels undergoing unnecessary ICA. Recent ESC guidelines recommend those with an intermediate pre test probability (PTP) of 15-85% should undergo non-invasive testing 4. The high sensitivity (95-99%) and high negative predictive value (97-99%) of CCTA may reassure patients and physicians 5,6. Our study highlighted this finding with the majority, 22 (76%) receiving reassurances with no further intervention required.
Therefore CCTA is recommended for patients with low intermediate PTPs. The ESC guidelines highlight there may be over diagnosis in patients with Agaston scores of >400 3. This is reflected in our findings whereby two patients with high Agaston scores who were referred for ICA did not show significant obstructing lesions. Our analysis indicates CCTA is a robust method for diagnosing CAD in an intermediate PTP group and is a useful tool for screening of coronary stenosis. CCTA in a peripheral hospital setting allows for rapid assessment with an average waiting time of three weeks. Correct identification of patients for CCTA with subsequent reassuring results will inevitably reduce the necessity of referral for invasive angiography. CCTA reduces the expenditure of hospital stays and additional costs from ICA. CCTA should be considered in hospitals where direct access to ICA is not available. It reduces patient bed days, allows efficient patient assessment and has proven cost effectiveness.

**Abstract 46 Table 1:** Baseline Demographics

<table>
<thead>
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<tbody>
<tr>
<td>Male sex</td>
<td>20 (69)</td>
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<tr>
<td>Median age</td>
<td>54</td>
</tr>
<tr>
<td>Hypertension</td>
<td>9 (31)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>2 (7)</td>
</tr>
<tr>
<td>Smoker</td>
<td>8 (28)</td>
</tr>
<tr>
<td>Hyperlipidaemia</td>
<td>7 (24)</td>
</tr>
<tr>
<td>Family history of IHD</td>
<td>11 (38)</td>
</tr>
<tr>
<td>BMI &gt; 30</td>
<td>3 (10)</td>
</tr>
</tbody>
</table>

47. ARNI ‘terminates’ traditional heart failure treatment

C O’Connor, J Kumar, N Caples, E Cronin, S Asgedom, P O’Callaghan, P Owens

University Hospital Waterford, Ireland

**Background:** Heart failure is one of the leading causes of morbidity and mortality in cardiovascular patients. This places significant burden on the health service in Ireland – accounting for 7% of all HSE inpatient bed days. The PARADIGM-HF trial introduced Sacubitril/Valsartan which belongs to a novel class of medication, the Angiotensin Receptor Neprilysin Inhibitor (ARNI). The results of the PARADIGM-HF trial were such that treatment with Sucubitril/Valsartan has been adopted by both the ESC and the AHA guidelines as a class I recommendation for heart failure with reduced ejection fraction (HFrEF).

**Aims:** The purpose of the study was to determine if initiation of treatment with sacubitril/valsartan led to an improvement in clinical outcome in the following domains: (1) Improvement in echo derived ejection fraction (2) Reduction in hospitalisations with heart failure; (3) Improvement in NYHA functional class;

**Methods:** Retrospective and prospective cohort analysis was performed in all patients with HFrEF and who have completed follow-up whilst on ARNI treatment ‘ARNI group’. This was compared with matched controls who received traditional heart failure treatment ‘traditional treatment group’. We reviewed echo reports and NYHA class of patients, as determined by experienced heart failure nursing staff, to determine any improvement in functional capacity and left ventricular ejection fraction (LVEF). Additionally, hospital in-patient enquiry (HIPE) dataset was used to determine the number of admissions to hospital with heart failure 6 months prior and 6 months after commencing sacubitril/valsartan in our cohort.

**Results:** We enrolled 26 patients with sufficient follow-up data for the ‘ARNI group’ (16 male and 10 female), and compared these patients with 20 patients (13 male and 7 female) who received traditional treatment for heart failure (average ages 68 vs 73 respectively p=0.22, initial LVEF 20.89% v 21.35% respectively). Comparing the groups post treatment, the ARNI group was associated with an increase from 20.89% to 34.21% (Wilcoxon rank sum p=< 0.0001) whereas the traditional treatment group has an associated increase from 22.75% to 27%. The ARNI group had a significantly superior improvement in LVEF when compared with traditional treatment (12.9% vs 4.25% Mann Whitney U p=0.01314). Complete admission data was available for 19 patients. A total of Admission rates fell from an average of 30 in the 6 months prior to initiation of treatment, to 9 in the six months after (p<0.02, Wilcoxon Rank sum test). The NYHA class fell in 24/26 subjects from pre to post treatment (p < 0.0001, Sign test), and fell by a median of 1 NYHA functional class.

**Conclusion:** Treatment with ARNI in this cohort was associated with significantly improved LVEF, hospital admission rates and NYHA functional class.
48. Evaluating community health practitioners perspective of the heart failure pathway

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1 University College Dublin, Dublin, Ireland
2 Portsmouth Hospitals NHS Trust, Portsmouth, United Kingdom
3 Imperial College London, London, United Kingdom
4 St Vincent’s Healthcare Group, Dublin, Ireland

**Background:** There is growing interest in building community capacity to manage Heart Failure (HF). As well as patient/caregiver engagement, the Community Pharmacist (CP) and General Practitioner (GP) play a central role in the community care of HF. As part of a care-pathway mapping programme for HF, we aimed to describe GP/CP perspectives and identify areas for development.

**Purpose/Method:** We administered an internally validated questionnaire to eighty CPs and GPs of consecutive consenting HF patients admitted with an acute decompensation. These patients were participating in a prospective care-pathway mapping project in the Heart Failure Unit of a large teaching hospital. Questionnaires were conducted by post. The responses were then analyzed. Response rates were 57.5% (46) and 40% (32) of GPs and CPs respectively.

**Results:** In terms of enablers of better community HF care, 93% (43) of GPs felt that they could improve diagnosis and management of HF in the community if they had routine access to Natriuretic Peptide testing and the support of same-day HF services. Eighty-five percent (39) stated that if they had access to Echocardiography they would be better enabled to screen for heart failure. A further perceived barrier to optimal HF care within the community amongst 83% (38) of GPs was the patient’s own lack of HF education and understanding of their diagnosis. Furthermore, 67% (31) of GPs felt that there should be an increase in the number of outpatient HF clinics. Almost half of CPs, 45% (14) did not have access to information regarding the patient’s diagnosis of HF, requiring confirmation before medicines management. Prescription changes were needed in half of cases (16) and just under half of pharmacists reported spending 30-60 minutes seeking information from medical and healthcare professionals regarding HF issues. Changes related to discharge prescription errors, omitted regular medications, inappropriate medications and incorrect dosages. Conversely, 45% (14) of CPs reported no access to the hospital team regarding medication queries yet, almost half of CPs (16) reported that GPs did not have adequate information regarding the HF plan. Most 72% (23) of CPs felt that it should be standard of care for teams making a medication change on a HF patient’s script, to communicate this change and reason for it to the community pharmacist.

**Conclusion:** These results describe significant gaps in the community HF care pathway amongst healthcare professionals with the most frequent HF patient contact. Most of the barriers relate to information flows, care coordination and access to diagnostics with negative consequences on community care management and resources. Identifying areas for targeted improvement along each stage of this pathway will improve outcomes, efficiencies and the experience of care for HF patients.

49. Left atrial volume and its correlation to ischemic stroke

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Beaumont Hospital, Dublin, Ireland

**Background:** Atrial fibrillation is the most commonly encountered cardiac arrhythmia and an independent risk factor for cardioembolic (CE) stroke, conferring a 5-fold higher risk amongst affected individuals. Despite substantial progress in recognition and acute therapy, ischemic stroke remains a leading cause of disability and death worldwide. CE stroke, which accounts for 1 in 5 strokes, is associated with higher mortality rates, greater disability, greater recurrence rate and higher treatment costs when compared to patients with stroke from other causes. Despite its importance, the pathogenesis of atrial fibrillation is poorly understood, and the factors which contribute to the infarct burden in stroke is unclear.

**Aim:** Evaluate the demographics of patients presenting with ischemic stroke to a national centre of excellence. Identify echocardiographic/electrocardiographic factors influencing the infarct size in acute stroke.

**Methods:** Retrospective cohort analysis was done on patients presenting to presented to Beaumont Hospital, between the months of January and July 2016 with an ischemic stroke. Left atrial volume, stroke volume on CT-Brain and Holter records were individually
analysed by 3 independent physicians. Left atrial volume was measured using trans-thoracic echocardiogram in apical 4 chamber view using the length-area method at ventricular end systole while CVA infarct volume was assessed using similar length-area method on CT-Brain. SPSS was then used for statistical analysis.

Results: 125 patients presented with acute ischemic stroke during the study period, with an average age of 69 years. 12 patients has significant carotid artery disease and were excluded from the study. Of the remaining 113 patients, 101 had an echocardiogram performed, 98 had holter monitoring performed (Figure 1). The presence of atrial fribillation was associated with a significantly larger left atrial diameter 4.5cm vs 3.86cm (p= 0.000595), but identification of atrial fibrillation did not influence the volume of cerebral infarct (p= 0.4084). In cases where the LA diameter >4.5 cm, and when controlling for the presence of atrial fibrillation, there was a significant increase in the cerebral infarct volume (43.89ml vs 26.26ml, p= 0.039). Further multivariate analysis highlighted that the percentage of premature atrial complexes correlated poorly with both the presence of atrial fibrillation and also with infarct size in acute stroke (Pearson R, 0.0652, p = 0.589). In those undergoing TOE, atrial fibrillation was associated with lower left atrial appendage exit velocities (24 cm/s vs 57cm/s, p = 0.0037), but the ejection velocities alone correlated poorly with infarct size (Pearson R, 0.3357, p= 0.781).

Conclusion: The complex pathogenicity of atrial fibrillation, particularly in the most clinically relevant outcome i.e. acute stroke, is poorly understood. Interim results of this study showed that left atrial diameter > 4.5 cm was associated with larger ischemic stroke volume independent of presence of atrial fibrillation and poor LAA velocity. This data suggests that the factors affecting the left atrium (separate from the left atrial appendage) have a role in the size of the cardioembolism, potentially contributing to infarct size.

50. Risk of ventricular arrhythmia in ajmaline testing: significant variation identified in safety profile of the two most prevalent infusion protocols

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Mater Misericordiae University Hospital, Dublin, Ireland

Introduction: Brugada syndrome (BrS) is a hereditary sodium channelopathy that can result in ventricular arrhythmia (VA) and death. Characteristic coved ST elevation in the early precordial leads is transient, most often precipitated by fever or sleep. Sodium channel blockers such as Ajmaline can unmask these changes. However, a widespread variation in infusion protocols is evident in BrS studies. The two most prevalent protocols originate from the BrS Consensus reports. A total dose of 1mg/kg was originally infused at a rate of 10mg/min, however the same dose can be given over 5 minutes using a newer protocol. Patients greater than 50 kg will therefore receive a faster rate. This is the largest study to date that has included both protocols to assess risk of VA.
Methods: A review of consecutive ajmaline tests done in the Mater Hospital was undertaken over a ten-year period from March 2008. The initial protocol of 1mg/kg infused at 10mg/min was changed to 1mg/kg over 5 minutes in December 2014. In August 2016, due to a perceived increased risk in VA, the original protocol was reinstated. High precordial lead position was used in the second and third intercostal spaces.

Results: A total of 209 consecutive ajmaline tests were performed over the ten-year period. 166 were infused at the 10mg/min rate and 43 at the 5-minute rate. 3 patients developed VA, all of which received the 5-minute protocol (p=0.0086) (Fisher’s exact test). Two of these cases required electrical cardioversion and none had evidence of ischaemic heart disease. The weight (Kg)/dose (mg) for the three VA patients were 98, 90 and 71.

Conclusion: In this study there was a significant increase in the rate of VA in patients who received the 5-minute infusion. The test is terminated when diagnostic criteria is met, however a greater dose has already been given with the 5-minute rate, which may explain the progression to VA. These findings are in keeping with the two largest studies that utilised either of these protocols and included VA rates. The first demonstrated that 9/503 (1.8%) positive tests in a group receiving the 5-minute rate had VA, while the other study found that 0/89 positive tests in a group getting the 10mg/minute rate had VA. Of note neither of these studies examined differences in the rate of infusion as a potentially confounding variable. This study is the first to demonstrate that these infusion protocols should not be considered as interchangeable in terms of safety profile. Fig.1 Discrepancies in the rate of ajmaline administration between 2 infusion protocols in one patient who had VA (weight 98kg). Fig 2. ECG tracing of V1H showing normal sinus rhythm transitioning into type one Brugada pattern and ultimately ventricular fibrillation in a patient receiving the 5-minute infusion rate.
51. Exploring smoking and alcohol behaviours in a large opportunistic screening programme for atrial fibrillation in the elderly in Ireland

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1 Department of Cardiology Galway University Hospital, Galway, Ireland
2 Public Health Department, Galway University Hospital, Galway, Ireland

Introduction: Atrial fibrillation (AF) is the most common arrhythmia encountered in the Western World and it can affect up to 17% of patients over the age of 80. In Ireland our population 85 years and over are increasing at a rate of 4% per year. Currently, there is evidence that lifestyle risk factors may play a significant role in the pathophysiology of atrial fibrillation.

Purpose: To identify the prevalence of atrial fibrillation among the elderly population 65 years and over, attending General Practice and explore the associations with lifestyle risk factors.

Methods: This multi-site prospective observational study was carried out between 1st January 2014 and 30th June 2014. 89 General Practitioners from the West of Ireland participated in the study. All patients ≥65 years underwent opportunistic screening for AF by pulse palpation confirmed on 12 lead ECG. Demographic and lifestyle characteristics on all patients were analysed using a logit binary dependent model. Variables were added in a stepwise fashion according to known associations.

Results: 7262 patients were included in the study. AF was identified in 804 patients. Demographic variables and lifestyle risk factors in the 2 groups are shown in Table 1. Age was associated with the likelihood of having AF, with an increase in the odds of AF of 1.08 with each yearly increase in age. Gender was strongly associated with the presence of AF, with the odds of having AF among males 1.81 times higher than females (p<0.00). Among lifestyle characteristics, alcohol had the strongest association, with the odds of having AF being 1.78 times higher in the group with the highest level of alcohol consumption compared to the non-drinking group (p<0.05). The odds of AF among current smokers was less than that observed in the never smoked group (OR 0.66; p<0.05). (Table 2)

Conclusions: As with previous studies in this area, age, gender and high levels of alcohol consumption were associated with an increased likelihood of AF in this group. Though the absolute increase was small, the likelihood of AF was shown to increase with each yearly increase in age among this population. Gender was strongly associated with AF, with males being almost twice as likely to have AF when compared to females. High levels of alcohol consumption were associated with an increased likelihood of AF with the odds of AF being almost twice as high in the group consuming more than 21 units per week compared to the non-drinking group. The observed association with smoking status was unexpected, and may relate to a higher baseline prevalence of smoking in the group of patients without AF. These results highlight the often forgotten impact of alcohol on the prevalence of AF in the elderly population that so frequently translates into stroke and subsequent morbidity, mortality and financial cost imposed on the health service. Our data suggests that addressing alcohol consumption in the elderly may have a significant effect on reducing prevalence of AF in this population.
Abstract 51 Table 2: Logit model Odds Ratios with standard errors

<table>
<thead>
<tr>
<th>Presence of Atrial Fibrillation</th>
<th>OR</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.08***</td>
<td>0.0059</td>
</tr>
<tr>
<td>Gender (base case=female)</td>
<td>1.81***</td>
<td>0.1512</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>&lt;14 units per week</td>
<td>1.03</td>
<td>0.0880</td>
</tr>
<tr>
<td>14-21 units per week</td>
<td>1.09</td>
<td>0.2100</td>
</tr>
<tr>
<td>&gt;21 units per week</td>
<td>1.78**</td>
<td>0.4105</td>
</tr>
<tr>
<td>Smoking status</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Former smoker</td>
<td>1.24</td>
<td>0.1837</td>
</tr>
<tr>
<td>Current smoker</td>
<td>0.70**</td>
<td>0.1156</td>
</tr>
<tr>
<td>Obs</td>
<td>6,845</td>
<td></td>
</tr>
<tr>
<td>LR2</td>
<td>269.80</td>
<td></td>
</tr>
<tr>
<td>**p&lt;0.00; *<em>p&lt;0.05; <em>p&lt;0.10</em></em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

52. Retrospective analysis of the effectiveness of nurse-led clinic for patients post percutaneous coronary intervention

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Background: With an increasing global prevalence, of coronary heart disease, secondary prevention forms a major cornerstone of management. A dedicated nurse-led clinic for patients post percutaneous coronary intervention (PCI) offers a great opportunity to address risk factors in order to reduce cardiovascular events.

Purpose: To determine the effectiveness of nurse-led clinic follow up of patients post PCI and the rate of 28 day re-admission.

Method: A retrospective review of parameters recorded at clinic appointments from January 2015- December 2017. The data of 1325 patients were examined for baseline characteristics, re-admission rates and interventions at their PCI clinic visits.

Results: 1325 patients were reviewed in our nurse-led PCI clinic. Mean age was 64 and 78% were males. The main indications for PCI were ST- elevation myocardial infarction (STEMI) (22.7%), Non-STEMI (23%) and angina (43%) (Table 1). At the clinic appointment, 852 (64.3%) patients were offered lifestyle advice or non-pharmacological intervention. The remainder 473 (35.70%) patients had appropriate pharmacological intervention (change in dose, addition or discontinuation of medications) (Figure 1). 712 (53.7%) patients had LDL-C above recommended target and their statin therapy was amended accordingly. 132 patients (10%) were re-admitted within 28 days after the follow-up visit. However, only 23 (1.7%) were re-admitted due to cardiac reasons (Figure 2).

Conclusion: Nurse-led PCI clinics are a safe and effective option for follow-up of patients post PCI. They provide satisfactory assessment and management of risk factors without increased risk of poor outcomes.

Abstract 52 Table 1: Indications for Percutaneous Coronary Intervention

<table>
<thead>
<tr>
<th>Indication for PCI</th>
<th>Number of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEMI</td>
<td>301/1325 (22.7%)</td>
</tr>
<tr>
<td>NSTEMI</td>
<td>290/1325 (22%)</td>
</tr>
<tr>
<td>Angina</td>
<td>570/1325 (43%)</td>
</tr>
<tr>
<td>Other</td>
<td>164/1325 (12.3%)</td>
</tr>
</tbody>
</table>
53. Acute procedural outcomes and CMR appearances of PVI using a point by point workflow - a comparison study

L O’Neill, S Williams, R Karim, J Whitaker, R Mukherjee, J Harrison, I Sim, J Julia, M Wright, M O’Neill

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Background: The ‘Close Protocol’ workflow for pulmonary vein isolation (PVI) targeting pre-defined ‘Ablation Index’ (AI, a composite of contact force, time and power) values and minimising inter-lesion distance may optimise the creation of durable lesions. Cardiac MRI (CMR) is a useful tool to assess the appearances of post ablation scar.

Aims: To compare procedural parameters, success rates and post ablation CMR scar burden in patients undergoing PVI using a point by point work flow to a cohort of historical controls.

Methods: Procedural details and success rates were recorded in 29 patients undergoing 1st time PVI using a ‘point by point’ work flow by 2 operators. Comparison was made with a cohort of 20 consecutive historical controls undergoing PVI by the same operators using continuous drag lesions. CMR parameters pre- and post-ablation were recorded. To calculate total post ablation scar burden, scar maps were generated from atrial 3D late gadolinium enhancement (LGE) sequences using in-house software. Scar burden was calculated by thresholding the maps at 0.97 times the mean signal intensity of the blood pool using the image intensity ratio method. Scar width and ablation lesion gaps were assessed on 3D scar maps using custom made software.

Results: Target AI values for Operator 1 were 400 anteriorly and 350 at the posterior wall and 400 throughout the LA for Operator 2. There were no significant differences in baseline demographics, duration of AF and CHADS2VASc score between the two groups.

Procedural parameters and outcomes: Mean procedural time was significantly lower in the study group vs the control group (150.9±6.3 mins vs 186.1±10.12, P=0.004). The mean number of RF applications in the study group was significantly higher than in the control group (91.48±5.9 vs 21.2±2.3, P=<0.001). Complete PV isolation was achieved in all patients. There was no difference in the rates of first pass isolation or in the need for additional RF to achieve isolation between both groups. No complications occurred.
in either group. At a mean follow up of 6.8±0.9 months, 3 patients in the study group had a documented recurrence of AF.

CMR analysis: Baseline pre-procedure LA area and end-diastolic volume (EDV) were similar in both groups (27.1±1.6cm vs 28.3±1.1cm, P=NS and 107.4±7.8ml vs 114.9±4.8ml, P=NS). Post-procedure CMR was carried out at a time interval of 3.7±1.1 months after ablation. Total post ablation scar burden was significantly lower in the study vs the control group (51.2±1.9% vs 61.6±1.7%, P=0.001). Overall there was a greater reduction in LA area and EDV post procedure in the study vs the control group however this was not statistically significant. Analysis of ablation lesion gaps is ongoing.

**Conclusion:** PVI using a ‘point by point’ workflow offers shorter procedural times and lower post ablation scar burden compared to a conventional approach. Further work is needed to determine if this protocol offers a long-term outcome benefit compared to a conventional approach.

**Abstract 53 Figure 1:** Boxplots demonstrating differences in procedural and MRI parameters between groups. A significant difference was noted in total procedure time, number of RF applications and scar burden on CMR between the study and control groups. Fluoroscopy time was lower in the study vs the control group, however this did not reach statistical significance.
**Abstract 53 Figure 2: MRI Analysis of Pulmonary Vein Encirclement**

MRI analysis of pulmonary vein encirclement. Red arrows indicate sites of high signal intensity on 3D LGE images acquired in control (A) vs study patients (B). C – Post ablation scar maps generated using in-house software. D – Polar plots generated from analysis of scar maps demonstrating location and extent of gaps in the pulmonary vein encirclement.

**54. Advancing the management of Type 2 diabetes through an integrated community based cardiovascular disease prevention programme**

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**Background:** With the prevalence of Type 2 diabetes increasing globally it is imperative that we explore models of care that seek to improve diabetes outcomes in accordance with the recommended total Cardiovascular (CVD) risk approach to prevention.

**Purpose:** This study examines the effectiveness of a community-based CVD prevention programme on medical and lifestyle risk factor management in a cohort of patients with Type 2 diabetes.

**Methods:** Patients with Type 2 diabetes and their family members were invited to attend a 16-week programme consisting of a professional multi-disciplinary (nurse, dietician, physical activity specialist) lifestyle intervention, with appropriate risk factor and therapeutic management in a community setting. Risk factors such as blood pressure, lipids, smoking, blood glucose, BMI (body mass index), waist circumference and physical activity levels were assessed at baseline, end of programme and at 1 year.

**Results:** As this study is ongoing, outcome data on patients who completed the 16 week programme and attended the 1-year follow-up were analysed (Table 1.). As of December 2016, 218 patients were invited to attend End of Programme (EOP) assessment, resulting in a 75% response rate (n=164), and 166 were invited to attend 1-Year follow-up (1-yr) of which 64.5% responded. Overall a high programme uptake rate of 99% was observed.

**Conclusions:** Data from this ongoing lifestyle intervention programme suggests that the management of diabetes and cardiovascular disease can be successfully integrated. In addition, this model of care can improve diabetes outcomes with improvements in biomedical, anthropometric and lifestyle risk factors not only being observed at EOP but being sustained at 1-yr.
55. The need for ambulatory blood pressure monitoring to accurately assess blood pressure control in patients with Type 2 diabetes

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**Background:** The diagnosis of hypertension (HTN) and the clinical decisions regarding its treatment are usually based on daytime clinic blood pressure (BP) measurements. However, the correlation between BP levels and target organ damage, cardiovascular (CV) risk, and long-term prognosis, is higher for ambulatory (ABPM) than clinic measurements, both in the general population as well as in patients with diabetes. Given the two-fold increased prevalence of abnormal BP patterns and sleep-time HTN in the diabetic population careful assessment of BP across the entire 24hrs is vital for optimal medical management.

**Aim:** To investigate whether all patients with Type 2 Diabetes Mellitus (T2DM) should have BP assessed using ABPM or whether there are subgroups of T2DM patients who can have BP accurately assessed by using daytime clinic BP monitoring alone.

**Methods:** A total of 30 T2DM patients were included in this study measuring both daytime clinic BP and ABPM in all patients. They were grouped into systolic blood pressure (SBP) <140mmHg and SBP ≥140mmHg on daytime clinic measurement. Subjects were asked to complete a questionnaire and biochemical profiles involving cholesterol, HbA1C, creatinine, albumin, urine albumin/creatinine ratio and eGFR were reviewed. Details of medications were noted.

**Results:** On daytime clinic measurement, 63.3% (n=19) had SBP <140mmHg and SBP ≥140mmHg on daytime clinic measurement. Subjects were asked to complete a questionnaire and biochemical profiles involving cholesterol, HbA1C, creatinine, albumin, urine albumin/creatinine ratio and eGFR were reviewed. Details of medications were noted. Six of nineteen patients (31.6%) with normotensive daytime BP had masked HTN. Conversely, five of eleven patients (45.5%) with hypertensive daytime BP had white coat syndrome. In total, twelve patients (40%) had a high SBP on ABPM (>135mmHg). Baseline demographic, glycaemic control and CV risk factors data were not significantly different between groups (p>0.05). A third of our patient cohort were not taking regular antihypertensives, three of which had elevated SBP on ABPM (undiagnosed HTN).

**Conclusions:** Due to the high rate of masked hypertension, and marked differences between clinic SBP and ABPM results, ABPM should be performed in all T2DM patients for accurate BP assessment, regardless of baseline demographics, glycaemic control or CV risk factors.
ROLE OF ZFHX3 IN ATRIAL FIBRILLATION

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Background: Atrial fibrillation (AF) is the most common clinical arrhythmia, although the pathophysiology remains poorly understood. Population-based genetic studies have identified a susceptibility locus for AF at the gene ZFHX3.

Hypothesis: We hypothesized that a cardiac-restricted knockout of the transcription factor ZFHX3 in a mammalian model organism would perturb normal cardiac development and function, and illuminate the role of ZFHX3 in AF.

Methods and Results: We generated a murine cardiac-restricted knockdown of ZFHX3 using cre-lox recombination. Knockdown was confirmed by organ specific genotyping. Among knockdown mice, increased inducibility of atrial arrhythmias was observed at in vivo electrophysiology testing at 3 months of age (% arrhythmia induction maneuvers 10 vs 0, p < 0.001). Cardiac structure and function was normal in the knockdown mice at 3 months. Premature mortality was noted among the knockdown mice, with death occurring at 9-10 months of age (cox proportional HR p < 0.01) (Figure 1). Cardiac magnetic resonance imaging revealed severe cardiomyopathy prior to death, with impaired left ventricular function and atrial enlargement. Histology of the affected hearts revealed severely dilated and fibrosed atria containing a large mass consistent with thrombus. Immunofluorescence of mouse hearts from early embryonic to adult stages confirmed cardiac expression of ZFHX3, with a marked atrial predominance. Optical mapping of Langendorff-perfused hearts demonstrated increased conduction velocity in knockdown atria (p < 0.01) with a trend toward shorter action potential duration. Whole-RNA sequencing of atrial tissue revealed disruption of the left-right axis, with the left atrium transcript profile of knockdown animals more closely resembling that of the control right atrium, and vice versa. Several genes important for sidedness were differentially expressed, including SFRP5, an inhibitor of Wnt signaling. SFRP5 was downregulated in the knockdown left atria (FDR=1.6x10^{-11}) and upregulated in the knockdown right atria (FDR=1.1x10^{-12}). Functional analysis further implicated differential control of the hedgehog signaling pathway as the most significantly enriched pathway for differentially expressed genes common to both atria (BH value=7.9x10^{-6}), with global upregulation in the left atrium and downregulation in the right atrium. Functional analysis of differentially expressed genes by atrium also revealed abnormalities in calcium ion binding and ion transmembrane transporter activity.

Conclusion: We have uncovered a role for ZFHX3 in the left-right patterning of cardiac atria. Disruption of this developmental process predisposes to atrial cardiomyopathy, affects atrial electrophysiology properties, changes which may increase the susceptibility to AF.

Abstract 56 Figure 1: Structural and EP Characteristics

Figure 1. Structural and EP characteristics. a and b: echocardiography and in vivo electrophysiology studies showing similar basic characteristics between control and knockdown animals, c: intra-cardiac recordings of atrial arrhythmias induced in knockdown mice. d: Quantification of arrhythmia burden.
Abstract 56 Figure 2:

Figure 2 a: Kaplan-Meier plot of increased mortality in knockdown mice, b: Masson-Trichrome stain of knockdown heart at 9 months showing atrial dilatation, fibrosis and mass, c: immunofluorescence showing atrial expression of ZFHX3, d: principal component analysis plot of RNA sequencing showing reduction in Euclidean distance between knockdown left atrium and control right atrium

57. The clinical course of heart failure patients managed in a disease management program

R Murphy, L Healy, S Zhou, S McCleland, J Gallagher, M Ledwidge, K McDonald

St Vincent’s Healthcare Group, Dublin, Ireland

Background: Recurrent hospitalisation for acute decompensated heart failure (ADHF) is a concerning prognostic sign and usually underlines the need to consider advanced heart failure (HF) therapy or palliative care. Multidisciplinary disease management programs (DMP) are now recognised as the optimal method to deliver state of art HF care to those surviving an ADHF admission. What is unclear are the characteristics of those managed in a DMP likely to display a downward course in disease trajectory and thereby in need of a change in management strategy.

Methods: We recruited patients entering our DMP following an admission for ADHF. Patients were followed over time to determine what percentage of them defined features of disease progression (defined as 2 subsequent ADHF admission within a 6-month period) compared with those demonstrating a more stable course.

Results: 1984 patients were followed for an average of 3.6 years in our DMP post admission with ADHF. Mean age was 73 years old. 58% were male. Of these 493 had heart failure with a preserved ejection fraction (HFpEF) and 1239 had heart failure with a reduced ejection fraction (HFrEF). 264 patients demonstrated heart failure disease progression at an annual incidence of 3.7% per year. On multivariate analysis the strongest indicators of progression to refractory heart failure were B-type natriuretic peptide (BNP) and renal function as estimated by creatinine, with stable raised BNP being the strongest predictor of disease progression. The optimal stable BNP to differentiate high and low risks was approximately 440 pg/ml.

Conclusion: Patients managed in a multidisciplinary disease management program showed a low rate of annual progression of HF syndrome as defined by recurrent hospitalisations. This highlights the importance of referring patients at risk of recurrent hospitalizations to a DMP to help improve patient outcomes. Persistently high stable BNP and impaired renal function were the strongest predictors of disease progression.

58. Factors contributing to left atrial remodelling and the development of atrial fibrillation in hypertrophic cardiomyopathy

S Cuddy, E Kaynor, K Nutakki, C Yung Ho, N Lakdawala, A Crino

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Background: Left atrial (LA) dilation is associated with increased risk of atrial fibrillation (AF), heart failure and cardiac arrest in patients with hypertrophic cardiomyopathy (HCM). The factors that influence LA remodelling in HCM are not well described. This study was undertaken to identify factors that influence the rate of LA remodelling and subsequent development of atrial fibrillation in HCM.

Methods: Baseline and follow-up echocardiograms were analysed by an experienced echocardiographer blinded to clinical factors or outcomes in an HCM patient cohort. Exclusion criteria were
59. An investigation of global longitudinal strain in primary mitral regurgitation: a retrospective cohort of patients with mitral regurgitation

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University College Cork, College Road, Cork, Ireland

Background: In asymptomatic severe mitral regurgitation (MR), 5yr all-cause mortality is 22%. MR is also a significant risk factor for pulmonary hypertension (pHTN) and atrial fibrillation (AF). Surgical mitral valve repair or replacement is recommended if patients exhibit reductions in left ventricular ejection fraction (LVEF) or an increase in end systolic dimension. Global longitudinal strain (GLS) is proposed to be more accurate at detecting left ventricular dysfunction than LVEF measurements by the Simpson’s method. We investigated whether patients with primary MR and near-normal/normal LVEF have impaired GLS.

Purpose: The primary outcome was impairment of GLS in those with primary MR who had normal or near-normal LVEF. The secondary outcomes were to assess the relationship between AF/pHTN and GLS.

Methods: A retrospective observational analysis of echocardiograms of patients with primary MR, as defined in the European society of cardiology guidelines on valvular heart disease, was carried out. Over a one year period (October 2016-October 2017) the echocardiograms of patients with primary MR were selected. Strain analysis using speckle-tracking was applied to all technically satisfactory studies. Patient records were reviewed for other related conditions and medications.

Results: A total of 205 HCM patients were studied: mean age 44.4±15.8 years, 40% female, 41% had sarcomere mutations, NYHA class I/II/III 61%/30%/9%, septal thickness 17±5 mm, LV ejection fraction (LVEF) 65±9%, 30% had obstruction (LV outflow tract gradient ≥30 mm Hg at rest or ≥50 mmHg with Valsalva). At baseline, LA diameter was 4.1±0.6 cm (range 2.4-6.2) and LA volume indexed to BSA (LAVi) was 34±12 ml/m2 (range 11-75) with at least mild LA enlargement present in over 50%. Over a median 5.0 years (IQR 2.7-7.8) follow up, LA diameter increased by 0.2±0.4 cm and LAVi by 5±10 ml/m2. The baseline ratio of the peak E-wave velocity to septal TDI e’ velocity (E/e’) and estimated pulmonary artery systolic pressure were significantly associated with LA enlargement (p= 0.0007 and 0.049 respectively). The relationship between E/e’ remained significant after controlling for age, BSA, LVOT gradient, LVEF, and mitral regurgitation. In univariate and multivariate analyses, other clinical and echocardiographic variables, including age, genetic status, blood pressure, LVEF, and the presence or degree of LVOT obstruction, were not associated with LA remodelling. Incident AF developed in 35 patients (17%). Baseline LA diameter was larger (4.5 vs. 4.0 cm, p<0.01) in patients who developed AF. In a multivariable model including age, BSA, and baseline E/e, baseline LA size (p=0.007) and rate of LA enlargement (p=0.01) were significantly associated with the development of AF.

Conclusions: Remodelling of the LA is a common feature of HCM that is progressive and associated with future development of AF. E/e’, rather than obstruction, was strongly associated with progressive LA remodelling in this cohort. These findings support the importance of altered myocardial function and haemodynamics in LA remodelling in HCM.
whose pulmonary pressures were within normal limits were less likely to have impaired GLS (p=0.001, OR=0.272, CI 0.1-0.73).

**Conclusion:** GLS was impaired in those with moderate MR but normal in patients with mild and severe MR at normal/near normal LVEF. Advancing age, the presence of atrial fibrillation or pulmonary hypertension increased the risk of abnormal GLS. These results may reflect a paradoxical effect of increasing MR severity on LV deformation by an increased preload state. Our studies support the prospective study of serial determinations of strain on a cohort of patients with MR.

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**MODERATED POSTER SESSION 3**

### 60. Transradial access for complex chronic total occlusion – 6 year study demonstrates similar success rates to transfemoral access with decreased complications

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3Connolly Hospital Blanchardstown, Dublin, Ireland

**Introduction:** International registry data audits for centres performing CTO (chronic total occlusion) PCI consistently report a success rate of approximately 75% to 85%, with the vast majority of centres using femoral access1-3. TFA is used due to the belief that TRA might compromise catheter support and certain device utilization1. To investigate whether success rates, and other measures of effectiveness such as time taken per procedure and contrast use, are affected by access point we have performed a retrospective study of all consecutive CTO PCI over a 6 year period.

**Methods:** We performed a retrospective analysis of all consecutive CTO procedures in two institutions from June 2010 until December 2016. During this period we reviewed 270 cases of CTO from the two hospitals; one of which was a large public teaching hospital and the other was a private institution. For the purposes of this study we only included those CTO lesions with a TIMI flow of 0, which were present for more than 3 months, longer than 20mm and required bilateral access utilizing hybrid techniques. We subsequently divided the cases by access point into transradial and transfemoral groups with a successful reopening was defined as a restoration of TIMI 3 flow and <50% residual stenosis.

**Results:** During the period of our study we identified 270 cases of complex PCI CTO involving 233 patients. The average age of patients was 68 years, the majority were men (86%), 141 (61%) had hypertension, 54 (23%) had diabetes mellitus, 119 (51%) had dyslipidaemia, 90 (39%) had had a previous myocardial infarction and 41 (18%) were current smokers. Table 1 shows the results from our study divided by access site. TRA was used in the majority of our cases at 58% with no major differences between the two cohorts, apart from a higher number of previously failed cases being attempted with TFA. The overall success rate with TRA was 89% versus 77% for TFA cases. The TRA group had lower procedure times (2 hours versus 3 hours) and lower contrast use (378ml versus 422ml) than the TFA group. There was a lower complication rate in the TRA group 6.4% versus 14% especially in regards to contrast induced nephropathy and vascular complications.

**Conclusion:** The main finding from our study is that it is feasible to reopen the majority of complex CTO cases with TRA and it can be adopted as a default strategy. Using TRA in the majority of our cases did not impact on success rates, procedure time nor contrast used. The baseline characteristics of the patients were very similar indicating that the TRA is suitable for the majority of patients. Our study adds further evidence that TRA is safe and effective for the majority of complex CTO cases with a reduction in complication’s and improved patient outcomes.
61. Cardiac surgery in Northern Ireland: still evolving after 50 years

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Introduction: Cardiac Surgery has been continuously performed for 50 years in Northern Ireland. Clearly, practice will have changed over this time and we have examined how this has evolved over the past decade.

Methods: Data on 8922 patients operated on between 1st April 2008 and 31st March 2018 was taken from the prospectively maintained surgical database (PATS). Paediatric and adult congenital heart surgery patients were excluded. Cases were categorised and totalled for each of the ten years studied.

Results: There was been a steady decrease in the ratio of CABG:Non-CABG cases performed as shown in Figure 1. The increase in Non-CABG due to an increase in both isolated AVR and Other cases as shown in Figure 2. Over the ten year period there were large increases in the amount of thoracic aortic aneurysm and tricuspid valve surgery performed. The ratio of biological:mechanical prosthetic valves steadily increased.

Conclusions: Cardiac surgery continues to evolve and there has been a rise in the number of cases that are not isolated CABG or AVR. These operations are typically more complex e.g. thoracic aortic aneurysm or tricuspid valve surgery and this has implications for funding and delivery of cardiac surgery.

Abstract 61 Figure 1: Isolated and non CABG
Abstract 61 Figure 2: Isolated AVR and Non CABG / Non AVR

Abstract 61

Outcomes of delayed sternal closure in paediatric patients underwent cardiac surgery in Our Lady’s Children’s Hospital Crumlin

A Khan, G Kane, S Mohamed, M Elrih, M Yamin, D Vondrys, R Weedle, B Kis, E Abdelrahman, L Nolke, M Redmond, J McGuinness

Department of Paediatric Cardiac Surgery, Our Lady’s Children’s Hospital Crumlin, Dublin, Ireland

Background: DSC (delayed sternal closure) is most frequently utilized in neonates and infants undergoing complex repairs. In the early days of cardiac surgery, primary closure of the sternum at the end of the operation was mandatory because of the concern of mediastinal infection. Potential risks of delayed sternal closure include sepsis, mediastinitis, bleeding, and late sternal instability. Does longer duration before DSC increase the risk of adverse outcomes or mitigate the negative effect of other risk factors? To assess this, we checked the outcomes of delayed sternal closure in our centre.

Methods: We did retrospective study. All patients were studied who required delayed sternal closure post cardiac surgery in our centre in Our Lady’s Children’s Hospital Crumlin between March 2010 and March 2017.

Results: Total 3737 procedures to repair congenital cardiac anomalies were done between March 2010 and March 2017.

199 patients required delayed sternal closure (5.32%). Among these patients, 123 patients (61.81%) were male and 76 patients (38.19%) were female. Mean body weight at the time of surgery was 4.8 kg (median 3.6 kg). There were different types of primary cardiac surgeries performed. Truncus arteriosus repair was done in 13 patients (6.5%). 59 patients (29.6%) were having arterial switch operation. In eight patients (4.0%) TAPVD repair was done. AVSD repair was done in eight patients (4.0%). 19 patients (9.5%) were having IAA repair. Norwood procedure was done in 49 patients (24.6%). In 13 patients, Tetralogy of Fallot repair was done. Mean total cross clamp time was 103 minutes. Mean circulatory arrest time was 10.87 minutes. 62 patients (31%) required ECMO after primary surgery. Duration of mean days of sternum remained open was 3.6 days (88 hours). 52 patients (26.1%) were having positive culture. 24 patients (12.1%) required antibiotics more than 10 days. Mean stay in ICU was 17.2 days (413 hours). Overall mortality was 7 patients (8.5%) and 182 patients (91.5%) were alive (Figure 1).

Conclusion: Delayed sternal closure is an important strategy for congenital cardiac surgery, particularly for very young infants. Elective delayed sternal closure does not reduce the morbidity but it confirms the efficacy of the cardiac procedure. Instead of delayed sternal closure in case of ECMO, cannulation through neck vessels by experienced hands with closed sternum may be preferred.

Abstract 62 Figure 1: Mortality Frequency

Abstract 62

Outcomes of delayed sternal closure in paediatric patients underwent cardiac surgery in Our Lady’s Children’s Hospital Crumlin

A Khan, G Kane, S Mohamed, M Elrih, M Yamin, D Vondrys, R Weedle, B Kis, E Abdelrahman, L Nolke, M Redmond, J McGuinness

Department of Paediatric Cardiac Surgery, Our Lady’s Children’s Hospital Crumlin, Dublin, Ireland

Background: DSC (delayed sternal closure) is most frequently utilized in neonates and infants undergoing complex repairs. In the early days of cardiac surgery, primary closure of the sternum at the end of the operation was mandatory because of the concern of mediastinal infection. Potential risks of delayed sternal closure include sepsis, mediastinitis, bleeding, and late sternal instability. Does longer duration before DSC increase the risk of adverse outcomes or mitigate the negative effect of other risk factors? To assess this, we checked the outcomes of delayed sternal closure in our centre.

Methods: We did retrospective study. All patients were studied who required delayed sternal closure post cardiac surgery in our centre in Our Lady’s Children’s Hospital Crumlin between March 2010 and March 2017.

Results: Total 3737 procedures to repair congenital cardiac anomalies were done between March 2010 and March 2017.
Methods: 21 consecutive patients with failing stentless \((n=5)\), stented porcine valve \((n=4)\), stented pericardial valve \((n=12)\) were treated with ViV-TAVI between 2010 and 2017. Baseline characteristics included a mean age of 80 ±8.6 years, mean logistic EuroScore of 31.4 ±18% and mean time from index operation to ViV-TAVI 11±3.9 years (33-264 months). All patients were symptomatic at NYHA class 3 or 4. 60% of patients had severe bioprosthetic regurgitation, 19% bioprosthetic stenosis and 21% mixed disease. 24% of patients had moderate or worse left ventricular systolic dysfunction. 33% patients had undergone prior coronary bypass grafting, 10% had a history of significant pulmonary disease and 9% had suffered a prior stroke. All patients underwent TAVI with a self-expanding device, performed percutaneously via the femoral artery under local anaesthetic.

Results: Perioperative and 30-day mortality was 0%, with 1-year mortality of 14%. 19% \((n=4)\) patients died during a median follow-up period of 24±28.7 months. Only one of these deaths was cardiac in nature, occurring due to refractory heart failure in the context of a peak gradient of 70mmHg, after ViV-TAVI within a small 21mm Sorin Mitroflow prosthesis. Mean aortic gradient, after ViV-TAVI, was 14±11mmHg. 9.5% \((n=2)\) patients had moderate paravalvular regurgitation on pre-discharge post-TAVI transthoracic echocardiogram (TTE). 0% of patients required a permanent pacemaker, suffered cardiac tamponade, or had a major vascular access injury. There was only one recorded stroke. Device embolization or migration was not observed in any patient. Mean TTE follow-up was 23 months, for which the mean aortic gradient remained at 14±11mmHg, and there was 0% incidence of structural valve deterioration. Only one patient had a cardiac readmission within 1 year of ViV-TAVI. Mean NT-proBNP level prior to ViV-TAVI was 5567pg/L, falling to 1463pg/L one year after the procedure.

Conclusion: Our experience demonstrates that ViV-TAVI is an effective alternative procedure for high-risk redo surgical patients, associated with low peri-procedural, 30-day and 1-year mortality. Our echocardiographic outcomes suggest good durability of the ViV bioprosthesis, and our low readmission rate, combined with the NT-proBNP trend suggest a favourable clinical response also.
64. Waiting times for urgent inpatient cardiac surgery: the effect of service modernisation

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**Introduction:** In Northern Ireland, the regional cardiac surgery service is based at the Royal Victoria Hospital, Belfast and serves 12 referring cardiology units for inpatients requiring urgent surgery. A service improvement initiative was commenced in 2014 and included the institution of a regional MDM based at RVH and local MDMs based in the lead hospital in 3 of the other trusts. A video clinic was introduced for remote surgical assessment of inpatients in outlying units. All units were visited by members of the surgical team and guidance for work up of patients for surgery issued. We analysed the effect of these changes on inpatient waiting time for surgery.

**Methods:** Data on 1784 patients referred for inpatient cardiac surgery over the 4 year time period from April 2014 to March 2018 was analysed. The date from admission to the cardiology ward and referral for surgery (referral waiting time - RWT) and the date from referral for surgery and the date of the operation (surgical waiting time - SWT) were taken from the prospective maintained database for referrals (the “whiteboard”). The total waiting time (TWT) was the sum of the RWT and the SWT.

**Results:** Overall, 1402 patients (79%) proceeded to surgery in with a mean total waiting time of 32 days (SD 22.1, median 28). The mean values for waiting times for each quarter year (Q) are shown in Figure 1. There was a reduction in the mean TWT from 37 days (SD 20.0) in Q1 of 2014/15 to 24 days (SD 11.65) in Q1 of 2018 at the end of the study. This improvement was due to a fall in the mean SWT of 12 days (43%). The RWT, however, did not change.

**Conclusions:** Improvements in the pre-operative pathway for cardiac surgery have reduced the time patients wait for urgent inpatient cardiac surgery in Northern Ireland effectively creating 13 additional cardiology beds each day across the province. The value of this to the NHS in Northern Ireland should be self-evident. Further reductions in waiting time could be achieved by improving the pathway in the referring cardiology unit and reducing further the surgical waiting time. The latter requires sustained investment in cardiac surgery and, given the current issues in delivery of acute hospital care, is imperative.
CONSTITUTION

1. The Society shall be called “The Irish Cardiac Society”. Its object
shall be the advancement of knowledge of Disease of the Heart
and Circulation.

2. These objects shall be pursued by meetings for communications
and discussions, by lectures and by any other means.

3. The rules of the Society shall not be changed unless at the Annual
General Meeting two-thirds of the Ordinary Members present vote
in favour of the change. Notice of the suggested change must be
sent to the Secretary, who shall notify all Ordinary Members of the
proposal at least one month before the meeting.

4. There shall be a President of the Society. He shall be elected for
two years. He will represent the Society at home and abroad and
will preside over meetings of the Council but not necessarily at the
Scientific Meeting of the Society for which a local Chairman may
be elected.

MEMBERSHIP

5. The Society shall consist of the following membership categories:
Ordinary, Extraordinary, Honorary, International and Affiliate. They
shall be elected at the Annual General Meeting by an affirmative vote
of two-thirds of the Ordinary Members present at the Meeting. The
Annual subscription will be determined at the Annual General Meeting.

ORDINARY MEMBERS

6. Ordinary Members shall be Physicians or Surgeons on the
Consultant Staff of a Hospital in Ireland or others whose primary
interest is in the practice of Cardiology, Cardiovascular Surgery, or in
research in these and allied subjects.

7. They shall be elected at the Annual General Meeting by an
affirmative vote of two-thirds of the Ordinary Members present at
the Meeting, Every Ordinary Member is required to pay the annual
subscription to the Society. A member who fails to pay the annual
subscription on two consecutive years will be deemed to have
resigned from the Society.

8. New Members are proposed and seconded by current Members of
the Society.
EXTRAORDINARY MEMBERS

9. A Member will cease to be an Ordinary Member on retirement. He shall automatically thereafter become an Extraordinary Member unless he should elect to retire from the Society.

10. Extraordinary Members shall receive the notices, may attend the meetings of the Society, may take part in the proceedings and may propose candidates for ordinary membership. They shall have no vote in the conduct of private business otherwise.

HONORARY AND CORRESPONDING MEMBERS

11. Men or women of distinction in Medicine, at home or abroad, who have contributed to the advancement of Cardiology and / or have been very supportive of the society may be recommended by the Council for election as Honorary Members.

ELECTION OF MEMBERS

12. Ordinary and Extraordinary Members may propose candidates for Ordinary membership and other categories of membership. Such proposals accompanied by a statement of the candidates professional status, public appointments and published works, shall be circulated to Members of Council by the Secretary before September 1st. The Council shall consider the names proposed and shall recommend the names of those thought most suitable. The list of names recommended shall be circulated to members by the Secretary at least one month before the Annual General Meeting.

13. The Society shall hold an Annual Meeting which will usually be held in conjunction with the Stokes' Lecture and the Scientific Meeting. The Council may organise further meetings at its discretion.

14. The Chairman of each Meeting shall be appointed by the Council.

15. An Extra-Ordinary/Special Meeting can be called when circumstances demand, by three Officers of the Council or one third of the Ordinary Members of the Society.

16. Visitors may, with the permission of the Chairman, be introduced by members. They may make contributions and take part in discussions, subject to the same rules as members.

17. Communication shall be spoken, not read, and all speakers shall conform to the time-table arranged by the Council.

18. No reporters shall be permitted to be present and no report of the meetings shall be published in journals or newspapers unless sent by the Council.

ASSOCIATE MEMBERSHIP

Associate Members (Affiliated) are members of Affiliated groups established by the Society who are not Ordinary Members.

International Members are proposed and seconded by two current Members of the Society.

International Members will receive all electronic communications of the Society and have full access to the resources available on the societies website.

INTERNATIONAL MEMBERSHIP

International members are those who fulfil the criteria for Ordinary Membership except that they are practicing abroad and do not wish to be considered for Ordinary Membership of the Society.

International Members are proposed and seconded by two current Members of the Society.

International Members will receive all electronic communications of the Society and have full access to the resources available on the societies website.

ELECTION OF OFFICERS AND COUNCIL

19. Nominations of Ordinary Members for the post of president, Treasurer, Secretary, Assistant Secretary and for Members of the Council may be made by any Ordinary Member and sent in writing, with the consent of the nominee, to the Secretary before September 1st. In the normal course of events the Assistant
Secretary will succeed the Secretary. The nominations shall be made at the Annual General Meeting and those names receiving the most votes shall be declared elected. In the event of a draw for any office, the Council shall decide the member to be elected.

20. The business of the Society shall be conducted by a Council which shall arrange the programme of each meeting. The Council shall consist of a President, Secretary, Assistant Secretary, Treasurer and six ordinary Members. In addition the President-elect shall serve as a Council Member for the year before he takes Office and the immediate past-President shall be a Council Member for one year after he vacates Office. Each ordinary member of Council shall serve for a period of three years. The Council shall have power to co-opt additional members for a period of up to three years, if they think there is any special reason for it. Council shall have the power to appoint ex-offico members as deemed appropriate.

21. The subscription for all categories of membership shall be fixed by the Council and shall become payable by the 1st day of January. Failure to pay the subscription due within two years shall be considered equivalent to resignation.

22. The account of the Society shall be submitted to the Society by the Council at each Annual General Meeting.

SECRETARIES AND TREASURER

23. Two Ordinary Members shall be elected in accordance with Rule 21 as Secretary and Treasurer respectively.

24. The Secretary, Assistant Secretary and Treasurer of the Society shall be appointed for a period of two years initially. A member can serve only two consecutive terms in each of these posts. To facilitate a smooth transition the post of Secretary should be generally filled by the outgoing Assistant Secretary.

25. The Secretary shall summon all meetings, circulate the programme to members at least one month before the meeting and be responsible in co-operation with the Chairman Elect for arranging the Annual General Meeting on behalf of the Council. The Secretary shall keep brief Minutes of the proceedings of the Society.

26. The Treasurer shall keep the accounts, collect subscriptions and be responsible for the expenditure of the Society.
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- Abbot
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There is no conflict of interest as the pharmaceutical companies have no contact with the authors. The support for the meeting is used for meeting costs and speaker expenses.

All submissions by authors are free and more than one entry may be submitted.