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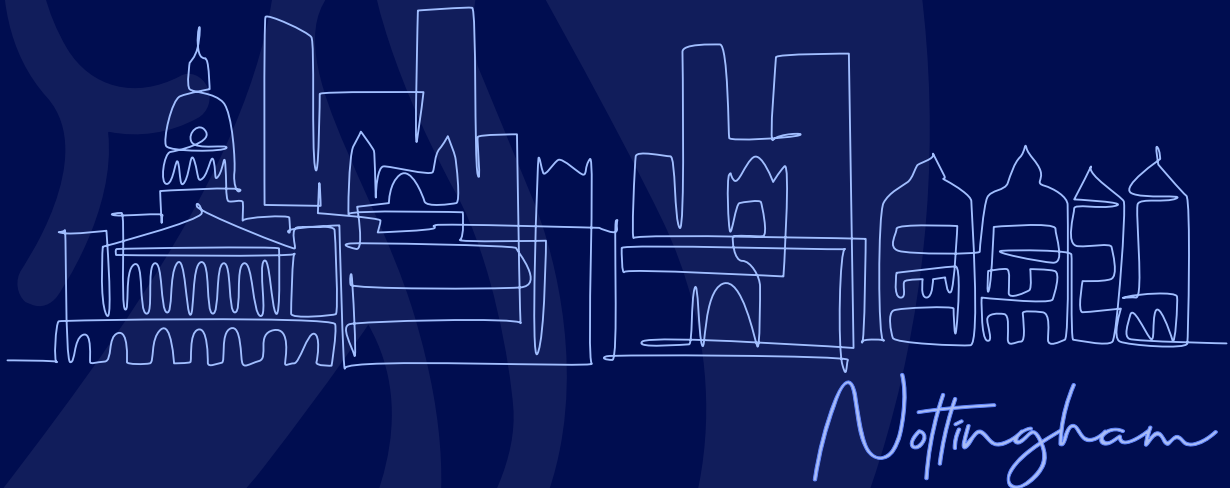
06-08 NOVEMBER 2026



YEAR
ANNIVERSARY

2026

ABSTRACTS



Nottingham



SCPS EVENTS

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Mike Adamek

SCPS CONGRESS
06-08 NOVEMBER

2026

BIOGRAPHY

Mike is a healthcare practitioner with nearly 2 decades of experience across a range of clinical roles, primarily within critical care. His interest in cardiac care developed whilst working in PICU, where exposure to ECMO inspired him to pursue a career in Perfusion. He qualified as a Perfusionist in 2018 and has since worked in senior perfusion roles, gaining extensive experience in cardiopulmonary bypass and extracorporeal support. Mike is currently Deputy Perfusionist at Spire Southampton Hospital. He has a particular interest in introducing innovative technologies, driving improvements in clinical standards, and service quality.

ABSTRACT

From Business Case to Bedside: A 12-month review of the procurement, implementation and clinical use of the “Mr Frosty” at Spire Southampton.

In 2025, Spire Southampton Hospital procured the “Mr Frosty” heater-cooler system as part of a wider initiative to modernise its perfusion equipment, replace an ageing and increasingly unreliable water-based heater-cooler fleet, and enhance clinical practice and safety.

Spire Southampton was the first centre in the UK to transition from a water-based to a glycol-based heater-cooler system. The introduction of this technology has delivered significant operational benefits; improving efficiency whilst eliminating the risk of heater-cooler-associated mycobacterial contamination.

This presentation provides a retrospective review of the journey from initial business case development through procurement, implementation, and staff training to established clinical use during the first 12 months following adoption. All stages of the project were examined to identify key successes, challenges, and lessons learned. The presentation aims to provide perfusionists with a practical, user-based evaluation of the “Mr Frosty” system, together with guidance for departments considering the procurement and implementation of this technology within their own clinical practice.



Peter O'Sullivan

SCPS CONGRESS
06-08 NOVEMBER

2026

BIOGRAPHY

Peter is a newly graduated perfusionist from Kerry, working in Beacon hospital Dublin. He has a background in neuro and cardiac physiology and completed this research as part of his MSc with the University of Bristol.

ABSTRACT

Haemolysis In Cardiopulmonary Bypass: A Prospective Oxygenator Comparison

Background: Haemolysis is a well-established complication of cardiopulmonary bypass (CPB), primarily arising from mechanical shear stress imposed on erythrocytes by circuit components. Despite widespread clinical use of multiple oxygenator models, comparative data on device-specific haemolysis in adult cardiac surgery remains limited.

Aim: This study aimed to compare levels of haemolysis caused between two oxygenator models, the Terumo Capiiox FX25 and the Sorin Inspire 8F, during adult CPB for a range of cardiac surgeries.

Methods: A prospective observational study was conducted at Beacon Hospital Dublin. Haemolysis was quantified using Roche Cobas haemolysis index (H-index). Two oxygenator groups were established (n = 52 patients; 26 per oxygenator) and a third exploratory group was reported on using the Maquet Quadrox (n = 7). The primary outcome was defined as the change in H-index from pre-bypass to 60 minutes on bypass (ΔH). Normality was tested using the Shapiro-Wilk test. Differences between oxygenators were analysed using Mann-Whitney U test. Analysis of covariance (ANCOVA) was performed on log-transformed ΔH to adjust for baseline H-index, and a Spearman correlation examined the relationship between pressure drop and ΔH .

Results: The Inspire 8F was associated with a statistically significant greater haemolysis than the Capiiox FX25 (median ΔH 22.5 [IQR 21] vs 16.5 [IQR 14.5], $W = 219.5$, $p = 0.031$). This difference persisted after adjustment for baseline H-index with ANCOVA. No correlation was observed between pressure drop across the oxygenator and ΔH .

Conclusion: The Sorin Inspire 8F was associated with greater ΔH than the Terumo Capiiox FX25. Although these findings do not warrant routine practice change, these findings suggest that oxygenator selection warrants consideration in high-risk cases and haemolytically vulnerable patients.



Joseph Hughes

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BIOGRAPHY

Joseph Hughes is the ECMO lead for the Perfusion Department at Harefield Hospital in north London. He first trained and qualified at University Hospitals Birmingham, before moving to Harefield Hospital where his interests have developed to include ECMO, mechanical circulatory support and the emerging field of pre-hospital ECMO.

ABSTRACT

A shocking 5 years? Service and departmental developments during the first 5 years of a Cardiogenic Shock ECMO and eCPR service.

As a hospital already providing a busy out of hours primary PCI service alongside cardiothoracic transplantation, ECMO has always been a core part of the service for the Perfusion Department at Harefield Hospital. In 2021 the formal introduction of a service to provide ECMO for cardiogenic shock and eCPR presented multiple departmental and service level challenges. This oral presentation aims to summarise the developments made in the Perfusion, Surgical and Critical Care departments over the last 5 years in order to meet the challenges presented by this expanding area of ECMO.



Mya Rai

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BIOGRAPHY

Mya Rai is a Clinical Perfusionist at Basildon Hospital with a BSc in Physiology from University College London and an MSc in Perfusion Science from the University of Bristol. She has a particular interest in clinical research and evidence-based practice.

ABSTRACT

The 3/8-inch Venous Line: Conserving Blood, but Not Preserving It?

Background: Haemodilution from the cardiopulmonary bypass (CPB) prime is a modifiable factor associated with patient outcomes, and circuit tubing contributes substantially to prime volume. Narrowing the venous line from 1/2-inch to 3/8-inch lowers venous line volume by approximately 44% but raises flow velocity, wall shear stress and hydraulic resistance, potentially requiring vacuum-assisted venous drainage (VAVD). Increased mechanical stress and VAVD have been implicated in red blood cell (RBC) injury, so a strategy intended to limit haemodilution may damage the cells it is designed to conserve.

Aim: To determine whether reducing venous calibre from 1/2-inch to 3/8-inch increases haemolysis during simulated CPB, whether VAVD magnitude does so independently, and whether the two interact.

Methods: A closed-loop benchtop CPB circuit was run with porcine erythrocytes at a haematocrit of 30%. Venous calibre (3/8-inch versus 1/2-inch) was crossed with four VAVD levels (0, 20, 40 and 60 mmHg), giving eight two-hour runs at 5 L/min. Blood was sampled at five time points and plasma free haemoglobin (PfHb) measured, giving 40 observations, analysed by linear mixed-effects regression with a random intercept for run.

Results: No difference in Δ PfHb was detected between the 3/8-inch and 1/2-inch lines ($p = 0.715$), across VAVD levels ($p = 0.708$), or for the calibre $\times$ VAVD interaction ($p = 0.398$). Circulation time was the only predictor for which an association was detected ($\beta = 0.036$ per minute on the $\ln(\Delta$ PfHb + 1) scale, 95% CI 0.029 to 0.043; $p < 0.001$).

Conclusion: Reducing venous calibre and applying moderate VAVD produced no statistically detectable increase in overt haemolysis under the conditions tested. However, the unreplicated experimental design limits the reliability of these findings, and sublytic RBC injury cannot be excluded. The safety of the narrower line therefore remains unestablished in the model and requires further investigation.



Saeed Taiyari, MSc, CCP

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BIOGRAPHY

Saeed Taiyari, MSc, CCP, is a Senior Clinical Perfusion Scientist at Great Ormond Street Hospital NHS Foundation Trust in London. His clinical interests include cardiopulmonary bypass, extracorporeal support, haemolysis reduction, blood conservation and perfusion management of complex high-risk patients. He has a particular interest in developing practical perfusion strategies to improve patient safety and clinical outcomes.

ABSTRACT

Modified Cardiopulmonary Bypass Strategy for Severe G6PD Deficiency During Coronary Artery Bypass Grafting: A Practical Perfusion Technique

Background: Severe glucose-6-phosphate dehydrogenase (G6PD) deficiency presents unique challenges during cardiopulmonary bypass (CPB) because of increased susceptibility to oxidative injury and haemolysis. Published guidance regarding optimal perfusion management remains limited, particularly in patients with a history of severe haemolytic complications and renal dysfunction.

Technique: A 63-year-old male with severe G6PD deficiency, a previous dialysis-requiring haemolytic crisis, chronic renal impairment and residual hemiparesis following a cerebrovascular accident underwent urgent three-vessel coronary artery bypass grafting. A modified CPB strategy was developed to minimise oxidative stress and mechanical haemolysis. Key components included controlled oxygenation (PaO_2 approximately 10 kPa), alpha-stat management, tepid blood cardioplegia, minimisation of cardiectomy suction and blood-air interface exposure, albumin-enriched priming, continuous haemofiltration, and avoidance of oxidant medications, including methylene blue. Oxygen delivery and haematocrit were maintained to support end-organ perfusion and reduce renal hypoxic stress.

Results: CPB duration was 112 min, with an aortic cross-clamp time of 76 min. No clinically significant intravascular haemolysis or haemoglobinuria occurred. Plasma free haemoglobin, bilirubin and lactate dehydrogenase elevations were modest and transient. A single postoperative haemodialysis session was required, after which renal function improved without ongoing renal replacement therapy. The patient was discharged on postoperative day seven without evidence of delayed haemolysis.

Conclusion: A carefully modified CPB strategy focused on reducing oxidative stress, preventing haemolysis and protecting renal function may facilitate successful cardiac surgery in selected patients with severe G6PD deficiency. This report provides a practical perfusion approach for managing patients at exceptionally high risk of peri-operative haemolytic complications.



Kirsty Dempster



BIOGRAPHY

Kirsty Dempster began her perfusion career as a trainee at Bristol Royal Infirmary in 1992, gaining experience in both adult and paediatric perfusion before joining Cambridge Perfusion at Royal Papworth Hospital in 1994. Throughout her early career, Kirsty worked across a diverse range of specialist areas, including abdominal and thoracic organ retrieval, liver transplantation, and pioneering research into paracorporeal organ perfusion. She played a key role in the early development of Royal Papworth Hospital's ventricular assist device (VAD) programme and was heavily involved in the evolution of the hospital's ECMO service, supporting its transition from a perfusion-led model to the specialist nurse-led service used today.

ABSTRACT

ECMO to LVAD in heparin-induced thrombocytopenia: a perfusion approach to bivalirudin on cardiopulmonary bypass

Background: Patients bridged from ECMO to a durable left ventricular assist device (LVAD) are among the sickest entering mechanical circulatory support. Heparin-induced thrombocytopenia (HIT) complicates surgery further. Bivalirudin has no reversal agent and is cleared by proteolysis, so any stagnant blood in the bypass circuit can clot.

Case: A 50-year-old woman had a late-presenting anterior STEMI, then a refractory in-hospital PEA arrest. She was rescued with extracorporeal CPR and converted to central VA-ECMO with an LV vent. Her course was complicated by bleeding, acute kidney injury and HIT. With no LV recovery, an RV stress test on ECMO supported implantation of a HeartMate 3 as a bridge to transplant. At operation on day 28 she had a thin, aneurysmal LV, a re-do chest and thrombus on the pulmonary vein vent, and required heparin-free bypass.

Perfusion management: Guidelines and the CHOOSE-ON and EVOLUTION-ON trials supported bivalirudin: 50 mg in the prime, a 1.0 mg/kg bolus and a 2.5 mg/kg/hr infusion, split between the venous line and the central line. ACT was checked every 10–15 minutes. To avoid stasis we used two cell savers for all shed blood and vents, no pump suckers, a low reservoir level, crystalloid cardioplegia, no haemofiltration and temperature of 34°C or above. Bypass time was 169 minutes and cross-clamp time 60 minutes.

Outcome: The chest was closed on day 30 and she was extubated on day 33. Renal function recovered and she was discharged home on day 56 on warfarin. Both cell savers developed clot, suggesting that a higher ACD-A rate was needed.

Conclusion: Bivalirudin on bypass can be safe and effective in HIT, but needs a team protocol, attention to stasis, anticipation of bleeding and early transfusion planning.



Matthew Donald

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06-08 NOVEMBER

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BIOGRAPHY

Matthew Donald is a recently qualified Clinical Perfusionist at the Golden Jubilee National Hospital in Glasgow, Scotland. Before pursuing a career in perfusion, Matthew worked as a Biomedical Scientist specialising in Haematology and Blood Transfusion. Matthew's background in transfusion science inspired his MSc dissertation, investigating the association between intraoperative red blood cell transfusion and prolonged ICU stay following cardiac surgery. Matthew's professional interests include patient blood management, blood conservation and improving outcomes following cardiac surgery.

ABSTRACT

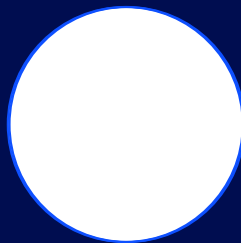
Association Between Intraoperative Red Blood Cell Transfusion and Prolonged ICU Length of Stay Following Routine Cardiac Surgery: A UK Single-Centre Retrospective Study.

Background: Red blood cell (RBC) transfusion is frequently used during cardiac surgery to maintain oxygen delivery and manage blood loss. However, increasing transfusion exposure has been associated with adverse postoperative outcomes, including prolonged intensive care unit (ICU) length of stay (LOS). This study investigated the association between intraoperative RBC transfusion and prolonged ICU LOS following routine adult cardiac surgery.

Methods: A retrospective single-centre observational study was conducted using prospectively collected audit data from 1,632 adults undergoing routine cardiac surgery at the Golden Jubilee National Hospital between May 2024 and April 2026. Patients were grouped according to intraoperative RBC transfusion exposure: 0 units, 1-2 units, or greater than/equal to 3 units. The primary outcome was prolonged ICU LOS, defined as greater than/equal to 72 hours. Binary logistic regression was used to estimate unadjusted and adjusted odds ratios for prolonged ICU LOS across transfusion groups.

Results: Of 1,632 patients, 1,431 received no intraoperative RBC transfusion, 167 received 1-2 units, and 34 received greater than/equal to 3 units. Prolonged ICU LOS occurred in 10.6%, 24.6%, and 50.0% of patients, respectively ($p < 0.001$). In unadjusted analysis, the odds of prolonged ICU LOS were higher in patients receiving 1-2 units (OR 2.76, 95% CI 1.85-4.05) and greater than/equal to 3 units (OR 8.48, 95% CI 4.21-17.1) compared with no transfusion. After adjustment for clinically relevant patient and operative factors, RBC transfusion group remained independently associated with prolonged ICU LOS overall ($p = 0.026$). The adjusted odds ratio was 1.51 (95% CI 0.93-2.41) for 1-2 units and 2.92 (95% CI 1.20-6.87) for greater than/equal to 3 units.

Conclusion: Increasing intraoperative RBC transfusion exposure was associated with progressively higher odds of prolonged ICU LOS, with the strongest evidence observed in patients receiving greater than/equal to 3 units. Causation cannot be established because of the retrospective design and residual confounding. These findings support careful transfusion decision-making and further evaluation of patient blood management strategies to reduce unnecessary transfusion exposure.



BIOGRAPHY

Updates In Progress

ABSTRACT