

**Strategy** 432448/8

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### 1. Sensitivity of Administrative Coding in Identifying Inpatient Acute Strokes Complicating Procedures or Other Diseases in UK Hospitals

**Authors** Li L.; Binney L.E.; Carter S.; Gutnikov S.A.; Beebe S.; Bowsheer-Brown K.; Silver L.E.; Rothwell P.M.  
**Source** Journal of the American Heart Association; Jul 2019; vol. 8 (no. 14)  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**PubMedID** 31266385  
**Database** EMBASE

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Available at [Journal of the American Heart Association](#) from HighWire - Free Full Text  
Available at [Journal of the American Heart Association](#) from Wiley Online Library Free Content - NHS  
Available at [Journal of the American Heart Association](#) from Unpaywall

**Abstract** Background Administrative hospital diagnostic coding data are increasingly used in "big data" research and to assess complication rates after surgery or acute medical conditions. Acute stroke is a common complication of several procedures/conditions, such as carotid interventions, but data are lacking on the sensitivity of administrative coding in identifying acute stroke during inpatient stay. Methods and Results Using all acute strokes ascertained in a population-based cohort (2002-2017) as the reference, we determined the sensitivity of hospital administrative diagnostic codes (International Classification of Diseases, Tenth Revision; ICD-10) for identifying acute strokes that occurred during hospital admission for other reasons, stratified by coding strategies, study periods, and stroke severity (National Institutes of Health Stroke Score=5). Of 3011 acute strokes, 198 (6.6%) occurred during hospital admissions for procedures/other diseases, including 122 (61.6%) major strokes. Using stroke-specific codes (ICD-10=I60-I61 and I63-I64) in the primary diagnostic position, 66 of the 198 cases were correctly identified (sensitivity for any stroke, 33.3%; 95% CI, 27.1-40.2; minor stroke, 30.3%; 95% CI, 21.0-41.5; major stroke, 35.2%; 95% CI, 27.2-44.2), with no improvement of sensitivity over time (Ptrend=0.54). Sensitivity was lower during admissions for surgery/procedures than for other acute medical admissions (n/% 17/23.3% versus 49/39.2%; P=0.02). Sensitivity improved to 60.6% (53.6-67.2) for all and 61.6% (50.0-72.1) for surgery/procedures if other diagnostic positions were used, and to 65.2% (58.2-71.5) and 68.5% (56.9-78.1) respectively if combined with use of all possible nonspecific stroke-related codes (ie, adding ICD-10=I62 and I65-I68). Conclusions Low sensitivity of administrative coding in identifying acute strokes that occurred during admission does not support its use alone for audit of complication rates of procedures or hospitalization for other reasons.

### 2. Impact of secondary care financial incentives on the quality of physical healthcare for people with psychosis: a longitudinal controlled study

**Authors** Crawford M.J.; Huddart D.; Craig E.; Zalewska K.; Quirk A.; Shiers D.; Strathdee G.; Cooper S.J.  
**Source** The British journal of psychiatry : the journal of mental science; Jul 2019 ; p. 1-6  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**PubMedID** 31272513  
**Database** EMBASE

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Available at [The British journal of psychiatry : the journal of mental science](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.

**Abstract** BACKGROUND: Concerns have repeatedly been expressed about the quality of physical healthcare that people with psychosis receive. Aims To examine whether the introduction of a financial incentive for secondary care services led to improvements in the quality of physical healthcare for people with psychosis. METHOD(S): Longitudinal data were collected over an 8-year period on the quality of physical healthcare that people with psychosis received from 56 trusts in England before and after the introduction of the financial incentive. Control data were also collected from six health boards in Wales where a financial incentive was not introduced. We calculated the proportion of patients whose clinical records indicated that they had been screened for seven key aspects of physical health and whether they were offered interventions for problems identified during screening. RESULT(S): Data from 17 947 people collected prior to (2011 and 2013) and following (2017) the introduction of the financial incentive in 2014 showed that the proportion of patients who received high-quality physical healthcare in England rose from 12.85% to 31.65% (difference 18.80, 95% CI 17.37-20.21). The proportion of patients who received high-quality physical healthcare in Wales during this period rose from 8.40% to 13.96% (difference 5.56, 95% CI 1.33-10.10). CONCLUSION(S): The results of this study suggest that financial incentives for secondary care mental health services are associated with marked improvements in the quality of care that patients receive. Further research is needed to examine their impact on aspects of care that are not incentivised. Declaration of interest D.S. is an expert advisor to the National Institute for Health and Care Excellence (NICE) centre for guidelines and a member of the current NICE guideline development group for rehabilitation in adults with complex psychosis and related severe mental health conditions; a board member of the National Collaborating Centre for Mental Health (NCCMH); views are personal and not those of NICE or NCCMH. G.S. was the National Clinical Director for Mental Health at NHS England and played a lead role in setting up the physical health CQUIN (Commissioning for Quality and Innovation framework) for people with psychosis. M.J.C. is Director of the College Centre for Quality Improvement which was commissioned by NHS England to collect data for the CQUIN and commissioned by HQIP to conduct the National Clinical Audit of Psychosis. S.J.C. is Clinical Lead for the National Clinical Audit of Psychosis. E.C., K.Z. and A.Q. are employed by the Royal College of Psychiatrists which was commissioned by NHS England to collect data for the CQUIN and commissioned by HQIP to conduct the National Clinical Audit of Psychosis.

### 3. British Association of Dermatologists (BAD) National Audit on Non-Melanoma Skin Cancer Excision 2016 in collaboration with the Royal College of Pathologists

**Authors** Keith D.J.; Bray A.P.; Brain A.; Mohd Mustapa M.F.; Barrett H.E.; Lane S.; Emmerich M.; Jakes A.; Barrett P.D.; de Berker D.A.R.

**Source** Clinical and experimental dermatology; Jul 2019

**Publication Date** Jul 2019

**Publication Type(s)** Article

**PubMedID** 31265150

**Database** EMBASE

Available at [Clinical and experimental dermatology](#) from Wiley Online Library Medicine and Nursing Collection 2019 - NHS

Available at [Clinical and experimental dermatology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).

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**Abstract** BACKGROUND: We conducted a re-audit of the surgical practice of United Kingdom (UK) dermatologists in the treatment of non-melanoma skin cancer and examined changes with reference to our previous audit in 2014. The audit was supplemented by a detailed assessment of completeness of the histopathology reports for each tumour. METHOD(S): UK dermatologists collected data on 10 consecutive non-micrographic excisions for basal cell carcinoma and 5 for squamous cell carcinoma. Data was collected on site, pre-operative diagnosis, histological diagnosis, proximity to previous scars, histological deep and peripheral margins. RESULT(S): We received 222 responses from 135 centres of 3290 excisions. Excisions from the head and neck accounted for 56.7% of cases. The mean tumour diameter was 11.4 mm (SD 7.1 mm, maximum 100 mm) and 97% of cases were primary excisions. BCCs accounted for 65.7% of total cases and SCCs 26.8%. Of the suspected BCCs, 95.8% were confirmed histologically and for suspected SCCs 80.4%. All margins for any tumour were clear in 97.0%. Complication rate in the audit was < 1%. Of the 2864 histology reports evaluated only 706 (24.6%) contained all core data items. 95% of these were synoptic reports. Commonly omitted items were level of invasion, risk and T stage, absent in 35.7%, 64.2% and 44.1% of reports respectively. CONCLUSION(S): Diagnostic accuracy and complete excision rates remain high. Complication rates may be under-reported due to lack of follow up. Histopathology reporting has a greater chance of being complete if reports are generated on a field based platform (synoptic reporting). This article is protected by copyright. All rights reserved.

#### 4. Quality improvement of prescribing safety: a pilot study in primary care using UK electronic health records

**Authors** Booth H.P.; Gallagher A.M.; Carty L.; Padmanabhan S.; Myles P.R.; Welburn S.J.; Valentine J.; Mullett D.; Hoghton M.; Rafi I.  
**Source** The British journal of general practice : the journal of the Royal College of General Practitioners; Jul 2019  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**PubMedID** 31262845  
**Database** EMBASE

Available at [The British journal of general practice : the journal of the Royal College of General Practitioners](#) from EBSCO (MEDLINE Complete)

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Available at [The British journal of general practice : the journal of the Royal College of General Practitioners](#) from Unpaywall

#### Abstract

**BACKGROUND:** Quality improvement (QI) is a priority for general practice, and GPs are expected to participate in and provide evidence of QI activity. There is growing interest in harnessing the potential of electronic health records (EHR) to improve patient care by supporting practices to find cases that could benefit from a medicines review. **AIM:** To develop scalable and reproducible prescribing safety reports using patient-level EHR data. **DESIGN AND SETTING:** UK general practices that contribute de-identified patient data to the Clinical Practice Research Datalink (CPRD).

**METHOD(S):** A scoping phase used stakeholder consultations to identify primary care QI needs and potential indicators. QI reports containing real data were sent to 12 pilot practices that used Vision GP software and had expressed interest. The scale-up phase involved automating production and distribution of reports to all contributing practices that used both Vision and EMIS software systems. Benchmarking reports with patient-level case review lists for two prescribing safety indicators were sent to 457 practices in December 2017 following the initial scale-up (Figure 2).

**RESULT(S):** Two indicators were selected from the Royal College of General Practitioners Patient Safety Toolkit following stakeholder consultations for the pilot phase involving 12 GP practices. Pilot phase interviews showed that reports were used to review individual patient care, implement wider QI actions in the practice, and for appraisal and revalidation.

**CONCLUSION(S):** Electronic health record data can be used to provide standardised, reproducible reports that can be delivered at scale with minimal resource requirements. These can be used in a national QI initiative that impacts directly on patient care.

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#### 5. Impact of achieving primary care targets in Type 2 diabetes on health outcomes and healthcare costs

**Authors** Keng M.J.; Tsiachristas A.; Leal J.; Gray A.; Mihaylova B.  
**Source** Diabetes, obesity & metabolism; Jul 2019  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**PubMedID** 31264761  
**Database** EMBASE

Available at [Diabetes, obesity & metabolism](#) from Wiley Online Library Medicine and Nursing Collection 2019 - NHS

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**Abstract** AIMS: In England and Wales, the National Diabetes Audit (NDA) assesses the quality of Type 2 diabetes (T2D) management in primary care using treatment targets for HbA1c  $\leq$  58mmol/mol, total cholesterol  $<$  5mmol/L, and blood pressure  $\leq$  140/80mmHg. We quantify the impact of variation across general practitioners' (GP) practices in achieving these targets on patients' health outcomes and healthcare costs.  
METHOD(S): Summary characteristics of T2D patients from the 2015-2016 NDA were used to generate representative populations of T2D patients. The UKPDS Outcomes Model 2 was used to estimate patients' long-term health outcomes and healthcare costs. The effects of achieving treatment targets on these outcomes were evaluated using regression models.  
RESULT(S): Achieving more of the HbA1c, cholesterol and blood pressure targets led to lower incidences of diabetes-related complications. About 0.5 (95%CI: 0.4-0.6) QALYs and 0.6 (95%CI: 0.4-0.7) LYs were gained by T2D patient over lifetime for each additional target met. The projected healthcare cost savings arising from fewer diabetes-related complications with achieving one, two or three targets compared to none were 859 (95%CI: 553-1165), 940 (95%CI: 485-1395), and 1037 (95%CI: 414-1660) over patient's lifetime. A typical GP practice in the lowest performing decile (average 371 T2D patients per practice, with 27% achieving all targets) is projected to gain 201 (95%CI: 123-279) QALYs and 231 (95%CI: 133-329) LYs, if all its T2D patients achieved all three targets.  
CONCLUSION(S): Substantial gains in health outcomes and reductions in healthcare cost could be achieved with further improvements in attainment of HbA1c, cholesterol and blood pressure targets for T2D patients.  
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#### 6. Planning for mechanical thrombectomy service expansion-a discrete event simulation for a drip and ship centre in a UK regional stroke network

**Authors** Dutta D.; Parry F.; Obaid M.; Ramadurai G.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 669  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall

**Abstract** Background and Aims: Mechanical thrombectomy (MT) is provided by neuroscience centres (NSC) which receive patients directly and via transfer from drip and ship centres (DSC). Most NSCs in the UK currently provide a working hours service but service expansion is underway. DSCs will also have to expand their MT assessment and transfer pathways. We used discrete event simulation (DES) to model workflow options for a DSC in a UK regional stroke network.  
Method(s): Sentinel Stroke National Audit Programme (SSNAP) and local audit data for one DSC were used to provide inputs for 3 alternative DES models (A, B and C) which were compared using a one factor ANOVA design for door-in-door-out (DIDO) times and onset to arrival at the NSC. Simulated treatment times were extrapolated to expected MT outcomes.  
Result(s): For presentations within 6hrs of onset in one year at our centre, 112/823 (13.6%) met the criteria (NIHSS $\geq$ 6, mRS $\leq$ 2) for MT assessment. Model C, which simulated stroke specialist presence from 8 am to 8pm, out of hours (OOH) network telemedicine support and enhanced priority for ambulance transfers enabled 65% of potential MT patients to receive the shortest DIDO time (fig 1) of median 11.3 minutes less than model A ( $p<0.001$ ) within hours (WH) and 34.4 minutes less ( $p<0.001$ ) OOH. Median simulated onset to arterial puncture times were 282m WH and 346m OOH predicting 3 months mRS scores of 0-2 for 36/82 (44%) patients treated.  
Conclusion(s): DES can facilitate planning and optimisation of workflow options for efficient drip and ship MT pathways. (Figure Presented) .

#### 7. Audit of adequate use of anticoagulation in known and new onset atrial fibrillation patients presented to hyperacute stroke unit at Scunthorpe general hospital UK

**Authors** Ali A.; Abbas M.; Saeed U.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 631  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall



**Abstract** Background and Aims: Atrial fibrillation (AF) is commonest arrhythmia. 20% of ischaemic stroke are related to AF. Stroke related morbidity and mortality can be reduced by appropriate anticoagulation of patients with AF. NICE guidelines suggest that patients with AF should be offered anticoagulation after assessment of stroke risk by CHA2DS2VASc and bleeding risk by HASBLED. Audit is conducted to assess appropriate use of anticoagulation in AF patients presented to hyper acute stroke unit at Scunthorpe General Hospital United Kingdom.  
Method(s): Patients with known and newly diagnosed atrial fibrillation were identified using sentinel stroke national audit programme from 1st January to 31st December 2017. Patient's medical record reviewed. CHA2DS2VASc score was retrospectively performed for patients who were not on anticoagulation prior to admission.  
Result(s): Total patients admitted to hyper acute stroke unit during the specified period were 621. 98 patients were known AF prior to admission and 36 were found to have new AF. 65 were on anticoagulation (66%) and 33 were not on anticoagulation prior to admission (34%). Twenty four patients were inappropriately not on anticoagulation. Anticoagulated group 58 patients had ischaemic stroke and 7 had haemorrhagic. 27 patients in ischaemic stroke group were on warfarin. 74 % of patients who were on warfarin had sub therapeutic INR on admission. 36 patients had new AF, 29 (81%) patients were discharged on anticoagulation, rest were not deemed suitable for anticoagulation  
Conclusion(s): Audit result shared with primary care colleagues to improve anticoagulation management in AF patients. Adequate AF management was done in Scunthorpe General Hospital Hyper-acute Stroke Unit.

### 8. Optimising clinical outcome by hyperacute research recruitment

**Authors** Day D.; Amis E.; Mitchell-Douglas J.; McGee J.; Finlay S.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 669  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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**Abstract** Background and Aims: Research evidence drives developments in hyper acute stroke care. Recent trials of thrombectomy, novel thrombolysis, complex imaging are challenging for recruitment and costly in terms of time and resources. Out of hours recruitment presents additional problems. We describe our approach: Methods: Our established hyperacute research centre tried many recruitment strategies, with varying success, until we integrated research nurses into the acute bleep nurse team. Trained through formal clinical and research education, competencies and case discussion; they work as experts to deliver: \* Acute assessment and triage to treatment \* Hyperacute care, \* Research recruitment \* Nurse led research \* Primary investigator trials \* CTIMPS with medical support Results: UK: top two position 2 years running for hyperacute stroke trials, leading UK centre for TASTE and TWIST, internationally leading recruitment for: SOS penumbra, Headpost, DNA Lacunar, 2. Delivered new and novel trials (GYPSIE). Hyperacute stroke trials recruitment: 2014: 44 2017: 111 2018: 99. Increase in: Recognition nationally and internationally- Approaches by new industry and academic trials Funding- Applications for employment Discussion Initial reticence from clinical and research finance was twofold: i) Funding joint teams and delivery of objectives, ii) Governance of staff. Audit demonstrated doubling of recruitment to hyperacute trials and improved quality of care shown in national audits.  
Conclusion(s): By nurses working across the research - clinical divide we improved outcomes for: Our patients (reflected in national audit) Equality of care - research studies out of hours. Hyperacute trial recruitment Retention and development of staff. Nursing and therapist leading research.

### 9. Consultant-led multidisciplinary community heart failure service improves the delivery of guideline directed medical therapy and reduces hospital admissions, re-admissions and length of stay

**Authors** Tahir Nazir T.; Naffati M.  
**Source** European Journal of Heart Failure; May 2019; vol. 21 ; p. 524-525  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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Available at [European Journal of Heart Failure](#) from Unpaywall

**Abstract**

Introduction: Heart failure (HF) epidemic is estimated to affect 26 million people worldwide, with nearly a million patients living in the United Kingdom alone. Guideline directed medical therapy improves survival and quality of life in HF patients. Long-term adherence with medical therapy declines after discharge from hospital and under-treatment with evidence-based pharmacotherapy is an important problem in community dwelling HF patients.

Objective(s): This observational study aims to assess the impact of a cardiologist led community HF service (comprising consultant, HF specialist nurses and allied health professionals) on the delivery of/adherence to first line treatments for HF patients, their unplanned hospital admission/readmission rates and length of stay.

Method(s): Retrospective data analysis of 700 consecutive patients treated by our community heart failure service was included in this study. Data were collected from medical records, prescriptions, hospital episode statistics (HES) database and national audit office socio-economic database for the north-west of England.

Result(s): Baseline study characteristics: Mean Age (79 years +/-8), Gender (Male =65%, Female=35%), ECG rhythm (Sinus Rhythm=65%, AF=35%), NYHA class (I-10%, II & III-88%, IV-2%), Aetiology of HF (IHD 52%, Idiopathic cardiomyopathy 16%, Valve disease 12%, Hypertension 10%, Other 20%), Heart Rate (<80/minute-85%) and Blood Pressure (135/80 mmHg-66%). Of the study cohort, 85% were taking first line HF treatment as recommended by the NICE UK guidelines (beta blocker 85%, ACE inhibitors 65%, MRA 65%). This is well above the regional average (60%). Of the patients taking beta-blockers, most were on cardio-selective drugs (Bisoprolol, Nebivolol, Carvedilol); and >50% were on the target dose. Clear explanations were documented in medical records for the patients not on a first line drug or below target dose. For the study period (2017); HF related unplanned hospital admission rate for our local community was 310 (per 100,000 population) and re-admission rates 38 (per 100,000 population) were much lower than the northwest average 600 and 72.5 per 100,000 population, respectively. Average Length of stay for HF related hospital admission in the study population was 5.07 days (compared to regional average of 9 days).

Conclusion(s): Our study shows that a consultant-led community HF service significantly improves delivery of guideline directed therapy by offering expertise and skill-set required to maintain patients on appropriate dosages of first line medications required to achieve target heart rate and blood pressure; and as a result lower admission and re-admission rates. Large scale studies and national audits must include community dwelling HF patients to get a better snapshot of how this increasingly complex medical problem is managed in the real world after hospital discharge.

**10. Heart failure day treatment centre (HFDTTC), a novel service design**

**Authors** Teresa Castiello T.; Williams G.; Krakowiak A.  
**Source** European Journal of Heart Failure; May 2019; vol. 21 ; p. 18  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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Available at [European Journal of Heart Failure](#) from Unpaywall

**Abstract** BACKGROUND: Heart Failure (HF) is one of the most common causes of acute hospital admissions and bed occupancies. A local Audit was carried out to analyse the HF population in a London borough and to investigate the causes of non-elective HF admission, in order to prevent them and to promote a more effective management. The Audit identified a fragile population, insufficiently referred to HF specialists (51%), with poor compliance (21%) and in sub-optimal therapy (27%) suggesting a large number of preventable admissions. The majority of non-elective admission had sub-acute presentation with relatively mild symptoms or signs of failure. The key objective of the Audit was to guide a novel service design. The Heart Failure Day Treatment Centre (HFDTTC) was suggested. AIM AND HYPOTHESIS: The aim was to design a service to improve quality and reduce admission rate and costs. We hypothesised that the HFDTTC would reduce non-elective admission by 10% and readmission rate within 30 days by 30%, increasing patients access to specialised care, with significant reduction of in-patient bed demand. SERVICE DESIGN: The HFDTTC has been established by the multi-disciplinary HF team to operate as a HF specialist nurse (HFSN) run and HF-consultant led facility. The HFDTTC aims to provide timely access to specialist care and better patient experience, in line with national and international benchmark. Inclusion and exclusion criteria identify a sub-acute group of HF population (main inclusion: patients in threatening admission mode, already under HF Team). Patients who meet criteria receive a 'business card' with contact details and opening times; patients are enabled to self-refer to the service or be referred by general practitioner or hospital clinician. The first point of contact with the patient is the HFSN, who can escalate to the HF physician. The HFDTTC offers a full range of hospital treatment, such as imaging, bloods and medical therapy. Patients can have single or multiple accesses to the HFDTTC until they are ready to be discharged back to community. CHALLENGE: Service design implies a delicate balance between quality and cost-effectiveness. Funding limitation, agreement among 'Providers' and 'Commissioners', estimation of demand and capacity and coordination with the co-existing teams are the most relevant challenges. SERVICE EVALUATION: Economic evaluation, key performance indicators, data monitoring and quality data will be collected and analysed with a specifically designed Audit Tool and through patient questionnaires. CONCLUSION(S): The HFDTTC is the first of its kind in the UK and acts effectively as day hospital for patients with established diagnosis of HF. It guarantees prompt assessment and treatment by the HF Team with the aim to reduce acute HF admissions which will result in a decrease in costs and improvement in patients quality of life. The cost-effectiveness of this model will be analysed with the support of a designed Audit Tool.

**11. Determinants of depression in patients with comorbid depression following cardiac rehabilitation**

**Authors** Sever S.; Harrison A.; Golder S.; Doherty P.  
**Source** European Journal of Preventive Cardiology; Jun 2019; vol. 26  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [European Journal of Preventive Cardiology](#) from Unpaywall

**Abstract** Background: History of depression prior to an indexed heart event, also referred to as comorbid depression, is associated with increased mortality rates among cardiovascular disease (CVD) patients. However, the determinants of an acute index event depression among patients with prior history are not clear. Purpose(s): To explore what determines cardiac rehabilitation (CR) depression outcomes in patients with comorbid depression (history of depression). Method(s): An observational study of routine practice was conducted using the UK National Audit of Cardiac Rehabilitation (NACR) data between April 2012 and March 2017. CR participants with comorbid depression were constituted study population. CR Hospital Anxiety and Depression Scale (HADS) depression measurement was used for the analysis and the clinical cut off point of 8 was used to categorize patients into low level depression (<8) and higher level depression (>=8) groups. Baseline characteristics were examined with independent samples t-test and chi-square test. A binary logistic regression was used to predict change in depression outcome following cardiac rehabilitation. Result(s): The analysis included 2715 CR participants with depression history. The determinants associated with the levels of HADS depression measurement after CR were having a higher total number of comorbidities (OR: 0.914, 95%CI: 0.854 to 0.979), a higher HADS anxiety score (OR: 0.883, 95%CI: 0.851 to 0.917), physical inactivity (OR: 0.707, 95%CI: 0.514 to 0.971), not currently smoking at baseline (OR: 1.774, 95%CI: 1.086 to 2.898), and male gender (OR: 0.721, 95%CI: 0.523 to 0.992). Age, weight and marital status were not significantly associated with HADS depression outcome. Conclusion(s): This study has shown that clinical and demographic variables determine depression outcomes among CR participants with a history of depression. Baseline characteristics of patients with comorbid depression such as higher anxiety, higher total number of comorbidities, smoking, physical inactivity, and male gender were predictors of their depression levels following CR. CR programmes need to be aware of comorbid depression and related patient characteristics (e.g. anxiety, smoking, and physical inactivity) associated with CR outcomes.

**12. Lumii. cardiac rehabilitation software. Let us shake things up**

**Authors** Farag A.; Eichhoefer J.

**Source** European Journal of Preventive Cardiology; Jun 2019; vol. 26  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [European Journal of Preventive Cardiology](#) from Unpaywall

**Abstract**  
 Introduction: Despite its proven cost effectiveness, cardiac rehabilitation (CR), participation and completion rates in the UK remain static at around 50%. The use of smartphone technology to increase CR penetration and uptake rate is promising.  
 Aim(s): To increase CR participation and completion rates through rebranding and modernising the current CR process.  
 Method(s): Two UK National Health Service (NHS) interventional cardiologists initiated the idea and partnered with health investors to develop the software. Working closely alongside NHS IT security leads, patients' groups, CR teams (across multiple NHS test sites), the British Association of Cardiovascular prevention and rehabilitation (BACPR), the British Heart Foundation (BHF) and the National Audit of Cardiac Rehabilitation (NACR) to develop the software.  
 Result(s): The resulting software application is a comprehensive three-armed cardiac rehabilitation software aimed at: 1-Patients; facilitating access to digitised cardiac rehabilitation information, communication with the cardiac rehabilitation team and offering a social networking feature where patients can share their experiences and challenged not only with health care professionals but with patients who have been through a similar experience. It utilises information from wearables and breaks language barriers. 2-Cardiac rehabilitation teams; allowing a more streamlined on boarding process, easier communication and response to patients' queries, personalising CR programs including home based programs, and improving data flow and management. The software allows for easier access and recollection of patients' data. 3-National Audit of Cardiac Rehabilitation (NACR) ; pushing notifications and reminders to patients on their mobile devices to fill in the NACR survey in a timely manner. The use of machine-based learning, allows us to capture wider patient groups, get patients more involved and engaged with the CR process and offer an individualised cost effective solution to patients. The software will also allow long term follow up and engagement with patients beyond the current CR 6-12 weeks period. The data will be hosted securely on NHS servers and will comply with the GDPR laws.  
 Conclusion(s): This software is a comprehensive user centred CR software aimed at complementing and modernising the current CR process. Its development is led by 2 NHS cardiologists, hosted on NHS servers, and complies with NHS data protection laws.

**13. Is intravenous thrombolysis getting any quicker in the UK? data from the national stroke registry**

**Authors** Mcaulay A.; McCurran V.; Dunn G.; Hoffman A.; Wolfe C.; James M.; Rudd A.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 111-112  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [European Stroke Journal](#) from Unpaywall

**Abstract**  
 Background and Aims: Intravenous thrombolysis (IVT) for acute ischaemic stroke is recommended within 4.5 hours of symptom onset, but within this time frame there is a steep decline in the odds of a good outcome with the passage of time.  
 Method(s): Patient-level data from the Sentinel Stroke National Audit Program (SSNAP), the national stroke registry for England, Wales and Northern Ireland, were analysed for patients who received thrombolysis between July 2013 and September 2018.  
 Result(s): Of the 427,645 patients admitted to 142 stroke units over 5 years, 49,550 (11.6%) were thrombolysed. Median door-to-needle time has decreased by approximately 2 minutes per year, from 59 minutes in 2013 to 50 minutes in 2018. Of those thrombolysed, 29,605 patients received IVT within one hour of symptom onset (59.75%). The proportion of patients thrombolysed within one hour increased from 52% in July 2013 to 63% in September 2018. Quarterly medians and interquartile ranges are shown in the figure.  
 Conclusion(s): Door-to-needle time has steadily reduced in the UK over the last 5 years, with an increase in the proportion of patients thrombolysed within one hour of hospital arrival. However, progress is slow and further significant quality improvements are needed in order to maximise the population benefit from alteplase for acute ischaemic stroke (Figure Presented) .

**14. Are in-patients with stroke in the UK getting enough therapy? data from the national stroke registry for England, Wales, and Northern Ireland**

**Authors** Mccurran V.; Wolfe C.; Hoffman A.; Rudd A.; James M.; Clark L.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 92  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [European Stroke Journal](#) from Unpaywall

**Abstract** Background and Aims: Occupational therapy (OT), physiotherapy (PT), and speech (SLT) are integral to stroke rehabilitation. National Clinical Guidelines for Stroke 2016, recommend a minimum of 45 minutes per day of each appropriate therapy, for a minimum of 5 days per week where it can be tolerated.  
Method(s): Data from 82,190 patients discharged between April 2017- March 2018 were analysed from the Sentinel Stroke National Audit Programme (SSNAP). Number of days therapy was applicable, median average number of minutes per day and percentage of days therapy received were calculated using OT as the exemplar.  
Result(s): Median length of stay was 7 days (IQR 3-23). The proportion of days therapy was received decreases after 4 days from 100% to 60% after 14 days. Over 90 days median minutes of therapy given on the day treated remained unchanged at about 40 minutes, as did the proportion of days on which patients were considered well enough to be treated.  
Conclusion(s): Our findings indicate the intensity of therapy declines sharply after the first 5 days. This decline particularly affects the more disabled patients with longer lengths of stay, when they may be the very patients for whom maximising therapy input would make the greatest difference to outcome. Data not presented show a similar pattern for PT and SLT (Figure Presented).

**15. Does prior anticoagulation relate to stroke sub-type and outcome in patients with atrial fibrillation in scotland? a national database study**

**Authors** Macleod M.J.; Sterling K.A.; Langhorne P.; Turner M.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 70  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [European Stroke Journal](#) from Unpaywall  
**Abstract** Background and Aims: Atrial fibrillation (AF) increases the risk of stroke fivefold. Anticoagulation therapy reduces the stroke risk in this population. This study aims to examine the pre-stroke use of anticoagulants in stroke patients with AF, and the subsequent outcomes after the index stroke.  
Method(s): A novel linked dataset of the Scottish Stroke Care Audit, Prescribing Information System and the Scottish Morbidity Records was used to identify retrospectively stroke patients with AF prescribed oral anticoagulants (OAC) between January 2010 and December 2015. Statistical analyses included chi-square tests for proportions and logistic regression to determine odds ratios.  
Result(s): There were 11,442 patients with confirmed AF upon admission to hospital for the index stroke. Prior treatment with OAC included Warfarin 2545 (22.2%), Dabigatran etexilate 21 (0.2%), Apixaban 78 (0.7%) and Rivaroxaban 126 (1.1%). For recorded stroke type, 1971 (83.7%) AF patients on OAC experienced an ischaemic stroke, 348 (14.8%) experienced a Haemorrhagic stroke, 25 (1.1%) had a Haemorrhagic transformation of infarct and 10 (0.4%) were unclassified. OAC patients were more likely to have a Haemorrhagic stroke (adjusted OR: 3.874, CI: 3.314 - 4.528; P <0.001) compared to patients not on an OAC. There was no difference in the chance of discharge home by 30 days (aOR: 0.888, CI 0.786 - 1.003; P=0.055). There was an increased 30-day mortality with Warfarin (aOR: 1.421, CI: 1.221 - 1.654; P<0.001), not seen with the use of Direct OACs.  
Conclusion(s): Pre-stroke use of OAC was associated with more haemorrhagic strokes and increased 30-day mortality, mainly due to warfarin use.

**16. Evolving senior nurse roles in acute stroke services: An exploration of past present and future in english hospitals (Severn region)**

**Authors** Vincent L.; Shaw L.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 513  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall

**Abstract** Background and Aims: United Kingdom stroke services have improved since the creation of a stroke subspeciality in 1999, but audits show there is vast regional variation. Twenty years ago, stroke coordinators signposted patients to rehabilitation services, supported service development and comprised a regional network which shared knowledge/expertise. These roles either disappeared as specialist services became established or evolved into advanced practitioner roles as thrombolysis/thrombectomy became the focus. Unlike their emergency department counterparts, these posts don't have standardised competency frameworks. Prior to introducing stroke nurse competencies, we explored the contemporary issues encountered by local hospitals and their evolution over time.  
Method(s): Qualitative telephone survey of advanced stroke nursing roles in six hospitals comprising one UK region  
Results: Each site had evolved different types of advanced nursing roles which lacked role definition, competencies, standardised validated training, or mentorship. Shifts towards acute stroke services had afforded less time for service development and has been instrumental in dissolution of the stroke coordinators' network. Overall individuals were feeling isolated and overwhelmed, limiting their ability to focus on service development and innovation.  
Conclusion(s): We have identified a clear need for standardisation of advanced acute stroke nursing roles. We recommend that further work should include a national role definition, scope of practice and competency framework. This would support development from junior nurse right up to fully trained nurse practitioners, adept at leadership/ service development. Support is required from structured mentorship and a nationally/ professionally validated MSc programme. The rejuvenation of a local nurse practitioner network would improve education, service development and morale.

#### 17. Do health professionals assess stroke survivors' ability to self medicate on an acute stroke unit? an audit of current practice

**Authors** Mockler P.; Walmsley N.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 510-511  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [European Stroke Journal](#) from Unpaywall  
**Abstract** Background and Aims: People that experience a stroke or transient ischemic attack are at increased risk of a future stroke and compliance with medications are important to reduce this. Stroke may cause impairments that affect the person's ability to self-medicate safely and independently. United Kingdom national guidelines advise a stroke survivor's ability to self-medicate should be assessed including the domains of cognition, manual dexterity and swallowing prior to discharge from hospital to home. This audit aims to assess current practice of assessing stroke survivors' ability to self-medicate on an acute stroke unit, with a view to identifying further improvement of practice.  
Method(s): A retrospective audit was completed of documentation for stroke survivors admitted within a two month period. This included the proportion of stroke survivors who prior to their stroke were self-medicating; the proportion who were assessed during their admission; and the proportion who were independent with this on discharge.  
Result(s): 33 stroke survivors' notes were audited. Initial results found 75% were self-medicating prior to admission and only 6% were self-medicating on discharge. 1% were assessed to self-medicate within their admission. Further results to be presented.  
Conclusion(s): Self-medication assessment is inadequate and to maximise effective secondary prevention and reduced care dependency this needs to become a routine part of high quality stroke care.

#### 18. National initiative in England to reduce unwarranted variation: Getting in right first time (gift)-stroke program

**Authors** Lowe D.; Hargroves D.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 673-674  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall

**Abstract** Background and Aims: Reducing unwarranted variation is vital if centrally (taxation) funded health care is to remain affordable. Estimates in England suggest savings of >5 billion (4%), of which 2 billion are in workforce efficiency. The GIRFT stroke program is a clinically led NHS Improvement program using process markers of care, along with outcome data including recurrence rates and costs, with patient reported outcomes to reduce unwarranted variation and support networked quality improvement.  
Method(s): Using existing process markers of care (SSNAP) with Hospital Episode coded activity (HES), Diagnostic imaging data (DIDs), observed mortality data (ONS) and patient reported outcome measures (PROM's) a geographic representation of variation of care will be formed. Regional workshops supporting individual hospital teams with 'deep dives' will highlight variation, celebrating excellence and providing networked support for improvement. 122 acute stroke provider organisations in England will have individualised data with clinically lead focused discussions grouped geographically in 2019.  
Result(s): 20 hospitals have had pilot visits over 2 regions in 2018 >12,000 patient episodes 7% variation in adjusted mortality 14 day variation in length of hospital stay 4% variation in stroke recurrence rate at 1 year 10% variation in need for antibiotics in first 7 days post stroke 12% variation in IV thrombolysis rate 80% variation in timely SLT assessment 30% variance in use of MRI scanning 200 variance in one bed day care costs  
Conclusion(s): Significant variation exists between pilot sites with in the same region. Through delivering networked improvement methodology a reduction in unwarranted variation and improved efficiency is envisaged.

### 19. Co-producing a complex intervention to reduce sedentary behaviour after stroke: Challenges and solutions

**Authors** Clarke D.; Forster A.; Morton S.; Gillian M.; Hall J.; Corepal R.; Fitzsimons C.; Lawton R.; Birch K.; Farrin A.; Holloway I.; Patel A.; English C.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 624  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall  
**Abstract** Background and Aims: Stroke survivors are highly sedentary; breaking up long uninterrupted bouts of sedentary behaviour could have substantial health benefit. However, intervention strategies tailored for this population are lacking. Co-production methods are highly valued in quality improvement work to enhance users' experiences and satisfaction with services but their use in complex intervention development is less commonly reported. We report on a co-production approach designed to develop an evidence informed intervention to reduce sedentary behaviour after stroke.  
Method(s): Co-production workshops with stroke survivors, their caregivers, health professionals, exercise professionals and researchers. Workshop processes were informed by the Behaviour Change Wheel framework for designing interventions, and incorporated systematic review and empirical evidence. Workshop interactions were recorded, analysis of outputs from each workshop informed subsequent workshops. Prototype intervention materials will be validated by workshop participants.  
Result(s): Five workshops were conducted in parallel in two stroke services, one in England and one in Scotland. Across the two sets of workshops 14 stroke survivors, 7 carers, 17 professionals and 6 researchers participated in intervention development: specifying the target behaviour; barriers and facilitators; generation of solutions; review of intervention prototypes. Challenges included ensuring stroke survivors' and caregivers' views were heard and valued, avoiding overwhelming participants with research evidence and using time effectively. Solutions included effective facilitation, involving participants in all stages of decision making, and providing participants with structured feedback on intervention elements  
Conclusion(s): A collaborative and iterative co-production approach has contributed to the development of a robust intervention with potential for integration into stroke care pathways.

### 20. Do patients take longer to arrive on a specialist stroke unit in winter? data from the national stroke registry for England, Wales and Northern Ireland

**Authors** Dunn G.; McCurran V.; Alex H.; Stanley K.; Wolfe C.; Rudd A.; James M.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 379  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall

**Abstract** Background and Aims: Direct admission to a dedicated stroke unit (SU) is a vital intervention for acute patients, those who receive care on a SU are more likely to be alive, independent, and living at home one year after stroke (Cochrane Review, 2013).  
Method(s): Data from the Sentinel Stroke National Audit Programme (SSNAP), a national quality register were analysed for the 5 years from April 2013-March 2018. SSNAP collects over 95% of hospital admissions for acute stroke in England, Wales and Northern Ireland.  
Result(s): Data were included for 397,298 patients admitted to 218 stroke units over 5 years. The admission rate within 4 hours of hospital arrival averaged 60%, but with a mean difference of 8% between winter and summer (Fig.1); the most pronounced difference being between summer and winter 2015 with a 10% difference. The median time to stroke unit arrival over the 5 year period was 3 hours 39 minutes.  
Conclusion(s): Our national registry data show a significant seasonal variation in timely access to specialist stroke care, with a maximum amplitude of 10% between summer and winter periods that equates to at least 9,000 affected patients. Given the broad applicability of SU care in preventing death and disability after stroke, systems of care should concentrate on eliminating poor access to specialist care at times of winter pressures and hospital overcrowding. (Figure Presented) .

### 21. A review of stroke unit admissions in a regional acute stroke centre

**Authors** Boyle N.; O'Brien A.; Gallagher S.; Krishnan N.; Fallon C.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 613  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [European Stroke Journal](#) from Unpaywall  
**Abstract** Background and Aims: Stroke unit care is associated with a lower risk of morbidity. American, European and UK guidelines recommend early stroke unit care. However, access to stroke-units is limited. The Irish National Stroke Audit in 2015 found only 29% of patients were admitted to a stroke unit. The aim of this retrospective review was to assess how many patients with acute ischemic stroke (AIS) were admitted to a four-bed capacity stroke-unit, in a regional acute stroke centre, during a one-year period.  
Method(s): Patients were selected from HIPE codes for AIS from June 2017-2018. IPIMS, the data manager, was utilised to assess admission times to the stroke-unit.  
Result(s): Of the 105 patients with AIS, 9.52% were admitted to the strokeunit on admission. 24.76% were admitted during admission. 11.42% were admitted to the ICU on admission. 45.71% were admitted to either the ICU or Stroke Unit during admission. 34% were admitted to a stroke-unit at any point, with 66% of patients with a diagnosis of AIS being managed outside of the stroke-unit. Of the 36 patients who were admitted to the stroke-unit, the median time from admission was 22hours and 34minutes.  
Conclusion(s): A stroke-unit is fundamental for any hospital managing AIS. Access is a priority for all in-patients with stroke. This review highlights that access to the stroke-unit in a regional acute stroke centre remains limited and that the time to admission is not in keeping with recommended standards. It is critical that access is enhanced in order to expedite treatments, prevent complications and improve outcomes.

### 22. Identifying factors associated with the intensity of therapy received by stroke survivors: The sentinel stroke national audit programme: Investigating and evaluating stroke therapy (ssnapiest)

**Authors** Gittins M.; Vail A.; Tyson S.; Bowen A.; Lugo-Palacios D.; Bray B.; Gannon B.; Paley L.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 620  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [European Stroke Journal](#) from Unpaywall



**Abstract** Background and Aims: One key factor in the clinical improvement of stroke patients is the amount of therapy they receive during rehabilitation, with patients observed to receive a wide variation in amount of therapy. Here we attempt to quantify the impact of patient and hospital characteristics on the amount of therapy received.

Method(s): Data included all strokes in England and Wales (July 2013- 2015) reported to the national Stroke Sentinel National Audit Programme (SSNAP) who survived three days. A robust multilevel mixed effects regression model measured the impact of patient and hospital factors identified a priori on the amount of stroke therapy received per day of stay. In addition to total therapy, the model was repeated separately for Physiotherapy, Occupational Therapy, Speech and Language Therapy, and Clinical Psychology.

Result(s): The amount of therapy received per day is influenced by patient stroke characteristics relating to severity, impairment categories, and pre-stroke independence. Patients with moderate strokes, motor impairments, or pre-morbid independence received more therapy. Additionally mild association was found with patient demographics gender, ethnicity, and social deprivation. Whilst more therapy was associated with higher staffing levels (numbers of qualified therapists and nurses). More therapy was also associated with patients assessed within 72 hours of arrival, a characteristic that may relate to the staff availability to undertake assessment.

Conclusion(s): After allowing for stroke characteristics that influence the amount of therapy received, there are organisational factors specifically staffing levels that remain associated with differences in provision. To confirm any association with organisational factors is present further research is required.

**23. An evaluation of consultant and registrar prescribing in the outpatient setting**

**Authors** Thomson C.L.; Campbell G.L.; Rita S.  
**Source** European Journal of Heart Failure; May 2019; vol. 21 ; p. 418  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [European Journal of Heart Failure](#) from Wiley Online Library Medicine and Nursing Collection 2019 - NHS  
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 Available at [European Journal of Heart Failure](#) from Unpaywall

**Abstract** Background Despite the presence of national and European guidelines, prescribing for heart failure with a reduced ejection fraction remains sub-optimal. The UK National Heart Failure Audit (2016-17) shows that only 44% of patients are discharged on a combination of ACE-inhibitor, beta blocker and aldosterone antagonist. A local audit in 2016 has shown that at 6 months post-discharge, only 25% patients are on maximal therapy, despite attending out-patient appointments. Purpose This study looked at clinical documentation in out-patient appointments to review whether changes were made to medication. The main aim was to determine current prescribing practice and impact on medicines optimisation. Methods This study looked at all heart failure out-patient appointments in January and February 2018. Patients were reviewed by a registrar or consultant. A range of clinical and demographic information was collected, including medication changes made and drug class. The letters were checked for clarity of documentation of medication, allergy status and patients' adherence with prescribed medicines for heart failure. Any recommendations were categorised and then reviewed whether change had occurred at the next out-patient appointment. Patients were excluded if they did not have a follow-up appointment, had passed away before their appointment, or did not attend. Results 694 patients attended an out-patient appointment in January and February 2018 and 50% (n=347) had a change to their medication recommended. The majority of patients (67.4%) had their current medications only partly documented. Very few patients had their allergy status (1.6%) or adherence (5.3%) documented. 3.5% of patients had none of their current medications documented. A total of 485 medication changes were recommended with half (50.5%) requiring the patient's community general practitioner to action the change. 21.0% of patients were issued a prescription. The most commonly prescribed class of medication were beta blockers (22.7%), ACE-inhibitors (17.7%) and diuretics (16.9%). Of the 214 patients who had a change recommended and attended a follow-up appointment, adherence to medication changes was 77.4%. Asking the general practitioner to action the change made up the highest proportion of medication changes (41.5%) but the lowest rate of advice followed (68.1%). Conclusion Prescribing for patients at heart failure outpatient appointments is low and general documentation of medication and adherence is poor. Half of medication changes are recommended for the general practitioner to action, which can incur a delay in medicines optimisation, as only 68.1% of these changes had been made when the patient attended for follow-up. The lowest percentage was when a change was recommended by a registrar. Further extension of this study is needed to understand the barriers to prescribing and review the current processes to reduce the delay in medicines optimisation.

**24. Secondary prevention with blood pressure lowering after intracerebral haemorrhage: A cohort study**

**Authors** Bonello K.; Nelson A.; Moullaali T.; Al-Shahi Salman R.  
**Source** European Stroke Journal; May 2019; vol. 4 ; p. 463  
**Publication Date** May 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [European Stroke Journal](#) from Unpaywall  
**Abstract** Background and Aims: Blood pressure (BP) lowering reduces the risk of recurrent stroke after intracerebral haemorrhage (ICH). UK stroke guidelines recommend long-term BP lowering to a systolic target <130 mmHg, unless contraindicated. However, implementation of BP lowering in clinical practice in the UK is unknown. Method(s): We identified adults with incident ICH to quantify the proportion who survived >14 days after hospital discharge and received antihypertensive drug(s) in (1) June 2010-May 2012 inclusive in a prospective, population-based, inception cohort study in the Lothian region of Scotland, and in (2) January 2017-November 2017 in the Scottish Stroke Care Audit (when we also extracted information about reasons for not using antihypertensive drugs after hospital discharge from paper and electronic patient records). Result(s): In 2010-2012, 83 (58%) of 142 ICH survivors received antihypertensive drug(s) at hospital discharge, and 45 (41%) of 109 survivors with BP data available at one year had systolic BP <130 mmHg. In 2017, 36 (55%) of 65 survivors received antihypertensive drug(s) at hospital discharge; of the 29 who did not receive antihypertensive drug(s), 11 (38%) already had systolic BP <130mmHg and 9 (31%) were too frail or had contraindications, but reasons in the remaining 9 (31%) were unclear. Conclusion(s): Just over half of ICH survivors receive antihypertensive drug(s) at hospital discharge. Almost a third of the adults who did not receive antihypertensive drug(s) did not appear to have a reason for avoiding them. Interventions are needed to improve the use of antihypertensive drugs and achieve systolic target BP after ICH.

**25. Completeness of staging investigation for colorectal cancer: Exploring the role of increasing age and comorbidity using mediation analysis**

**Authors** Benitez Majano S.; Di Girolamo C.; Morris M.; Walters S.; Rachet B.; Vansteelandt S.  
**Source** Annals of Oncology; Oct 2018; vol. 29  
**Publication Date** Oct 2018  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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 Available at [Annals of Oncology](#) from Unpaywall  
**Abstract** Background: Older cancer patients often have fewer staging interventions and inferior treatment than younger patients. Suboptimal cancer management in older patients is frequently attributed to comorbidity, which may contraindicate procedures. We aim to examine how much of the age disparities in completeness of staging investigations for colorectal cancer (CRC) are explained by patients' health status and their diagnostic route. Method(s): Population-based cancer registries provided information on CRC patients diagnosed in England during 2010-2012. Staging investigations and comorbidities in the six years before the cancer diagnosis was derived from the National Bowel Cancer Audit and Hospital Episodes Statistics datasets. A mediation analysis quantified the proportion of the age effect on staging investigations mediated by health status, and by the diagnosis route. Sensitivity analyses for unmeasured confounding tested the robustness of the findings. Result(s): Around half of patients had complete staging investigations. There was a Ushape association with more complete investigations among those aged 60-69. The ageinvestigation association was barely mediated by health status, but was partly mediated by being diagnosed through an emergency route. Overall, an important proportion of the age differential was not mediated by these factors, especially in older patients. These findings were robust to strong assumptions of unmeasured confounding of the relationship between the diagnosis route and having complete staging investigations. Conclusion(s): CRC patients' health status and diagnostic route did not fully explain the age differential in the quality of staging investigations, contradicting prevailing beliefs. Findings suggest factors other than patients' health status may play an important role in the age differential. Although some patients may not benefit from aggressive treatment, having a complete investigation is essential to plan optimal management, regardless of age.

**26. Overview of an acute oncology service in a UK cancer centre**

**Authors** Foulkes M.R.  
**Source** Annals of Oncology; Oct 2018; vol. 29  
**Publication Date** Oct 2018  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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**Abstract**

Background: In the UK there has been increasing emphasis on the ability to review oncology patients who are admitted as an emergency. Two reports, NCEPOD report into systemic Anti-Cancer Therapy: For better, for worse? (2008) and the NPSA Report 'Patient safety risks of incorrect dosing of oral anti-cancer medicines' (2008) identified shortcomings in the manner in which patients presenting to emergency departments following systemic anti-cancer treatments (SACT) were cared for. This had led to increased mortality, morbidity and extended lengths of stay. In addition to the above patients presenting as an emergency with Metastatic Spinal cord compression were found to have delays in urgent treatment and patients who had a cancer diagnosis following an emergency admission had poorer outcomes than those identified in a more controlled fashion. At the Royal Berkshire NHS Foundation trust we responded to NHS England guidance by establishing an oncologist-led acute oncology service with nursing support. We have been successful in reducing length of stay for oncology patients, forming successful partnerships with acute physicians, successfully auditing and treating neutropenic sepsis and bringing in a 7 day Acute Oncology service. This poster presentation will provide an overview of this service as part of the Oncology Nursing Track.

Method(s): The presentation will cover a narrative overview of our experience of establishing, auditing and developing an Acute Oncology Service at a busy District General Hospital with a Cancer Centre. We will present audit information to support this narrative review.

Result(s): We will present data covering Acute Oncology activity, effectiveness, presentation and referral by tumour group, referral type and source. This will be presented in graphical format in order to support the narrative review.

Conclusion(s): The overall conclusions will outline our generally positive experience of establishing and developing Acute Oncology services. We hope that this will be relevant to others wishing to do the same across Europe.

**27. Audit of anti-vegf injections for diabetic macula edema in 21 UK hospitals**

**Authors** Scanlon P.H.; Stratton I.; Bailey C.; Eleftheriadis H.; Dhingra N.; Talks J.S.; Peto T.

**Source** Investigative Ophthalmology and Visual Science; Jul 2018; vol. 59 (no. 9)

**Publication Date** Jul 2018

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract**

Purpose : To characterise demographic data and clinical data for patients with diabetic macula edema DME in 21 UK centres Methods : Electronic patient records were extracted in August 2017. The first treated eyes of 1937 people with DME treated with either or both of aflibercept and ranibizumab included. Descriptive statistics for baseline characteristics were derived. Results : Of those included 764 (39%) were women. Of those first treated before August 2016 74% had follow-up data at 12 months. Median results at first injection (25th to 75th centile) were: age 65 years (56-74), Best Measured Visual Acuity (BMVA) 6/19 (6/12 to 6/30) (Snellen), Index Multiple Deprivation scores 20 (11 to 34). Type of diabetes was recorded in 1489 (77%), of these 1273 (85.5%) had Type 2 diabetes. The median number of injections in those followed for 12 months was 7 (5 to 8). For those with BMVA at baseline and at 12 months median improvement was 6 letters (0 to 13). There was significant heterogeneity between centres, median age at first injection ranging from 61 to 72 years, BMVA 6/12 to 6/30, the proportion with data available at 12 months 68% to 85%, median number of injections in first year 6 to 8, median improvement over 12 months 0 to 11 letters. Conclusions : Age, baseline VA, number of injections and variable follow-up should be considered when comparing visual outcomes between centres.

**28. Different patterns of anti-VEGF loading phase for diabetic macular edema (DME) treatment: Data analysis from the UK aflibercept users group**

**Authors** Almuhtaseb H.; Lotery A.; Stratton I.; Scanlon P.H.

**Source** Investigative Ophthalmology and Visual Science; Jul 2018; vol. 59 (no. 9)

**Publication Date** Jul 2018

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract**

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**Purpose:** To audit the number of loading intravitreal injections (IVIs) for diabetic macular edema (DME) in routine clinical care in UK centres. The United Kingdom National Institute for Health and Care Excellence (NICE) issued guidance in July 2015 for the use of aflibercept for treating visual impairment caused by diabetic macular edema in those eyes with a central retinal thickness of 400 micrometres or more. This advised that aflibercept be given as a single 2 mg intravitreal injection every month for 5 consecutive months followed by 1 injection every 2 months with no requirement for monitoring between visits. **Methods:** Retrospective data analysis from an electronic medical record (Medisoft) extracted from 16 centres in the UK in August 2017. The first treated eyes of people with DME treated with either or both of aflibercept and ranibizumab were included in sites with at least 20 patients. The number of loading injections in the loading phase was defined as the number of injections received until an inter-injection break of more than 6 weeks was observed. **Results:** 873 treatment naive eyes in 16 UK centres contributed to the data set. Eyes had at least one year of follow-up. In the loading phase, the median number of aflibercept IVIs received was 3 (range 2-6) [median (25 to 75 centile)]. Significant inter-centre heterogeneity was observed regarding the median number of IVIs given during the loading phase. In 3 centres only,  $\geq 5$  IVIs were given in the loading phase. **Conclusions:** Considerable inter-centre differences were observed regarding implementing NICE guidelines. In the centres audited here, most eyes with diabetic macular edema were receiving fewer injections in the loading phase than recommended. The heterogeneity is unexplained but gives an opportunity to examine the efficacy of different loading doses on visual outcomes.

**29. Differences in access to Emergency Paediatric Intensive Care and care during Transport (DEPICT): study protocol for a mixed methods study**

**Authors** Ramnarayan P.; Evans R.; Draper E.S.; Seaton S.E.; Wray J.; Morris S.; Pagel C.  
**Source** BMJ Open; Jul 2019; vol. 9 (no. 7)  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**Database** EMBASE

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**Abstract**

**Introduction** Following centralisation of UK paediatric intensive care, specialist retrieval teams were established who travel to general hospitals to stabilise and transport sick children to regional paediatric intensive care units (PICUs). There is national variation among these PICU retrieval teams (PICRTs) in terms of how quickly they reach the patient's bedside and in the care provided during transport. The impact of these variations on clinical outcomes and the experience of stakeholders (patients, families and healthcare staff) is however unknown. The primary objective of this study is to address this evidence gap. **Methods and analysis** This mixed-methods project involves the following: (1) retrospective analysis of linked data from routine clinical audits (2014-2016) to assess the impact of service variations on 30-day mortality and other secondary clinical outcomes; (2) a prospective questionnaire study conducted at 24 PICUs and 9 associated PICRTs in England and Wales over a 12-month period in 2018 to collect experience data from parents of transported children as well as qualitative analysis of in-depth interviews with a purposive sample of patients, parents and staff to assess the impact of service variations on patient/family experience; (3) health economic evaluation analysing transport service costs (and other associated costs) against lives saved and longer term measurements of quality of life at 12 months in transported children and (4) mathematical modelling evaluating the costs and potential impact of different service configurations. A final work stream involves a series of stakeholder workshops to synthesise study findings and generate recommendations. Ethics and dissemination The study has been reviewed and approved by the Health Research Authority, ref: 2 18 569. Study results will be actively disseminated through peer-reviewed journals, conference presentations, social media, print and broadcast media, the internet and stakeholder workshops.  
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**30. A safe first-line approach to managing skin tears within an acute care setting (Part 1)**

**Authors** Vernon T.; Moore K.; Vowden K.; Vowden P.  
**Source** Wounds UK; 2019; vol. 15 (no. 2); p. 48-53  
**Publication Date** 2019  
**Publication Type(s)** Article  
**Database** EMBASE

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**Abstract** Skin tears are common in an acute setting. They have a negative impact on patient quality of life and increased healthcare costs. In the first of two articles, the authors describe the ideal first-line approach to managing skin tears. Its application in practice is illustrated using the Doncaster and Bassetlaw Teaching NHS Foundation Trust skin tear pathway, which has been audited and enhanced to incorporate the latest ISTAP definition of skin tears as traumatic wounds and the recommendation to use light compression as a component of treatment in skin tears of the lower limb.

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### 31. An initiative to improve the effectiveness of wound healing within GP practices

**Authors** Young T.; Rzyz J.; Cryer S.; Clark M.  
**Source** Wounds UK; 2019; vol. 15 (no. 1); p. 27-33  
**Publication Date** 2019  
**Publication Type(s)** Article  
**Database** EMBASE

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**Abstract** Background: The greatest burden of community based wound care falls on nurses working within GP Practices. Despite the common treatment of wounds by Practice Nurses little formal guidance is available to this cohort and significant gaps in practice have been reported. Local problem: Objective was to improve wound management and so help reduce the number of patients with wounds seen by the GP Practices. Method(s): Interventions: Two complex wound clinics established in GP Practices in South Wales with one-to-one support provided to Practice Nurses by an experienced wound clinician. Result(s): Within one of the GP Practices data was collected pre- and post- implementation of the wound clinic with healing increased from 33.3% to 67.3% post-implementation. The mix of wounds treated was similar pre- and post-implementation of the complex wound clinic with venous leg ulcers, surgical wounds, traumatic wounds and leg wounds being the common frequently reported aetiologies. The cost of wound treatment was similar pre- and post-implementation of the complex wound clinic. Conclusion(s): This quality improvement project identified that wound care delivered within GP Practices may result in low healing rates which can be markedly improved through development and introduction of a wound clinic. The approach was successful within the two wound clinics established within the project with healing rates around 70% in both clinics, while the cost of wound treatment did not appear to be markedly changes before or after wound clinic introduction. Expansion of this model may enable GP Practices to successfully treat the wounds of the many thousands of patients who present with wounds in their GP Practice each year.

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### 32. RED BLOOD CELL TRANSFUSION AND REBLEEDING RISK IN PATIENTS WITH LOWER GASTROINTESTINAL BLEEDING

**Authors** Kherad O.; Restellini S.; Martel M.; Sey M.; Oakland K.; Barkun A.N.; Jairath V.  
**Source** Gastroenterology; May 2018; vol. 154 (no. 6)  
**Publication Date** May 2018  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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**Abstract**

Background & Aim For upper gastrointestinal bleeding (UGIB), liberal red blood cells (RBC) transfusion is associated with increased risk of mortality and rebleeding. Current RBC transfusion practices for lower gastrointestinal bleeding (LGIB) are based upon expert consensus opinion with considerable variation in practice and attitudes. A recent audit in the United Kingdom (UK) revealed that a liberal approach to RBC transfusions is used in real-life practice in contrast to guideline recommendations. We aimed to determine the association between RBC transfusions administered within 24 hours following presentation to hospital in patients with LGIB and rebleeding risk. Methods Prospective cohort study based on a multicenter audit of adult patients presenting with LGIB to UK hospitals over a two-month period from September 1, 2015. Multivariable logistic regression models were used to examine the association between RBC transfusion and clinical outcome. The primary outcome was rebleeding, defined as additional transfusion requirements and/or a decrease in Hct  $\geq 20\%$  after 24 hours of clinical stability. Secondary outcomes include in-hospital mortality and an exploratory composite outcome (persistent bleeding, rebleeding, need for surgery/interventional radiology for hemostasis and in-hospital mortality). Transfusion strategy was dichotomized and defined as "liberal" when transfusion was given for haemoglobin  $>80\text{g/L}$  or  $>90\text{g/L}$  in patients with acute coronary syndrome or major hemorrhage. Results Overall, 2528 consecutive patients were enrolled from 143 hospital and followed for 28 days (68.7  $\pm$  18.6 years, 47.8% male, 885 (35.0%) with  $>2$  comorbid conditions, initial haemoglobin  $118 \pm 27\text{ g/L}$ ); 666 patients (26.3%) received RBC transfusion (258 (10.2%)  $> 4$  units of blood), while 2.3% had haemodynamic instability. Endoscopic haemostasis was performed in 51 patients (2.0%). The overall rebleeding rate was 13.6%. After adjusting for potential confounders, liberal transfusion of RBC within 24 h of presentation was not associated with an increased odds of rebleeding (OR 0.89, 95% CI 0.6-1.22), in-hospital mortality (OR 0.54, 95% CI 0.3-1.1) and of achieving the composite outcome (OR 0.72, 95% CI 0.5-1.1). A liberal strategy was only associated with a higher risk of continued bleeding (OR 1.43, 95% CI 1.1-2.0). Conclusions This study suggests an association between liberal RBC transfusion following LGIB and higher risk of continued bleeding after appropriate and extensive adjustment for confounding. Prospective randomized trial evidence is needed to confirm the causal relationship, and to identify the most efficacious and cost-effective transfusional strategies in these patients.

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**33. Safety and efficacy of dexamethasone intravitreal implant (Ozurdex ) for the treatment of diabetic macular oedema in pseudophakic patients. the portsmouth experience**

**Authors** Sepetis A.; Tsokolas G.; Mourtzoukos S.

**Source** Investigative Ophthalmology and Visual Science; Jul 2018; vol. 59 (no. 9)

**Publication Date** Jul 2018

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract** Purpose: Dexamethasone 700 ug intravitreal implant (Dex) is recommended by the National Institute for Health and Care Excellence in UK as an option for treating diabetic macular oedema (DMO) in pseudophakic patients that do not respond to other treatment, or such treatment is unsuitable. We performed a retrospective audit to assess the efficacy and safety of Dex in real world settings at Queen Alexandra Hospital in Portsmouth, UK. Method(s): Thirty eyes from 25 pseudophakic patients with DMO were investigated to evaluate visual and anatomical characteristics at baseline, 6, 12 and 18 months post Dex (n=27, 23 and 17 eyes, respectively). We studied the best corrected visual acuity (VA), central macular thickness (CMT), central macular volume (CMV) and intraocular pressure (IOP). Result(s): There were 14 males and 11 females with an average age 73.4 (53-89) and average of 30 months DMO duration. At baseline, mean VA, CMT and CMV were 63.8 (35-76) letters, 436.8 (330-748) um and 0.34 (0.21-0.59) um<sup>3</sup>, respectively (range). 10 eyes had previously received antiVEGF treatment and 3 eyes had received both antiVEGF and intravitreal steroid injections. At 6, 12 and 18 months post the first implant VA was 71.4+/-9.2, 65.5+/-13.32, and 65.6+/-11.85 letters, respectively. CMT and CMV were 343.9+/-77.8 and 0.27+/-0.06, 341.4+/-82.4 and 0.27+/-0.07, 321.5+/-71 and 0.25+/-0.06, respectively (mean+/-SD). CMT and CMV were reduced significantly in every follow-up visit comparing to baseline while VA was improved significantly in month 6 (p<0.01, paired T test). The average number of implants received since the baseline was 1.9, 3.0 and 3.6, at months 6, 12 and 18, respectively. 7 patients had drops to normalize their IOP. There is no report of endophthalmitis or other injection related complication. 3 eyes received intravitreal Ranibizumab rescue treatment and 3 eyes had pan-retinal photocoagulation. Conclusion(s): Dex is safe and efficient in improving anatomical characteristics in patients with DMO. A small percentage of patients received IOP lowering medication without any further problems. The anatomical improvement in all time points, does not necessarily reflect a functional improvement. The chronicity of the DMO, the initial VA and the timing of captured clinical visits could explain the functional discrepancies from previous studies.

**34. The impact of anti-vegf treatment delay on the visual acuity of patients with wet age-related macular degeneration (AMD)**

**Authors** Patel N.; Stirrup S.  
**Source** Investigative Ophthalmology and Visual Science; Jul 2018; vol. 59 (no. 9)  
**Publication Date** Jul 2018  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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**Abstract** Purpose: There is an assumption that treatment delay in wet AMD with poor vision at presentation can lead to worse outcomes after injection therapy. Our intention was to assess the impact of delay to first injection and loading phase to see if this has a negative effect on final visual acuity. Method(s): This was IRB approved retrospective analysis of electronic patient care records using Medisoft within an NHS UK AMD Service over a 5 year period. The primary outcome was to assess the change in visual acuity from confirmed diagnosis to first review post loading phase. Statistical analysis with Pearson's correlation was carried out to assess for any association of factors between change in visual acuity and time to start treatment/time to first review. Result(s): Original fully anonymised data set received for 2515 patients (3077 eyes), all diagnosed with a form of wet AMD, of which 1745 patients (2016 eyes) with useable data were included. Most patients were seen in One Stop clinics and treated on the day of diagnosis (1457, 72.3%), with a mean number of days from diagnosis to treatment of 1.8 (+/-4.7). The analysis showed that delay in initiation of first IVT therapy from baseline and consequent loading dose therapy with extension to beyond 12 weeks from initiation did lead to a worsening trend in visual acuity outcomes in a real world setting. However, patients with poor vision at onset still gained the most improvement despite any delay. Conclusion(s): Real world analysis using EMR can illustrate how delay in commencing and maintaining initial injection therapy may affect outcomes due a variety of clinical or nonclinical reasons such as increased capacity, demand and lack of resources such as staffing levels and infrastructure on health services. A fast track flexible system designed to get early diagnosis and therapy initiation for wet AMD can still lead to better outcomes, only if these are addressed. Our study proves that a dedicated AMD service that can audit its outcomes within the UK NHS can still achieve better standards of care relative to other real world studies, but cannot be compared to clinical trial outcomes.

**35. Femtosecond laser assisted cataract surgery: An NHS experience**

**Authors** Ali H.; Naveed H.; Poole T.  
**Source** Investigative Ophthalmology and Visual Science; Jul 2018; vol. 59 (no. 9)

**Publication Date** Jul 2018  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Investigative Ophthalmology and Visual Science](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract**  
 Purpose: Femtosecond laser-assisted cataract surgery (FLACS) has been available at Frimley Park Hospital for routine use on NHS patients since July 2016. We performed a retrospective, observational analysis to assess intraoperative complication rates associated with FLACS in 1194 NHS patients.  
 Method(s): We retrospectively analysed all patients undergoing cataract surgery using the VICTUSTM Femtosecond Laser Platform (Bausch & Lomb) over a 16-month period (July 2016-November 2017) at Frimley Park Hospital NHS Foundation Trust. All patients who received FLACS from initial installation of the Femtosecond laser were included in the study. FLACS consisted of capsulorhexis, lens fragmentation +/- astigmatic keratotomies. The presence of intraoperative complications was used as the main outcome measure.  
 Result(s): 1194 patients underwent FLACS. The mean age of the patients was 74.18 +/- 13.8 years. A total of 43 complications (3.6%) were reported, which included 15 cases (1.2%) with posterior capsule rupture and 11 cases (0.92%) of anterior capsular rim tears. Sub-group analysis of the first-year data showed 18 complications in the initial 6 months and 13 complications in the second 6 months. Best corrected distance visual acuity of better than or equal to 6/12 was reported in 91% of cases.  
 Conclusion(s): In this early experience of routine use of femtosecond laser for cataract surgery in an NHS setting, we have found the complication rates of femtosecond laser and visual outcomes to be comparable to the results of the National Ophthalmology Database Audit for cataract surgery in the UK.

**36. Developing theatre as a birth room: a multidisciplinary project**

**Authors** A Bewlay M.; Cookson R.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 54-55  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract**  
 Introduction: Caesarean delivery (CD) accounts for 26% of births nationally. Better Births<sup>1</sup> recommends that needs and wishes of women and their families are reflected at the time of the birth. The NICE quality standard for care at birth<sup>2</sup> advocates that mothers have skin-to-skin contact with their babies to promote initiation of breast feeding and protect against negative effects of mother-baby separation. Resuscitative and surgical practices at CD often inhibit or delay skin-to-skin contact. We demonstrate how collaborative working enables cultural change and hence quality improvement.  
 Method(s): Much emphasis has been given to birth environment, skin-to-skin contact and delayed cord clamping at vaginal birth. To emulate this in the theatre environment, specific midwives were allocated for elective CD. Feedback from patients and theatre staff was used to assess mothers' and birth partner's wishes during elective CD. Patients were actively educated focusing on preoperative preparation through to enhanced recovery upon the decision being made for birth by CD. This included using video as a virtual theatre tour which provided information regarding support at their baby's birth in the theatre environment. Skin-to-skin contact was used as our outcome measure. After registering a service evaluation with our local research and innovation department, skin to skin data times were collected from 2016 to 2018.  
 Result(s): Skin to skin contact [Table presented] Discussion: NHS maternity statistics from 2017-18<sup>3</sup> showed a skin-to-skin contact rate of 81% for women who gave birth at 37 weeks or more by all modes of delivery. Our data showed an improvement in skin-to-skin contact rates at CD from 66% to 89%. We demonstrated an increase in duration of skin-to-skin contact, by improving maternal choice and facilitating skin-to-skin contact until the time for transfer into bed. This development of "theatre as a birth room" has enabled individualised patient centred care in line with best practice. We attribute this to the collaborative working of a dedicated multidisciplinary team. Whilst we acknowledge that emergency cases do not mirror electives we hope that some of these changes in culture can be transferred into the emergency setting whilst still prioritising safety.  
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**37. Evaluation of a sustained enhanced recovery programme for elective caesarean delivery with majority next day discharges**



**Authors** Ciechanowicz S.; Robson E.; Nicholls L.; Coathup R.; Patel N.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 54  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location]: UHL Libraries On Request (Free).  
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**Abstract**  
 Introduction: Enhanced recovery (ER) after obstetric surgery has become popular in the UK, with most units now practicing or planning adoption. However, there is limited evidence on the optimum perioperative interventions, and wide protocol variation exists. We present an analysis of our ER programme for elective caesarean delivery (CD).  
 Method(s): Baseline audit was performed preceding introduction of ER (2014, n=50;2016, n=57); repeated during introduction (2017, n=120), and at one year (2018, n=29). We compared clinical characteristics, ER components, pathway compliance, length of hospital stay (LOS), time women felt ready for discharge (TRD) and maternal satisfaction. For women included in early introduction, correlation of clinical characteristics and ER components to LOS/TRD were analysed. Graphpad Prism 8.0, USA was used for analysis.  
 Result(s): ER was associated with a reduced LOS from median [IQR] 53 [27 to 57] to 34 [28 to 56] h (P = 0.01). TRD was 25 [24 to 29] h after ER. Next-day discharges increased from 37% to >50%, maternal satisfaction from 79% to >92% of women, both maintained at one year. Pathway compliance was sustained from 49% (2016) to 75% (2017) and 68% (2018). Time to first mobilisation (FM) and urinary catheter removal (UCR) had a stronger correlation to TRD: r=0.57 (0.36 to 0.73); P=0.0001 and r=0.46 (0.22 to 0.65); P=0.0003 respectively. FM discriminated between early (<=36 h) vs. delayed (>36 h) LOS (median [IQR] time 8 [7 to 10.75] vs. 9 [8 to 12] h, respectively; P=0.01). There was no difference in LOS for women with previous CD (P=0.56). [Table presented]  
 Discussion: Time to FM and UCR, and intraoperative blood loss had the strongest association with LOS. The hallmarks of our programme are an early mobilisation assessment by midwives at 6 h post neuraxial anaesthesia, and UCR from 8 h. We believe that these interventions are instrumental to drive early discharge, although our data do not attest causation. Our data could indicate the importance of minimising surgical blood loss. Our ER programme has been sustained at one year with the majority of women going home the next day. We found multidisciplinary involvement essential to maintenance, with our postnatal ward midwife lead 'champions' sustaining interest in excellent post-CD ER care.  
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**38. Lowering the trigger thresholds for emergency calls in postpartum and major obstetric haemorrhage: a three year quality improvement project**

**Authors** Elliott J.; Stacey K.; McHugh U.; Matthews R.; Jordan P.; McLaren C.S.; Baillie H.; Allam J.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 51  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location]: UHL Libraries On Request (Free).  
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**Abstract**

**Introduction:** Annual postpartum (PPH) and major obstetric haemorrhage (MOH) rates have increased in our unit from 36.8% in 2008 to 43.4% in 2017, reflecting national trends. Our quality improvement project, in collaboration with maternity unit stakeholders, included comprehensive revision of our 2015 haemorrhage guideline, development of proformas and flow management charts, and snapshot audits both before and after its introduction. Our guideline was updated in line with the 2016 recommendations made by the Royal College of Obstetricians and Gynaecologists,<sup>1</sup> plus recommendations from the WOMAN trial and UK anaesthetic and haematological professional bodies. Key changes adopted included: lowering the MOH switchboard emergency call trigger threshold from 1500 ml to 1000 mL, administration of a second dose of tranexamic acid (TXA), serial venous blood gas (VBG) sampling, re-configuration of shock packs for blood and blood product transfusion and raising target maternal fibrinogen levels to >2 g/L.

**Method(s):** A retrospective audit of MOH cases in 2015 (n=97) served as a baseline indicator of unit management. This was prospectively re-audited in 2017 (n=62) and again in 2018 (n=65) after introduction of the revised guideline. The audits examined most aspects of multidisciplinary team (MDT) MOH management. Audit and annual data were captured using proformas and/or specific maternity/laboratory databases and trustwide electronic information systems. We applied a variety of statistical tests to both audit and annual data. MDT education was promoted by MOH champions and practice development teams, through mandatory, annual simulation training.

**Result(s):** Data from all three audit periods showed no significant differences between the groups for: maternal demographics, delivery details, MOH incidence, blood loss, anaesthetic or surgical management, length of stay or peripartum anaemia. However, there was a significant increase in the use of TXA (P<.001) and fluid administration (P<.001) in the 2018 group. With regards to annual data analysis, in 2018 there was a significant decrease in the incidence of MOH (9.9 vs 11.9%), total estimated blood loss and also blood/product transfusion (except for a significant increase in cryoprecipitate), all with P values < 0.001.

**Discussion(s):** Following new guidance introduction in January 2018, there has been a significant overall reduction in annual PPH and MOH incidence and severity. Although we cannot conclude causality, earlier MDT intervention at 1000 mL blood loss is likely key. Audit data suggest improved TXA and fluid management as contributory factors. A reduction in annual transfusion requirements has not increased peripartum anaemia in snapshot audits. This project necessitated lengthy maternity stakeholder negotiations, due to anticipated increased unit disruption. However, in view of these findings, our lower trigger thresholds are likely here to stay. Copyright © 2019.

**39. Incidence of postpartum haemorrhage observed through objective measurement of blood loss during a national quality improvement programme: Obstetric Bleeding Strategy for Wales (OBS Cymru)**

**Authors** Scarr C.; Bell S.; Watkins A.; John M.; Kitchen T.; MacGillivray E.; Kelly K.; James K.; Collis R.E.; Collins P.W.

**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39; p. 49-50

**Publication Date** Aug 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract** Introduction: Defining the incidence of postpartum haemorrhage (PPH) and comparing results between studies is compromised by a lack of standardised blood loss assessment. Visual estimation is known to be inaccurate.<sup>1</sup> Systematic review confirms that incidence of PPH is higher when objective measurement is used and highlights significant variations in prevalence of PPH >1000 mL (1.9 -5.1%).<sup>2</sup> Following the introduction of standardised, objective measurement of blood loss (MBL) after all deliveries in Wales we reviewed the incidence. Method(s): OBS Cymru is a registered all Wales quality improvement program. A champion midwife in each obstetric unit was trained in objective (gravimetric and volumetric) MBL. Cascade training was then provided to all staff based on standardised scenarios, training video and multidisciplinary team drills. Data on all PPH of >=1000 mL were collected on a national database. Biannual audit data informed uptake of MBL. National data on mode of delivery came from the Welsh Maternity Indicators dataset (MIDs) and used to estimate the denominator for mode of delivery. Result(s): In 2017 there were 31341 maternities in Wales. Based on MIDs, 64% of deliveries were unassisted vaginal, 9.9% instrumental vaginal, 12.7% elective caesarean sections, and 13.4% non-elective caesarean sections. Audit data showed MBL after all deliveries increased from 49% to 89% in the 12 obstetric units over the first half of the year. The incidence of PPH >1000 mL varied by mode of delivery, with unassisted vaginal delivery (95% CI) per 100 maternities of 4.9 (4.6-5.2), elective caesarean section 8.5 (7.7 - 9.4), instrumental vaginal delivery 18.4 (17.1-19.8), and non-elective caesarean section 19.8(18.6-21.0). [Table presented] Discussion: The incidence of PPH is 2-5 times that reported in the literature with the adoption of MBL. A large data set and tight CI across 12 units indicated that this is likely to be a genuine reflection on the true rate of PPH and that MBL is feasible in maternity units of all size, case mix and staffing levels. Cumulative MBL at delivery is important in ensuring appropriate escalation of care but also has significant implications for future research and understanding of PPH. Standardised cumulative objective MBL has the potential to be escalated to all maternity settings, improving multidisciplinary escalation and patient outcomes. Disclosures: Funding Welsh government, 1000 lives, Wefen Copyright © 2019.

#### 40. Venous thromboembolism prophylaxis in obstetric surgery: a prospective audit

**Authors** Sylvester J.; Qrr T.; Aluri S.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 46-47  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** Introduction: Peripartum venous thromboembolism (VTE) is the leading direct cause of death in pregnancy in the UK.<sup>1</sup> Guidance from NICE and the RCOG advocates the use of mechanical and pharmacological thromboprophylaxis in at-risk women.<sup>2,3</sup> Multiple audits have shown inconsistency in practice and no reduction in mortality from VTE. Method(s): The notes of 42 women who underwent operative intervention in the puerperium under the care of an anaesthetist in December 2017 were reviewed. The type and timing of the VTE prophylaxis they received was recorded. Result(s): Data were obtained for 42 patients, all of whom received mechanical and/or pharmacological prophylaxis during their admission. 12% of procedures were planned (caesarean section) and 88% unplanned. Regional anaesthesia was administered in 88% and 12% underwent general anaesthesia. The median time to application of anti-embolism stockings was 26 h [range 0-26 h]. The median time to low molecular weight heparin administration (LWMH) was 24 h [range 7-24 h]. Non-elective patients waited 3.5x longer than elective patients. Postoperative LMWH was withheld in 12%. Copyright © 2019.

#### 41. Intrathecal catheter versus epidural re-site following accidental dural puncture

**Authors** Lau H.Y.; Rao C.B.; Wong E.M.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 45-46  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).

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Introduction: Despite absence of published guidelines on how best to proceed following accidental dural puncture (ADP) during labour, two recent UK surveys have indicated a change in practice favouring intrathecal catheter (ITC) insertion over epidural re-site (ER) from 28% to 59% of obstetric anaesthetists. Reasons for ITC were to avoid repeat ADP (35%), rapid analgesia (29%) and to prevent post-dural puncture headache (PDPH) (30%).<sup>1,2</sup> We audited our practice to assess outcomes following ITC insertion or ER.

Method(s): Data prospectively collected from 1 August 2014 to 31 July 2018 for quality improvement in PDPH management were analysed to study only women who had dural tap recognised at epidural insertion. Our care pathway allows for ITC or ER at the anaesthetist's discretion. All women were followed up daily beyond discharge by telephone review. PDPH symptoms were managed expectantly for 24-48 h and epidural blood patch (EBP) performed as per guidelines. Outcomes assessed were likelihood of PDPH and EBP, labour analgesia quality, anaesthetic workload, delivery outcomes, anaesthesia for caesarean section (CS), failure rates and complications.

Result(s): Forty-three women had a recognised ADP; 21 had ER and 22 ITC. 11 (52%) in the ER group developed PDPH vs. 16 (73%) in the ITC group. The ER group reported milder headaches; Five had EBP. The ITC group reported severe headaches associated with photophobia and tinnitus; nine had EBP and one repeat EBP. 16 (73%) in the ITC group reported complete analgesia. 17 (81%) in the ER group reported inadequate labour analgesia; two had severe pain, required repeat ER and subsequent remifentanyl PCA. Before delivery, 15 (68%) in the ITC group had more than five top-ups vs. 12 (57%) in the ER group having 5-15 top-ups. Outcomes for ITC vs ER were normal vaginal delivery four (18%) vs. eight (38%), instrumental delivery 11 (50%) vs. seven (33%) and CS seven (32%) vs. six (29%). One ER vs. three ITC women had conversion to general anaesthesia. One woman with ITC had a high block with cardiovascular collapse and unconsciousness after top-up for CS.

Discussion(s): Our audit shows no reduction in PDPH or its severity by ITC insertion following ADP. It suggests increased PDPH incidence and severity but sample size is inadequate for statistical significance. It shows ITC insertion gives early, better quality labour analgesia, with fewer top-ups and potential implications on anaesthetic workload. Currently, there is no published guidance on intrathecal obstetric analgesia; its use can have catastrophic consequences in inexperienced hands. We urge caution in the rapid adoption of intrathecal labour analgesia without good evidence-based guidelines.  
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**42. Audit of response times to requests for epidural analgesia in labour**

**Authors** Langton A.; Haider S.

**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39; p. 35-36

**Publication Date** Aug 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location]: UHL Libraries On Request (Free).

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**Abstract**

Introduction: Epidural analgesia is the most effective method of labour analgesia,<sup>1</sup> and is part of the core services that are offered on a delivery suite in the UK. Timely provision of this service is essential to ensure women are provided with quality care. This repeat audit, now in its fourth cycle over 6 years, was carried out to identify trends and ensure compliance with AAGBI and RCOA guidelines of epidural response timelines in view of recent increases in workload on the delivery suite.<sup>2</sup> Methods: A prospective audit of epidural requests from labouring women occurring in a four-week period 12 April - 10 May 2018 at a tertiary obstetric unit was conducted, with results analysed with respect to timescale of response and patient satisfaction with analgesia. Data were broken down to quantify response times both 'in-hours' and 'out-of-hours'.

Result(s): 131 epidural requests were received in the audit period, with 120 completed audit forms received, a response rate of 93%. 120 cases of which 116(97%) involved delivery suite consultants or registrars and four procedures (3%) registrars covering other parts of the hospital out-of-hours. However, it is likely that a large proportion of the epidurals inserted for which no form was completed were by registrars from other parts of the hospital who were not aware of the audit. Pain scoring was documented before and after epidural placement in 119 cases of which 110 (92.5%) of patients reported that they were happy with pain relief post epidural insertion. Data for time from informing the anaesthetist to their attendance were available in 120 cases: 89 patients were attended at or within 30 min (74%), 107 patients were attended at or within 60 min (89%). Of the 31 patients who had epidural analgesia delayed past 30 min, 27 requested their epidurals outside of core working hours (0730-1730 Mon-Fri). Of the 13 patients who had epidural analgesia delayed past 60 min, 12 requested their epidurals outside of core working hours (0730-1800 Mon-Fri). Of the 120 epidurals, 33 were placed by consultants with a 93% satisfied. 41 were placed by ST3-4 anaesthetists, with a 93% satisfied. 46 were placed by ST5-7 anaesthetists, with a 91% satisfied.

Discussion(s): Good practice was confirmed by the audit in that wait times for epidural analgesia have increased only marginally since the last audit cycle. Compliance with the RCOA recommended standard of pain relief at 45 min post insertion was achieved with 92.5% of patients satisfied, on a target of 88%.<sup>2</sup> However, areas for improvement were identified in that of the 13 patients who waited over 60 min for an epidural, 12 were out-of-hours. This also represented an increase since the last audit of 62%. This comes on a background of increasing out-of-hours workload on the delivery suite and across the hospital. Deliveries increased by 8% from 2015-16 to 2017-18, reflecting reorganisation of local services.

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**43. Understanding mechanisms of change in a national postpartum haemorrhage quality improvement programme: OBS Cymru**

**Authors** Kitchen T.L.; Collis R.; Bell S.; on behalf of the OBS Cymru Collaboration

**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 28

**Publication Date** Aug 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract**

Introduction: The Obstetric Bleeding Strategy for Wales (OBS Cymru) is a quality improvement programme (QIP) aiming to reduce morbidity and variation in care associated with postpartum haemorrhage (PPH). The intervention was developed following a research program<sup>1</sup> and includes: risk assessment, measured blood loss (MBL), multidisciplinary team (MDT) escalation (supported by a '4 stage approach' with bespoke paperwork) and viscoelastic haemostatic assay point-of-care testing (VHA-POCT) to guide blood product management. OBS Cymru was implemented across all 12 obstetric units (OUs) in Wales (500-6000 maternities per annum) in 2017. Understanding the mechanisms of change (i.e. how the interventions produced change) was investigated. Method(s): OBS Cymru was registered as a QIP in each Health Board. A survey was distributed to all local champions via email and face-to-face in June-August 2018. The response rate was 56% (29/52), with representation from all 12 OUs and all members of the MDT (midwives (n=11), anaesthetics (n=11), haematology (n=2), obstetrics (n=5)). Data were analysed using Excel and thematic analysis of respondents quotes.

Result(s): All participants reported that OBS Cymru had changed their individual and unit level practice. Respondents felt the change was due to: MBL 93%, teamworking 86%, VHA-POCT 72%, 4-stage approach 69%. The mechanism of impact was explored using respondents quotes: 'awareness of ongoing blood loss', 'proactive rather than reactive', 'earlier, consistent action', 'teamworking much improved', 'appropriate coagulation product administration'. 97% of participants reported that MBL, 4-stage approach and VHA-POCT were considered important, however, actual intervention uptake across all PPH events was lower 76%, 62% and 52%, respectively. Reasons included lack of training but also staff confidence to avoid VHA-POCT if PPH had stopped. Barriers to full implementation of OBS Cymru included staff turnover and lack of dedicated training time. Suggestions for overcoming barriers included protected MDT training, improved communication and access to local outcome data.

Discussion(s): Quantitative and qualitative feedback has provided useful information on how OBS Cymru has achieved changes in PPH management, highlighting which aspects of the intervention are thought to be most important. All aspects have been adopted across the OUs with MBL being most successfully adopted during all PPH episodes. Positive feedback shows that the sustainability of OBS Cymru is possible, but this requires ongoing advocacy and training. OBS Cymru has therefore been integrated into PROMPT Wales and undergraduate curricula thus improving protected training time. Use of qualitative data to inform intervention uptake should be applied to all QIP. Disclosure: Funding from Welsh Government, Werfen, 1000 Lives Improvement, Health Education & Improvement Wales  
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**44. A retrospective review of maternal critical care follow-up in a tertiary critical care unit**

**Authors** Harding F.; Wise A.; Thompson K.; Milliken S.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39; p. 27-28  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location]: UHL Libraries On Request (Free).  
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**Abstract** Introduction: In the UK there are 2.24 critical care admissions per 1000 women in pregnancy, birth and the postnatal period up to six weeks.<sup>1</sup> Admission is more common in women over 35 years of age, of black ethnic origin or with three or more previous births.<sup>1</sup> Guidelines for the provision of intensive care services (GPICS) recommend that patients discharged from critical care must have access to follow-up,<sup>2</sup> specifically stating that postpartum patients should be included. The recently published Enhanced Maternal Care guideline echoes this.<sup>3</sup> We sought to establish what follow up was being offered to obstetric patients admitted to the critical care unit (ICU) at Edinburgh Royal Infirmary (ERI).  
 Method(s): A retrospective audit of 45 obstetric patients admitted to the ICU of ERI between January 2016 and December 2017. Patient notes were reviewed via their electronic record and their critical care summaries.  
 Result(s): Forty-five patients were identified during a two year period. The average length of stay was 29.5 h [range 4-96 h]. 43 (95%) patients received follow-up as an inpatient. Follow-up post discharge occurred in 33 patients (73%), however a further three patients were offered, but declined, follow up and three others originated out with our area. Follow-up was performed by an obstetrician alone in 24 (72%) cases - 23 of these (69%) by a consultant, and the other by a junior trainee. Follow-up was performed by a multidisciplinary team in eight cases (24%); obstetrician/haematologist in three cases, an obstetrician/anaesthetist in two cases, and an obstetrician/cardiologist in another two cases. Follow-up was carried out by a cardiologist alone in one case.  
 Discussion(s): This audit identifies that nearly three quarters of maternal critical care patients received follow-up after discharge, however this was predominantly carried out by obstetricians with no involvement from critical care. Moving forward our aim is to adopt a unified, multidisciplinary approach. All maternal critical care patients will be: 1) given information about local peer to peer support: ICU Steps and Juno (Perinatal Mental Health Support); 2) discharged with clear advice about what to expect in the immediate discharge period in terms of physical and psychological sequelae and improved communication for primary care; 3) reviewed at 12 weeks by a critical care physician and obstetrician together to facilitate a multidisciplinary debrief of events and identify if additional services are required; and 4.) invited to critical care (nurse specialist) follow-up.  
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**45. Difficult and failed intubation following general anaesthesia for caesarean section: incidence, management, maternal and neonatal outcomes**

**Authors** John A.; Hull T.; Eccles J.; Bhatia K.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 14  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

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**Abstract** Introduction: The incidence of difficult intubation (DI) during general anaesthesia (GA) for caesarean section (CS) ranges from 1:30-1:100. Failed intubation (FI), in UK national surveys and a review of published literature, has an incidence of 1:224-1:390.<sup>2-3</sup> Airway management at our tertiary obstetric unit was reviewed after adoption of the 2015 OAA/DAS guidelines.  
 Method(s): After audit committee approval, GA cases for all categories of CS were reviewed from April 2017 to March 2018 using electronic anaesthesia records and case notes to identify the incidence of DI, FI, time of day, management, maternal/neonatal outcomes, and presence of airway alerts. Results were compared with RCOA standards and reviews for best practice.  
 Result(s): 210 GAs were administered and DI occurred in four cases: overall incidence 1:52. Three of these four cases occurred out-of-hours for category 1 CS (n=88): incidence of DI out-of-hours was 1:29. One occurred during a category 4 CS (n=34). All the DI were successfully intubated using a McGrath video laryngoscope (VL). FI occurred in one case out-of-hours: overall incidence 1:210. An I-gel was successfully used for ventilation; intubation was abandoned after three attempts with VL. High-flow nasal oxygen was utilised before induction for these cases. No aspiration, awareness, ICU admission, or front of neck access was reported. Simulation drills were part of unit induction for all trainees. Airway alerts were found in only 2 of 5 cases. [Table presented]  
 Discussion: The audit suggests our DI rates and use of simulation drills are in accordance with RCOA best practice. Our FI rate is marginally higher than observed in the literature. No parturients were obese. Our unit now uses VL as the default method for all CS requiring GA. Airway alerts were found in only 40% of cases; our unit has introduced "airway alert drawers" in recovery where difficult airway alert paperwork is readily available. Annual review of DI/FI should be mandatory, serving as a useful quality improvement tool to improve safety and decrease maternal morbidity.  
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**46. Early fibrinogen is not predictive of progression to massive postpartum haemorrhage after OBS Cymru complex intervention**

**Authors** Bell S.; Kitchen T.; Collins P.; James D.; Cohen L.; de Lloyd L.; Collis R.  
**Source** International Journal of Obstetric Anesthesia; Aug 2019; vol. 39 ; p. 11-10  
**Publication Date** Aug 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [International Journal of Obstetric Anesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** Introduction: Postpartum haemorrhage (PPH) studies with >2500 women show Clauss fibrinogen (CF) and ROTEM FibtemA5 early in PPH predict subsequent bleed severity.<sup>1</sup> A quality improvement (QI) initiative 'OBS Cymru' has introduced a complex intervention around PPH across Wales. A descriptive research study 'OBS plus' has collected PPH data concurrently. We investigated whether fibrinogen or Fibtem A5 was predictive for very severe PPH after the OBS Cymru intervention by comparing data before (OBS1) and during (OBSplus) in our institution.  
 Method(s): OBS1 data (2011-12) is previously been published.<sup>2</sup> OBS plus has ethics approval REC16/WA/0282. OBS Cymru is a registered QI project. CF and Fibtem A5 taken at 1L during PPH in OBS1 (n=356) was compared with CF and Fibtem A5 taken at the same point in the OBS plus study (June 2017-Dec 2018; n=346). Receiver operating characteristic (ROC) analysis of early CF was performed (GraphPad Prism v8) using the same methodology as OBS11 for progression to PPH >2.5L. Positive predictive value (PPV) of early CF <2 for progression to PPH >2.5L or transfusion of >=4 units of RBC was analysed.  
 Result(s): Incidence of bleeds >2.5L in OBS1 and OBSplus was 6 and 2/1000 deliveries, respectively. Total deliveries were stable around 6000 p.a. ROC for progression to PPH >2.5L is presented as area under the curve (AUC) and P value. [Table presented] Discussion: In OBS1 CF and Fibtem A5 early in PPH predicted progression to PPH >2.5L. <sup>1</sup>In OBSplus the ROC analysis was no longer predictive, the incidence of PPH >2.5L reduced by 60% and early CF<2 did not predict PPH>2.5L or >=4 units RBC transfusion. This suggests a substantial change in outcome. The OBSCymru intervention includes early use of viscohaemostatic assay (VHA) where clinicians react to the results. In OBS1 the VHA was blinded and could not inform clinical practice. OBSCymru intervention corrects coagulopathy early with fibrinogen replacement if Fibtem A5<11mm, with escalation of obstetric care if VHA is normal. Other elements of the intervention may change outcome but we feel early VHA testing within a treatment algorithm has reduced progression to very severe bleeds. Disclosure: Funding from Werfen, OAA, AAGBI  
 Copyright © 2019.

**47. Systematic exploration of local reviews of the care of maternal deaths in the UK and Ireland between 2012 and 2014: A case note review study**

**Authors** Cross-Sudworth F.; Goodwin L.; Kenyon S.; Knight M.  
**Source** BMJ Open; Jun 2019; vol. 9 (no. 6)  
**Publication Date** Jun 2019  
**Publication Type(s)** Review  
**Database** EMBASE  
 Available at [BMJ Open](#) from Europe PubMed Central - Open Access  
 Available at [BMJ Open](#) from HighWire - Free Full Text  
 Available at [BMJ Open](#) from ProQuest (Health Research Premium) - NHS Version  
 Available at [BMJ Open](#) from Unpaywall



**Abstract** Objectives Local reviews of the care of women who die in pregnancy and post-birth should be undertaken. We investigated the quantity and quality of hospital reviews. Design Anonymised case notes review. Participants All 233 women in the UK and Ireland who died during or up to 6 weeks after pregnancy from any cause related to or aggravated by pregnancy or its management in 2012-2014. Main outcome measures The number of local reviews undertaken. Quality was assessed by the composition of the review panel, whether root causes were systematically assessed and actions detailed. Results The care of 177/233 (76%) women who died was reviewed locally. The care of women who died in early pregnancy and after 28 days post-birth was less likely to be reviewed as was the care of women who died outside maternity services and who died from mental health-related causes. 140 local reviews were available for assessment. Multidisciplinary review was undertaken for 65% (91/140). External involvement in review occurred in 12% (17/140) and of the family in 14% (19/140). The root causes of deaths were systematically assessed according to national guidance in 13% (18/140). In 88% (123/140) actions were recommended to improve future care, with a timeline and person responsible identified in 55% (77/140). Audit to monitor implementation of changes was recommended in 14% (19/140). Conclusions This systematic assessment of local reviews of care demonstrated that not all hospitals undertake a review of care of women who die during or after pregnancy and in the majority quality is lacking. The care of these women should be reviewed using a standardised robust process including root cause analysis to maximise learning and undertaken by an appropriate multidisciplinary team who are given training, support and adequate time.  
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**48. Vulnerabilities in diabetic eye screening for children and young people in England**

**Authors** Ibanez-Bruron M.C.; Solebo A.L.; Cumberland P.M.; Rahi J.S.; Althausen S.; Anderson J.; Ashworth J.; Ayoola O.; Bhattacharyya P.; Biswas S.; Brand C.; Broadbent D.; Brown A.; Burton B.; Chandna A.; Chen H.C.; Chong V.; Choudhary S.; Cilliers H.; Clarke M.; Cole A.; Cook H.; Criddle T.; Dabbs T.; Davies N.; Deane J.; Dhanoa S.; Dhillon B.; Dhingra N.; Dhir L.; Dugal T.; Eckstein M.; Egan C.; Eleftheriadis H.; El-Ghrably I.A.; Flanagan D.; Fleck B.; Gaskell A.; Gaziz T.; George S.; Ghanchi F.; Goldsmith C.; Gordon-Bennett P.; Harsum S.; Hashmi T.; Hosker J.P.; Jackson H.; Janikoun S.; Johnson L.; Johnston R.; Jones C.; Khan I.; Khan R.; Krishnan R.; Kulkarni A.; Kumar B.V.; Leese G.; Leong T.; Lobo A.; Long V.; MacLeod A.; MacRae M.; Mann S.; Markham R.H.C.; McKibbin M.; Meredith S.; Mithra S.; Mulvihill A.; Nagi D.; Natha S.; Nayak H.; Newman W.D.; Ng M.; Ockrim Z.; Olson J.A.; Osoba O.; Owens D.R.; Patil J.; Peto T.; Pilling R.; Rajbhandari S.M.; Rennie C.; Robinson T.; Sanghvi C.; Sardar J.; Scanlon P.; Sen S.; Setty R.; Sharma V.; Sivaprasad S.; Smith R.; Steel D.; Stratton I.M.; Styles C.; Tahir M.I.; Vafidis G.; Vaideanu - Collins D.; Warner J.; Watts G.; Wilson-Holt N.; Wykes W.; Young B.

**Source** Pediatric Diabetes; 2019  
**Publication Date** 2019  
**Publication Type(s)** Article  
**Database** EMBASE  
 Available at [Pediatric Diabetes](#) from Wiley Online Library Medicine and Nursing Collection 2019 - NHS  
 Available at [Pediatric Diabetes](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection  
 Available at [Pediatric Diabetes](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location]: British Library via UHL Libraries - please click link to request article.

**Abstract** Background: Children and young people (CYP) living with diabetes require integrated child-centered care. We hypothesized that suboptimal uptake to diabetic retinopathy screening in CYP may be partly related to the degree of services integration. We investigated the structure of the current pediatric diabetic eye care pathway and associations between service-level characteristics and screening uptake.  
 Method(s): A quality improvement project between January and May 2017 comprising a survey of practice of all 158 pediatric diabetes services (pediatric diabetes units, PDUs) across England and secondary data analysis of routinely collected service data. Generalized linear models for proportional responses were fitted to investigate associations between reported PDU characteristics and screening uptake.  
 Result(s): 124 PDUs (78%) responded. In 67% (n = 83), patients could be referred directly to screening programs; the remainder relied on primary care for onward referral. 97% (n = 120) considered eye screening results useful for counseling patients but only 65% (n = 81) reported it was "easy" to obtain them. Factors independently associated with higher screening uptake were a higher proportion of patients referred from primary care (OR = 1.005; 95%CI = 1.004-1.007 per 1% of increase), absence of "out-of-catchment area" patients (OR = 1.13; 95%CI = 1.04-1.22), and easy access to eye screening results (OR = 1.45; 95%CI = 1.34-1.56).  
 Conclusion(s): There is limited direct communication between the services involved in diabetic eye care for CYP in England. This risks reducing the effectiveness of diabetic retinopathy screening. Similar vulnerabilities are likely to exist in other countries where retinopathy screening for CYP has been "bolted on" to provision for adults.  
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**49. The contribution of ethnography to the evaluation of quality improvement in hospital settings: reflections on observing co-design in intensive care units and lung cancer pathways in the UK**

**Authors** Vougioukalou S.; Boaz A.; Gager M.; Locock L.  
**Source** Anthropology and Medicine; Jan 2019; vol. 26 (no. 1); p. 18-32  
**Publication Date** Jan 2019  
**Publication Type(s)** Article  
**PubMedID** 31241367  
**Database** EMBASE

Available at [Anthropology and Medicine](#) from Unpaywall

**Abstract** Ethnography is increasingly being used in the evaluation of quality improvement and change initiatives in healthcare settings, particularly in the form of 'focused' and 'rapid' ethnographies. This new ethnographic genre is tailored to suit narrower enquiries within clinical pathways. However, the application of ethnography to the evaluation of quality improvement is not straightforward or free from reductionist bias, particularly in hospital settings where interventions take place during a limited period of time and instigate change in busy and sensitive settings. This paper discusses problems and emergent solutions involved in conducting an ethnographic process evaluation of co-design projects in lung cancer and intensive care unit services in two hospitals in England. The mixed-methods ethnographic evaluation consisted of observations of the co-design process and triangulation of findings with interviews, questionnaires, participant reflective diaries and service improvement logs. Limitations of observational time and distance from 'the field' were overcome by making most of the pre- and post-event observational periods, situating quality improvement within the wider context of clinical practice, achieving attunement with local clinical cultures and engaging participants in collaboratively guiding observational and interview design. This approach led to a focused ethnographic evaluation that accommodated ethnographic principles to obtain rich insights into quality improvement processes despite the limitations of short-timeframes and the hospital setting.  
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**50. Trends in surgical and catheter interventions for isolated congenital shunt lesions in the UK and Ireland**

**Authors** Farooqi M.; Stickley J.; Barron D.J.; Jones T.J.; Brawn W.J.; Drury N.E.; Dhillon R.; Clift P.F.; Stumper O.  
**Source** Heart; Jul 2019; vol. 105 (no. 14); p. 1103-1108  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**PubMedID** 30772822  
**Database** EMBASE

Available at [Heart](#) from BMJ Journals - NHS

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Available at [Heart](#) from Unpaywall

**Abstract** Objective To evaluate time trends in the use of catheter and surgical procedures, and associated survival in isolated congenital shunt lesions. Methods Nationwide, retrospective observational study of the UK National Congenital Heart Disease Audit database from 2000 to 2016. Patients undergoing surgical or catheter procedures for atrial septal defect (including sinus venosus defect), patent foramen ovale, ventricular septal defect and patent arterial duct were included. Temporal changes in the frequency of procedures, and survival at 30 days and 1 year were determined. Results 40 911 procedures were performed, 16 604 surgical operations and 24 307 catheter-based interventions. Transcatheter procedures increased over time, overtaking surgical repair in 2003-2004, while the number of operations remained stable. Trends in interventions differed according to defect type and patient age. Catheter closure of atrial septal defects is now more common in children and adults, although surgical interventions have also increased. Patent foramen ovale closure in adults peaked in 2009-2010 before falling significantly since. Surgery remains the mainstay for ventricular septal defect in infants and children. Duct ligation is most common in neonates and infants, while transcatheter intervention is predominant in older children. Excluding duct ligation, survival following surgery was 99.4% and =98.7%, and following catheter interventions was 99.7% and =99.2%, at 30 days and 1 year, respectively. Conclusions Trends in catheter and surgical techniques for isolated congenital shunt lesions plot the evolution of the specialty over the last 16 years, reflecting changes in clinical guidelines, technology, expertise and reimbursement, with distinct patterns according to lesion and patient age.  
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**51. Nationwide improvement in outcomes of emergency admission for ulcerative colitis in England, 2005-2013**

**Authors** Shaihi M.; Dodd S.; Kallis C.; Dixon P.; Grainger R.; Pearson M.; Bodger K.; Bloom S.; Cummings F.  
**Source** Alimentary Pharmacology and Therapeutics; Jul 2019; vol. 50 (no. 2); p. 176-192

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**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**PubMedID** 31135073  
**Database** EMBASE  
Available at [Alimentary Pharmacology and Therapeutics](#) from Wiley Online Library  
Available at [Alimentary Pharmacology and Therapeutics](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location]: UHL Libraries On Request (Free).  
Available at [Alimentary Pharmacology and Therapeutics](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location]: British Library via UHL Libraries - please click link to request article.  
Available at [Alimentary Pharmacology and Therapeutics](#) from Unpaywall

**Abstract**  
Background: The UK IBD Audit Programme reported improved inpatient care processes for ulcerative colitis (UC) between 2005 and 2013. There are no independent data describing national or institutional trends in patient outcomes over this period.  
Aim(s): To assess the association between the outcome of emergency admission for UC and year of treatment.  
Method(s): Retrospective analysis of hospital administrative data, focused on all emergency admissions to English public hospitals with a discharge diagnosis of UC. We extracted case mix factors (age, sex, co-morbidity, emergency bed days in last year, deprivation status), outcomes of index admission (death and first surgery), 30-day emergency readmissions (all-cause, and selected causes) and outcome of readmission.  
Result(s): There were 765 deaths and 3837 unplanned first operations in 44 882 emergency admissions, with 5311 emergency readmissions (with a further 171 deaths and 517 first operations). Case mix adjusted odds of death for any given year were 9% lower (OR 0.91, 95% CI: 0.89-0.94), and that for emergency surgery 3% lower (OR 0.97, 95% CI: 0.95-0.98) than the preceding year. Results were robust to sensitivity analysis (admissions lasting  $\geq 4$  days). There was no reduction in odds for all-cause readmission, but rates for venous thromboembolism declined significantly. Analysis of institutional-level metrics across 136 providers showed a stepwise reduction in outliers for mortality and unplanned surgery.  
Conclusion(s): Risk of death and unplanned surgery for UC patients admitted as emergencies declined consistently, as did unexplained variation between hospitals. Risk of readmission was unchanged (over 1 in 10). Multiple factors are likely to explain these nationwide trends.  
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## 52. Cardiac Rehabilitation Quality Improvement: A NARRATIVE REVIEW

**Authors** Moghei M.; Grace S.L.; Oh P.; Chessex C.  
**Source** Journal of Cardiopulmonary Rehabilitation and Prevention; 2019  
**Publication Date** 2019  
**Publication Type(s)** Review  
**PubMedID** 30720641  
**Database** EMBASE  
Available at [Journal of Cardiopulmonary Rehabilitation and Prevention](#) from Ovid (Journals @ Ovid) - Remote Access  
Available at [Journal of Cardiopulmonary Rehabilitation and Prevention](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location]: British Library via UHL Libraries - please click link to request article.

**Abstract** Purpose: Despite evidence of the effectiveness of cardiac rehabilitation (CR), there is wide variability in programs, which may impact their quality. The objectives of this review were to (1) evaluate the ways in which we measure CR quality internationally; (2) summarize what we know about CR quality and quality improvement; and (3) recommend potential ways to improve quality.  
Method(s): For this narrative review, the literature was searched for CR quality indicators (QIs) available internationally and experts were also consulted. For the second objective, literature on CR quality was reviewed and data on available QIs were obtained from the Canadian Cardiac Rehabilitation Registry (CCRR). For the last objective, literature on health care quality improvement strategies that might apply in CR settings was reviewed.  
Result(s): CR QIs have been developed by American, Canadian, European, Australian, and Japanese CR associations. CR quality has only been audited across the United Kingdom, the Netherlands, and Canada. Twenty-seven QIs are assessed in the CCRR. CR quality was high for the following indicators: promoting physical activity post-program, assessing blood pressure, and communicating with primary care. Areas of low quality included provision of stress management, smoking cessation, incorporating the recommended elements in discharge summaries, and assessment of blood glucose. Recommended approaches to improve quality include patient and provider education, reminder systems, organizational change, and advocacy for improved CR reimbursement. An audit and feedback strategy alone is not successful.  
Conclusion(s): Although not a lot is known about CR quality, gaps were identified. The quality improvement initiatives recommended herein require testing to ascertain whether quality can be improved.  
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### 53. Mental health law assessments: interagency cooperation and practice complexities

**Authors** Davidson G.; Fargas M.; Hamilton B.; Scott J.; Connaughty K.; Harvey K.; Lynch G.; McCartan D.; McCosker J.  
**Source** Journal of Mental Health; 2019  
**Publication Date** 2019  
**Publication Type(s)** Article  
**PubMedID** 31240967  
**Database** EMBASE

Available at [Journal of Mental Health](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location]: UHL Libraries On Request (Free).

Available at [Journal of Mental Health](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location]: British Library via UHL Libraries - please click link to request article.

**Abstract** Background: Assessments under mental health law, to determine whether compulsory admission is necessary, tend to be complex, multidisciplinary and inter-agency processes. This article presents the results of a regional audit of assessments under the Mental Health (Northern Ireland) Order 1986.  
Aim(s): The aims of the audit were to examine routine practice, identify any issues and so inform how policy and practice may be developed.  
Method(s): The audit was designed by an inter-agency advisory group and audit team. Data were collected for a sample of 189 assessments. The sample was weighted to ensure all Health and Social Care Trusts and settings were appropriately represented.  
Result(s): These assessments involve high levels of need, risk and complexity. There were no major issues or concerns identified in the majority of assessments. The issues that were identified were mainly due to the difficulties in coordinating professionals and in securing a bed. In 3/189 (2%) of assessments, these issues were identified as contributing to increased distress and risk.  
Conclusion(s): The results highlight the complexities of these processes and confirm the need for opportunities, such as joint training and inter-agency interface groups, to further promote cooperation and identify when pressures on resources are increasing risk and distress.  
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### 54. IPEM Topical Report: A 2018 IPEM survey of MRI use for external beam radiotherapy treatment planning in the UK

**Authors** Speight R.; Schmidt M.A.; Liney G.P.; Johnstone R.; Eccles C.L.; Dubec M.; George B.; Henry A.; McCallum H.M.  
**Source** Physics in medicine and biology; Jun 2019  
**Publication Date** Jun 2019  
**Publication Type(s)** Article  
**PubMedID** 31239419  
**Database** EMBASE

Available at [Physics in medicine and biology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location]: British Library via UHL Libraries - please click link to request article.

**Abstract** INTRODUCTION/BACKGROUND: The benefits of integrating MRI into the radiotherapy pathway are well published, however there is little consensus in guidance on how to commission or implement its use. With a view to developing consensus guidelines for the use of MRI in external beam radiotherapy (EBRT) treatment planning in the UK, an audit was undertaken by an Institute of Physics and Engineering in Medicine (IPEM) working-party to assess the current landscape of MRI use in EBRT in the UK. Methods: A multi-disciplinary working-party developed a survey to understand current practice using MRI for EBRT treatment planning; investigate how MRI is currently used and managed; and identify knowledge gaps. The survey was distributed electronically to radiotherapy service managers and physics leads in 71 UK radiotherapy (RT) departments (all NHS and private groups). Results: The survey response rate was 87% overall, with 89% of NHS and 75% of private centres responding. All responding centres include EBRT in some RT pathways: 94% using Picture Archiving and Communication System (PACs) images potentially acquired without any input from RT departments, and 69% had some form of MRI access for planning EBRT. Most centres reporting direct access use a radiology scanner within the same hospital in dedicated (26%) or non-dedicated (52%) RT scanning sessions. Only two centres reported having dedicated RT MRI scanners in the UK, lower than reported in other countries. Six percent of radiotherapy patients in England (data not available for other UK countries) have MRI as part of their treatment, which again is lower than reported elsewhere. Although a substantial number of centres acquire MRI scans for treatment planning purposes, most centres acquire less than five patient scans per month for each treatment site. Commissioning and quality assurance of both image registration and MRI scanners was found to be variable across the UK. In addition, staffing models and training given to different staff groups varied considerably across the UK, reflecting the current lack of national guidelines. Conclusion(s): The primary barriers reported to MRI implementation in EBRT planning included costs (e.g., lack of a national tariff for planning MRI), lack of MRI access and/or capacity within hospitals. Despite these challenges, significant interest remains in increasing MRI-assisted EBRT planning over the next five years.. Copyright © 2019 Institute of Physics and Engineering in Medicine.

**55. Hunter and new England diabetes alliance: Innovative and integrated diabetes care delivery in general practice**

**Authors** Acharya S.; Parsons M.; Luu J.; Attia J.; Philcox A.N.; Suthers B.; Jones M.; Lynch M.  
**Source** Australian Journal of Primary Health; 2019; vol. 25 (no. 2); p. 219-243  
**Publication Date** 2019  
**Publication Type(s)** Article  
**PubMedID** 31221243  
**Database** EMBASE  
 Available at [Australian Journal of Primary Health](#) from EBSCO (MEDLINE Complete)  
 Available at [Australian Journal of Primary Health](#) from ProQuest (Health Research Premium) - NHS Version  
 Available at [Australian Journal of Primary Health](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.

**Abstract** Evidence-based standardised diabetes care is difficult to achieve in the community due to resource limitations, and lack of equitable access to specialist care leads to poor clinical outcomes. This study reports a quality improvement program in diabetes health care across a large health district challenged with significant rural and remote geography and limited specialist workforce. An integrated diabetes care model was implemented, linking specialist teams with primary care teams through capacity enhancing case-conferencing in general practice supported by comprehensive performance feedback with regular educational sessions. Initially, 20 practices were recruited and 456 patients were seen over 14 months, with significant improvements in clinical parameters. To date 80 practices, 307 general practitioners, 100 practice nurses and 1400 patients have participated in the Diabetes Alliance program and the program envisages enrolling 40 new practices per year, with a view to engage all 314 practices in the health district over time. Diabetes care in general practice appears suboptimal with significant variation in process measures. An integrated care model where specialist teams are engaged collaboratively with primary care teams in providing education, capacity enhancing case-conferences and performance monitoring may achieve improved health outcomes for people with diabetes. Copyright © 2019 La Trobe University.

**56. The Investigations into What Happened at the Gosport War Memorial Hospital - Did the Coroner's Process Help?**

**Authors** Ranson D.  
**Source** Journal of law and medicine; Dec 2018; vol. 26 (no. 2); p. 306-310  
**Publication Date** Dec 2018  
**Publication Type(s)** Article  
**PubMedID** 30574719  
**Database** EMBASE  
 Available at [Journal of law and medicine](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.

**Abstract** The Gosport Independent Panel was established to review the care of older patients at the Gosport War Memorial Hospital in England over some 20 years. There had been a number of internal and external investigations that included police investigations, clinical care audits, GMC investigations and inquests. The Panel provided a means of public disclosure of much of the contents of the prior investigations and resulted in the creation of a catalogue of all relevant information. The report indicated that many of the investigative processes had failed to address the concerns of family and staff. In part this appears to have been the result of some investigations being limited in their ability to deal with social and community concerns and focusing on whether criminal prosecutions should be brought. Legislative restrictions regarding the nature and outcomes of the inquest process in the United Kingdom compounded these concerns. It is interesting to speculate whether a more proactive inquest system brought into play earlier might have alleviated many of the community and professional concerns regarding patient care.

**57. Study protocol for the validation of a new patient-reported outcome measure (PROM) of listening effort in cochlear implantation: The Listening Effort Questionnaire-Cochlear Implant (LEQ-CI)**

**Authors** Hughes S.E.; Watkins A.; Hutchings H.A.; Rapport F.; Boisvert I.; McMahon C.M.  
**Source** BMJ Open; Jul 2019; vol. 9 (no. 7)  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**Database** EMBASE

Available at [BMJ Open](#) from Europe PubMed Central - Open Access  
 Available at [BMJ Open](#) from HighWire - Free Full Text  
 Available at [BMJ Open](#) from ProQuest (Health Research Premium) - NHS Version  
 Available at [BMJ Open](#) from Unpaywall

**Abstract** Introduction: Listening effort may be defined as the cognitive resources needed to understand an auditory message. A sustained requirement for listening effort is known to have a negative impact on individuals' sense of social connectedness, well-being and quality of life. A number of hearing-specific patient-reported outcome measures (PROMs) exist currently; however, none adequately assess listening effort as it is experienced in the listening situations of everyday life. The Listening Effort Questionnaire-Cochlear Implant (LEQ-CI) is a new, hearing-specific PROM designed to assess perceived listening effort as experienced by adult CI patients. It is the aim of this study to conduct the first psychometric evaluation of the LEQ-CI's measurement properties. Methods and analysis: This study is a phased, prospective, multi-site validation study in a UK population of adults with severe-profound sensorineural hearing loss who meet local candidacy criteria for CI. In phase 1, 250 CI patients from four National Health Service CI centres will self-complete a paper version of the LEQ-CI. Factor analysis will establish unidimensionality and Rasch analysis will evaluate item fit, differential item functioning, response scale ordering, targeting of persons and items, and reliability. Classical test theory methods will assess acceptability/data completeness, scaling assumptions, targeting and internal consistency reliability. Phase 1 results will inform refinements to the LEQ-CI. In phase 2, a new sample of adult CI patients (n=100) will self-complete the refined LEQ-CI, the Speech, Spatial and Qualities of Hearing Scale, the Nijmegen Cochlear Implant Questionnaire and the Fatigue Assessment Scale to assess construct validity. Ethics and dissemination: This study was approved by the Abertawe Bro Morgannwg University Health Board/Swansea University Joint Study Review Committee and the Newcastle and North Tyneside 2 Research Ethics Committee, Ref: 18/NE/0320. Dissemination will be in high-quality journals, conference presentations and SEH's doctoral dissertation. Copyright © 2019 Author(s).

**58. CAPTURE-JIA: a consensus-derived core dataset to improve clinical care for children and young people with juvenile idiopathic arthritis**

**Authors** McErlane F.; Foster H.; Smith N.; Armit G.; Lunt L.; Rashid A.; Sampath S.; Shoop-Worrall S.; Cobb J.; Thomson W.; Bailey K.; Cleary G.; Douglas S.  
**Source** Rheumatology (Oxford, England); Jun 2019  
**Publication Date** Jun 2019  
**Publication Type(s)** Article  
**PubMedID** 31243450  
**Database** EMBASE

Available at [Rheumatology \(Oxford, England\)](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
 Available at [Rheumatology \(Oxford, England\)](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.  
 Available at [Rheumatology \(Oxford, England\)](#) from Unpaywall

**Abstract**

**OBJECTIVES:** Data collected during routine clinic visits are key to driving successful quality improvement in clinical services and enabling integration of research into routine care. The purpose of this study was to develop a standardized core dataset for juvenile idiopathic arthritis (JIA) (termed CAPTURE-JIA), enabling routine clinical collection of research-quality patient data useful to all relevant stakeholder groups (clinicians, service-providers, researchers, health service planners and patients/families) and including outcomes of relevance to patients/families.

**METHOD(S):** Collaborative consensus-based approaches (including Delphi and World Cafe methodologies) were employed. The study was divided into discrete phases, including collaborative working with other groups developing relevant core datasets and a two-stage Delphi process, with the aim of rationalizing the initially long data item list to a clinically feasible size.

**RESULT(S):** The initial stage of the process identified collection of 297 discrete data items by one or more of fifteen NHS paediatric rheumatology centres. Following the two-stage Delphi process, culminating in a consensus workshop (May 2015), the final approved CAPTURE-JIA dataset consists of 62 discrete and defined clinical data items including novel JIA-specific patient-reported outcome and experience measures.

**CONCLUSION(S):** CAPTURE-JIA is the first 'JIA core dataset' to include data items considered essential by key stakeholder groups engaged with leading and improving the clinical care of children and young people with JIA. Collecting essential patient information in a standard way is a major step towards improving the quality and consistency of clinical services, facilitating collaborative and effective working, benchmarking clinical services against quality indicators and aligning treatment strategies and clinical research opportunities.

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**59. Pay for performance for hospitals**

**Authors** Mathes T.; Pieper D.; Polus S.; Jaschinski T.; Morche J.; Eikermann M.

**Source** Cochrane Database of Systematic Reviews; Jul 2019; vol. 2019 (no. 7)

**Publication Date** Jul 2019

**Publication Type(s)** Article

**Database** EMBASE

Available at [Cochrane Database of Systematic Reviews](#) from Cochrane Collaboration (Wiley)

**Abstract**

Background Pay-for-Performance (P4P) is a payment model that rewards health care providers for meeting pre-defined targets for quality indicators or efficacy parameters to increase the quality or efficacy of care. Objectives Our objective was to assess the impact of P4P for in-hospital delivered health care on the quality of care, resource use and equity. Our objective was not only to answer the question whether P4P works in general (simple perspective) but to provide a comprehensive and detailed overview of P4P with a focus on analyzing the intervention components, the context factors and their interrelation (more complex perspective). Search methods We searched CENTRAL, MEDLINE, Embase, three other databases and two trial registers on 27 June 2018. In addition, we searched conference proceedings, gray literature and web pages of relevant health care institutions, contacted experts in the field, conducted cited reference searches and performed cross-checks of included references and systematic reviews on the same topic. Selection criteria We included randomized trials, cluster randomized trials, non-randomized clustered trials, controlled before-after studies, interrupted time series and repeated measures studies that analyzed hospitals, hospital units or groups of hospitals and that compared any kind of P4P to a basic payment scheme (e.g. capitation) without P4P. Studies had to analyze at least one of the following outcomes to be eligible: patient outcomes; quality of care; utilization, coverage or access; resource use, costs and cost shifting; healthcare provider outcomes; equity; adverse effects or harms. Data collection and analysis Two review authors independently screened all citations for inclusion, extracted study data and assessed risk of bias for each included study. Study characteristics were extracted by one reviewer and verified by a second. We did not perform meta-analysis because the included studies were too heterogenous regarding hospital characteristics, the design of the P4P programs and study design. Instead we present a structured narrative synthesis considering the complexity as well as the context/setting of the intervention. We assessed the certainty of evidence using the GRADE approach and present the results narratively in 'Summary of findings' tables. Main results We included 27 studies (20 CBA, 7 ITS) on six different P4P programs. Studies analyzed between 10 and 4267 centers. All P4P programs targeted acute or emergency physical conditions and compared a capitation-based payment scheme without P4P to the same capitation-based payment scheme combined with a P4P add-on. Two P4P program used rewards or penalties; one used first rewards and than penalties; two used penalties only and one used rewards only. Four P4P programs were established and evaluated in the USA, one in England and one in France. Most studies showed no difference or a very small effect in favor of the P4P program. The impact of each P4P program was as follows. Premier Hospital Quality Incentive Demonstration Program: It is uncertain whether this program, which used rewards for some hospitals and penalties for others, has an impact on mortality, adverse clinical events, quality of care, equity or resource use as the certainty of the evidence was very low. Value-Based Purchasing Program: It is uncertain whether this program, which used rewards for some hospitals and penalties for others, has an impact on mortality, adverse clinical events or quality of care as the certainty of the evidence was very low. Equity and resource use outcomes were not reported in the studies, which evaluated this program. Non-payment for Hospital-Acquired Conditions Program: It is uncertain whether this penalty-based program has an impact on adverse clinical events as the certainty of the evidence was very low. Mortality, quality of care, equity and resource use outcomes were not reported in the studies, which evaluated this program. Hospital Readmissions Reduction Program: None of the studies that examined this penalty-based program reported mortality, adverse clinical events, quality of care (process quality score), equity or resource use outcomes. Advancing Quality Program: It is uncertain whether this reward-/penalty-based program has an impact on mortality as the certainty of the evidence was very low. Adverse clinical events, quality of care, equity and resource use outcomes were not reported in any study. Financial Incentive to Quality Improvement Program: It is uncertain whether this reward-based program has an impact on quality of care, as the certainty of the evidence was very low. Mortality, adverse clinical events, equity and resource use outcomes were not reported in any study. Subgroup analysis (analysis of modifying design and context factors) Analysis of P4P design factors provides some hints that non-payments compared to additional payments and payments for quality attainment (e.g. falling below specified mortality threshold) compared to quality improvement (e.g. reduction of mortality by specified percent points within one year) may have a stronger impact on performance. Authors' conclusions It is uncertain whether P4P, compared to capitation-based payments without P4P for hospitals, has an impact on patient outcomes, quality of care, equity or resource use as the certainty of the evidence was very low (or we found no studies on the outcome) for all P4P programs. The effects on patient outcomes of P4P in hospitals were at most small, regardless of design factors and context/setting. It seems that with additional payments only small short-term but non-sustainable effects can be achieved. Non-payments seem to be slightly more effective than bonuses and payments for quality attainment seem to be slightly more effective than payments for quality improvement.

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**60. The National Pain Audit for specialist pain services in England and Wales 2010-2014**

**Authors** Price C.; de C Williams A.C.; Smith B.H.; Bottle A.  
**Source** British Journal of Pain; Aug 2019; vol. 13 (no. 3); p. 185-193  
**Publication Date** Aug 2019  
**Publication Type(s)** Article  
**Database** EMBASE  
 Available at [British Journal of Pain](#) from Europe PubMed Central - Open Access



**Abstract** Available at [British Journal of Pain](#) from Unpaywall  
 Introduction: Numerous reports highlight variations in pain clinic provision between services, particularly in the provision of multidisciplinary services and length of waiting times. A National Audit aims to identify and quantify these variations, to facilitate raising standards of care in identified areas of need. This article describes a Quality Improvement Programme cycle covering England and Wales that used such an approach to remedy the paucity of data on the current state of UK pain clinics.  
 Method(s): Clinics were audited over a 4-year period using standards developed by the Faculty of Pain Medicine of The Royal College of Anaesthetists. Reporting was according to guidance from a recent systematic review of national surveys of pain clinics. A range of quality improvement measures was introduced via a series of roadshows led by the British Pain Society.  
 Result(s): 94% of clinics responded to the first audit and 83% responded to the second. Per annum, 0.4% of the total national population was estimated to attend a specialist pain service. A significant improvement in multidisciplinary staffing was found (35-56%,  $p < 0.001$ ) over the 4-year audit programme, although this still requires improvement. Very few clinics achieved recommended evidence-based waiting times, although only 2.5% fell outside government targets; this did not improve. Safety standards were generally met. Clinicians often failed to code diagnoses.  
 Conclusion(s): A National Audit found that while generally safe many specialist pain services in England and Wales fell below recommended standards of care. Waiting times and staffing require improvement if patients are to get effective and timely care. Diagnostic coding also requires improvement.  
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**61. Complications related to peri-operative transoesophageal echocardiography - a one-year prospective national audit by the Association of Cardiothoracic Anaesthesia and Critical Care**

**Authors** Ramalingam G.; Klein A.A.; Choi S.-W.; Agarwal S.; Kunst G.; Gill R.; Fletcher S.N.; Shashidaran P.; Waghmare K.; Kadayam R.; Flynn F.; Gavin N.; Mairead-Machugh U.; Bell M.; Hawthorn A.; Sajgalik P.; Burri N.; Meraglia A.  
**Source** Anaesthesia; 2019  
**Publication Date** 2019  
**Publication Type(s)** Article  
**PubMedID** 31236918  
**Database** EMBASE

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 Available at [Anaesthesia](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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 Available at [Anaesthesia](#) from Unpaywall

**Abstract** Previous studies on the safety of peri-operative transoesophageal echocardiography seem to suggest a low rate of associated morbidity and mortality. That said, there has been a paucity of prospective multicentre studies in this important area of clinical practice. We carried out a one-year prospective study in 2017, co-ordinated by the Association of Cardiothoracic Anaesthesia and Critical Care, to determine the rate and severity of complications associated with peri-operative transoesophageal echocardiography in anaesthetised cardiology and cardiac surgical patients. With the help of clinicians from 28 centres across the UK and Ireland, we recorded the total number of examinations conducted in anaesthetised patients during the study period. All major complications at each centre were prospectively reported and recorded. Of the 22,314 examinations, there were 17 patients diagnosed with a major complication which caused either palatal injury or gastro-oesophageal disruption. This corresponds to an incidence of 0.08% (95%CI 0.05-0.13%) or approximately 1:1300 examinations. There were seven deaths reported during the study period which were directly attributed to these complications, corresponding to an incidence of 0.03% (95%CI 0.01-0.07%) or approximately 1:3000. These figures are higher than previously reported and suggest a high probability of death following the development of a complication (~40%). Most complications occurred in patients without known risk factors for transoesophageal echocardiography associated gastro-oesophageal injury. We suggest clinicians and departments review their procedural guidelines, especially in relation to probe insertion techniques, together with the information communicated to patients when the risks and benefits of such examinations are discussed.  
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**62. Decision-Making in the Emergency Laparotomy: A Mixed Methodology Study**

**Authors** Hendra L.; Hendra T.; Parker S.J.  
**Source** World journal of surgery; Mar 2019; vol. 43 (no. 3); p. 798-805  
**Publication Date** Mar 2019  
**Publication Type(s)** Article

**PubMedID** 30456483  
**Database** EMBASE  
 Available at [World journal of surgery](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
 Available at [World journal of surgery](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.

**Abstract**  
**INTRODUCTION:** More than 30,000 emergency laparotomies take place annually in England and Wales (Symons et al. in Br J Surg 100(10):1318-1325, 2013; Shapter et al. in Anaesthesia 67(5):474-478, 2012). They are associated with high morbidity and an average inpatient 30-day mortality rate of 11%. Inextricably linked to outcomes is the decision-making process of whether or not to operate (NELA Project Team First patient report of the National Emergency Laparotomy Audit. RCoA, London, 2015; Crebbin et al. in Aust N Z J Surg 83(6):422-428, 2013). A mixed-methods study was undertaken to investigate decision-making in the emergency laparotomy and influencing factors.  
**METHOD(S):** Semi-structured interviews were undertaken amongst general surgeons, exploring the decision-making process. Results helped guide design of an online survey, consisting of vignettes and subsequent questions. Respondents were asked to decide whether or not they would perform a laparotomy for each vignette and the results compared to grade, risk attitudes and reflective practice. Responses were analysed for effect of previous positive and negative experiences and for consistency.  
**RESULT(S):** Interviews revealed multiple important factors when considering whether or not to perform an emergency laparotomy, broadly categorised into patient-related, surgeon-related and external factors. A total of 116 general surgeons completed the survey: 12 SHOs, 79 registrars and 25 consultants. Non-consultants were 10.4% (95% CI +/-9.7%) more likely to perform an emergency laparotomy than consultants (p=0.036) on multivariate analysis. No association was observed between operative practices and risk attitudes (p=0.22), reflective practice (p=0.7) or previous positive or negative experiences in univariate (p=0.67) or multivariate analysis. Surgeons were not proven to be either consistent nor inconsistent in their decision-making.  
**CONCLUSION(S):** The decision to operate or not in an emergency laparotomy directly effects patient outcome. This study demonstrates a difference in decision-making and risk attitudes between consultants and their juniors. To address this, formal teaching of models of decision-making, influencing factors and vignette-based consultant-led discussions should be introduced into surgical training.

**63. Context-Specific Economic Evaluation for Molecular Pathology Tests: An Application in Colorectal Cancer in the West of Scotland**

**Authors** Bouttell J.; Hawkins N.; Graham J.; Tan Y.Y.; Creed D.; McGaffin G.; Smith G.; Westwood P.; Williams N.; McLaughlin R.  
**Source** International Journal of Technology Assessment in Health Care; 2019  
**Publication Date** 2019  
**Publication Type(s)** Article  
**Database** EMBASE  
 Available at [International Journal of Technology Assessment in Health Care](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.

**Abstract**  
**Objectives**The cost-effectiveness of molecular pathology testing is highly context dependent. The field is fast-moving, and national health technology assessment may not be relevant or timely for local decision makers. This study illustrates a method of context-specific economic evaluation that can be carried out in a limited timescale without extensive resources.  
**Methods**We established a multi-disciplinary group including an oncologist, pathologists and a health economist. We set out diagnostic and treatment pathways and costs using registry data, health technology assessments, guidelines, audit data, and estimates from the group. Sensitivity analysis varied input parameters across plausible ranges. The evaluation setting was the West of Scotland and UK NHS perspective was adopted. The evaluation was assessed against the AdHopHTA checklist for hospital-based health technology assessment.  
**Results**A context-specific economic evaluation could be carried out on a timely basis using limited resources. The evaluation met all relevant criteria in the AdHopHTA checklist. Health outcomes were expected to be at least equal to the current strategy. Annual cost savings of 637,000 were estimated resulting primarily from a reduction in the proportion of patients receiving intravenous infusional chemotherapy regimens. The result was not sensitive to any parameter. The data driving the main cost saving came from a small clinical audit. We recommended this finding was confirmed in a larger population.  
**Conclusions**The method could be used to evaluate testing changes elsewhere. The results of the case study may be transferable to other jurisdictions where the organization of cancer services is fragmented.  
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**64. Regional IBD surveillance endoscopy north west (RISE NoW): An audit of surveillance colonoscopy practice in inflammatory bowel disease in northwest England**

**Authors** anonymous  
**Source** Journal of Crohn's and Colitis; Mar 2019; vol. 13  
**Publication Date** Mar 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
**Abstract** Background: Interval surveillance colonoscopy plays a crucial role in identifying and managing colitis-related dysplasia to reduce the risk of colorectal cancer. Dye based or image enhanced chromoendoscopy have been endorsed by multiple organisations as the preferred means of detecting dysplasia since 2015. We aimed to assess the methods of surveillance utilised within the north-west of England using the established trainee research network, GasTRIN NoW.  
 Method(s): GasTRIN NoW investigators prospectively collected data from 10 hospitals in North West England to assess surveillance practice between June and October 2018. All IBD interval surveillance colonoscopies were included. SCENIC consensus guidelines were used as the standard for adequate surveillance while BSG standards were used for the interval surveillance standard.<sup>1,2</sup> Results: In total, 226 patients underwent IBD surveillance endoscopy (143 UC, 66 CD, 17 IBDU) with a median disease duration of 12 years (IQR 9-20). There were 122 males and the median age was 54 years (range 20-86). A total of 46 (20%) procedures did not adhere to and 21 (46%) of which were delayed (>6 months). Dye spray was used in 22%(n = 49) of the procedures while the remaining had random colonic biopsies. Image enhanced chromoendoscopy was not used in our cohort. There was more visible dysplasia identified in the dye spray cohort (13 dye spray vs. 8 non-dye spray, chi2 p = 7 x 10<sup>-6</sup>). Adenocarcinoma was confirmed in the dye spray group while no cancers were identified in the non-dye spray group. There were no differences in histological dysplasia between these groups (5 vs. 6, respectively, p = 0.11). Where withdrawal time was recorded (n = 139), median times were significantly different between both groups (dye spray 16 min (IQR: 12-25) vs. no-dye spray 10 min (8-14); chi2 p = 3.7 x 10<sup>-4</sup>).  
 Conclusion(s): Our data demonstrate that there are delays to elective IBD surveillance in clinical practice. Dye spray colonoscopy is not widely practised across north-west England. Dye spray colonoscopy identified more visible dysplasia and was associated with longer withdrawal time, a recognised surrogate marker for colonoscopy quality. Our data will inform future work in optimising IBD surveillance in England.

**65. Prescribing dronedarone for paroxysmal atrial fibrillation: How is it done across the UK and is it safe?**

**Authors** Yones E.; Mullan J.; Horwood A.; Connell N.; Odams S.; Maloney J.; Kyriacou A.L.; Sahu J.; Lee J.M.; Kelland N.F.  
**Source** European Journal of Hospital Pharmacy; Jul 2019; vol. 26 (no. 4); p. 220-222  
**Publication Date** Jul 2019  
**Publication Type(s)** Article  
**Database** EMBASE  
**Abstract** Dronedarone, a useful treatment for paroxysmal atrial fibrillation, is often only prescribed in secondary care. To support a protocol shared between primary and secondary care, dronedarone use was audited in our centre and prescribing practices across UK secondary care centres were reviewed. From 2010 to 2015, a total of 181 patients were started on dronedarone. There were no deaths or serious adverse events. Median cessation time due to adverse effects was 52 days and 88% stopped dronedarone within 6 months. Of 17 local prescribing protocols across the UK, 12 involved shared care and 5 purely secondary care follow-up. In our review, dronedarone was safe and well tolerated. The use of shared care protocols is well established in other UK centres. The development of a local shared care protocol between primary and secondary care is feasible with existing systems in place to support its introduction.  
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**66. Royal College of Ophthalmologists' National Ophthalmology Database study of cataract surgery: Report 6. the impact of EyeSi virtual reality training on complications rates of cataract surgery performed by first and second year trainees**

**Authors** Ferris J.D.; Johnston R.L.; Donachie P.H.; Barnes B.; Olaitan M.; Sparrow J.M.  
**Source** British Journal of Ophthalmology; 2019  
**Publication Date** 2019  
**Publication Type(s)** Article  
**PubMedID** 31142463  
**Database** EMBASE  
 Available at [British Journal of Ophthalmology](#) from BMJ Journals - NHS  
 Available at [British Journal of Ophthalmology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** Objective: To investigate the impact of EyeSi surgical simulators on posterior capsule rupture (PCR) rates of cataract surgery performed by first and second year trainee surgeons.  
 Design(s): A Royal College of Ophthalmologists' National Ophthalmology Database audit study of first and second year surgeons' PCR rates over seven consecutive National Health Service (NHS) years. Participating centres were contacted to ascertain the date when their surgeons had access to an EyeSi machine and whether this was on-site or off-site. Operations were classified as before, after or no access to EyeSi.  
 Setting(s): The study took place in 29 NHS Ophthalmology Units in a secondary care setting.  
 Result(s): Two-hundred and sixty five first and second year trainee surgeons performed 17 831 cataract operations. 6919 (38.8%) operations were performed before access to an EyeSi, 8648 (48.5%) after access to an EyeSi and 2264 (12.7%) operations by surgeons with no access to an EyeSi. Overall, there was a 38% reduction in the first and second year surgeon's unadjusted PCR rates from 4.2% in 2009 to 2.6% in 2015 for surgeons with access to an EyeSi, and a 3% reduction from 2.9% to 2.8% for surgeons without access to an EyeSi. The overall first and second year unadjusted PCR rates for before, after and no access to EyeSi were 3.5%, 2.6% and 3.8%, respectively. The decrease in the with-access to an EyeSi group PCR rate was similar for surgeons with access to an EyeSi on site' or off site'.  
 Conclusion(s): First and second year trainee surgeons' unadjusted PCR rates have decreased since 2009 which has significant benefits for patients undergoing cataract surgery. This 38% reduction in complication rates aligns with the introduction of EyeSi simulator training.  
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**67. An audit of service provision by early pregnancy unit: Do we adhere to NICE clinical guideline?**

**Authors** Ijaz S.; Vallabu S.; Tirumuru S.; Murthy P.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 30  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Unpaywall

**Abstract** Objectives In UK, Early Pregnancy and Emergency Gynaecology services are well established currently delivering high quality of patient care but facing increasing demands with increasing workload. \* To ascertain general workload, to monitor our early pregnancy assessment unit (EPAU) service, and to identify areas of improvement. \* To assess compliance with NICE clinical guideline (CG154)-ectopic pregnancy and miscarriage. \* Overall aim was to improve the efficiency of service. Standards: NICE clinical guideline (CG154) \* All women with pain and/or bleeding or atypical symptoms suggestive of early pregnancy problems are assessed by a healthcare professional before referral to an EPAU. \* Women who are referred to EPAU are offered a transvaginal ultrasound scan to identify the location and viability of the pregnancy. \* Women with a suspected miscarriage who have had an initial transvaginal ultrasound scan are offered a second assessment to confirm the diagnosis. Methods Three hundred and eighty-nine women were seen in our EPAU between December 2016 and January 2017. Out of these 349 case notes were reviewed retrospectively. 429 ultrasound scan reports were reviewed in detail and compared with NICE standards. In addition, 100 scan reports from January 2016 were also analysed for comparison. Results \* 98% of patients were referred after being seen by a health professional, general practitioners being the leading source of referral. \* Overall, 471 visits were noted for 349 patients with mean visit ratio of 1.35 and new-to-follow-up ratio of 2.9:1. \* Overall, 429 scans were done including 327 new scans and 102 follow-up scans. \* 83% patients seen were greater than 6 weeks of gestation, and 13% were less than 6 weeks. \* Only 51% of scans performed in less than 13 weeks of gestation were transvaginal scans. \* 29% scans reported pregnancy of unknown location (PUL), but after analysis, true PUL rate was 11%. \* 18% of miscarriage ultrasound reports did not follow the NICE guidance which was highlighted for improvement. Conclusion \* Areas of improvement were identified to improve safety and efficacy of the service including compliance with NICE guidance regarding offering transvaginal ultrasound scans and diagnosis of miscarriage for women attending early pregnancy unit. This is likely to lead to quicker and reliable diagnosis and reduce follow ups. \* To achieve a PUL rate of less than 15%, ultra-sonographers were encouraged to report scans as 'pregnancy of uncertain viability', 'probable early IUP', and 'PUL' to help clinicians avoid unnecessary HCG tests and reduce patient follow ups. \* High workload in EPAU service demands dedicated staff and compliance with national standards.

**68. A safe and effective cervical preparation protocol for late-term terminations**

**Authors** Gazet C.; Perera D.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 5  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract**  
 Objective Late second-trimester termination of pregnancy has always been considered a 'two-stage' procedure, involving cervical preparation up to 24 hours prior to dilatation of the cervix and evacuation of the uterus (D&E). A recent review showed that there is still a lack of evidence for the best approach to obtaining adequate cervical dilatation before D&E at 20-24 weeks. Osmotic dilators such as Dilapan and misoprostol are commonly used as stand-alone options for late termination cervical preparation. This paper outlines the results of using a combination of the osmotic dilator intracervical Dilapan and misoprostol for cervical preparation and the promise its use holds for speeding up cervical preparation enough to undertake D&E in the late secondtrimester (19-23 weeks) as day-case admissions. Design A prospective 'dose-finding' study and subsequent audit of intracervical Dilapan rods and vaginal misoprostol tablets Methods The combination of Dilapan rods and vaginal misoprostol tablets was administered at least four hours before the subsequent D&E for 774 consecutive clients requesting termination of pregnancy at two Marie Stopes International (MSI) clinics in London between 19 weeks and 0 days and 23 weeks and 6 days of gestation was carried out. The outcomes were measured for cervical preparation to procedure time, adverse effects of the cervical preparation, cervical dilatation at the time of procedure, and duration and complications of the procedure. Results During the six-month dose-finding audit, the optimal number of intracervical Dilapan rods and doses of vaginal misoprostol became clear with more than 90% of women being treated with two or three Dilapan rods in combination with 400 or 600mcg of misoprostol for cervical preparation. The initial use of smaller numbers of Dilapan rods combined with higher doses of misoprostol for both nulliparous and parous women resulted in cervical lacerations for both groups of women. By the time of the subsequent audit, a reduction in the dose of misoprostol and an increase in the number of Dilapan rods had resulted in a reduction of adverse effects and major complications. The eightmonth audit showed that sufficient cervical dilatation was achieved in more than 95% of cases. Conclusion The combination of intracervical Dilapan and intravaginal misoprostol for cervical preparation prior to D&E is safe and effective, and allows successful day-case management of late second-trimester abortion.

**69. Outcomes after surgical treatment for heavy menstrual bleeding in England and Wales: Evidence from a national audit**

**Authors** Geary R.; Gurol-Urganci I.; Cromwell D.; Smith S.; Van Der Meulen J.; Mahmood T.; Kiran A.; Bansi-Matharu L.; Shakespeare J.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 227  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Objective To examine patient-reported outcomes & quality-of-life after treatment for heavy menstrual bleeding (HMB). Design National cohort study (England & Wales) using patient-reported data from the National HMB Audit linked at patient level to administrative hospital databases. Methods Women aged 18-60 years newly referred to a gynaecology outpatient department for HMB were eligible for the National HMB Audit (2010-2014). Baseline questionnaires were completed at the first outpatient visit (before consultations); follow-up questionnaires were posted one year after the first visit. Of the 15 325 women included at baseline, 8517 (56%) returned the follow-up questionnaire and 8493 (>99%) could be linked to the administrative hospital data ('the cohort'). The outcomes were mean symptom severity & condition-specific health-related quality-of-life scores one year after women's first outpatient visit ('at follow up'). Quality-of-life scores could range from 0 (poorest) to 100 (best quality, HRQoL). Symptom severity scores could range from 0 (least severe) to 100 (most severe). The exposure was treatment type from the administrative hospital data: 'no surgery', 'endometrial ablation' (EA), 'hysterectomy' & 'other' (myomectomy/uterine artery embolisation). We fitted multivariable linear regression models to estimate mean severity & quality-of-life scores by treatment, adjusting for sociodemographic & HMB-related characteristics, and stratified by HMB-related pathology (HMB alone, fibroids/polyps (without endometriosis) & endometriosis (with/without polyps/fibroids)). Results 3316 women (39%) had received surgical treatment one year after their first outpatient clinic visit for HMB (EA:1936 (23%), hysterectomy:1201 (14%), nonsurgical/no treatment:5177 (61%)). Overall, women reported less severe symptoms & better quality-of-life at follow up than baseline (baseline score: severity 60.5, HRQoL 36.1; mean change: severity score -30.4; HRQoL score 34.3). Women who had surgery (EA/hysterectomy/'other') reported more severe symptoms & worse quality-of-life at baseline, & less severe symptoms & better quality-of-life at follow up than those who did not have surgery (mean severity/HRQoL score 11-16 points larger for women who had EA/ hysterectomy than those who had no surgery). Differences of 5 points are considered clinically important in trials. For women with HMB-related pathology, hysterectomy was the treatment associated with the least severe symptoms and best quality-of-life at follow up (mean severity/HRQoL score 22 points larger for women with fibroids/endometriosis than for no surgical treatment). Conclusion We observed that surgery is the most beneficial treatment for quality-of-life. Surgery should be available as a firstline treatment where women do not want pharmacological treatment. Early referral and treatment for women with severe symptoms may result in more appropriate, timely treatment: referral pathways may need to be improved.

**70. 'INVENT'-a collaborative regional multicentre service evaluation and audit of multiple pregnancies: Preliminary results from three centres**

**Authors** Miti C.; Gomindes N.; Self A.; Hurst P.; Khan T.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 53-54  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract**

Objective To define the prevalence of multiple births and document neonatal outcomes in the West Midlands Region and provide an overview of the antenatal service offered to pregnancies complicated by multiplicity, to inform a wider study with the aim of unifying standards of care and practise, and to audit compliance of the management of multiple pregnancy to national guidelines. Design Collaborative Service Evaluation and Audit (MROG) Retrospective study using data captured in antenatal patient records and neonatal electronic records. Eighteen Regional Leads appointed to oversee the conduct of the evaluation and audit across 12 out of 15 hospitals in the West Midlands Deanery catchment area. Methods Hospitals records of women carrying multiple pregnancies over a 12-month period from August 2017 to September 2018 were reviewed. Standardised data collection proformas were used for initial collection of raw data which was entered using unique codes anonymising the participants into Excel for processing and analysis. Results Preliminary results from the collaborative were complete for one level 3 neonatal unit (New Cross Hospital) and two Level 1 neonatal units (George Eliot Hospital and Warwick Hospital) 122 multiple pregnancies were evaluated representing 225 live births consisting of 40% DCDA, 8% MCDA, 1% DCTA, <1 MCMA multiples. Combined screening was undertaken in 57% but declined in 16% antenatal patients. 24% antenatal mothers did not receive corticosteroids for fetal lung maturity prior to delivery. The mode of delivery was discordant in the minority of cases; however, 34% babies were delivered by emergency caesarean section, while 30% were delivered following a planned caesarean section and 24% following a normal vaginal delivery. 39% were delivered according to NICE guidance while admission to Neonatal Intensive Care Unit was undertaken in 24% cases, 5% being in utero transfers and 6% ex-utero. The level 1 centre delivered three sets of twins following suspected IUGR. The actual birthweights of the resulting twins were discordant by >20% showing the accuracy of the detection of IUGR in this group. Conclusion Preliminary results from three of the participating units reveal varied indications and modes of delivery reflecting the complexity in managing multiple deliveries. The cases that did not receive steroids for fetal lung maturity highlight an area for improvement. We advocate corticosteroid administration as an auditable standard with a target compliance of 100%. Data from the remaining centres will add to these results with the aim of spreading the study across England.

**71. Impact of a multi-centre quality improvement project to reduce the incidence of obstetric anal sphincter injury (OASI) in the UK: A stepped-wedge cluster randomised trial**

**Authors** Urganci I.G.; Van Der Meulen J.; Bidwell P.; Novis V.; Sevdalis N.; Silverton L.; Hellyer A.; Thakar R.

**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 230

**Publication Date** Jun 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library

Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective To evaluate the impact of a quality improvement intervention on OASI rates in 16 maternity units across England, Scotland and Wales. Design The intervention was a 'care bundle' including four elements (provision of antenatal information to women, manual perineal protection, episiotomy when clinically indicated and perineal examination following childbirth), supported with a skills development module and an awareness campaign. The study had a stepped-wedge cluster randomised trial design. The intervention was sequentially rolled out starting from January 2017 in four regions, each comprising of four maternity units of various sizes and types. A new region was initiated approximately every three months and the first three months of the intervention was considered as a 'transition period', when the care bundle was launched at the units and the local clinical champions cascaded the training and educational materials to their colleagues. Methods Data for births from October 2016 to April 2018 were extracted from local electronic maternity information systems for 15 units and from administrative data for one unit. All singleton, live, vaginal births were included in the study. Births at home/in transit, water births and births during the transition period were excluded. The multi-level logistic regression to estimate the impact of the intervention on OASI rate adjusted for secular time trends and risk factors for OASI (age, ethnicity, BMI, parity, birthweight, mode of delivery), and included a random effect to account for clustering at the unit level. Results 55 060 births were included in the study (median age 30 years, interquartile range 26-34 years; 46% primiparous; 79% spontaneous vaginal and 21% instrumental births; 25% with episiotomy). The OASI rate was 3.3% in the pre-intervention period, and 3.0% in the post-intervention period (adjusted OR 0.79 (0.65-0.97), P = 0.03). OASI rates declined for spontaneous vaginal births (2.6% to 2.2%, adjusted OR 0.66 (0.60-0.71), P < 0.001), but there was no change for instrumental births (7.6% for forceps in both periods, 2.7% to 2.6% for vacuum). There were no secular trends in OASI rates in the study period and no change in the overall mode of birth (including caesarean section) or episiotomy rate distributions in pre- and post-intervention periods. Conclusion A stepwise roll-out and routine clinical data were used to evaluate the effectiveness of a multi-centre quality improvement initiative. Implementation of a care bundle, alongside a skill development training and an awareness campaign improved obstetric outcomes. The project highlighted a general need and interest to better manage perineal care.

**72. Pregnancy outcomes of women with previous gestational diabetes attending a dedicated virtual service in a London maternity unit**

**Authors** Chiu S.; Shah N.; Patel S.; Northover E.; Wren A.; Singh N.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 179  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Objective 50% of women with gestational diabetes (GDM) are expected to develop type 2 diabetes within 5 years and their offspring are at increased risk of diabetes later in life. Our aim was to develop a women-centred care pathway for pregnant women with a history of GDM. Design Health improvement strategy in a virtual clinic setting. Methods Women with a history of GDM in previous pregnancy were invited to attend a workshop aimed at early implementation of diet modulation, exercise, and blood glucose monitoring. Blood glucose target range was set at: premeals 3.5-5.5 mmol/l and one hour postmeals <7.8 mmol/l. The women were reviewed in a virtual clinic fortnightly and treatment with metformin or insulin advised if three or more values were above the target range over a 7-day period despite diet and exercise. We audited the pregnancy outcomes to determine the number of women who require drug treatment prior to 28 weeks, the gestational age at which treatment commenced, incidence of adverse events such as shoulder dystocia, macrosomia, stillbirth, and polyhydramnios. The women were reviewed face to face at 28 and 36 weeks. At the 36 weeks of appointment, an individual birth plan was made for timing and mode of birth depending on clinical risks. Women on diet and with no maternal or fetal concerns were discharged to midwifery care but advised to continue monitoring until delivery. Results During January 2018 to December 2018, 85 women were referred to the workshop. 33 women (39%) required treatment (30 with metformin and 3 combined metformin and insulin). Treatment was commenced at median gestation of 24 weeks SD of 6.3 weeks, approximately 4 weeks earlier than routine screening at 28 weeks. 52 women remained on diet. 55 women have given birth, and of these, 30.9% went into spontaneous labour, 34.5% induced, 25.5% elective caesarean section. Overall, 45.5% had a vaginal delivery, 10.9% instrumental and 18.2% emergency CS. There were no cases of shoulder dystocia or stillbirth, 1.2% polyhydramnios, 2.4% preeclampsia, 1.2% obstetric cholestasis and 2.4% fetal growth restriction. Median birthweight was 3.39 kg 0.58 SD. Conclusion The virtual clinic setting offers a cost-effective way of providing efficient and safe care to pregnant women with previous GDM in a resource-constrained environment.



**73. Biopsy rate for borderline and low-grade smears referred to colposcopy in North Glasgow**

**Authors** Wong S.; Vella S.; Laing M.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 8  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Objective HPV triage is not currently undertaken in Scotland; however, the Hr-HPV primary test will be implemented in Scotland in 2020. Within the planning model, there is an anticipation of a rise in colposcopy visits in the first 3 years of implementation before the number will start to reduce. As highgrade smear has a very clear guidance of biopsy rate, we are now studying our biopsy rate for borderline and low-grade smear to optimise our practice and to ensure we will be able to meet the initial raised in numbers. Design This was a retrospective study of all low-grade and borderline smears referred to colposcopy in North Glasgow in 2017. Methods Data including smear result, colposcopy outcome, histology result, and other related factors have been obtained from a central database in Scotland (NCCIAS & SCCRS). Duration will include all new colposcopy visits taken place in North Glasgow within 2017 with borderline changes (squamous) and low-grade smears. Further details of the colposcopy visit will be verified in case notes. Results A total of 248 cases with borderline smears were seen within 2017, 177 biopsies were performed, and 97% were adequate. One hundred and eighteen of the biopsies confirmed normal result, 30 with CIN 1, 18 with CIN 2, 3 with CIN 3, and 1 with CGIN. A total of 578 cases with low-grade smears were seen, and 430 biopsies were performed with 97% adequacy. Two hundred and twenty-four biopsies were normal, 99 with CIN1, 69 with CIN2, 20 with CIN3, one with CGIN, and one with squamous cell carcinoma. Conclusion The total biopsy rate was 73% at a cost of 25 000 to the trust, which is higher than the total biopsy rate in Scotland (67%). Further staff education on reducing unnecessary biopsy is required, and interval re-audit of biopsy rate and consideration of the usage of adjunctive colposcopy technology such as DYSIS may result in reduction together with cost saving and a less painful colposcopy visit.

**74. Adopting design thinking approach to inpatient postnatal care in a busy national health service hospital in United Kingdom: Qualitative insights**

**Authors** Sharma S.; Dalton N.; Matthews R.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 131  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective The model of delivery of in-hospital postnatal care in most maternity units in the UK has not changed for decades. It is now well recognised that associated poor postnatal experience can result in a negative impact on the mother's physical and mental health and bonding with the newborn. To tackle this longstanding challenge, we have started a quality improvement project based on the principles of design thinking. Design We adopted a design thinking approach, as this supports a human-centred outlook to explore and understand experiences of users and service provider and requires adoption of an iterative process to identify solutions while using an empathetic outlook to care models. Methods Based on the design thinking approach, during October 2016 and March 2017, we commenced the 'Discover, Define, Develop and Deliver' iterative process. We undertook in-depth interviews (mother's, their family members, and staff); Service Safari, process mapping, touch point analysis; review of data set (surveys, baseline data including understanding of finances) and learning from other related services. Emotional journey mapping was also undertaken. Results The approach helped identify a wide range of themes, which impact experience of people involved in receiving and delivering care. Themes identified during the interviews of the mothers could be defined as 'wanting to feel loved', 'adjusting to motherhood role', responsibility to other family members, recuperating from labour and delivery, and caring for the baby. Clinical, administrative, and managerial staff interviews highlighted experiences relating to systems in place and the negative impact of busy periods on their experience also. Each touch point analysis showed a range of emotional experiences. Financial constraints on the system were evident. Interventions have included 'staff member of the month' to give staff personalised feedback, music therapy sessions on the ward, and optimising pain project. Conclusion This is the first time we have adopted a design thinking approach to address the need to improve experiences during in-hospital postnatal care. Through this approach, we have begun to understand what the lived experience is on the postnatal ward for the mums and those who deliver care. It has also revealed the complexity of the task of improving postnatal experience, on a background of service pressures in busy national health service hospitals. Through engagement and support of the users and the wider hospital team (clinical, administrative, and managerial), we have started to develop quality improvement projects in areas that may have maximum impact.

**75. Changing management of placental abruption improves clinical outcomes: A comparison of cases before and after the introduction of a postpartum haemorrhage (PPH) quality improvement (QI) project, OBSCymru, the Obstetric Bleeding Strategy for Wales**

**Authors** Scarr C.; Packer W.; Bell S.; Collis R.; Collins P.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 130  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Objective Placental abruption is associated with significant adverse maternal and neonatal outcome, with maternal problems including PPH dependent on severity of abruption. This analysis compared two cohorts of women with placental abruption in a tertiary obstetric unit with 6000 deliveries/year, before and after introduction of OBSCymru. OBSCymru is a national QI project with four key pillars: PPH risk assessment for all women on arrival in labour, gravimetric MBL for all deliveries, early escalation based on MBL to the multidisciplinary maternity team, and point of care testing of coagulation guiding blood product management. Design Retrospective analysis of women with clinical diagnosis of placental abruption in an observational study, OBS1, which has previously reported and women with abruption in the OBSCymru database. Methods Women were recruited into OBS1 from June 2011 to 2012, while all women with a clinical diagnosis of placental abruption were included in OBSCymru (May 2017-18). Using an abruption severity analysis, the presentations were compared to ensure differences in maternal outcome were not due to different severities. Results OBS1 had 14 abruptions and OBSCymru 15 abruptions. In both groups, >90% of cases were classified as severe abruption (13/14 vs 14/15). There were no maternal deaths or hysterectomies in either group. Two patients were admitted to ICU during OBSCymru for treatment of acute kidney injury. Adverse fetal outcomes occurred in 13/14 and 13/15, respectively. The MBL median (interquartile range) was 2550 (2142-3277) ml in OBS1 and 1200 ml (750-1400) ml in OBSCymru (P < 0.05). The haematology, coagulation profile, lowest fibrinogen, fibrinogen use (15 g versus 18 g), and platelet use (3 versus 2 pools) were similar, but there was a significant difference in red cell transfusion (29 versus 14 units, P < 0.05) and FFP use (34 versus 4 units, P < 0.05) in OBS1 and OBSCymru, respectively. Conclusion Diagnostic characteristics and severity were similar in both groups, but outcomes including MBL and transfusion were more than halved. Introduction of a QI programme has standardised management of PPH including point of care testing of coagulation and haemoglobin with targeted blood product management. The major differences in maternal outcome from OBS1 to OBSCymru are likely to be as a result of these changes.

**76. The way forward in perinatal mortality reviews**

**Authors** Helps A.; O'Donoghue K.; Leitaó S.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 73  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Background Perinatal deaths are devastating for parents, families, and staff involved. According to the World Health Organization (WHO), 5.3 million perinatal deaths occur every year worldwide. Perinatal mortality (PM) reviews take place to identify factors contributing to suboptimal care and to analyse issues in healthcare services. Failure to examine perinatal deaths for substandard care prevents learning and may lead to recurrence of events. Methods The different types of PM reviews being done internationally were studied through a structured scientific literature review (1940 to 2018). This has been completed as part of a doctoral study in Ireland focusing on PM reviews. Results Awareness of the importance to review PM cases for substandard care is increasing. PM audits have been established in several countries in Europe (including Ireland) and across the globe to collect PM data, and examine whether national guidelines are being followed. However, to understand reasons for noncompliance a more detailed systematic approach is required, for example a confidential enquiry. This detailed review process is currently standardised at national level in few countries (the UK, the Netherlands, New Zealand). The current literature in relation to PM reviews highlights 3 points to improve and standardise the process internationally. Firstly, differences in definitions of PM represent a challenge as they impede international comparisons of PM data. Secondly, input of factual information into a web-based tool (such as the UK Perinatal Mortality Review Tool (PMRT) released in January 2018) facilitates objective PM or near-miss reviews which create action plans based on issues identified. The Irish Maternity Event Review Tool (MERT) is due to be released in 2019; the aim for the future is to set up a national confidential enquiry process into perinatal deaths and/or near-misses. Lastly, the involvement of bereaved parents in the review process is still mostly unexplored. PARENTS 2 is a British pilot study of parents' engagement in PM reviews. It highlights the need for standardised continuity of care for parents through the PM review process. Conclusion Agreeing on an international definition of PM should be a priority. By identifying differences in current PM reviews, a standardised, structured approach to the process could be developed to facilitate sharing of experiences, challenges, and best practice. Development of specific PM review tools will also enable this and promote a regulated, systematic national process for these reviews. Involving multidisciplinary clinical staff and parents appropriately will result in comprehensive, factual, and informative PM reviews.

**77. Learning from missed anomalies: A congruous way to improve obstetric scanning**

**Authors** Fatma A.; Gandhi A.; Patni S.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 58  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract**

Objective Ultrasound is a widely used tool for diagnosing congenital anomalies with an aim to improve both maternal and fetal outcomes. Early diagnosis allows parents to consider various options and be prepared for treatment as needed. National Congenital Anomaly and Rare Disease Registration Service (NCARDS) has now produced its second report on Fetal Anomaly Screening Programme (FASP) detection rates. Eleven conditions are screened as a minimum in England by fetal anomaly ultrasound scan from 18 to 23 weeks as part of FASP. Every missed anomaly should be considered an opportunity to learn and improve future detection rates. Design The aim of our study was: 1. to assess our performance against the FASP standards for the detection of congenital anomalies 2. to review images of all the missed anomaly cases for wider learning and reflection and share with the team to improve future detection rates. Methods It is a retrospective review of ultrasound images of the cases which were missed antenatally over a period of 24 months (March 2015-April 2017). The cases were identified from our own discrepancy database and NCARDS report. Results A total of 20 014 women delivered over this period at the University Hospitals Birmingham NHS Foundation trust. The incidence of congenital anomalies was 1.42% (284/20 014) out of which 0.83% (168) were FASP auditable anomalies. Our overall detection rate for congenital anomalies excluding cardiac anomalies was 95.16%. The pick-up rate for cardiac cases was 82.6%, which is higher than FASP detection rate of 50%. Moreover, the detection rate of serious cardiac anomalies improved from 72.7% in year 2015-2016 to 90% in 2016-2017 after the inclusion of the outflow tract as a part of FASP. Out of 168 cases, 14 were missed which included serious cardiac anomalies (8), congenital diaphragmatic hernia (2), trisomy 18 (1), and cleft lip/palate (3). Retrospective review of images revealed that the anomaly was identifiable on the archived images and that we could have detected ten out of 14 missed anomalies. Conclusion Major congenital anomalies missed on fetal anomaly scanning will unfortunately always exist, but our detection rates are at par or better than FASP standards. Anomalies can be missed because of suboptimal or inadequate views or because pathologic pattern changes are subtle at the time of anomaly scan. Any measure that improves the pattern recognition ability of individual sonographers will enhance detection rates. Learning from retrospective review of images should contribute to improving pattern recognitions skills and detection rates.

**78. Developing trends in referrals to colposcopy unit at GSTT**

**Authors** Majeed G.

**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 11-12

**Publication Date** Jun 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract**

Background Guys and St Thomas NHS foundation Trust has the largest colposcopy unit in London and third largest in England. As young women who had HPV immunisation reach screening age, there are changing trends in colposcopy referrals for both direct and clinical indications. Objective To look at the trends of change in referrals and underlying pathology. Aim Plan and deliver high-quality colposcopy service efficiently. Methods Referrals to colposcopy unit both direct and clinical indications were identified using colposcopy database Viewpoint, colposcopy scorecard, and Cyres over four years (2014-2018). Histology with subsequent treatment was reviewed. Results Total referrals increased from (2015) n = 2852 to n = 2950 in 2018. However, abnormal cytology reduced from n = 1657 (2015) to n = 1537 in 2018, and at the same time, clinical indications including others increased from n = 1195 in (2015) to n = 1413 in 2018. CINIII reduced from n = 172 (2015) to n = 121 (2018), and LLETZ procedures reduced from n = 479 (2015) to n = 266 (2018). There were 38 cancers, and over four year period, only one was detected via clinical indication. Number of cancers was n = 8 in 2018 and n = 11 in 2017. Conclusion Colposcopy referrals have increased over the last four years. Main increase is in the clinical indications, and only 1 cancer was detected. Prevalence of precancer is decreasing which may be due to primary prevention by HPV immunisation as these vaccinated young women are screened. Excisional treatment has almost halved as more young women with CINII are managed conservatively, n = 197 in 2015 versus n = 81 in 2018. Recommendations GSTT colposcopy Unit is holding educational meetings for GPs advising about appropriate referrals for women with clinical indication especially through electronic referral system. VTS trainees are exposed to colposcopy clinics during their training to identify changes in cervix and pathology. An audit of clinical indications is being undertaken via Pan London Colposcopy group. With introduction of primary HPV screening, three trainees are currently under training to meet the challenges. Each gynaecologists conduct one clinic a month, and a unit lead will conduct a clinic per week.

**79. The management of iron deficiency anaemia of pregnancy (IDAP): A UK-wide audit of practice**

**Authors** Ali H.; Moussa M.; Churchill D.; Cheshire K.; Grant-Casey J.; Stanworth S.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 180  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Iron deficiency anaemia of pregnancy (IDAP) affects up to 40% of pregnancies and is a modifiable risk factor for adverse obstetric outcomes including stillbirth, preterm birth, postpartum haemorrhage. Guidelines for treatment have been published by the British Haematology Society (BHS), but studies have shown poor implementation. As part of a programme to improve treatment, we are conducting a UK audit of practice. Methods A team of obstetricians, haematologists, midwives, and transfusion practitioners designed an audit of IDAP in pregnancy. NHS Blood & Transplant provided practical/technical support and will run the audit. A protocol was produced based upon BHS recommendations and an audit data collection tool piloted and refined. Results Pilot results showed a point prevalence for IDAP of 35.6%. Only 66% of anaemic women were taking oral iron. Antenatal anaemia was uncorrected in 71% of women. 74% of women had a full blood count at the onset of labour, and of these, 30% were anaemic. 50% of women were anaemic postnatally. Of these women, 38% were also anaemic at some point during the antenatal period. The most common treatment was oral ferrous sulphate. Generally recording was poor for many facets of IDAP treatment. Summary Pilot results suggest room for improvement in treatment of IDAP. The national audit will be launched in November and closed at the end of December. So far over 60 maternity units have joined the audit from every part of the UK. The results of the full audit will be available for the BMFMs conference.

**80. An audit and qualitative analysis into the uptake of free fetal DNA testing for rhesus D-negative mothers**

**Authors** Brehaut G.; Bain E.; Halawa S.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 59  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract** Objectives In England and Wales, approximately 17% of women are rhesus D(RhD)-negative. Routine antenatal anti-D prophylaxis (RAADP) should be recommended to RhD-negative mothers. Free fetal DNA (ffDNA) can establish fetal rhesus status. The aims of this study were: 1. to audit the process of RhD testing and administration 2. to identify uptake of antenatal ffDNA testing 3. to identify potential reasons into why patients decline ffDNA testing 4. to prevent unnecessary administration of a blood product. Design Retrospective data analysis and telephone survey. Methods All mothers who had been detected as rhesus-negative on antenatal screening during a 12-month period were identified. Laboratory samples were cross-referenced to identify uptake rates of ffDNA typing. Ninety-three sets of maternal notes were reviewed to establish antenatal practice and compared against predefined audit standards. The results of a telephone survey were collated to better understand the patient interpretation of counselling in rhesus disease and offer of ffDNA test. Results 40% were offered ffDNA testing, and of those, 37% accepted. This meant that 10.6% of the total cohort were tested (n = 8). 10% had the offer of written information documented. 33% received RAADP, and then, babies were confirmed rhesusnegative. 96% had anti-D given appropriately. 99% had rhesus status checked and documented at delivery. 45% of patients completed the telephone survey. 28% were offered ffDNA testing and 22% felt it was explained. 18% thought they were given written information. Conclusion Women are not being adequately counselled regarding antenatal options and may be receiving unnecessary blood products. Healthcare professionals need to improve discussions surrounding ffDNA to allow informed decision-making and improve patient care.

**81. Are parents and patients happy to see an advanced paediatric pharmacist practitioner (APPP)?**

**Authors** Lilley A.

**Source** Archives of Disease in Childhood; Jul 2019; vol. 104 (no. 7)  
**Publication Date** Jul 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Archives of Disease in Childhood](#) from BMJ Journals - NHS  
 Available at [Archives of Disease in Childhood](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
 Available at [Archives of Disease in Childhood](#) from Available to NHS staff on request from UHL Libraries & Information Services (from non-NHS library) - click this link for more information Local Print Collection [location] : British Library via UHL Libraries - please click link to request article.  
 Available at [Archives of Disease in Childhood](#) from Unpaywall

**Abstract** Introduction Pharmacist independent prescribers have become common in both community and hospital environments. However most prescribing courses contain limited clinical skills and diagnosis training.<sup>1 2</sup> NHS England conducted a study to assess the benefit of having pharmacists in the Emergency department (ED). They found that in order to have the biggest impact pharmacists would need additional training above that of an independent prescriber particularly clinical examination and diagnosis skills.<sup>3</sup> One pharmacist from the audit hospital completed the post graduate certificate in Advanced Emergency Medicine at Manchester University. The assessments taught included Respiratory, Gastroenterology, Musculoskeletal, Neurological and ENT examinations. Additionally, it required 210 hours of in practice training. On completion of the course the local centre had no resources to appoint an APPP in ED. Instead the APPP took up the role within the respiratory team due to experience within this speciality. An APPP now reviews new and follow up patients in clinic as well as those acutely ill. As this was a new role it was decided to perform an audit of parent perception of the role. Methods Questions were integrated into every consultation for a two month period. Pre clinic: Are you happy to see the pharmacist today instead of the consultant? (Yes/No/Will wait to see outcome) Post clinic: Did you think a pharmacist could perform this role? (Yes/No). Do you feel like you need to see the consultant still? (Yes/No) Were you happy with the consultation? (Yes/No) Further comments Results 132 separate consultations were included. 45 of these were new referrals, 67 were follow up appointments and 20 acute examinations. In 124 consultations parents stated they would decide if they needed to see the consultant after. Of these all were happy with the outcome post consultation and did not see the consultant. 9 parents had no reservations to the pharmacist running the consultation from the outset and remained happy post consultation. 126 stated they did not realise a pharmacist could perform this role. Comments received included 'I had no idea a pharmacist could perform clinical examinations'; 'At first I had reservations however if the hospital felt comfortable with you running clinic I am happy'; 'You took the time to make us feel at ease'; 'You are always approachable when my child is acutely unwell-you know our child better than any ED doctor and would rather see you'. Conclusion As with Advanced Nurse Practitioners (ANPs) it will take time for parents and patients to adapt to a pharmacist diagnosing and managing them instead of a doctor. This audit has shown the pre-conceptions of what a pharmacist can do could hold some back; however after seeing the pharmacist all were happy with the consultation. This is an exciting new role for pharmacists however it is essential to undertake advanced clinical and diagnosis skills in order to make it a successful.

**82. General pharmaceutical council revalidation: What is the best approach for conducting a peer discussion for paediatric pharmacists?**

**Authors** Morris S.; Brooks T.  
**Source** Archives of Disease in Childhood; Jul 2019; vol. 104 (no. 7)  
**Publication Date** Jul 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Archives of Disease in Childhood](#) from BMJ Journals - NHS  
 Available at [Archives of Disease in Childhood](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract**

Aim In 2018 the General Pharmaceutical Council (GPhC) made it mandatory for pharmacists and pharmacy technicians in the UK to conduct a peer discussion as part of their annual revalidation assessment. The criteria from the GPhC states that a practitioner must record why a peer was chosen, how the process of peer discussion has benefited their practice and how the process of peer discussion has benefited the people using their services.<sup>1</sup> The GPhC describes several examples of who can act as a peer; for example a line manager, colleague or other healthcare professional. However, there is no specific format for the discussion, but it may include personal development plans, recent successes or challenges to the individual, medication related incidents or quality improvement work. Case based discussion (CBD) is a tool used for peer discussions, primarily in medical training. They are used to assess a clinician's knowledge of a condition, the potential management options available to them and decision making abilities. It allows a clinician to objectively reflect on their own practice,<sup>2</sup> and allow for abstract conceptualisation. This is a vital process that links learning to practice, as described by Kolb's experiential learning theory.<sup>3</sup> The aim of this project was to assess whether a case based discussion between two experienced paediatric pharmacists will fulfil the GPhC requirements for revalidation. Methods Two experienced paediatric pharmacists participated in this study. Each took the turn as the subject and the peer. As part of the pre-discussion phase and with agreement from senior management, a job swap was arranged for two weeks to allow each pharmacist to gain an understanding of the demands of their colleague. At the end of this period, the two CBDs were conducted using cases selected from the 2 week period. Results The two pharmacists selected were practicing in neonatal intensive care and paediatric intensive care. Each CBD lasted approximately one hour and both were conducted in the clinical environment. Using this format provided discussion around a variety of elements of paediatric pharmacy practice; such as clinical assessment skills, interpreting evidence and applying guidelines to practice, identifying knowledge gaps and exploring medication safety issues. The result of each CBD was that each pharmacist was able to successfully complete a peer discussion record that complied with the GPhC criteria. Conclusion This abstract has highlighted that peer discussion has the potential as a powerful tool for ensuring quality and improvement in paediatric pharmacy practice. This is especially applicable to specialist practice. The Neonatal and Paediatric Pharmacist Group is a potential peer network for facilitating collaborations between paediatric pharmacists. The lack of specific framework is an opportunity for future development.

**83. Determining the accuracy of GP records in paediatric medicines reconciliation**

**Authors** Aragon Cuevas O.; Stenson Jones L.  
**Source** Archives of Disease in Childhood; Jul 2019; vol. 104 (no. 7)  
**Publication Date** Jul 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Archives of Disease in Childhood](#) from BMJ Journals - NHS  
 Available at [Archives of Disease in Childhood](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** Aim Medicines reconciliation (MedRec) is a process undertaken on admission to hospital to obtain an accurate list of patients' current medication.<sup>1</sup> National guidance for MedRec is available only in adults. Previous studies looking at accuracy of sources for MedRec in paediatrics are scarce in the United Kingdom. A few studies have shown that General Practice (GP) records do not match the patients' current medicines lists in 29-45% of patients.<sup>2 3</sup> The primary aim is to determine the accuracy of GP records in paediatric Med Rec, exploring types of discrepancies and any potential relationships between discrepancy rates and polypharmacy. The secondary aim is to audit compliance with local MedRec standard operating procedures (SOPs). Methods Prospective observational multicentre study (Site A: general district hospital; Site B: tertiary care hospital) that will take place over a 4 week period during three consecutive years. HRA approval was granted (IRAS ID 234128). Participants received an age appropriate study information sheet and were consented to the study by pharmacy staff. Consent gave the researcher access to summary care record (SCR) and hospital records. All data was anonymised. Patients who were on no medicines at home, patients who had never been home, and those transferring from another Trust were excluded. Using the SCR, the patients' GP repeat medication list was compared to the list compiled during MedRec by hospital pharmacy staff. Statistical relationships between polypharmacy and discrepancies were explored using the contingency Fisher's Exact Test. Results 63 patients were recruited- 27 patients (43%) on site A and 36 (57%) on site B. The study showed that the SCR did not match (medication omitted, differences in dose, frequency of formulation) the patient's actual MedRec in 54 (86%) patients. Discrepancy rates per patient were higher at site B (94%, n=34) than site A (67%, n=18). The study included 347 medicines- 95 on site A (27%) and 252 (63%) on site B. The discrepancy rate looking at the total number of medicines included in the study was 51% (n=177). Overall, the most common type of discrepancy was 'medication omitted', accounting for 114 (64%) of discrepancies. Looking at the omitted medicines, 25 (22%) were unlicensed or offlabel. Fisher's Exact Test showed an overall statistical significant relationship between polypharmacy and discrepancy rates (p=0.05). Only one source was used for MedRec in 32 (51%) of patients. In 2 (3%) of those patients that source were the patient's own medicines, not the parent/ patient/ carer. Conclusion GP repeat lists on the SCR are not an accurate source in paediatric MedRec and should only be used to support another source. Discrepancy rates per patient were much higher compared to previous studies (86% vs 45%),<sup>2 3</sup> and could have been overestimated as some GP surgeries do not add unlicensed medicines to the repeat section of the SCR. Only a small proportion of omitted medicines were unlicensed or off-label, suggesting licensing status on its own is not responsible for omissions. A statistically significant relationship between polypharmacy and chance of discrepancy was found, but larger study numbers are needed. Local SOPs were not followed in a small number of patients (3% overall).

**84. Performance of third-trimester ultrasound for the estimation of birthweight in diabetic and nondiabetic large for gestational age fetuses**

**Authors** Formuso C.; Aslani R.; Edge M.; Efeturk T.; Steingold A.; Aquilina J.; Greco E.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 65  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objectives To investigate the performance of birthweight estimation in diabetic and nondiabetic large for gestational age (LGA) fetuses diagnosed at 35-37 weeks by ultrasound scan. Materials and methods Retrospective audit of 190 LGA fetuses diagnosed at routine 35-37 weeks was carried out across 1-year study period in a single tertiary maternity unit in UK. Data were obtained from electronic ultrasound database and hospital notes. EFW was calculated by the Hadlock formula. LGA fetuses were defined as EFW >90th centile either on population or customised growth chart and/or increased fetal growth velocity. The accuracy in estimation of birthweight (BW) was expressed as percent D-value between the observed BW(O-BW) and the expected BW (E-BW) calculated from EFW at 35-37 weeks scan and assuming linear growth velocity until delivery. A 15% DELTA O/E BW was considered acceptable. Results Twenty-five patients were excluded from analysis due to the presence of associated findings. Forty percent of the mothers of LGA fetuses had diabetes (82% gestational diabetes, GDM; 18% pre-existing diabetes, DM). In the diabetic LGA group, the median gestational age at birth was 38.1 weeks, and the median BW was 3675 g (2800-4770 g). In the nondiabetic LGA group, the median gestational age at birth was 39.4 weeks, and the median BW was 3870 g (2760-4780 g). In 15% of cases, the DELTA O/E BW was above 15%. There was no significant association between DELTA % O/E BW and actual BW. In the vast majority of cases, the E-BW was overestimated (88%) rather than underestimated (12%). In fetuses of diabetic mothers, a DELTA O/E BW over 15% was twice as common than in nondiabetic ones (64% versus 36%) and particularly so in GDM. Conclusion In LGA fetuses, the DELTA % O/E BW was outside the acceptable 15% margin of error in 15% of cases. Birthweight estimation in LGA fetuses was less accurate if the mother had diabetes as shown by the risk of weight overestimation being twice as high in the fetuses of diabetic mothers. The explanation for this finding may lie in the different distribution of adipose tissue in fetuses of diabetic mothers or in a nonlinear growth increment in this group. Larger studies are needed to confirm these findings and new technologies such as MRI may be involved in fetal weight estimation of diabetic mothers in order to optimise perinatal management and outcomes.

**85. Duration of inpatient stay following different routes of hysterectomy for benign gynaecological problems**

**Authors** Oyewo A.; Mitchell S.; Uchil D.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 113  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Introduction Hysterectomies are among the most common major surgical procedures undertaken worldwide. An estimated 30 000 women in the UK undergo hysterectomy annually for benign indications. Where feasible, vaginal and laparoscopic hysterectomies are recommended due to their minimally invasive approach, reduced morbidity, shorter inpatient stay, and quicker postoperative recovery. However, open abdominal hysterectomy remains a surgical option in cases not amenable to minimally invasive approaches. Variations in provision of benign gynaecological care prompted the RCOG Report of Patterns of Benign Gynaecological Care in English NHS Hospitals, using clinical indicators to identify differences in performance and outcomes nationally. Objective To identify trends in the different routes of hysterectomy performed for benign gynaecological indications at our hospital and the duration of inpatient stay following these operations. Methods We analysed trends in route of hysterectomy and length of inpatient stay at Lewisham and Greenwich NHS Trust between June 2015 and October 2018. We included all hysterectomies performed for benign gynaecological indications. We categorised TAH and sTAH as abdominal cases; VH and LAVH as vaginal cases, as the bulk of the uterus is excised vaginally. Laparoscopic cases were limited to cases performed entirely laparoscopically. Results We identified 534 hysterectomies in this period. The rates of laparoscopic hysterectomy increased from 4% in 2015 to 28% in 2018, while rates of abdominal hysterectomy fell from 59% in 2015 to 47% in 2018 and vaginal procedures decreased from 37% in 2015 to 25% in 2018. The proportion of laparoscopic hysterectomy to all abdominal approach (laparoscopic + open) increased from 6% in 2015 to 37% in 2018. Abdominal hysterectomy accounted for 52% (n = 280) of cases. Of these, 10% (28) were inpatient for <48 hours postoperatively, 45% (126) for 48-72 hours, and 45% (126) for >72 hours. Laparoscopic hysterectomies accounted for 17% (n = 89) - 45% (40) were inpatients <48 hours, 37% (33) for 48-72 hours, and 18% (16) for >72 hours. About a third (n = 165, 31%) of hysterectomies were performed vaginally - 46% (76) were inpatients for <48 hours, 39% (64) for 48-72 hours, and 15% (25) for >72 hours. Conclusion This audit shows an increasing use of laparoscopic hysterectomy and a gradual reduction in rates of abdominal hysterectomy. Women undergoing laparoscopic or vaginal hysterectomies had shorter hospital stays compared to those undergoing abdominal hysterectomies.

**86. Bullying, attrition, complaints and litigation: What are we missing?**

**Authors** Barber J.; Gill S.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 42  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** Objective To gather the views of O&G trainees and consultants about what creates or hinders a supportive environment to trainees, what makes trainees feel valued, how trainees can contribute towards leadership of the specialty, and what professional attributes trainees look to in a role model, and furthermore to examine how these views are influenced by gender, career stage, and country of Primary Medical Qualification (PMQ). Design A mixed-methods study was undertaken. Semi-structured interviews were conducted with four O&G consultants and five trainees about what creates a supportive environment for trainees in O&G . These qualitative data were then subjected to a thematic analysis, from which survey questions were derived to gather quantitative data. Methods All O&G trainees and College Tutors within the North West deanery were invited to participate in the interviews. Surveys using the online tool SurveyMonkey were emailed to all O&G trainees and consultants in the North West deanery. Frequency analysis of survey data was performed using SurveyMonkey. Results Eighty-seven trainees and 65 consultants responded to the surveys. UK graduates tended to be more process-focused; they cited being listened to, consultants saying 'well-done' and having a united consultant body as the most important factors in feeling well supported and valued. Overseas graduates were more outcome-focused, instead prioritising progressing more quickly with clinical competencies and working more independently. Trainees prioritised a role model being confident and decisive, whereas consultants believed being available to help and a kind, compassionate patient manner were more important. Consultants believed that trainees should provide good patient care and undertake audits and QI projects, whereas trainees, particularly as they became more senior, felt they should be involved in a broad range of leadership activities. Conclusion O&G is the hospital specialty with the highest percentage of international medical graduates. This study demonstrated that beliefs around what creates a supportive environment, what makes trainees feel valued, how trainees should be involved in leadership and role modelling vary markedly according to country of PMQ and career stage. Gender has less influence. Acknowledging and understanding workforce diversity is crucial to developing shared vision and values, cohesive team working, and providing safe patient care. This study highlights the need to further explore the specialty-specific antecedents to bullying, attrition, complaints, and litigation rather than solely focusing on how to address them as a means of improving workplace culture.

**87. Audit of sodium blood levels in patients on PICU receiving heparin in sodium chloride 0.9% compared to heparin in sodium chloride 0.45%**

**Authors** Jeffery S.; Jane Hutchinson L.; Gray J.; Roberts A.  
**Source** Archives of Disease in Childhood; Jul 2019; vol. 104 (no. 7)  
**Publication Date** Jul 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Archives of Disease in Childhood](#) from BMJ Journals - NHS  
 Available at [Archives of Disease in Childhood](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** Background On our paediatric intensive care unit (PICU), we have historically used heparin in 0.9% sodium chloride as a continuous flush to maintain patency of arterial and central venous pressure (CVP) central lines. Practice varies across the UK, some units use heparin in sodium chloride whilst others use sodium chloride alone to maintain line patency. Currently in paediatrics there is not enough evidence to change local practice by removing heparin from the flushes.<sup>1</sup> A cost saving scheme was identified whereby using heparin in sodium chloride 0.45% was cheaper than using heparin in sodium chloride 0.9% (both products from Baxter). A proposal was put together and approved by the PICU quality improvement group, demonstrating that in theory, there should be no significant loss of sodium to patients due to the change in fluids. Although it may seem that flushes would not contribute a large proportion of a patient's fluid requirement, in a typical 2.5 kg patient post cardiac surgery, 2 ml/hour would actually provide 40% of the patient's total fluid allowance. This change in practice was implemented in June 2018. Aim The aim of this audit was to establish whether patients receiving heparin in sodium chloride 0.45% had lower sodium blood levels or a greater drop in sodium levels than patients on heparin in sodium chloride 0.9%. We also evaluated whether a higher incidence of line blockage was reported in either group. Methods Data was collected retrospectively using the Phillips ICCA electronic prescribing system, using 25 patients pre (April 2018) and 25 patients post (June and July 2018) implementation of the heparin in sodium chloride 0.45% flushes. Sodium blood gas levels were used as these were more consistently taken than plasma blood samples. Results The data showed that heparin in sodium chloride 0.45% did not reduce sodium levels in patients. In each group 1 patient required additional sodium supplementation and 2 patients' lines became blocked and therefore were removed. The average sodium on admission in the heparin in sodium chloride 0.9% group was 139.96 mmol/L (CI 95% +/-1.17 mmol/L) compared to the heparin in sodium chloride 0.45% group which was 135.68 mmol/L (CI 95% +/- 1.91mmol/L). The average sodium level on either line removal or discharge from PICU was 138 mmol/L (CI 95% +/- 1.35mmol/L) in the heparin sodium chloride 0.9% group compared to 135.72 mmol/L (CI 95% +/- 1.88 mmol/L) in the heparin sodium chloride 0.45% group. The results indicated that patients within the pre-change group lost, on average, 2 mmol/L sodium compared to their admission sodium levels compared to 0.04 mmol/L in the post-change group. The reason for this difference is unclear would warrant further investigation into alternative sources of sodium e.g. drug infusions and additional fluids which were outside of the scope of this audit. Conclusion The change from using heparin in sodium chloride 0.9% to heparin in sodium chloride 0.45% was not found to lead to a reduction in plasma sodium levels in our patient population. Limitations to the audit include not considering alternative sources of sodium and a small patient population.

**88. The Nepal Antenatal Care Network (NANC-Net): A collaboration to build research capacity to improve the quality of Antenatal Care in Nepal**

**Authors** Mahrajan N.; Manandhar D.; Toolan M.; Fraser A.; Caldwell D.; Burden C.; Merriel A.; Lynch M.; Barnard K.; Gautam J.; Thapa M.; Rai N.; Lavender T.; Larkin M.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 70  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract**

Objective 1) To develop a network of researchers, health professionals, and stakeholders in Nepal and the UK. 2) To synthesise the evidence for interventions to improve antenatal care (ANC) in Nepal. 3) To collect evidence from women, staff, and stakeholders to understand their perspectives of ANC. 4) To carry out a service evaluation of ANC at three sites in Nepal to establish the ANC that women received. Design 1) Networking activities. 2) Systematic review and narrative synthesis. 3) Focus group discussions and semi-structured interviews. 4) Cross-sectional audit and survey Methods 1) Develop partnership between University of Bristol and Mother and Infant Research Activities, Nepal, thorough networking meetings and engaging key stakeholders. 2) Systematic review of ANC interventions in Nepal and narrative synthesis to understand what interventions have been tried, and the impact they have had. 3) Three hospitals will be used as the sites for the study: a large referral hospital (23 000 deliveries), a public-private hospital (3600 deliveries), and a rural district hospital (2500 deliveries). Postnatal women will be invited to one of 9 focus groups (3 per hospital), and staff will be invited to focus groups at their hospitals. Stakeholders will be engaged via semi-structured interviews. Interviews will be recorded and transcribed, and will be analysed using a framework analysis. 4) Snapshot service evaluation of all women attending for delivery in the three sites. We will survey women about the information they received during their ANC and audit their hand-held antenatal cards against the antenatal care standards proposed by WHO and Nepali guidelines. Results We have held the first networking meeting and met with key stakeholders from each of the hospitals. Together, we have developed a timeline and divided project activities. Approximately 100 papers are included in the full text review for the systematic review and key themes include micronutrient supplementation, the evaluations of government-level interventions in Nepal (maternity incentive scheme), and the implementation of community interventions to improve ANC quality and uptake. Our capacity building sessions so far have included training on systematic reviewing and, more specifically, on developing a highquality literature search. Conclusion It is possible to codevelop and jointly implement a project with a team comprising members from LMICs and HICs. It has been valuable to all team members to have access to highquality training in specific areas, timed to allow immediate reenforcement of the skills. Working in partnership is enriching for the whole team.

**89. Improving the efficiency and multidisciplinary presence of the obstetric handover using a standardised checklist approach**

**Authors** McDermott E.A.; Koronfel M.; Fenby E.; Jiwa A.; Lloyd J.; Jakes A.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 43-44  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
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**Abstract**

Objective A clinical handover relates to the transfer of information and professional responsibility for patients between teams to maintain continuity of care. The World Health Organization recommends that units have a standardised approach such that each participant follows the same procedure and delivers the same agreed content with all unnecessary steps removed. At St Thomas' Hospital, a central London teaching hospital, we identified poor multidisciplinary presence, inconsistent handover location, and variation in handover structure and content as the key processes hindering the efficiency the labour ward handover. We set out to develop a handover prompt to improve the transfer of information pertinent to patient safety. Design This quality improvement project used local trust protocol as a template to develop a checklist to aid the completion of tasks considered essential during the obstetric handover. The checklist contained the following domains: staffing, patient handover, site and bed status, and planning the shift. Methods Data from the morning and evening obstetric handovers were collected for two weeks before and after the introduction of the checklist. Surveys were also used to provide a supplementary qualitative assessment of the handover from the perspective of obstetricians, midwife coordinators, and anaesthetists, before and after the implementation of the intervention. Data were used to provide better understanding of the effects of the intervention as well as possible barriers to change. Results Once the handover checklist had been implemented, 96% of handovers occurred in the handover room (previously only 29%). Team introduction occurred 89% of the time (previously 68%). There was an improvement in the handover of patients waiting in the maternity assessment unit (11% to 68%) and for induction of labour (11% to 82%). Discussion around doctors training needs improved from 11% to 54%. Midwife coordinator presence did not show any improvement. Survey data suggested midwife coordinators felt they were an important and valued member that should be present at the handover; however, their workload and staffing concerns were frequent barriers. Conclusion Consistent use of a handover checklist can improve the structure and efficiency of the labour ward handover. It did not improve multidisciplinary presence. Furthermore, stakeholder and staff support and buy-in are essential to bring about a change in practice and culture.

**90. Can third-trimester birth preparation acupuncture improve intrapartum outcomes? A proof-of-concept study?**

**Authors** Lokugamage A.; Eftime V.-A.; Porter D.; Ahillan T.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 140-141  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective In response to the increasing global rate of caesarean sections and the associated maternal and offspring morbidity and mortality, a growing number of studies show that acupuncture may help to normalise labour and delivery. Postulated mechanisms include improving the musculoskeletal preparation of the pelvis, cervical ripening, enhancing endogenous oxytocin release, and influencing pain perception. The Whittington Hospital, London, United Kingdom, has a maternity acupuncture service which is freely provided to patients through the National Health Service (NHS). This service assessed its routine maternity annual data to see what effect it had on labour and delivery outcomes. Design This study analysed routine hospital data from a database and was designed as an enhanced clinical audit improved by statistical adjustment of confounders. Methods Women received weekly acupuncture session after 37 weeks of gestation. Data from over 6000 patients during the period of 2014-2016 were extracted from the maternity system database and analysed. Women who had birth preparation acupuncture were compared with those that did not. Confounding factors between the two cohorts were identified using the unpaired t-test and chi-square test, and adjusted for in the analysis (age, parity, social deprivation, induction, and delivery outcome). There were five outcome variables in the study: induction, episiotomy, pain relief (none, gas/air, regional anaesthetic, general anaesthetic), type of delivery (normal vaginal delivery, use of instruments, caesarean), and postnatal length of stay. Regression methods were used to perform all analyses. Results The results of the main analysis indicated that, once age, parity and deprivation, and type of delivery (where appropriate) were adjusted for, there were significant differences between women who did and did not have acupuncture for all outcomes, with the exception of episiotomy. Women who received acupuncture had more normal births (less surgical births) [OR 0.76 (0.64, 0.91)], required less intrapartum analgesia [OR 0.74 (0.63, 0.86)], had less components of induction of labour [OR 0.74 (0.61, 0.91)], and had reduced length of hospital stay [OR 0.91 (0.87, 0.95)]. There was no significant difference in episiotomy rate. Conclusion Birth preparation acupuncture needs to be further investigated as a possible resource for normalising birth. Acupuncture is a complex intervention, with no perfect placebo: this needs to be taken in to account in future trial design to explore its use as a cost-effective strategy to improve obstetric outcomes.

**91. Laparoscopic hysterectomy as a day case in a district general hospital**

**Authors** Abbasher M.; Halder N.; Mabrouk Q.; Abdelrahman I.; Ramadan W.A.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 111  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective To demonstrate that total laparoscopic hysterectomy (TLH) performed at a district hospital continues to have a low rate of complications and remains feasible and safe to perform as a day-case surgery. Design Data support the growing evidence suggesting that daycase TLH is appropriate. The low rates of complications and short hospital stays suggest that laparoscopic hysterectomy as a day case is, not only safe, but potentially cost-effective. We report a retrospective case series between May 2013 and December 2018 conducted at district gynaecology department to discern quality improvement and treatment efficacy for audit purposes. Methods 142 patients met predefined preoperative criteria, based on the BMI, age, ASA score and indications. Records for TLH performed between May 2013 and December 2018 were analysed for adverse events, length of in-patient stay, and patient satisfaction. Results Indications for hysterectomy were premalignant and malignant conditions (36%), pelvic pain and abnormal bleeding (33%), and leiomyoma (31%). The mean estimated blood loss was less than 300 ml, with the average uterine weight being 720 g. There were no intra- or early post-operative complications. Operating times reduced from a mean 120 minutes to approximately 45-90 minutes over the series duration. The average length of stay was 1.5 days, with 67% discharged within 24 hours. Conclusion TLH is associated with favourable intraoperative and postoperative outcomes. This supports the notion of performing TLH as a day-case outpatient procedure. As a result of lower complication rates, TLH was associated with a shorter recovery period and subsequent increased patient satisfaction. Over the years, with increasing familiarity of the procedure among trainees, there has been a marked reduction in operative time. Offering TLH with a '1-day stay' policy will mean the higher initial costs of TLH are compensated by the shorter hospital stay. This relies on optimised patient and surgeon selection, potentially with the advent of a selection criteria. It is likely that we will see day-case, outpatient laparoscopic hysterectomies as the default across the UK.

**92. Barriers and enablers to implementing change within maternity services-lessons learned from the OASI Care Bundle Quality Improvement Project**

**Authors** Bidwell P.; Hellyer A.; Novis V.; Thakar R.; Gurol-Urganci I.; Silverton L.; Sevdalis N.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 137  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE

Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective The national OASI Care Bundle Quality Improvement (QI) project had two aims: (i) to reduce rates of obstetric anal sphincter injury (OASI) and (ii) to evaluate implementation outcomes in order to understand barriers and enablers to upscaling an evidenced QI intervention within maternity services. Design The OASI Care Bundle, supported by two Royal Colleges, an awareness campaign, local team support, and multidisciplinary training, was introduced to 16 units across England, Scotland, and Wales (January 2017-April 2018). Obstetric and midwifery champions facilitated local implementation. A qualitative process evaluation was conducted to examine acceptability, feasibility, and sustainability of the intervention. Methods Focus groups were conducted at all units to explore clinicians' (n = 101) attitudes towards the care bundle and factors affecting implementation. Views were collected from local clinical champions three months into implementation (n = 32) and at the end of the implementation phase (n = 29) to allow longitudinal analysis of their experiences of rolling out the bundle. Further, 19 women were interviewed to explore their experiences of the care bundle. Results Perceptions of 'what women want' were a major barrier: clinicians felt that information given to women was 'scary'; however, women themselves reported that they wanted to know more about perineal trauma 'tearing is a reality and it is better to be informed'. Good communication was key. Women appeared comfortable with the care bundle, particularly if clinicians explained the rationale for the four elements. This service user support was a powerful enabler, as was observing success. Negative experiences with the care bundle were a barrier, as were skills gaps that were identified - particularly intrapartum management of the perineum and performing episiotomies. There was a heavy training burden on champions, who had little or no dedicated time for this. Challenging autonomy and professional values created resistance among those who were comfortable with their practice. The project promoted positive multidisciplinary working with obstetricians and midwives helping each other to use the elements of the care bundle. Conclusion The study offers a blueprint for successful QI implementation within maternity services. Appetite for change and senior buy-in facilitates engagement. Good feedback mechanisms are essential to monitor project activities and success is a powerful motivator. The project increased team cohesion which was strengthened by top-level support from the two Royal Colleges. Local champions were key to success and the two most important messages are that change takes time and women must be at the heart of change within maternity.

**93. Improving paediatric chemotherapy prescribing through use of an electronic prescribing system**

**Authors** Summerfield C.; Kafka S.; Lewis M.; Makin G.; Williams J.; Wood S.

**Source** Archives of Disease in Childhood; Jul 2019; vol. 104 (no. 7)

**Publication Date** Jul 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

Available at [Archives of Disease in Childhood](#) from BMJ Journals - NHS

Available at [Archives of Disease in Childhood](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).

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Available at [Archives of Disease in Childhood](#) from Unpaywall

**Abstract**

Aim Paediatric prescriptions are almost 50% more likely to contain an error than adult orders. The risk of prescription error is further increased when prescribing for malignant disease. 1 In 2017 the Trust introduced ChemoCare, an electronic prescribing system for paediatric chemotherapy. The primary aim of this study was to investigate whether implementing ChemoCare has affected the incidence and type of errors made in paediatric chemotherapy prescriptions, compared with written prescriptions. A secondary aim was to explore possible reasons why these prescribing errors may occur. Since 2014 it has been mandatory for all NHS England specialist trusts to send monthly submissions to the Systemic Anti-Cancer Therapy (SACT) Database, regarding the treatment of malignant disease in secondary care.<sup>2</sup> Therefore, the study also analysed Trust compliance with communicating treatment data to SACT. Methods Data collection took place over a four-week period in Spring 2018. Prescriptions were reviewed by pharmacists and categorised as written or electronic. Prescriptions were then checked for 7 different error types; calculation error, drug prescribed on wrong day, incorrect drug prescribed for cycle, incorrect dose of concomitant medications, incorrect surface area used, not adjusted dose for previous age or weight related toxicities, no drug prescribed. The Fisher's Exact test was employed to detect significance between chemotherapy prescription type and error incidence. A written questionnaire was designed to obtain the views of consultants, pharmacists and specialist trainees, and explore possible reasons why prescription errors occur. ChemoCare treatment data was retrospectively reviewed in order to determine how many prescribed cycles had been marked as 'completed'. Results 143 prescriptions were analysed. 34.4%(n=21) of written prescriptions contained errors, compared with 11.4% (n=5) of electronic orders. Two of the error types measured \*'wrong calculation' and 'wrong drug prescribed for cycle' \*occurred significantly more frequently in written than electronic prescriptions. The Fisher's Exact test produced p values of 0.017 and 0.008 respectively. Of the 409 treatment cycles prescribed and administered on the electronic system, 56.5% (n=231) had not been marked as 'completed', so would not be returned to SACT as administered chemotherapy. Failure to communicate accurate chemotherapy data to SACT not only limits research opportunities to progress safety aspects of delivering chemotherapy, but also has significant cost implications for the Trust, as chemotherapy treatment costs are not recovered. Conclusion This study supports the use of an electronic prescribing system for ordering paediatric chemotherapy, given the significant reduction in errors compared with written prescriptions. The introduction of a chemotherapy-specific safe prescribing poster is suggested in order to improve compliance with ChemoCare. Further studies analysing national compliance with data return to SACT, are required to identify cost implications for the NHS and subsequent areas for quality improvement.

**94. Screening for gestational diabetes-NICE guidelines versus local practice**

**Authors** Bradshaw C.; Neogi M-L.; Ellabany R.; Turner S.; Nahappan N.; Khan R.; Solomon A.

**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 166

**Publication Date** Jun 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library

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**Abstract** Diabetes in pregnancy is associated with risks to the woman and to the developing fetus. NICE suggest screening women with risk factors for GDM at 24-28 weeks. Previous local audit showed that 40% of GDM were late diagnosis; therefore, we initiated the implementation of modified International society of Diabetes Pregnancy study group (IADPSG) recommendation of universal screening in 2016. We also agreed to screen women at risk at booking and repeat at 28 weeks if negative. Objective 1 Identify the number of women with locally defined risk factors for GDM diagnosed as a result of screening at booking, who would not have been tested/diagnosed until 24-28/40 as per NICE guidelines. 2 Identify the number of patients without risk factors for GDM, who were diagnosed as result of universal screening at 28/40 (as per local Guidelines), who would not have been diagnosed if screening per NICE Guidelines. Design Retrospective audit of all women diagnosed with gestational diabetes who delivered in 2017, who attended for antenatal care. Exclusion: women with previously diagnosed GDM, type 1, and type 2 diabetes. Results The total number of GDM diagnosed was 165 women. 22% of GDM diagnosed at booking. 23% of GDM diagnosed using our local universal screening between 28 and 30/40. 34% of those screened universally required medical treatment (metformin or insulin). Of the 116 out of 165 patients, we identified with risk factors for GDM, and 9.6% would not have been screened using NHS criteria alone. Conclusion 22% of GDM diagnosed at booking would have been detected at a later gestation; 23% of GDM diagnosed at universal screening would have been missed using NICE criteria. 21 babies from our cohort went to SCBU, of those 6 were identified through our local universal screening. A delayed or missed diagnosis may have impacted on maternal and neonatal outcome-for example macrosomia or shoulder dystocia. This would also have impact on the future wellbeing of women and their children, as those with GDM have higher risk of developing type 2 DM, and the children a six-fold increase in developing type 2 DM.

**95. Successful implementation of immediate postpartum intrauterine contraception (PPIUC) services in Edinburgh and framework for wider dissemination**

**Authors** Cooper M.; Glasier A.; Cameron S.; Coutts S.; McGuire F.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 119  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective To develop a structured implementation framework to promote the wider uptake and dissemination of PPIUC research findings and translation into routine clinical practice. Design Mixed methods implementation research. Methods Edinburgh became one of the first maternity centres in the UK to introduce PPIUC, initially at caesarean section and later at vaginal birth, through a health service research project. A dedicated PPIUC steering group was established at the project outset and included representation from key stakeholder groups. Midwives and doctors were trained to provide PPIUC across two maternity hospitals (approximately 9000 annual births), and almost 1300 women have received PPIUC to date in the region since 2015. The local approach to PPIUC service development was framed around the evidence-based stages of implementation as described by the National Implementation Research Network (NIHR): exploration, installation, initial implementation, full implementation. A combination of steering group meeting minutes, post-training surveys by maternity staff and routine feedback obtained from patients at the post-insertion review appointment (4-6 weeks' postpartum) were collected. These were reviewed by two of the project leads, who provided further expert opinion. Key components of PPIUC implementation were identified and grouped into themes within the NIHR framework. Further information, including identified facilitators and barriers, was then linked to each of themes. The draft framework was reviewed by the wider stakeholder group. Results Fourteen key areas of service implementation were identified and grouped into the four NIHR 'Stages of Implementation'. Further detail regarding barriers and facilitators were linked to each of the areas identified. Key areas included: (1) exploration - local need assessment, funding, advocacy/ development of 'champions' (2) installation - stakeholder involvement, staff training, resources/equipment, site selection (3) pre-implementation - site-level engagement, service promotion, pilot site introduction (4) full implementation - media/public involvement, data collection, service improvement/audit, scale-up/secondary site. Conclusion PPIUC insertion is not routinely available in many countries, and evidence to support the practical implementation of this complex health intervention is lacking. The key components of establishing a successful PPIUC service can be described using the NIHR 'Stages of Implementation' framework. Adopting an experiential shared learning approach can be useful to identify barrier and facilitators to the implementation process, and an evidence-based framework may assist in the wider availability of PPIUC.

**96. The burden of sepsis in gynaecology-a wake-up call**



**Authors** Hussain M.J.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 21  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract**  
 Introduction There is an increasing incidence of sepsis in gynaecology patients due to an ageing population, increase number of invasive procedures, and antibiotic resistance. Much emphasis is placed on sepsis in obstetrics, and there is little literature or research exploring sepsis in gynaecology. Here, we look at the burden of sepsis in gynaecology patients, the microorganisms responsible, and the associated morbidity and mortality. Methods We audited electronic patient records from 1 January 2016 to 31 March 2017 who were admitted under gynaecology at a district general hospital in England. Data were collected both retrospectively and prospectively. All patients who met the criteria for sepsis, defined by the systemic inflammatory response syndrome (SIRS) criteria with confirmed or suspected infection, were included in the review. Data were collected on focuses of infection, causative organisms, and morbidity outcomes including length of stay (LOS), antibiotic treatment, and consequences due to sepsis. Results Fifty-three patients were identified who had sepsis between January 2016 and March 2017. 74% of cases had associated medical or surgical comorbidities. 45% patients were acute gynaecology admissions, 23% were elective admissions, 32% were readmissions following operative interventions. 16% of these patients were pregnant or had recently had a recent pregnancy loss. Genital tract infections were the most prevalent. Abdominal collections and hospital-acquired pneumonias were common sources in postoperative patients. 45% of patients had positive cultures, and 11% had blood cultures with significant growth. Bacteria belonging to the Enterobacteriaceae family were the most commonly cultured. 38% of cultures grew multidrug resistance organism. Multidrug resistance had a significant burden with 24% patients needing escalation of antibiotics to second-line therapy or thirdline carbapenems. Average duration of intravenous antibiotics treatment was 6 (SD7) days, with total antibiotic treatment 12 (SD6) days. The longest was 38 days of intravenous therapy. Average LOS was 7 (SD5) days, with 36 days the longest. 55% of patients suffered varying consequences due to sepsis, including operative interventions, return to theatre, and acute kidney injury forming majority of complications followed by critical care admission, septic shock, miscarriage, and delirium. Conclusion There is significant morbidity attached to sepsis in gynaecology patients due to an ever increasing ageing population, increasing number of invasive procedures, and antibiotic resistance. Many sources of infection are unique to this group. We need to give equal concern to the threat and burden of sepsis in gynaecology as we do in any other speciality.

**97. Delayed cord clamping at preterm caesarean sections: A simple, low-cost technique to reduce mortality**

**Authors** Sullivan C.; Isaac T.; Norman V.; Bates S.  
**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 144  
**Publication Date** Jun 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Wiley Online Library  
 Available at [BJOG: An International Journal of Obstetrics and Gynaecology](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information  
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**Abstract** Objective Develop a method of delivering delayed cord clamping (DCC) to all preterm infants, including those delivered at caesarean section, with an aim to optimise outcomes. Design Meta-analysis data suggest that delayed cord clamping (DCC) in preterm infants is associated with a 32% reduction in hospital mortality. Perceived difficulties include providing respiratory support and thermal care during DCC. Current commercially available equipment can be expensive. High fidelity, multidisciplinary simulations to develop a technique enable delivery of thermal care and respiratory support during DCC at preterm caesareans. Data were collected from infants pre- and post-introduction of the technique. Methods Simulation was used to refine a simple, low-cost technique for DCC. Data were collected retrospectively from 46 infants born at <32 weeks of gestation in 2015. The technique was introduced in early 2017, as part of a wider perinatal quality improvement project. Data were collected prospectively from 63 infants born at <32 weeks of gestation in 2017-2018. Results One of the challenges was to find a sterile method of delivering thermal and skin care during DCC at caesarean section. Initially, adult arm burns dressing bags with a thermal gel mattress (inside a sterile cover) were trialled. Later, a bespoke sterile Neonatal Heat Loss Prevention Suit (NeoHELPTM, Vygon, Swindon, UK) became available. Simulation of alongside techniques showed that cord length often prevented DCC from being feasible. Therefore, at caesarean section, the infant is placed into the NeoHELP suit on the mothers' thighs, away from the surgical field, and respiratory support is provided by a scrubbed member of the Neonatal team. The above technique was filmed and is used alongside regular simulated practice for maintenance of staff training. Rates of DCC in infants born <32 weeks of gestation have increased from mean 12.5% in 2015 to 89.4% in 2017-2018. In 2017-2018, thermal care and respiratory support were provided to all infants who received DCC. There has been no increase in obstetric complications. Neonatal outcome data are encouraging with respect to a reduction in mortality (9.4% to 2.1%), incidence of severe necrotising enterocolitis (NEC) (12.5% to 4.1%), and severe brain injury (15.6% to 8.2%). These changes did not achieve statistical significance. Conclusion Multidisciplinary perinatal team working allowed development of a simple, low-cost technique to deliver DCC at all preterm deliveries. We have demonstrated feasibility and efficacy of this technique, and this has resulted in a significant and sustained improvement in rates of DCC in our preterm population.

**98. National patient reporting form**

**Authors** Serebriakoff P.; Hartley F.  
**Source** Trauma (United Kingdom); Jul 2019; vol. 21 (no. 3); p. 241-242  
**Publication Date** Jul 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Trauma \(United Kingdom\)](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).  
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**Abstract** D13 is a national course introduced in 2010 for UK police officers authorised to carry firearms. The course provides comprehensive first-aid training aiming to equip frontline officers with the ability to deal with the initial management of commonly encountered medical emergencies. The police are often the first on scene at medical emergencies, and with rising violent crime levels, the demand for officers to provide urgent lifesaving treatment in highly challenging environments is ever growing. Officers are required to complete patient report forms (PRFs) after every medical encounter as part of governance. These forms have been retrospectively audited, triggering this review of the form used and the method of data sharing. However, at present each police force is using a different paper PRF form to collect these data with variability in the data collected and no efficient way to process or share these data. We have developed a new electronic PRF form which aims to overcome these issues. The core aim is to improve education and training of officers through shared experiences. Learning through shared experiences is a key part of medical education. The new form will enable this to take place on a national and local level. Built using access, the form will enable efficient data analysis and sharing. This will enable data to be collated nationally, with trends and key incidents fed back into training. We aim to ensure training continues to meet the demand placed on firearms officers.

**99. Key performance indicators for pre-hospital emergency anaesthesia - The Thames Valley Air Ambulance approach**

**Authors** Raitt J.; Masud S.; Spence C.; Hudgell J.; Knott H.  
**Source** Trauma (United Kingdom); Jul 2019; vol. 21 (no. 3); p. 227  
**Publication Date** Jul 2019  
**Publication Type(s)** Conference Abstract  
**Database** EMBASE  
 Available at [Trauma \(United Kingdom\)](#) from Available to NHS staff on request from UHL Libraries & Information Services (from NULJ library) - click this link for more information Local Print Collection [location] : UHL Libraries On Request (Free).

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**Abstract** Background: Pre-hospital emergency anaesthesia (PHEA) is regarded as one of the highest risk interventions that pre-hospital providers perform. Association of Anaesthetists of Great Britain and Ireland (AAGBI) guidance from 2017 suggests the use of key performance indicators (KPIs) to audit PHEA quality. The aim of this study was to develop KPIs for use in our service and evaluate their impact.

Method(s): Using the AAGBI 2017 document as a guide, we developed a list of 10 domains. Data for each case were extracted from the electronic patient record and a score assigned to each of the domains. Analysis is then presented as a colour-coded matrix alongside the score. Data were analysed monthly at our case review and governance meeting. The process was refined during the year and after 12 months a formal review of the KPI process occurred.

Result(s): Eighty-two cases were analysed. Domains with the highest percentage of achievement were: indication 96%; tube position confirmed 94% and full AAGBI monitoring and grade of view <3 both 89%. The amount of missing data declined throughout the year. A clinician survey revealed that almost all respondents found the TVAA PHEA review process useful.

Conclusion(s): The KPI process has demonstrated areas of good quality practice and led to improvements in equipment, processes and documentation and therefore patient care. We offer suggestions to other organisations considering implementing KPIs for PHEA.

### 100. Management of first-trimester miscarriage in the UK

**Authors** Idle S.A.; Coles H.; Vasireddy A.; Anderson K.; Johns J.; Ross J.

**Source** BJOG: An International Journal of Obstetrics and Gynaecology; Jun 2019; vol. 126 ; p. 26

**Publication Date** Jun 2019

**Publication Type(s)** Conference Abstract

**Database** EMBASE

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**Abstract** Aim To survey variation in the current management of firsttrimester miscarriage in the UK. Design An electronic cross-sectional questionnaire survey was sent to 151 early pregnancy units across UK. Methods Data collected included the set-up of the unit; volume of patients; use of expectant, medical and surgical management of miscarriage; misoprostol and mifepristone regimen used; management of retained products of conception, and whether follow up is offered. Results The response rate was 60% with 44% DGH and 56% THs participating. 99% of units had a dedicated early pregnancy service; this was led by 71% nurses, 19% doctors and nurses, 7% midwives, and 3% doctors. 85% of units see patients by appointment only. Approximately 60% of patients are primarily scanned by sonographers. Over half of all units recommend expectant management as first line with variable uptake. Out of the 97% of units offering medical management, 91% offer it to women with both early embryonic demise (EED) and incomplete miscarriage. The success rate of medical management varied from <50% to >90% across units. Outpatient medical management is offered by 81% of units. A yearly audit is carried out by 38% of units. Conclusion There is a widespread variation in the management of first-trimester miscarriage across UK early pregnancy units. The minority of units appear to follow NICE guidance for expectant management as first line. The success of medical management is varied among units, and this might be due to the misoprostol or follow-up regimens used. While training and awareness of MVA has increased, interestingly this service is still only offered in less than half of the units in our survey. A further questionnaire could explore the barriers to offering this service more widely.