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**RESEARCH – EPIDEMIOLOGY [PRESIDENT’S ROUND]**

**SLOWING OF LIFE EXPECTANCY IN THE UK**

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**Introduction:** Life expectancy in the UK stopped increasing in 2009. To identify possible causes for this, we explored changes in life expectancy by age, sex and condition.

**Methods:** Using Global burden of disease (GBD), estimates of life expectancy, death rates and premature mortality (measured using years of life lost; YLLs) from 1990 to 2010 in the UK by sex and age were determined. Annual change in YLL and death rates were calculated for the top causes of premature death in the UK: alcohol and related diseases, dementia, chronic obstructive pulmonary disease (COPD), colorectal, breast and lung cancers, ischaemic heart disease (IHD), stroke, lower respiratory tract infections (LRTIs) and self-harm.

**Results:** Mean improvements in life expectancy were 2% per year and death rates were 1% from 1990-2010. Both stalled at 0% after 2010. The slowdown was seen across all age groups and in both genders, with a slightly more marked slowdown in males than females.

The conditions that showed the greatest changes since 2009 were IHD, stroke, LRTI and lung and colon cancer. The biggest factor was the marked slowdown in improvements in YLL rates from IHD and stroke. YLL rates from lung and colon cancer increased in the over 85 year age group, as did YLL rates from LRTI. The LRTI rate increased more in England than in the other 3 UK countries.

**Conclusions:** The slowdown in UK life expectancy since 2010 appears to have been driven largely by declining improvements in IHD and strokes, with increasing YLLs from LRTIs and cancer also contributing. Further research is needed into the causes of these condition-specific changes, including the effects of austerity and international comparisons to explore the extent to which further improvements in life expectancy are biologically possible.

**RESEARCH – HEALTH SERVICES RESEARCH [PRESIDENT’S ROUND]**

**DELAYED TRANSFER OF CARE: IMPROVING OUTCOMES BY PROCESS INNOVATION IN A DISTRICT GENERAL HOSPITAL**

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**Introduction:** Delayed transfers due to social care have risen steeply since 2014. However, the majority of delays (58 per cent in 2016/17) are still attributed to the NHS. Delayed discharges are associated with increased risk of infection, decreased mobility, low mood and reduced motivation, which can increase chances of readmission or institutionalisation. This compounds pressure on hospital bed flow and financial sustainability

We studied discharge processes with a view to impact analysis on bed days in a short stay geriatric unit. We used this to introduce innovative practices and studied their effect.

**Methods:** We conducted a retrospective analysis of all discharges from a short stay geriatric unit over a two month period in September 2016 to identify patients discharged through state funded pathways. Based on a bed days impact analysis, we introduced a number of changes from January 2017:

1. Redefining Medically *Ready* for Discharge (MRFD); 2. Electronic Social Services Referral form; 3. Redesign of ward assessment tools; 5. Development of a Discharge Database. We repeated our analysis in May 2017 to compare outcomes at baseline and post intervention.

**Results:** Prior to our interventions (n= 48) patients collectively spent 810 bed days medically ready for discharge awaiting care, post intervention (n=49) we saw a 42% reduction by 334 bed days (p=0.0007). Average total length of stay for this group of patients decreased from 24.5 days to 15.9 days (p=0.002). Whilst we did not find significant difference in bed days saved by introducing electronic referral system (p=0.42), inappropriate referrals were down to 0 post intervention.

**Conclusion:** We have significantly reduced length of stay by decreasing number of medically ready patient bed days. This has been achieved through transparent data collection, accountability and proactive use of technology. Moreover, the impact analysis and multidisciplinary engagement has produced a cultural shift.



**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH [PRESIDENT’S ROUND]**

**INCREASED PHYSICAL ACTIVITY LEVELS AMONG HOSPITALISED OLDER PEOPLE:  
THE ROLE OF TRAINED VOLUNTEERS**

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**Introduction:** Sedentary behaviour among older inpatients is associated with increased risk of functional decline, institutionalisation and death. Studies have shown that exercise and mobility interventions can reduce the risks of some of these adverse effects. However, most studies use paid staff to deliver such interventions. We explored the feasibility and acceptability of training volunteers to promote increased physical activity among older inpatients.

**Methods:** This pre-post mixed methods study was conducted on acute medical wards for older people. Eligible patients were aged  $\geq 70$  years, mobile prior to admission and able to provide written consent. Physical activity levels were measured using two accelerometers: the ankle-worn StepWatch Activity Monitor and wrist-worn GENEActiv. Volunteers were trained and supported by therapists to deliver individual twice-daily activity sessions, which consisted of walking, chair, and/or bed exercises. Six nurses, seven therapists, six volunteers and six patients were interviewed to determine their views of the intervention.

**Results:** 50 participants pre-intervention (mean age 87 years, SD 4.6) had a median daily step count of 626 (IQR 298-1468) and mean daily acceleration of 9.1 milligravity (SD 3.3) (<10.9 milligravity is considered sedentary). 16 volunteers were then trained and 12 were retained towards the end of the study period (71% retention). 310 activity sessions were offered and 230 (74%) were safely delivered to a further 50 participants (mean age 86.2, SD 5.1) with a daily step count of 912 (IQR 295-1824) and mean daily acceleration of 9.7 milligravity (SD 3.3). The volunteer-led mobility and exercise intervention was well received by patients and staff valued volunteers’ role. Volunteers enjoyed working with both patients and staff in this unique role.

**Conclusions:** Findings from this study demonstrate the sedentary behaviour of older medical inpatients. Trained volunteers can safely deliver mobility and exercise interventions for older inpatients. A controlled trial is required to determine the impact of trained volunteers on patient outcomes.

**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH [PRESIDENT’S ROUND]**

**FRAILTY PREDICTS MEDICATION-RELATED HARM REQUIRING HEALTHCARE: A UK MULTICENTRE PROSPECTIVE COHORT STUDY**

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**Introduction:** Frailty has been under investigated as a risk factor for medication-related harm (MRH) in older adults<sup>[1]</sup>. We sought to determine whether frailty is independently associated with MRH in a large multicentre prospective cohort, the PRIME study.

**Methods:** The PRIME study recruited 1280 older adults at hospital discharge from 5 hospitals in England between 2013 and 2015<sup>[2]</sup>. MRH and associated healthcare use within 8-weeks post-discharge were identified by senior pharmacists using (1) hospital readmission data, (2) primary care records, (3) patient telephone interviews. Based on the Rockwood approach<sup>[3]</sup>, we developed a frailty index including 55 deficits from multiple domains (morbidity, cognition, mood, strength and mobility, nutrition, daily function). Frailty was defined using the established cut-off of <sup>3</sup>20% deficits<sup>[4]</sup>, and internally validated using Kaplan-Meier plots comparing survival in frail and non-frail patients. We then used logistic regression analysis to investigate the relationship between frailty and MRH requiring healthcare.

**Results:** 1116 patients completed follow-up (median age 81.9 years, range 65-103 years, 58.4% female). 446 patients (40%) were frail in our cohort. 36% of frail patients experienced MRH compared with 25% in non-frail patients. There was a strong relationship between frailty and MRH (OR 1.67, 95% CI 1.29-2.17, p<0.001). A significant relationship between frailty and MRH remained on multivariable regression, adjusting for polypharmacy, age and gender (OR 1.37, 95% CI 1.04-1.81, p=0.027). Frail patients had significantly reduced 18-month survival (Log-Rank test p<0.001).

**Key Conclusions:** Frailty is a predictor of MRH requiring healthcare, independent of polypharmacy.

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**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH [PRESIDENT’S ROUND]**

**A PRELIMINARY STUDY OF THE CLINICAL OUTCOMES OF ACUTELY UNWELL PATIENTS WITH DEMENTIA: ANEURIN BEVAN UNIVERSITY HEALTH BOARD, WALES (UK)**

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**Introduction:** Patients with dementia often have other associated medical co-morbidities which directly or indirectly could result in poorer outcomes. The National Audit of Dementia (NAD) in the UK showed a wide variation in the quality and approach of care for acutely unwell patients with dementia. The objective of this study is to record the demographics and patient characteristics to understand and benchmark clinical outcomes of acutely unwell dementia patients admitted across three acute sites within Aneurin Bevan University Health Board, Wales (UK).

**Methods:** This was a preliminary retrospective observational cohort study based on analysis of the existing data for all the patients with dementia admitted acutely. Ethical approval was not required for this service evaluation, which was based on the recommendations of the NAD.

**Results:** A total of 2474 admission episodes were recorded in the year 2016 from the 1770 acute dementia patients. We studied 953 consecutive dementia patients from 01/01/2016 to 30/06/2016 who had a total of 1167 episodes of acute admissions. The mean age was  $84.5 \pm 7.8$  years (females=63.5%). Mean Charlson comorbidity index and number of drugs were  $6.0 \pm 1.5$  and  $5.1 \pm 2.1$ . 15.4% (147/953) patients were on antipsychotics.

Overall mean hospital stay was  $19.4 \pm 27.2$  days. 30-days readmission rate was 14.5% (138/953) with mean hospital stay of  $14.6 \pm 17.9$  days.

70.3% (n = 670/953) were previously living in their own homes and only 11.4% (n = 109/953) were admitted from care homes. 59.5% patients (n = 399/670) were discharged back to their homes. 6.3% (n = 53/844) were discharged to a new care home, which represents an approximately 1.5 times higher rate of new care-home occupancy than the patients being originally admitted from a care home.

Overall inpatient, 30-days, 90-days and one-year mortality were 16.0% (153/953); 22.3% (213/953); 29.6% (283/953); 49.2% (469/953) respectively. The observed mortality rates between patients admitted from home or from a care home were not significant for inpatient mortality (p=0.54) but were highly significant for one year mortality (p<0.001)

**Discussion:** Further clinical outcomes measuring impact of hospitalization like inpatient falls, delirium, dehydration, pressure sores is warranted. Reasons for readmission need in-depth analysis. Enhanced partnership working with community teams is recommended to minimize hospital deaths within 48 hours.

**Conclusion:** Further similar studies will enhance individual and organizational understanding of clinical outcomes for acutely unwell patients with dementia. This would also facilitate quality improvement initiatives to improve patient care and modernisation of existing community service.

SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS [PRESIDENT'S ROUND]

ONE CHANCE TO GET IT RIGHT: EXPLORING DIFFERENT PERSPECTIVES ON  
DECISION MAKING FOR CARE HOME DISCHARGE

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**Background:** Discharge from acute hospital to care home is a complex and life changing process. Previous work (Harrison et al 2017) found variation in documented discharge practice and identified the complexity of the patients involved. This study aimed to explore the perspectives of the individual and a range of key stakeholders who contribute to decision-making about discharge to care home.

**Methods:** A case study research design was used to explore the experiences of six older people admitted to acute hospital from home and for whom discharge to care home was planned. Each dataset included semi structured interview data from an older person, their significant others and multidisciplinary professionals involved in their care (n=30). Ward based case notes were also reviewed. A purposive sampling technique was used to ensure that the older people represented characteristics identified as being of interest during a previous study (Rhynas et al 2018). The older people all had capacity to consent, assessed by the three clinical researchers.

Each dataset was analysed using an inductive thematic approach, facilitated by use of NVIVO v11. The data were analysed by two researchers working independently and then the coding was discussed within the study team. Each dataset was analysed individually before a cross dataset analysis took place.

**Findings:** Discharge from acute hospital to care home was found to be a fragmented process with many stakeholders, each with varying expectations and motivations. Professionals were found to be uncertain about the processes involved in the discharge which resulted in fragmented communication and reluctance to engage with patients. Patients were found to be keen to talk about the decision, to seek reassurance and rationalise their decision-making. Family members highlighted the complexity, in their role, of balancing risk and care needs. The hospital context was found to be important in facilitating decision-making in practical ways and in permitting conversations about care needs and wishes.

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**SCIENTIFIC RESEARCH – PARKINSON’S DISEASE [PRESIDENT’S ROUND]**

**WHAT ARE THE NEEDS AND PREFERENCES OF PEOPLE WITH PARKINSON’S AND THEIR INFORMAL CAREGIVERS FOR THE EFFECTIVE SELF-MANAGEMENT OF FALLING? A MIXED METHODS STUDY**

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**Introduction:** Falls are common in Parkinson’s disease, and a recognised research priority. This mixed methods study aimed to establish the experiences, needs and preferences of people with Parkinson’s (PwP) who fall, and their informal caregivers, for the effective self-management of falls. PwP with cognitive impairment (CI)/ dementia were included.

**Methods:** PwP and caregivers completed questionnaires about fall history, fear of falling and caregiver burden. A purposive sub-sample participated in semi-structured interviews. Questionnaires were analysed through descriptive statistics, interviews were analysed through inductive thematic analysis.

**Results:** 61 PwP and 56 caregivers completed questionnaires. Of these, 20 PwP and 18 caregivers were interviewed. Median number of falls in the last year was 4. 70% reported difficulty getting up from the floor, and caregivers often provided support. 71% of caregivers had high caregiver burden. Five themes emerged from the interviews: (1) establishing reasons for falls: attributions and perceptions; (2) coping and adaptation; (3) recognising and managing risks surrounding falling; (4) concerns and worries about consequences; (5) PwP and caregivers as case managers. There was heterogeneity of situations where PwP could feel unsteady or fall. Dyads often sought to identify the cause of falling; uncertainty could lead to frustration. Dyads displayed a range of problem and emotion-focused coping strategies. Caregivers played a key role in falls management, particularly in the setting of CI/dementia. There was often considerable impact on the relationship within the dyad, with loss of caregiver identity. Dyads could appear lost within the healthcare system, and be unsure of the role of healthcare professionals (HCPs) in falls management.

**Conclusions:** Dyads displayed variety in their experiences and unmet needs for successful falls management. Dyads require support in attributing reasons for falls and in communicating with HCPs. Results from this study will inform the development of a falls-based self-management guide for PwP and caregivers.

**SCIENTIFIC RESEARCH – PSYCHIATRY AND MENTAL HEALTH [PRESIDENT’S ROUND]**

**UTILITY OF THE 4AT RAPID ASSESSMENT INSTRUMENT IN ASSESSMENT OF DELIRIUM AND COGNITIVE IMPAIRMENT IN ACUTE CARE**

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**Background:** Delirium affects 15% of hospitalised patients and is linked with worse outcomes. More than 50% of patients with delirium also have dementia. The 4AT (4“A”s Test: Alertness, Attention (Months of the Year Backwards), Abbreviated Mental Test-4 to test orientation; Acute change) is a short (<2 min) delirium assessment tool incorporating brief cognitive testing designed for routine clinical use which does not require special training: [www.the4AT.com](http://www.the4AT.com). Primary objective: diagnostic accuracy of the 4AT for delirium detection in acute patients aged  $\geq 70$ . Secondary objectives: comparative performance of Confusion Assessment Method (CAM); assess performance of individual 4AT test items in the 4AT in detecting dementia; to determine if 4AT scores predict outcomes.

**Methods:** This was a STARD-compliant, prospective, randomized, double-blind diagnostic test accuracy multi-site study of 785 patients aged  $\geq 70$  in the Emergency Department within 12 hours, or acute wards within 96 hours of attendance. Each patient underwent (1) DSM-IV reference standard delirium assessment informed by the Delirium Rating Scale-Revised-98, and (2) assessment with either 4AT or CAM (randomised).

**Results:** Mean age was 81.4 (SD 6.4) years, 45% male, 9% known dementia diagnosis. 96 (11.7%) had reference standard delirium. The 4AT had an area under the receiver operating characteristic curve of 0.90. The 4AT had specificity of 95% (95% CI 92-97%) and sensitivity of 76% (95% CI 61-87%). The CAM had specificity of 100% (95% CI 98-100%) and sensitivity of 40% (95% CI 26-57%). Patients with positive 4AT had longer lengths of stay (median 5 days (IQR 2.0-14.0) than negative 4AT (median 2 days (IQR 1.0 -6.0) and higher mortality. Cognitive test items of the 4AT were highly specific (AMT4 score 2: 97% (94-98%); attention score of 2: 98% (96-99%); but showed lower sensitivity (AMT4 score 2: 47% (32-62%; attention score of 2: 62% (36-83%) in detecting existing dementia.

**Conclusions:** The 4AT is a rapid delirium assessment instrument which is feasible in routine care, including with patients with dementia, which has good diagnostic accuracy for delirium for acutely unwell older patients.

**Funding source:** National Institute of Health Research Technology Assessment Programme (NIHR DTA) grant number 11/143/01.

**STROKE [PRESIDENT'S ROUND]**

**A trial to Evaluate an eXTended RehAbilitation service for Stroke patients (EXTRAS):  
main patient results**

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NHS Foundation Trust, 4 Lay Member, 5 University of Nottingham, 6 Oxford University, 7 University of Leeds,  
8 King's College London, 9 Northumbria University*

**Introduction:** Development of longer-term stroke rehabilitation services is limited by lack of evidence of effectiveness for specific interventions and service models.

**Methods:** *Study design:* Multicentre RCT

*Participants:* Stroke patients under the care of an Early Supported Discharge (ESD) team.

*Intervention:* An Extended Stroke Rehabilitation Service provided for 18 months following completion of ESD. The service involved regular contact (usually by telephone) with a senior ESD team member who coordinated further rehabilitation.

*Control:* Usual care.

*Primary outcome:* Nottingham Extended Activities of Daily Living (NEADL) Scale at 24 months.

*Secondary outcomes:* At 12 and 24 months: Health status (Oxford Handicap Scale), mood (Hospital Anxiety and Depression Scale), experience of services (satisfaction questionnaire).

*Sample size:* 382 participants (inflated to 510 for 25% attrition) provided 90% power to detect a difference in mean NEADL score of 6 at 5% significance level.

**Results:** Nineteen sites randomised 573 patients. Groups were well matched at baseline. There was no significant difference between the groups for the primary outcome (NEADL score mean difference 1.8 (95% CI: -0.7, 4.2)). No significant differences were seen in health status or mood. At 24 months patients in the intervention group were more satisfied with the services they received (97.7% vs 87.5%, difference 10.2% (95% CI 5.3 – 15.0)).

**Conclusion:** The Extended Stroke Rehabilitation Service did not improve stroke survivors' participation in extended activities of daily living, mood or health status. At 24 months, patients in the intervention group reported higher levels of satisfaction with services. Further analyses are on-going.



**STROKE [PRESIDENT'S ROUND]**

**DEMENTIA AND HOSPITAL ADMISSION POST TIA AND STROKE: LONGITUDINAL POPULATION-BASED STUDY**

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**Introduction:** Dementia after Transient Ischaemic Attack (TIA)/stroke is associated with age, lesion burden and neurodegenerative disease but systemic factors including inflammation/infection may also play a role. We therefore determined associations between TIA/stroke-associated dementia and hospitalisation in a longitudinal study.

**Methods:** In a population-based study of TIA and stroke (Oxford Vascular Study/2002-2012) multiple overlapping methods including face-to-face interview were used to ascertain dementia until death or 5 years follow-up. Frequency and characteristics of hospital admissions between index event and end follow-up were compared between patients with dementia versus those remaining dementia-free at 5-years using hospital diagnostic coding data adjusted for age and sex.

**Results:** Among 2305 patients (693 TIA/1478 ischaemic stroke/134 primary intracerebral haemorrhage), 657 (28.5%) were identified as having dementia. Patients with dementia were older (mean/SD 80.8/8.6 vs 70.9/13.4,  $p < 0.001$ ) and more likely to be female (60.6% vs 46.7%,  $p < 0.001$ ) than those without. During 5-year follow-up, there were 8861 admissions to the regional district hospital, of which 4157 (46.9%) were unplanned with 2931 (70.5%) of these being to medical specialities. Patients with dementia were more likely to have any hospital admission (adjusted OR=2.24, 95%CI 1.66-3.01,  $p < 0.001$ ) or any unplanned hospital admission (adjusted OR=3.00, 2.32-3.88,  $p < 0.001$ ) compared to patients without dementia, particularly for infection related illness (29.1% vs 14.2%, adjusted OR=1.99, 1.57-2.51,  $p < 0.001$ ). 890 (38.6%) of the 2305 patients were admitted to hospital at the time of their index event. Of which 116 (13.0%) also had an infection related illness, which tended to be more frequent in patients with dementia (16.0% vs 11.3%,  $p = 0.045$ ).

**Conclusions:** Patients with previous TIA/stroke who develop dementia, have more hospitalisations including unplanned admissions for acute medical illness. Further studies are required to determine whether acute illness, and particularly infection, are independent risk factors for cognitive decline after TIA/stroke.



## CLINICAL QUALITY

### VALIDATING THE USE OF ELECTRONIC FRAILTY INDEX SCORE IN REFERRAL PATHWAYS; A RETROSPECTIVE STUDY OF HEART FAILURE DIAGNOSTIC APPOINTMENTS IN SECONDARY CARE FROM APRIL 2016 TO APRIL 2016

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**Introduction:** Heart failure has a prevalence of 1-3% which rises to 10 % amongst elderly patients in the UK<sup>1</sup>. In addition to clinical diagnosis, BNP and NT-pro BNP are biomarkers that are now recommended in diagnostic algorithms for detection of heart failure, and are independent predictors of mortality and other cardiac outcomes in patients with heart failure<sup>2</sup>. The electronic frailty index (eFI) score is a parameter used in primary care which helps identify and predict adverse outcomes in elderly patients. .

**Method:** Data for all patients in “New patient” consultant led clinics from the period of April-June 2016 were acquired from the coding department. Inclusion criteria was agreed and a proforma was designed to capture patient demographics, referral details and eFrailty Index scores. Secondary care computer programs; Electronic Patient Records (EPR) and Patient Manager (PIMs), were used to collect the relevant data. Hospital referral and clinic letters were examined for the inclusion criteria and on identifying the required subset of patients. The e-Frailty Index scores were pursued from individual patient General Practices in the London boroughs of Lambeth and Southwark. The e-Frailty Index scores were classed to fit, mildly frail, moderate frail and severely frail with numerical cut offs. The data captured in the study proforma was subsequently analysed using Microsoft Excel.

**Results:** showed a high proportion of patients with severe frailty as indicated by eFI scores referred to the department from April to June 2016. Of the 19 heart failure patients for which the eFI score was available (n=22), 52.3% were classed as having severe frailty. NT-proBNP, while only available for 63.6% (n=22) of the patients, only two patients were below the threshold to rule out heart failure. Higher levels of NT-proBNP generally denote an increased likelihood of heart failure. It maybe that patients with higher levels can be prioritised with regards to referral pathways<sup>5</sup>. Our study further confirmed MI history is a strong indicator of heart failure diagnosis. Despite severe frailty in some patients, only two were found to be under the care of the care of the elderly team.

Electronic frailty index scores are a useful tool which could be implemented in secondary care to help direct the pathway of patients and optimally manage co-morbidities leading to decreased adverse outcomes.

## CLINICAL QUALITY

### ASSESSMENT AND PRESCRIPTION OF PROPHYLAXIS FOR VENOUS THROMBOEMBOLISM ON CARE OF THE ELDERLY WARDS

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**Background:** There is a significant preventable morbidity and mortality with Venous Thromboembolism (VTE) associated with hospital admissions. In the U.K, upwards of 32,000 cases of hospital-associated VTE occur every year. In our trust in the last 6 months, 59 patients were admitted with a hospital associated thrombosis, 4 of which were deemed to be avoidable.

**Methods:** We generated a daily report from our e-prescribing system (JAC), which showed the VTE risk assessment, and current prescription of prophylaxis for all patients on geriatric wards. We analysed the percentage of patients who had no VTE prophylaxis prescribed.

In the first phase, we used this report to update VTE risk assessments and prophylaxis on a daily basis. In the second phase we distributed this list to the ward staff.

We compared the data generated through these cycles using an ANOVA.

**Results:** Initially 83.05% of patients were appropriately prescribed VTE. Following intervention there was a statistically significant improvement ( $p < 0.0005$ ) compared to the initial data: 90.44% in phase 1 ( $p < 0.01$ ) and 89.35% ( $p < 0.05$ ) in phase 2.

**Conclusions:** Generating a daily report from JAC which is distributed to ward managers and ward clerks is an efficient and sustainable way of improving VTE prophylaxis risk assessment and appropriate prescription. This could be improved further by addition an auto-prompt from the e-prescribing system to suggest appropriate VTE prophylaxis based on the risk assessment and, in particular for geriatrics, the addition of last days of life care to the risk assessment.

## CLINICAL QUALITY

### FRAILTY ASSESSMENT IN PATIENTS UNDERGOING CARDIOVASCULAR INTERVENTIONS: A QUALITY IMPROVEMENT PROJECT

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**Topic:** With an ageing population, more elderly patients are undergoing elective surgery. Frailty is an ageing-associated independent risk factor for post-operative morbidity and mortality. It is important to recognise frailty to identify the vulnerable patients, avoid unnecessary harm and improve outcomes. The British Geriatrics Society recommends that patients should be assessed for frailty prior to surgical interventions. In this quality improvement project (QIP), we looked at whether the Rockwood Frailty Score (RFS) was appropriately used in the pre-operative assessment of cardiac patients.

**Intervention:** All patients have an electronic pro-forma which includes a section on the RFS completed, prior to discussion at the multi-disciplinary meeting (MDM). The pro-formas were reviewed to determine if a) the RFS was calculated and b) the calculated score was accurate. This was done by comparing the calculated score against the score allocated by ourselves from reviewing electronic patient records. In the first cycle, we reviewed 46 patients between October-November 2017. Of these, 6 had a frailty score done but only 1 was correctly calculated. We then implemented a change, which involved a consultant geriatrician educating team members on frailty assessment and completion of the RFS.

**Improvement:** We re-evaluated the scores between November-January 2018, identifying 44 patients. 33 had a score calculated; an improvement from 13% to 75%. The RFS was done correctly for 15 patients; an improvement from 17% to 45%. In both cycles, we noted a frequent underestimation of the scores with the frequency being greater towards the lower end (1-2) than the higher end (5-6).

**Discussion:** This QIP demonstrated that frailty scores are not adequately completed in pre-operative patients. Following our intervention, there was a significant improvement in the completion rate and some improvement in the accuracy. Frailty assessment is particularly important in procedure dominant specialties such as cardiology and cardiothoracics due to the potential for adverse outcomes such as delirium, decreased function and death. This can be reinforced with further education. However, it can be challenging to fully evaluate the severity of frailty as cardiologists or surgeons. Once frailty is recognised, a comprehensive geriatric assessment is required. This highlights a need for having liaison geriatricians in cardiac MDMs. The importance of frailty assessment is being increasingly recognised but we still have a long way to go.

## CLINICAL QUALITY

### THINK GOLD STANDARD FRAMEWORK, IMPROVE END OF LIFE CARE

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**Introduction:** The gold standards framework (GSF) is a national protocol which helps clinicians to recognise when a patient is approaching the end of life. The primary aim is to ensure that patients receive the best care at the end of life and also a fast track access to palliative care services.

**Aims:** The aims of this closed loop audit and quality improvement project were to improve awareness of the GSF to all elderly care department and to ensure that enough education regarding the topic was circulated.

**Methods:** This was a closed loop audit and quality improvement project. Two cycles were performed to assess the change after the first cycle. Both cycles focused on patients from care homes from all of the elderly care wards. The patients' medical notes were assessed and then additional information from SystemONE was used. The first cycle included 27 patients and the second loop 53 patients were identified.

**Results:** The results from the first loop showed that out of the patients who should have been on the GSF (20 out of the 27 patients) only (5/20) 25% of these patients were actually on the GSF. The changes implements from the results of the first cycle included; junior doctors teaching as well as posters which were advertised in elderly care wards to emphasise the significance of GSF. The results from the second loop showed that out of the patients who should have been on the GSF (33/53) now (11/33) 33% were on it.

**Conclusion:** There has been an improvement in the number of patients being putting on the GSF as the percentage from the first to the second cycle increased from 25% to 33%. We have successfully achieved our audit aims and the changes implemented after the first cycle have aided this positive correlation. For further improvement we have suggested; that elderly trainees will continue to receive teaching sessions and we need to ensure that information have been emailed to consultants and trainees about the GSF and coloured posters are put up on all of the acute and elderly wards. We have also suggested getting In touch with palliative care for further advice on how we can improve and to possibly generate a popup system on ICE/SystemONE so patients are not missed.

**CLINICAL QUALITY**

**A NEW VIRTUAL WARD; ASSESSING ITS IMPACT ON ELDERLY PATIENTS IN THE POOLE NORTH LOCALITY IN POOLE, UK**

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**Topic:** Dorset has an expanding elderly population above the national average. Poole North locality implemented a new virtual ward in September 2017. Virtual wards provide patient centred multi-disciplinary case management for vulnerable and complex elderly patients. Virtual wards aim to prevent unplanned hospital admissions and long inpatient hospital stays, both of which are associated with high infection rates, falls and mortality.

**Intervention:** The new virtual ward started on the 20th September 2017 replacing a standard multi-disciplinary team (MDT) model. Unplanned admissions, length of stay and total hospital bed days were compared in VW and standard MDT groups (n = 155 per group) between May 2017 and January 2018 using computer records. Some patients were discussed on both MDT formats. Baseline characteristics of VW and standard MDT patients were examined (90 per group).

**Improvement:** The virtual ward showed a lower mean length of stay (LOS) per admission (9.74 days vs 11.9 days). There was no significant difference in unplanned admissions between the groups. Total hospital bed days were less in the virtual ward group (1402.23 days vs 1780.80 days).

**Discussion:** The study suggests that the new virtual ward could give clinicians greater confidence to discharge patients earlier during their hospital admission. Discharging to a virtual ward with ongoing multidisciplinary case management provides clinicians with greater reassurance. This is reflected in the lower mean length of stay in the virtual ward group. Further evaluation of the impact of the virtual ward on mortality is needed. A clinician questionnaire would be useful tool to assess the impact of the virtual ward on timing of discharge.

**CLINICAL QUALITY**

**THE EFFECTIVENESS OF DELIVERING COMPREHENSIVE GERIATRIC ASSESSMENTS IN THE EMERGENCY DEPARTMENT**

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**Background:** Given the significant rise in the number of older adults presenting to the Emergency Department (ED) with frailty and complex needs there is an urgency to explore new ways of working to support the increasing demand. The delivery of comprehensive geriatric assessments (CGAs), in the acute hospital setting has been shown to improve outcomes for older adults living with frailty. Evidence to-date has predominately focused on frailty units or wards led by geriatricians, with a lack of evidence supporting the delivery of CGAs in the ED.

Providing optimal care for an increasing number of older people with frailty and complex care needs attending the ED is a key priority for the Frimley Health and Care Integrated Care System. In April 2018, an Integrated Frailty Liaison Team was launched in Frimley Park Hospital to address this need. The team comprises of Consultant Geriatricians, a Consultant Nurse, Frailty Practitioners, a junior Doctor, and in-reach GPs.

**Aim:** To provide holistic and targeted care for older adults presenting with frailty to the ED; employing the principles of the CGA; to ensure the highest quality acute care in the right place at the right time while promoting independence; and appropriately reducing admissions and length of stay in hospital.

**Method:** Mandatory electronic frailty identification for individuals 75 years or older attending ED. Once emergency care needs are ruled out those identified as living with frailty are referred to the Integrated Frailty Liaison team for further assessment, which is recorded on a standardised CGA pro forma.

**Results:** Early indicators demonstrate the positive impact of the intervention in the ED. Over the past 5 months the team have delivered 536 CGAs in ED and EDOU, of which 96% are were completed within 4 hours from referral. Of the 536 individuals assessed, 337 (63%) were discharged home with appropriate support dependent on their identified needs. Re-attendance data over a two month period found that 4% re-attended within 7 days and 20% re-attended within 30 days of discharge. The reasons for re-attendance are currently being explored by the team.

To date the overall feedback from service users and colleagues has been positive.

## CLINICAL QUALITY

### THERE AND BACK AGAIN: THE DEVELOPMENT OF AN AMBULATORY CARE PATHWAY FOR OLDER PEOPLE LIVING WITH FRAILITY THAT BEGINS AND ENDS IN THE PATIENT'S OWN HOME. PART 2: RESULTS OF A FOUR DAY PILOT

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**Introduction:** Health predictive modelling from part 1 of the study demonstrated that housebound older people accounted for 32% of GP unplanned admissions (238 unplanned bed days/month) in a locality with a population of 52,500. "High risk" clinical presentations resulting in hospitalisation were falls, shortness of breath, abdominal pain, acute confusion, and new/worsening immobility and incontinence. CCG data demonstrated a 20% reduction in length of stay in patients arriving at lunch time compared with late afternoon arrivals

This part of the study presents the design and analysis of a four day pilot of *The Older PErsons Rapid Assessment and TrEatment (OPERATE) pathway*; an ambulatory care pathway for housebound older people with frailty, that spanned primary care, intermediate care, and secondary care.

**Method:** The OPERATE pathway featured an urgent visiting service, shared IT with primary care, single points of contact with secondary care/intermediate care, and early senior review in the Emergency Department.

Home visit requests were triaged by GP surgeries in a locality. "High risk" symptoms listed in the introduction were referred to the urgent visiting service. Following medical evaluation the outcome was to discharge back to the community, refer to intermediate care, or refer to primary care.

**Results:** During the four days, 118 home visits were done during the locality with 14 visits being referred to the urgent visiting service as they were "high risk presentations." Four patients were hospitalised, with a mean arrival time at 12:44 (2hrs 57 minutes following initial contact). Senior review and definitive treatment commenced at 12:51 (3 hours and 4 minutes after initial contact).

Part one of the study demonstrated that bringing forward the arrival time of these patients to lunch time translates to a 20% reduction in length of stay, meaning that the OPERATE pathway could achieve cost savings of £228,480 per year in the locality.

**Conclusion:** The OPERATE pathway redefines ambulatory care targets for housebound older people living with frailty, commencing the moment the patient makes contact in the community. It achieved integration across health providers, quality care, and cost savings. A key enabler to the success of this was the risk stratification tool and shared IT.

## CLINICAL QUALITY

### THE EFFECT OF ORAL ANTICOAGULATION ON MEETING BEST PRACTICE TARIFF TIME-TO-SURGERY TARGET FOR FRAGILITY HIP FRACTURES

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**Background:** Hip fractures have a 12-month mortality of 33% and an estimated annual care cost of £1 billion in the UK alone<sup>(1)</sup>. NICE hip fracture guidelines<sup>(1)</sup> and the Best Practice Tariff (BPT) for fragility hip fractures<sup>(2)</sup> have been introduced to improve care and cost-effective management of these patients. The BPT encourages prompt surgery of all hip fractures within 36hrs from time of diagnosis<sup>(2)</sup> and the NICE guidelines state that surgery should not be delayed by correctible co-morbidity such as anticoagulation<sup>(1)</sup>. The use of oral anticoagulants has been shown to delay time-to-surgery for hip fractures patients<sup>(3)</sup>. Is the impact of oral anticoagulants on meeting the BPT large enough to warrant a change in how we manage these patients preoperatively?

**Objectives:** We aimed to study the time-to-surgery and financial impact of anticoagulants on the management of fragility hip fractures in our unit.

**Design and methods:** Retrospective analysis of all hip fracture cases presenting to a district general hospital between April and July 2017 to quantify:

1. The proportion of patients on oral anticoagulation therapy prior to admission
2. The average delay in time-to-surgery due to anticoagulation
3. Which group of anticoagulants causes the longest delays to surgery
4. The proportion of patients on oral anticoagulation therapy that did not meet the 36-hour BPT target
5. The resultant revenue lost from not meeting the 36-hour BPT target.

**Results:** 75 hip fracture patients were admitted during the 4-month period. 18 (24%) were on lifelong oral anticoagulants (Warfarin 44%, Apixiban 33%, Rivaroxiban 22%). The average delay in time-to-surgery solely due to anticoagulation was 42.72hrs. 4 cases missed the 36-hour BPT target; they were all in the warfarin group. This resultant loss in revenue due to warfarin was £6000 over this period.

**Conclusions:** Despite being measurable and reversible, warfarin leads to a longer average time-to-surgery when compared to direct oral anticoagulants (apixaban and rivaroxaban). This average delay surpasses the 36-hour standard of care and resulted in a projected annual revenue loss of £24,000. We would advocate that alongside nationally agreed warfarin reversal guidelines<sup>(4)</sup>, NICE hip fracture guidelines encourage the use of bedside INR testing to mitigate the patient distress, delays and costs involved in repeated venepuncture and laboratory INR testing.



**CLINICAL QUALITY**

**A FULL CYCLE AUDIT: ARE AMT AND ECG PERFORMED FOR THE CONSULTANT REVIEW ON A GERIATRIC ADMISSIONS WARD?**

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**Topics:** AMT (Abbreviated mental test) is a screening test to assess for acute confusion. Though there are limitations such as language barriers there is a 70-80% sensitivity and 71-90% specificity. There is increased validity in older populations and as delirium is common in unwell older patients, a baseline cognition is important. Delirium carries a high mortality of up to 26% and yet it is still under diagnosed and under recognised.

ECGs (electrocardiograms) can be used to detect potentially fatal arrhythmias or highlight asymptomatic abnormalities as well as be the first indicator of ischemia.

**Intervention:** For each audit, a 30 bed ward was reviewed for if there was an ECG on admission and AMT performed by the clerking junior doctor. If there was no documentation or evidence of an ECG/AMT in the notes, it was not counted. This audit was presented at the Geriatric departmental meeting to highlight the low compliance. An original poster was displayed in multiple areas of the ward along with regular morning reminders to the junior staff. Re-audit was undertaken six months later.

**Improvement:** There was significant improvement in performing AMTs prior to the senior review (Table 1). This also included better documenting where confusion state could not be accurately assessed. The number of ECGs performed in each cycle of audit remained at high level.

**Discussion:** Common reasons for not doing AMT/ ECGs were down to clerking before transfer or by other senior staff, patients being agitated or lack of documentation. Other observations not measured, included more experienced junior doctors conducting more thorough assessments and also pressures of clerking, specifically at night, leading to elements being omitted. The improvement highlighted that increasing awareness of poor compliance was effective however there is a room for better results.

Table 1: Results from the full cycle audit. November 2017 and May 2018

	AMT	ECG on admission ward
Audit	44%	83%
Re-Audit	60%	82%

## CLINICAL QUALITY

### PYJAMA PARALYSIS

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**Aim:** To measure the degree of deconditioning on the geriatric ward at Epsom General Hospital (EGH), in order to review the multi-disciplinary team (MDT) management of elderly patients, with a view to education to improve practice.

**Method:** Retrospective review of 25 patients' hospital admissions, collating information relating to deconditioning from bedside and medical notes, between November 2017 and May 2018. Information included: Residence, Package of Care (POC), Mobility and Transfers (using the Functional Independence Measure (FIM) tool), Weight and Continence. Data relating to the length of stay (LOS) and physiotherapy (PT) input and timings was also reviewed. This was divided into pre-admission (i.e. functional ability when well) and at discharge (following the inpatient stay).

**Results:** PT: 63% of patients were seen within 1 day of when they were deemed fit to mobilise. On average, patients received PT input on 22% of days during their admission.

FIM: 60% of patients' mobility and transfer ability worsened.

POC/Residence: 24% required no increase in POC or change of residence. 76% deteriorated enough to require on-going rehabilitation or increased baseline support.

Weight: 52% weren't recorded. There was no trend in changes in weight, however more patients lost weight than gained weight throughout admission.

Continence: 64% remained the same.

**Discussion:** This data reveals a trend of general deterioration throughout admission, despite timely input from PT. However, it is important to consider "social admissions"; those patients who would have required more support on discharge regardless of the MDT input. The overall trend of deterioration is likely multifactorial.

The lack of recorded weights is concerning as this is important for monitoring nutrition and for prescription of medications. For those losing weight, dieticians need to be involved early. Those gaining weight could be patients who had insufficient support and therefore poor oral intake prior to admission.

#### Considerations for future reviews:

1. Measuring confounding factors such as severity of admitting illness
2. Whether a patient has dementia

So-called "pyjama paralysis" is of increasing importance with the ageing UK population. This review identified the following interventions:

- Awareness posters throughout the ward detailing how to prevent deconditioning
- Leaflets for relatives outlining areas where they can help with rehabilitation
- Education for the MDT staff about their roles in preventing deconditioning
- Improve awareness of the importance of nutrition and weights
- Re-audit practice

## CLINICAL QUALITY

### THE FRAILTY FLYING SQUAD HOTLINE: DIRECT REFERRAL FROM PARAMEDICS TO THE ACUTE HOSPITAL FRAILTY SERVICE. REPORT OF AN INITIAL PDSA CYCLE

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**Introduction:** We identified a group of frail older adults who required paramedic assistance but might not need to attend the Emergency Department (ED). Although paramedics can access alternative options to keep patients at home, sometimes this is not possible.

**Aim and Intervention:** A team of paramedics and hospital practitioners designed criteria for referral to this service. Our aim was to reduce the number of patients attending ED by admitting directly to ACE-OPU (Assessment and Comprehensive Evaluation - Older People's Unit) via our hotline. The patient would receive a prompt CGA, allowing earlier discharge or an improved patient journey. Our main concern was to avoid bringing patients through this service who required ED expertise. We had strict exclusion criteria to minimise this risk (any risk of trauma, severely unwell or markers for sepsis). Our inclusion criteria were patients with a Rockwood Clinical Frailty Scale score of 5+ who the paramedics felt could not remain at home without hospital review.

**Results:** We performed a PDSA cycle involving a single ambulance station initially. Our pilot saw 10 patients referred over 2 months. 9 were direct paramedic referrals and 1 was from a Community Matron. Of 10 referrals, 3 were inappropriate (non-frail 64 year old, possible hip fracture, recurrent pulmonary emboli). We also initially excluded 1 patient referred after a fall. (Part of our initial PDSA involved clarifying our criteria so that low risk falls could be seen). We were able to successfully admit 3 patients directly to ACE-OPU. 2 had full CGA and were discharged home again the same day. The third had to come back the following day due to issues with pain control and was eventually discharged 10 days later. The final 3 could not be directly admitted to ACE-OPU as the ward was shut but were all seen by the Frailty Flying Squad, receiving CGA in the ED. Future work will look at ACE-OPU alternatives during ward closures.

**Discussion:** Following our pilot, we are going to extend this service to our whole catchment area. Our goal is to reduce ambulance conveyance to ED, time in ED, length of stay and access to CGA for frail older adults. We hope to extend further to accept referrals from other community teams such as re-ablement services in the future.

**CLINICAL QUALITY**

**THE EXTENSION OF THE EXISTING OLDER PERSONS ASSESSMENT AND LIAISON (OPAL) SERVICE IN AN EMERGENCY DEPARTMENT**

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**Topic:** We had an established older persons assessment and liaison (OPAL) practitioner service based in our Emergency Department (ED) with demonstrable improvements in patient outcomes with weekday, 8am-6pm, coverage. There was recognition the service could not see all frail older people within these working hours.

**Intervention:** We increased the practitioner numbers from 2 to 4 to provide a 7 day, 8am-6pm, service. We reviewed the outcomes from October to May, pre and post implementation.

**Improvement:** The number of frail elderly patients attending ED that have input from the OPAL team has increased from an average of 84 per month to 180. Amongst the measured improvements the number of completed Comprehensive Geriatric Assessments (CGA) has increased from an average of 38 per month to 98; the number of discharges to usual place of residence, following CGA, has increased from an average of 27 per month to 58.

**Discussion:** Doubling the numbers of practitioners has produced more than a doubling of process measures and outcomes suggesting that the ceiling of benefit of investment in practitioners has not yet been reached.

The effort of recruiting and inducting staff has been worthwhile with measurable and costed benefits. We would recommend a stepwise implementation of this service to others considering this role. We feel that this service could be replicated in any hospital emergency department. We plan on expanding our service further.

## CLINICAL QUALITY

### COMBINING FORCES TO IMPROVE THE CARE OF OLDER PEOPLE PRESENTING TO HOSPITAL

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**Topic:** Providing comprehensive geriatrics assessment (CGA) for older people with frailty presenting to hospital is considered gold standard care. The best way to provide such a service with constrained resources is hotly debated, and varies widely.

**Intervention:** At Manchester Royal Infirmary, we formed a new collaboration to improve our clinical effectiveness. A recently formed Acute Frailty Team (AFT) joined forces with the existing Discharge to Assess (DTA) team to see patients in the Emergency Department and Ambulatory Care Unit. The AFT comprises an advanced nurse practitioner (2 days a week) with 4-day GP/Geriatician cover. The DTA team provides a 7-day multi-disciplinary therapy-based service. The aim was to provide timely CGA to older people presenting with frailty syndromes, and facilitate rapid, supported discharge back into the community where possible.

**Improvement:** To evaluate clinical effectiveness, we reviewed all patients seen during a typical month (April 2018). 119 patients were reviewed, median age 77 (range 19-95). Clinical frailty scores ranged from 2-7. 66.7% suffered falls, 23.6% had recorded cognitive impairment and 15.5% incontinence.

Almost half (47.8%) of patients were seen on the day of arrival, and 81.2% within 48 hours. Following review, 53% of patient were discharged directly back to their usual residency or community rehabilitation services within 48 hours of arrival to hospital. 30-day readmission rate was 16%.

**Discussion:** This new service is providing rapid, multidisciplinary input for older patients admitted to hospital. Combining forces removed barriers to safe, supported discharge. Despite these successes, challenges remain. 24.4% of patients referred to the service were either <65 years or had no identifiable frailty syndromes. Moving forward we aim to avoid duplication by developing a combined assessment proforma, and refine our service through a formalised acute frailty pathway. Our overall vision is to create a dedicated, geographically distinct Acute Frailty Unit to streamline care.

## CLINICAL QUALITY

### POP-UP DELIRIUM SIMULATION TRAINING

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**Topic:** There was a failure to adequately recognise, record and respond to a diagnosis of delirium within the Emergency Department (ED) and Acute Medical Unit (AMU). Every additional 48 hours of undetected delirium increases mortality by 11%. We sought to improve clinical skills and staff confidence so that delirium could either be avoided or recognised and better managed.

**Intervention:** Simulation is a cost-effective educational tool advocated in healthcare however delirium cannot be simulated by mannequins. Using NHS improvement methodology, we have developed and implemented Pop-Up Delirium Simulation in ED and AMU using real-life models based on patient experience and observation. Our Older Persons (OPAL) Practitioners use their knowledge and experience to develop scenarios, act out the patient role and facilitate the simulation.

**Improvement:** To date, 96 members of staff have participated in Pop-Up Delirium Simulation training. Outcomes include an average increase of:

- 27% in confidence recognising delirium
- 33% in knowledge level
- 23% in confidence caring for a patient with delirium

Delirium screening in AMU with the 4AT has increased from 50% to 82%.

96% of staff rated the teaching methodology and relevance to their work as excellent.

“Fab acting! Realistic, better than a SIM man. Holistic care as opposed to focusing just on A & E – thought about collateral and priorities in elderly care. Relevant to ED”

**Discussion:** Our Pop-Up Delirium Simulation model was easy to implement, has been well-received and incredibly successful. It is replicable, flexible and adaptable, quick to set up and run. We have developed further Pop-Up Simulations for dementia in trauma and end of life. Plans are now in place to support other teams to roll out this innovative model into orthopaedic and surgical wards and then the wider community including community hospitals and care homes. Trained simulation facilitators and organisational buy-in are key.

## CLINICAL QUALITY

### IMPROVING COLLABORATION IN THE CARE OF THE FRAIL OLDER PERSON ACROSS THE PRIMARY-SECONDARY INTERFACE

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**Background:** In East Lancashire NHS Trust, the role of Frailty Specialty Doctor in the Emergency Department (ED) was created in October 2016. This was to enable a comprehensive “front door” multidisciplinary team (MDT) assessment and to facilitate community management of the frail older person who presented in the ED.

To ensure that the GPs responsible for these frail older people were aware of the findings of the comprehensive MDT assessments, the recommendations and interventions that resulted from the assessments and were able to appropriately continue their care in the community, a “Frailty Letter to the GP” was designed.

The goal was to achieve the most useful and usable letter and, in the process, improve on the simple Rx codes typically sent to GPs from the ED. This required two PDSA (Plan-Do-Study-Act) cycles. In each cycle, a letter was sent out with questionnaires for feedback and the responses were reviewed and actioned.

#### Results:

- Response rate – 35% (cycle 1) and 48% (cycle 2).
- Usefulness of the letter compared with usual information – 95% (cycle 1), 92% (cycle 2).
- Understanding of the Rockwood Clinical Frailty Scale (CFS) and what to do with it – 13% (cycle 1), 29% (cycle 2).
- Themes from the “comments” section (similar in both cycles)
  - No/limited knowledge of Rockwood CFS
  - Timeliness of the letters
  - Satisfaction with the letter (and with the changes made in cycle 2).

#### Key Learning Points:

- GPs were more willing to engage and provide feedback than had been anticipated (a response rate of <20% had been anticipated as there was no “incentive” to engage)
- Changes to the letter’s format did not improve its usefulness but rather it’s acceptability to GPs. However, the inclusion of a Rockwood CFS fact sheet attached to each letter improved their understanding of the Rockwood CFS (see results).
- Paucity of knowledge of the Rockwood CFS in Primary Care was exposed, building a case for the Clinical Commissioning Group (CCG) to support training on frailty for the GPs.
- Collaboration with key figures in the CCG and the Trust Executive in the design and implementation phases was crucial to its success.

## CLINICAL QUALITY

### A SERVICE EVALUATION OF THE PERFORMANCE OF THE 4-AT AS A COGNITIVE SCREENING TOOL IN AN ENGLISH UNIVERSITY HOSPITAL

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**Introduction:** Delirium is a common and serious disorder that is under-recognised in hospitalised patients. The 4-AT is a validated tool for detecting delirium. Since 2017, our hospital has routinely used the 4-AT under the national dementia CQUIN to screen non-elective admissions aged  $\geq 75$  without a known history of dementia. Our aim was to evaluate the feasibility of the 4-AT in our setting and study its association with patient characteristics and outcomes.

**Methods:** We conducted a retrospective service evaluation in an English university hospital. We included all last admissions of non-elective patients aged  $\geq 75$  between 1st January 2017 and 2nd December 2017. Routinely measured patient characteristics included the 4-AT, demographics (age and sex), clinical frailty scale (CFS), acute illness severity (National Early Warning Score in the Emergency Department), Charlson Comorbidity Index (CCI), and discharge specialty (geriatric medicine, general medicine, surgery). Outcomes studied were: having an inpatient Older People's Mental Health (OPMH) team assessment, inpatient mortality, death within 30 days of discharge, new institutionalisation, length of stay (LOS)  $> 7$  days, delayed discharge, and readmission within 30 days. Statistical analyses were based on bivariate comparisons and logistic regression models.

**Results:** Of 12,800 hospital episodes over the period, 8,307 were last admissions. 1,305 did not have a 4-AT as they had known dementia. Of the remaining, 3,633 had a 4-AT completed (52% of the eligible sample). Non-compliance seemed to be associated with higher frailty and acuity, and with shorter LOS. 84.0% had a 4-AT score of 0 (normal), 11.3% had a score of 1-3 (intermediate) and the remaining 4.7% a score of  $\geq 4$  (abnormal). There was an increasing proportion of inpatient OPMH assessment across 4AT groups (14.5%, 24.1% and 42.4%, respectively). After controlling for age, sex, CFS, CCI, acute illness severity and discharge specialty, the 4AT was an independent predictor of: inpatient mortality (OR 1.11, 95% CI 1.03-1.20,  $p=0.005$ ), 30-day post-discharge mortality (OR 1.15, 95% CI 1.04-1.28,  $p=0.009$ ), delayed discharge (OR 1.09, 95% CI 1.01-1.16,  $p=0.018$ ) and discharge to usual place of residence (OR 0.91, 95% CI 0.85-0.98,  $p=0.013$ ).

**Conclusions:** Our evaluation suggests that the 4-AT is a robust tool to detect delirium in the acute hospital and has significant independent associations with hospital outcomes. Quality improvement work is needed to increase compliance rates.



**CLINICAL QUALITY**

**AN INNOVATIVE MULTIDISCIPLINARY MEDICINES REVIEW CLINIC FOR FRAIL OLDER PATIENTS WITH PROBLEMATIC POLYPHARMACY**

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**Background:** Comprehensive medication reviews for frail older people can resolve adverse drug reactions, improve quality of life, improve medication adherence and be cost saving (1). It is more effective when delivered as part of a multidisciplinary intervention (2) and although primarily performed in primary care, research suggests an outpatient setting may be appropriate (3).

**Innovation:** Frail patients presenting acutely to the trust with problematic polypharmacy were identified and referred to clinic for a face-to-face appointment with a hospital pharmacist and geriatrician. Following a comprehensive medication review and clinical assessment a patient-centred medication management plan was developed. Complex or multiple drug changes were followed up by the community pharmacist who liaised directly with the GP.

**Evaluation:** There were 22 new patient referrals (median Clinical Frailty Score of 7) of which 27% (n=6) were followed-up by the community pharmacist. The average medications per patient reduced from 13 (range 6-22) to 11 (range 4-18). Over a 12-month period:

Direct drug cost saving	-£5083.75
Cost of new drugs started	+£657.51
Net Savings	-£4426.24
Cost saving per patient	-£201.19

Analysis of medical interventions identified 4 themes: review of symptoms/problem, a new diagnosis, initiation of referral/discussion with specialist, and advanced care planning discussions. Survey data indicated high patient satisfaction with 100% rating the clinic as excellent (80%) or very good (20%). Qualitative feedback suggested the multi-professional clinic was highly valued:

*“The best I’ve ever had”*

**Conclusions:** Through multidisciplinary working and interdisciplinary learning more inappropriate medications were recognised and more clinical interventions were made. The community pharmacist ensured complex drug changes were followed through and provided support which significantly reduced the need for follow-up appointments.

**References:** Reeve E et al, EJIM, 2016, 38, 3-11  
Kaur S et al, Drugs and Aging, 2009, 26, 1013-1028  
Mudge A et al, Aust Health Rev, 2015, 40(1) 86-91

## CLINICAL QUALITY

### IS A SCAN PART OF THE PLAN? A STUDY EVALUATING THE USE OF MYOCARDIAL PERFUSION SCANS (MPS) AS A PREOPERATIVE ASSESSMENT TOOL TO ASSESS CARDIOVASCULAR RISK IN PATIENTS WHO UNDERGO ENDOVASCULAR ANEURYSM REPAIR (EVAR)

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**Aims:** The vascular geriatric service runs as part of a multi-disciplinary team optimising the care of peri-operative vascular patients. This study aims to ascertain whether the current use of MPS in elective EVAR patients pre-operatively is appropriate.

**Method:** The last 55 elective EVAR patients operated on prior to September 2017 were included in this study. Data was collected from patient records retrospectively to include cardiovascular risk profile, functional capacity, major adverse coronary events, MPS reports and outcome.

**Results:** Of the 55 patients who had EVAR, 38 had MPS pre operatively. Of these only 18% (7/38) were abnormal of which one had a post-operative MACE. Three patients received cardiology input of which only one required coronary intervention and a delay in surgery.

23/55 had documentation on functional capacity, 8/30 as impaired. Formal assessment of metabolic equivalents score (METS) was poorly recorded.

**Conclusion:** A high proportion of EVAR patients are routinely having MPS pre operatively without obvious benefit. There is inconsistent documentation of functional capacity assessment prior to surgery that should determine further investigation. The American College of Cardiology / American Heart Association Peri-operative Guidelines (Fleisher LA et al Circulation 2014;130) suggests that patients with METS >4 may not require further pre op cardiovascular investigations.

We are now designing a decision pathway to aid surgeons in risk stratifying patients preoperatively to reduce unnecessary investigations. We hope this will streamline the patient journey, with less hospital visits and also having cost saving benefits.

## CLINICAL QUALITY

### DOES A COMPREHENSIVE GERIATRIC ASSESSMENT (CGA) WARD-ROUND PROFORMA WORK IN A BUSY DISTRICT GENERAL HOSPITAL (DGH)?

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**Introduction:** It is well established doing a CGA improves care for geriatric patients<sup>1</sup>. They are less likely to suffer deterioration and are more likely to be alive in their own home<sup>1</sup>. The aim is to look at CGA implementation on Geriatric wards.

**Method:** We did a snapshot audit to analyse the completion of CGA across two Geriatric wards. We also reviewed whether patients were identified frail using the Clinical Frailty Score (CFS). Our intervention was a new ward-round proforma encompassing the components of CGA. This was trialled for one week and then re-audited to assess the completion of CGA. We obtained qualitative feedback using a questionnaire. The proforma was changed based on the results and then re-audited.

**Results:** Thirty patient notes were analysed. 40% of the patients did not have a completed CGA assessment. 60% did not have a clinical frailty score. A three page ward-round proforma was created. Post intervention, 50% of patients did not have a completed CGA assessment or a clinical frailty score. Doctors felt the introduction of a proforma was useful, but too complex. We created another ward-round proforma (two pages). The re-audit showed 40% had a clinical frailty score and had either a full or partial CGA complete. Staff felt the proforma was time consuming and interfered with the flow of the ward round. A one page document identifying the CGA components would be more useful, potentially a frailty 'sticker'.

**Conclusion:** Though it is established CGA is important in geriatrics, it is not always easy to get it completed on a busy DGH. Finding a balance in completing ward rounds and completing CGA is tricky, and is important to tailor the CGA to aid the ward round. The best approach is to have interventions that reminded doctors of the CGA and the importance of documentation

1. Ellis, G., Whitehead, M.A., Robinson, D., BMJ (2011) 343(7832), pp. 1034.

## CLINICAL QUALITY

### A TRIAL OF A FRAILTY IN-REACH TEAM INTO A GENERAL MEDICAL ADMISSIONS UNIT AT LINCOLN COUNTY HOSPITAL

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**Background:** The Frailty Assessment Unit (FAU) at Lincoln County Hospital is a 19 bedded ward aimed at providing a 'front door' service for frail older patients who have a short length of stay (<72hrs). Previous pilots have demonstrated that only 50% of suitable patients are admitted to FAU.

**The Problem:** Consecutive data collected over a 2 week period demonstrated a lower LOS of frail patients on the Medical Emergency Assessment Unit (MEAU) (n=40) than FAU (n=55) (4 vs 8 days). However, there was a much higher 30 day re-admission rate (MEAU 26% vs FAU 9.6%). This project aimed to look at the impact of running an in-reach service into MEAU on LOS and 30 day re-admission rates.

**Intervention:** Over a 2 week period, one Geriatric SpR, one Frailty Specialist Nurse and one Frailty Nurse Consultant attended MEAU every morning between 9am and 1pm. All patients fulfilling the FAU admission criteria were assessed by Comprehensive Geriatric Assessment. LOS and 30 day re-admission rates were collected for both the frail MEAU patients and those admitted to FAU.

**Results:** With the intervention, median LOS for the frail MEAU patients (n=71) went from 4 days to 5 and 30 day re-admission rates went from 26% to 28.3%. Median LOS for FAU (n=66) went from 8 to 7 days and 30 day re-admission rates went from 9.6% to 13.3%.

**Discussion:** The data demonstrates that there was no improvement in LOS or 30 day re-admission rates with the intervention. The reason for the lack of improvement may be due to the limited staffing and hours of the In-reach Team. However, it did demonstrate that there was no impact for patients on FAU after the redistribution of staff. An additional 71 patients received a CGA which may have improved other outcomes.

**Conclusion:** A Frailty In-reach Team consisting of 3 team members from only 2 disciplines who worked limited hours did not improve LOS or 30 day re-admission rates for frail patients on MEAU. Future work should look at running a more comprehensive service and reasons for readmission.

## CLINICAL QUALITY

### EVALUATING THE FIRST OLDER PEOPLE'S EMERGENCY DEPARTMENT

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**Background:** Older people frequently enter acute hospitals via the emergency department. This patient group are often frail, multi-morbid, and require a multidisciplinary approach to their care. In addition, it is estimated that numbers of people aged 85 and over will more than double in the next 20 years. These factors test the traditional paradigms of acute care services which must adapt to provide the best possible care for our older population.

The Older People's Emergency Department (OPED) at the Norfolk and Norwich University Hospital (NNUH) is the first service of its kind in the UK. OPED provides patients aged 80 and over with Comprehensive Geriatric Assessment (CGA) within two hours of arrival. CGA is recognised as the gold standard for management of frailty in older people. It guides multidisciplinary assessment enabling appropriate interventions for individuals and provides improved outcomes for older people.

We aimed to explore the effect of rapid, routine use of CGA in a specialised OPED on patient and operational outcomes.

**Sampling Methods:** Case notes and the hospital electronic record system (Symphony) for patients (n=72) who were admitted to OPED between April and May 2018 were reviewed. Three patients were excluded from further analysis due to missing information.

**Evaluation:** Patients included (n=69) were predominantly female (64%) with mean age 88.2 years (range 80-101).

The mean time from admission to first contact with a geriatrician was 1.8 hours (range 0.37-4.3). Mean time to CGA was 1.4 hours (range 0.2-5.2). CGA successfully elicited co-morbidities, mobility and pain in 100%, 91% and 74% of cases respectively.

All patients who had presented with chest pain (n=13) were reviewed by a consultant geriatrician prior to discharge.

Patients spent a mean time of 3.8 hours in OPED (range 0.8-10). Fifteen patients were admitted to an older people's medical ward with mean length of stay of 3.66 days (range 1-10). A proportion (24.6%) was readmitted within 30 days of discharge and all patients were discharged back to their original place of residence.

**Conclusion:** This is the first data evaluating the routine use of CGA in a novel OPED. The service enabled rapid triage and assessment. Patients received CGA within 2 hours of admission and management plan implemented within 4 hours. Further work will examine relatively high rates of readmission and long-term discharge outcomes.

**CLINICAL QUALITY**

**TRUSTED ASSESSOR CHAMPION TRAINING**

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*1 NEMS Health Partners, 2 Optimum*

**Background:** The Trusted Assessor Champion’s project was originally designed to work in partnership with organisations including Nottinghamshire County Council, Urgent Care Partnership, NEMS, Hospital Trusts and representatives from their discharge teams and the Nottinghamshire Care Association. The main partners in the funded project have been the care providers that we have worked with to develop and deliver the Trusted Assessor Champions competences. The target group was 2 x nursing homes, 2 x residential homes and 1 x homecare provider, in both Mid-Notts and South-Notts, making 10 providers in total.

**Innovation:** Care providers were consulted on the project and asked to identify concerns and problems they had with hospital admissions and discharges, this allowed for themes and trends to be identified and areas where staff could benefit from further learning. Training packages were developed in collaboration with participants on Sepsis, clinical observations, end of life, delirium, and communication. Dates were then arranged with each of the care providers to attend their care setting and deliver the training in house, using a train the trainer approach. Those attending the training would be the ‘Trusted Assessor Champions’ and responsible for promoting the good practice learned and disseminating their learning to other staff.

**Evaluation:** 38 people from 11 providers attending training sessions. Each attendee was asked to rate their confidence levels in each topic area pre and post training:

Topic	Confidence level 1-2 (before training)	Confidence level 3-4 (after training)
Clinical observations	71%	100%
Sepsis	74%	100%
Delirium	88%	100%
End of Life	41%	100%
Communication	44%	100%

100% rated content level and relevance 3-4 .

Comments included “Seniors are more confident with the professionals. We have prevented a few reductions in admissions to hospital by getting the right treatment at the Care Home with the GP’s.”

**Conclusions:** Working in collaboration with social care providers is key to a successful relationship and achieving positive outcomes for the client group and the workforce. Training care home staff in their place of work, enables staff to be released to attend. Adopting a train the trainer approach encourages care homes to continue to deliver training providing them with support and resources to do so.

## CLINICAL QUALITY

### UTILISING PEER ASSESSMENTS FOR STAFF RECOGNITION AND MULTISOURCE FEEDBACK IN A MULTIDISCIPLINARY GERIATRICS TEAM

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*Nigeria*

**Introduction and Intervention:** We implemented a peer assessment project aimed at identifying outstanding staff in the Geriatrics Unit of University of Benin Teaching Hospital (UBTH), Nigeria. The assessment tool comprised 6 performance indicators drawn from the team's standard operating procedures (SOPs): passion for holistic, patient-centred care of the elderly, communication skills, adherence to SOPs, organizational skills, flexibility and creativity in service delivery. The project was undertaken as an anonymized survey. Team members who had worked in the Unit for 12 months or more were eligible to be assessed, except for house officers who spent 12 weeks. Twenty one house officers, 17 nurses and 13 support staff were eligible. Data were analysed with Microsoft Excel software.

**Results:** Awarded scores were summed up and averages obtained per team member in three categories - house officers, nurses and support staff. Mean scores (SD) were 22.5 (1.5), 22.1 (2.2) and 20.5 (1.8) for nurses, house officers and support staff, respectively. One way ANOVA showed that these scores were significantly different at significance level of  $p < 0.05$  ( $p = 0.02$ ;  $f$  ratio 4.32). Feedback was provided to the group on the occasion of the celebration of the 3rd anniversary of the Geriatrics Unit. The team member with the highest score in each category was honoured as the "Team Ambassador" for that category.

**Conclusion:** We conclude that internal peer assessments are a useful tool for evaluation of staff performance in multiple domains, and suggest that the potential benefits be harnessed for large-scale and widespread use in healthcare settings in Nigeria.

## CLINICAL QUALITY

### IMPLEMENTATION OF THE COMPREHENSIVE GERIATRIC ASSESSMENT (CGA) PROCESS IN AN ACUTE HOSPITAL IMPROVES THE QUALITY OF DISCHARGE

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**Topic:** Older people frequently move between services and organisations and are therefore susceptible to the effects of multiple assessments and delays typical of poorly integrated services. CGA has been shown to reduce morbidity. However, mechanisms to ensure personalised care plans remain responsive to the patient's needs after discharge are not always robust with lack of clarity of MDT roles and responsibilities.

**Intervention:** To start the CGA process during admission and to follow patients home post discharge to identify opportunities for targeted service improvement.

Older patients admitted to the Acute Medical Unit were assessed using an Older Person's Proforma. Two Advanced Clinical Practitioners (ACP) identified patients with frailty using the Clinical Frailty Scale (CFS) and discussions with the multidisciplinary team. 53 patients were followed through hospital and home.

**Improvement:** The proforma encouraged multi-disciplinary assessment of patient's needs and identified patients with high levels of complexity. 50/53 older patients with frailty (CFS>6) experienced a problem within 48 hours after return home even though discharge had been planned. These were:

**Medication problems:** lack of clarity on medication use; complex discharge summary; drugs rationalised in hospital but restarted from existing tablets at home; non-concordance.

**Functional problems:** significant unexpected decrease in mobility and cognition on discharge "the post discharge dip".

**Anxiety:** distress experienced by patient and family. Verbal information given whilst an inpatient not remembered, written information not read.

**Unresolved medical issues:** i.e. unsure if breathing will improve

**Exhaustion:** lack of sleep whilst inpatient; trauma of transfer home.

**Care issues:** lack of clarity as to what care to expect

**Discussion:** Complex patients with frailty are at high risk of functional decline after discharge that is grossly under recognised. When implemented, CGA can help to predict which patients may experience problems which can then be addressed by integrated case management that ensures the needs of the patient are met over time.



**CLINICAL QUALITY**

**IMPLEMENTING THE COMPREHENSIVE GERIATRIC ASSESSMENT (CGA) AT UNIVERSITY HOSPITAL SOUTHAMPTON**

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**Topic:** Recent research indicates that older people admitted to hospital who receive a CGA may be more likely to be alive and in their own homes and are less likely to be in a nursing home in the next 3-12 months.

**Intervention:** Implementation of the CGA process at University Hospital Southampton.

We have developed an Admission Proforma for Older People that is used for clerking in all patients over the age of 80 who are admitted to the AMU. This proforma contains all elements of the CGA in one booklet that follows the patient through their admission.

Multiple PDSA cycles were used to enable all members of the MDT team to participate in the development and ensure joint ownership. As part of this process multiple formal and informal teaching around frailty and CGA has been provided and 4 formal audits of its use have been undertaken.

**Improvement**

DATE OF SURVEY	7/8/2017	26/9/2017	18/12/2017	4/05/2018
No. notes with proforma	43/50 86%	39/52 75%	37/50 74%	37/39 95% Wards closed
	%	%	%	%
Admitted by/date	42	100	70	89
NOK	16	62	61	62
Charlston co-morbidity	40	0	44	32
PC+HPC	79	100	98	100
Observations	-	-	81	-
Medications	98	95	100	100
Examination	98	95	93	95
Neurological	65	74	-	81
Ax+diff diagnosis	91	95	100	100
AMTS	-	-	42	22
Plan	91	90	100	100
Senior r/v	28	0.1	2	5
Clinical Frailty Score	42	26	19	0

MDT notes	0	0	8	0.5
Bloods	91	92	95	95
PTWR problem/diagnosis	100	100	100	100
Plan	100	100	100	100
EDD	74	77	61	89
EDD not met	-	25/30	-	35/37
		83%		95%

The proforma is now used for 95% of older people who have been admitted to the older peoples' wards from the AMU. However, completion of some sections such as cognition and MDT planning remains variable.

**Discussion:** Use of the Admission Proforma for Older People at the time of clerking has enabled the CGA to be implemented in an acute setting in a format that is acceptable to the medical team and the wider MDT.

**The Future:** Further education to ensure that all domains of the CGA are given equal consideration. Extend the use of the CGA process to patients with frailty in areas outside of the older peoples' wards. Utilise the CGA to enhance the multi-professional diagnostic and therapeutic processes that are necessary to provide quality care for older people.

## CLINICAL QUALITY

### THE WEYMOUTH AND PORTLAND INTEGRATED CARE HUB

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**Background:** The Weymouth and Portland Hub builds on the model of integrated community care developed in Bridport and presented at the BGS Spring Conference 2016(1).

The Integrated hubs deliver multi-disciplinary care to frail patients at home, through the coordination of existing community & social services. Implementation has been without additional funding.

Weymouth and Portland locality has 70,000 people; 23% are over 65 (National average 17%). The Hub opened in November 2015.

**Innovation:** The Weymouth Hub builds on the existing Bridport model of geriatrician-led, multi-disciplinary case management in collaboration with primary care in the following ways:

- Use of the Hub at Westhaven Community Hospital (CH) as a single point of access for all community services.
- Daily multi-disciplinary case-management of patients on the Hub caseload.
- Development of a full-time GP Extensivist role, providing medical input to the Hub and CH ward
- Use of Nurse Practitioners to support urgent assessment and follow-up of medical patients.
- Ambulance service coordination: an Emergency Care Practitioner is based in the Hub.
- Collaboration with the local DGH's 'Acute Hospital at Home' service, providing domiciliary intravenous therapies.
- Participation in all local GP practices' monthly MDTs for >75s. Using the eFI via SystemOne, these meetings identify patients with emerging frailty, and implement appropriate advanced care planning. This is shared via SystemOne on the Dorset Care Plan.

**Evaluation:** The Hub now receives about 400 referrals a month. Since launch, there have been 6689 referrals.

Most Hub referrals are managed at home: 5120 out of 6689 (77%).

For Hub patients requiring hospital admission, CHs are used as an alternative to acute admission. In 2016/17, there were 151 direct CH admissions (vs 158 acute admissions). In 2017/18, there were 237 CH admissions (vs 197 acute admissions).

In 2017-2018, unplanned admissions for >75s in Weymouth and Portland fell by 3.6%. In the rest of Dorset, over the same period, unplanned admissions for >75s rose 1.8%.

Between March 2017 and March 2018, unplanned bed days for over 65s fell by 7.9% (vs 4.2% for the whole of Dorset).

**Conclusions:** This revised Integrated Hub model supports more frail patients to remain at home. For local elderly patients, it has helped reduced unplanned admissions and length of stay.

**References:** Dharamshi, R (2017). *Age and Ageing* (2017) 46 (supple\_1): i1-i22

**CLINICAL QUALITY**

**IMPLEMENTATION OF ROUTINE GRIP STRENGTH MEASUREMENT AS PART OF COMPREHENSIVE GERIATRIC ASSESSMENT IN A DAY HOSPITAL SETTING**

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**Topic:** Weak grip strength is a key component of sarcopenia and frailty and has been used widely in ageing research. There is growing interest in the use of grip strength in routine clinical care, for example to identify those who stand to benefit most from diet and exercise interventions. Our aims were to assess the feasibility of implementing grip strength in a day hospital and to assess the prevalence of weak grip strength in this setting.

**Intervention:** We added grip strength to the measures already collected by the nursing team at the start of new patients’ Comprehensive Geriatric Assessment in day hospital, such as height and weight. An experienced clinical researcher (KD) carried out training sessions on grip strength measurement. Grip strength was measured once in each hand using a Jamar dynamometer. For this analysis we reviewed the first 175 consecutive patients to be seen once grip strength was added.

**Improvement:** Grip strength measurement was attempted in all but one patient, with six (3%) of patients unable to complete in one or both hands for example due to recent wrist fracture. The day hospital team reported that grip strength was easy to carry out. Most patients had weak grip strength using previously established cut-points from British cohorts (Dodds et al. PLoS ONE 2014):

Table. Grip strength values, by gender		
	Women (n=104)	Men (n=64)
Age [years] - mean (SD)	81.2 (7.8)	82.5 (8.7)
Maximum grip strength [kg] - mean (SD)	12.5 (5.4)	22.9 (6.5)
Less than 16kg in women / 27kg in men n (%)	82 (79%)	48 (75%)

**Discussion:** Routine grip strength measurement can be implemented in a day hospital setting and weak grip was present in most patients. Further work in our recently-established Academic Day Unit is required to test how the use of grip strength could add value to existing decision-making pathways, for example in selecting individuals for exercise or nutrition interventions.

## CLINICAL QUALITY

### STAYING STEADY: IMPACT OF 3 - MONTH GROUP EXERCISE PROGRAMS - A SURVEY

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**Background:** The physical, social and financial burden of falls is widely researched and known to be a growing problem with the ageing population. Croydon Falls Service runs 12-week OTAGO based group exercise programs, aimed at reducing this burden in an aging population.

**Sampling Methods:** 62 patients were either referred from falls clinic or referred by physiotherapist or occupational therapist following one to one input at patient's home. All patients were required to have a Berg score of  $\geq 35$ , cognitively able to follow verbal instructions in a group setting and ability to walk at least 50m.

**Results:** 50 patients completed  $\geq 8$  sessions who were included in the analysis.

Post group outcomes were recorded in week 12 or the week after. 78% of the patients improved their balance as per Berg score, 80% improved sit to stand transfers in 30 seconds, 82% improved walking speed as per Timed up and go test and 76% improved confidence as per functional efficacy scale – international (FES-i). Interestingly, only 46% of the patients self-reported an improvement in confidence as opposed to 78% measures using FES-i.

**Conclusions:** As expected the 12 week group based exercise program helped to improve balance, strength, walking speed and confidence. As results show that there is a difference between actual and perceived improvements made in balance this could indicate the need for exploration and potentially closer working with clinical psychologists to build confidence further, which is an area we are planning to expand in the near future. The results were used in a proposal to the local Clinical Commissioning Group to expand the Integrated Falls Team including number of exercise classes delivered.

## CLINICAL QUALITY

### REDUCING THE INCIDENCE OF URINARY TRACT INFECTIONS IN FRACTURED NECK OF FEMUR PATIENTS

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#### Introduction:

- Our hip fracture patients protocol is for catheterisation in the acute stages both for comfort, hygiene and fluid balance
- We had previously audited post-operative infections in our hip fracture patients which revealed an incidence of treated urinary tract infections of ~28 % with an average time to catheter removal of 6.2 days

The prolonged period of catheterisation seemed to occur as the standard was to remove the catheter after bowels had been opened post-operatively.

#### Intervention:

- We decided to routinely remove the catheter on day 3 :this day was chosen as patients tend to be more comfortable and mobilising by this stage ,day 3 bloods can be reviewed to ensure there is no medical need for a catheter to stay in such as acute kidney injury
- The aim was to review the incidence of urinary tract infections needing treatment and the incidence of urinary retention needing re-catheterisation during the patient's stay in hospital
- There were 34 patients included in this audit

#### Improvement:

- The results of this audit showed a reduction in treated urinary tract infections from 28 to 12%
- The need for re-catheterisation rose from 10 to 15 %

#### Discussion:

- it was a very small sample size but the overall impression is of a reduction of infections
- catheter care plans have become more straightforward as catheters are routinely removed on day3 unless there is clear indication for it to remain in place
- This will be re-audited to ensure the new protocol is followed and the review will check the incidence of infections
- There is an increase in re-catheterisations but in view of the numbers, this is difficult to interpret.

## CLINICAL QUALITY

### IMPROVING ACCESS TO COMPREHENSIVE GERIATRIC ASSESSMENT AT THE FRONT DOOR THROUGH A NEW AMBULATORY FRAILTY PATHWAY- AN INTERDISCIPLINARY QUALITY IMPROVEMENT PROJECT

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*Whittington Health NHS Trust*

**Introduction:** At Whittington Health we have embarked on an interdisciplinary quality improvement (QI) project to better integrate care of older people moving through the Emergency Department (ED) and increase their access to comprehensive geriatric assessment (CGA).

**Method:** Over the last 8 weeks, through the use of cross-departmental and interdisciplinary QI meetings and using a 'PDSA' approach we have embedded the use of Rockwood Clinical Frailty Scale into our electronic triage for patients who are aged 75 and over and created a new ambulatory frailty pathway for patients scoring 5 or more. These patients are moved from ED to our nationally renowned ambulatory care department for more timely CGA. A safer discharge is facilitated with the help of our virtual ward and CGA is completed in the community by our community geriatrics service. The patients' goals remain central throughout the assessment process. All members of the multidisciplinary team have contributed equally to pathway design, data collection and weekly PDSA meetings.

**Results:** By week 8 of the project, from a starting point of zero, 44% of patients over the age of 75 presenting to ED by ambulance now receive a Rockwood Score. This continues to improve weekly. So far 70 patients have been treated via the pathway. Admission rate for this cohort has dropped from 50% to 16% with no increase in re-attendance or 30 day readmission. Patient and staff experience data is currently being collected but feedback to date is overwhelmingly positive.

**Conclusion:** The rapidity and success of this pathway redesign is a testament to the value of interdisciplinary working not only with our patients but in quality improvement cycles. Each team member brings a unique perspective on how the change will affect every day working and how best to overcome organisational hurdles. Using this approach we have avoided silo-working and made a large impact very quickly. We are all energised by the improvement we have been able to make in access to CGA, away from the busy ED environment and the benefit this has brought to patients in allowing them to spend more days at home.



## CLINICAL QUALITY

### IMPROVING THE CARE OF PATIENTS WHO REQUIRE RAPID TRANQUILISATION: A CLINICAL AUDIT

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**Evidence-base:** Rapid Tranquilisation (RT) refers to the use of an injectable chemical restraint used to manage challenging behaviour safely and effectively. It is a high risk procedure to which older patients may be particularly susceptible. Previous audits have demonstrated poor adherence to RT local guidelines and inadequate documentation of RT incidents.

**Change Strategies:** As a result of an audit in March-May 2016 (cycle 1), education including simulation training was provided and RT protocol summary cards given to all junior doctors. A re-audit of RT was performed from October-November 2017 (Cycle 2). Data collection methods were improved between the two audit cycles. In cycle 1 RT incidents were identified by ward requests to pharmacy for RT medication. In cycle 2 RT incidents were identified by 1) ward requests to pharmacy for RT medication, 2) audit team identifying RT cases, 3) pharmacist identifying RT prescriptions on drug charts, and 4) DATIX reports of RT.

**Change effects:** In cycle 1, 95 RT incidents were identified over 3 months. In cycle 2, 30 RT incidents were identified over 1 month. The median age of patients involved was 82 years. Lorazepam (recommended as first line by local guidelines) was prescribed in 66% of RTs in cycle 1 and 93% of RTs in cycle 2. Documentation of de-escalation techniques (5% cycle 1, 12% cycle 2), capacity (12% cycle 1, 17% cycle 2), family involvement (5% cycle 1, 17% cycle 2) and DATIXs of RT (0% cycle 1, 37% cycle 2) improved.

**Conclusion:** RT incidents frequently involve older patients. The introduction of summary cards and education for junior doctors has resulted in improvements, notably in the increased use of the recommended first line RT medication and the number of DATIXs completed after RT incidents.

## CLINICAL QUALITY

### BEST PRACTICE TARIFF FOR FRAGILITY HIP FRACTURES - A COMPLETED AUDIT CYCLE IN A DISTRICT GENERAL HOSPITAL

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**Introduction:** Fragility hip fractures are the most common serious injury in older people, costing the NHS and social care around £1 billion per year.

**Aim:** We conducted a two-cycle audit assessing our compliance with the Best Practice Tariff, and exploring the cases that failed to comply.

**Method:** Two audit cycles were completed. The first cycle included patients from May 2016 - May 2017, and case notes and electronic records were retrospectively analysed.

Changes to practice were implemented after the first cycle, including a dedicated Saturday Orthopaedic Trauma operating list (previously Saturday operating was on a shared CEPOD list), improvement work to the Neck of Femur Fracture clerking proforma, and educational work. Additionally, a new orthogeriatric lead consultant started during this period (TK). A re-audit was performed from August - December 2017. Database data was analysed and cross-referenced with written and electronic records.

**Results:** The first cycle included 58 cases, and the second cycle included 53 cases. The new orthogeriatric lead consultant led to improved contemporaneous records.

In the first cycle, 71% (41/58) of cases fully complied with BPT, which remained similar at 70% (37/53) compliance for the second cycle.

The majority of cases failing to comply with BPT were as a result of delay to surgery (>36 hours). This was the case for 26% (15/58) of patients in the first cycle, which reduced slightly to 24.5% (13/53) for the second cycle.

The circumstances of the failing cases were analysed. In the first cycle, 16% (9/58) had surgery delayed due to lack of theatre capacity, compared with 13.2% (7/53) for the second cycle.

In both cycles, a few patients failed to comply for other reasons, usually as a result of medical optimisation for theatre or a missing component of the multi-disciplinary assessment.

**Conclusions:** Our overall BPT compliance rate of 70% is largely unchanged and remains considerably higher than the currently reported national average of 62.1% (November 2017).

The proportion failing due to delayed surgery shows improvement (24.5% from 26%). Furthermore, there are reduced delays as a result of limited theatre capacity (13.2% from 16%), which may be partly related to the implementation of a dedicated Saturday Orthopaedic Trauma list. Further work is needed in the future to evaluate the ongoing impact of these interventions and make further improvements.

## CLINICAL QUALITY

### ASSESSMENT OF PHARMACOLOGICAL APPROACHES IN BEHAVIOURAL AND PSYCHOLOGICAL SYMPTOMS OF DEMENTIA WITH OR WITHOUT SPECIALIST INPUT

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**Introduction:** Behavioural and psychological symptoms (BPSD) of dementia occur in most patients with dementia and can have debilitating outcomes during acute hospital admissions. These have been associated with a poorer prognosis, with both cognitive and functional decline. Management of BPSD can be challenging for physicians and healthcare teams. Despite evidence of limited efficacy, psychotropic medications such as benzodiazepines and atypical anti-psychotic medications are widely used as a first line treatment for those with BPSD.

**Aims:** We aimed to review whether patients with BPSD received pharmacotherapy and whether drug choice was impacted by Old Age Psychiatry (OAP) involvement. Through this information we seek to enhance care provided on the ward for patients with BPSD.

**Methods:** Admission notes of 172 patients aged over 75 years with an AMTS <7/10 were retrospectively reviewed over a 2-month period. Of these 172 patients, 37 (21.5%) were found to have BPSD. Measurable parameters included involvement of OAP; usage of a behaviour chart; pharmacotherapy initiated; and duration and outcomes of treatments started.

**Results:** 21% (37/172) patients exhibited symptoms of BPSD. 46% (17/37) received pharmacotherapy, of which 29% (5/17) were initiated after OAP input. Drug therapies included benzodiazepines (30%, 11/37), antipsychotics (8%, 3/37), and memantine (8%, 3/37). All benzodiazepines were prescribed by the medical team and were stopped before discharge. Memantine and atypical antipsychotics were started by OAP, and were continued in the long-term without any follow-up plans. Only 35% (6/37) of patients who received drug therapies had a behaviour chart documented. There was no significant discrepancy in discharge destination between those who received pharmacotherapy and those who did not.

**Conclusions:** There is a high rate of relying on a pharmacological approach in managing BPSD, especially using benzodiazepines which could potentially induce undesired side effects. Use of antipsychotics is relatively low. Although these can be helpful in treating certain BPSD, their use must be limited in time. A combination of different non-pharmacological approaches should be considered prior to pharmacotherapy in acute setting. Furthermore, a clear pathway and individualized treatment plan for managing BPSD should be proposed. Regular assessments of the treatment plan and any prescriptions must be carried out to detect signs of relapse, and to stop any drug that has become inappropriate.

## CLINICAL QUALITY

### DELIRIUM CLINIC: THINKING OF DELIRIUM AS THE TIA OF DEMENTIA

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**Introduction:** Delirium is a neuropsychiatric syndrome of acute onset. Symptoms include fluctuating cognition, memory, and inattention. Delirium is linked to increased morbidity and mortality in the elderly population, and causes include infection, drugs and metabolic abnormalities. Delirium and dementia symptoms overlap, and patients may have both conditions. At Barking Havering and Redbridge Hospital Trust, a unique delirium clinic run by a geriatrician and psychiatric consultant has been developed.

**Methods:** The aim of this audit is to evaluate patient access to delirium clinic; clinic documentation in line with current guidelines; and investigate the correlation between delirium and a new diagnosis of cognitive impairment or dementia.

This is a retrospective study of all patients seen by a geriatrician in delirium clinic, from April 2017 to April 2018. Data collected included demographics; referral source; co-morbidities; poly-pharmacy; investigations; tests for cognitive impairment; and interventions and diagnosis.

**Results:** 82 patients were reviewed in clinic, with a mean age of 82.5 years. 57% of patients were female. Referrals were primarily from general practice (34%), followed by inpatient referrals (30%). 16% of attendees had a prior co-morbidity of dementia or cognitive impairment, and poly-pharmacy was identified in 73%. 55% had appropriate bloods documented, and 73% had brain imaging. 100% of patients had either a MMSE, MOCA, or ACE in clinic. 12% had a diagnosis of cognitive impairment made in clinic, with 22% a new diagnosis of dementia. 54% of delirium had resolved at clinic.

**Conclusions:** The delirium clinic sees referrals from a variety of sources. One fifth of patients with delirium seen in clinic had a new diagnosis of dementia. Attending delirium clinic after discharge from hospital gives the vital opportunity to unmask underlying cognitive impairment or dementia. This allows initiation of treatment as well as prognosticating and support planning in elderly patients, therefore potentially improving future quality of life.

## CLINICAL QUALITY

### THE APPROPRIATENESS OF LIDOCAINE PATCH CLINICAL USE AT THE ROYAL LIVERPOOL AND BROADGREEN UNIVERSITY HOSPITALS NHS TRUST: A QUALITY IMPROVEMENT PROJECT

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**Aim:** This Quality Improvement Project (QIP) aimed to evaluate and improve the clinical appropriateness of lidocaine patch usage in the Clinical Gerontology department at the Royal Liverpool and Broadgreen University Hospitals NHS Trust (RLBUHT). The only approved indication for lidocaine patch prescribing at RLBUHT is post herpetic neuralgia.

**Materials and methods:** A retrospective review of electronic case notes was undertaken for 25 patients who were prescribed lidocaine patches in the Clinical Gerontology Department at RLBUHT May-June 2017. Key data collected included: patient demographics, use of a pain assessment tool, prescription indication, and discharge planning.

**Results:** Most patients prescribed lidocaine patches were elderly and female. Most patients were admitted due to a fall, pain and/or fractures. Pain assessment tools were not used and the specialist pain team was not consulted. Four patients were prescribed lidocaine patches prior to admission. The decision to start lidocaine for an inpatient was mostly consultant-led. Indications for lidocaine patches were mostly for back pain with a small cohort of rib fractures, pubic rami fractures or pressure sores. The duration of inpatient prescriptions was mostly zero to ten days, and the topical site for patch administration was only specified in two patients. Most patients on discharge were prescribed lidocaine patches, with no evidence of a prescription review.

The recommendations from this assessment were presented at the RLBUHT Medication Governance Group Meeting (18/05/2018). The change that was implemented was an awareness campaign and allowing Gerontology Pharmacy to challenge prescriptions. Other recommendations included: clearer documentation of indication, restricting lidocaine initiation to consultants, use a pain scale for pain assessment, and liaising with the pain team and pharmacy. Importantly, lidocaine patches on discharge medications should require a review. Since implementation, the average monthly spend on lidocaine patches in the department has reduced by 70% - £1368 (2017-2018 average monthly cost) to £396 (2018 current average).

**Conclusion:** This QIP has highlighted inappropriate lidocaine prescribing practices, and implemented several recommendations. Importantly, this QIP has empowered the Gerontology Pharmacy to challenge prescriptions. Since implementation, the average monthly spend on lidocaine patches in the department has significantly reduced. An action plan is being developed to ensure this continues.

## CLINICAL QUALITY

### A QUALITY IMPROVEMENT PROJECT TO REDUCE INAPPROPRIATE BLOOD TESTING FOR HIP FRACTURE PATIENTS

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**Introduction:** All patients admitted to Airedale General Hospital (AGH) with a hip fracture are screened with blood tests for haematinic deficiency (ferritin, folate and vitamin B12) and thyroid function (TFTs). There is very little evidence to support this practice although NICE guidelines suggest urgent optimisation of any patients presenting with a hip fracture who are anaemic to avoid delays to surgery. It is known that untreated thyrotoxicosis is a risk factor for fragility fracture.

**Method and results:** We conducted a retrospective analysis of blood results for all patients presenting to AGH with a hip fracture within a 12 month period (n=241). ICE pathology reporting system was used to collect blood test results. SystmOne e-discharge function was used to review the management of abnormal results. We found that although haematinics were tested in 90% of patients, only 27% of them were anaemic and only 10% of them had a haematinic deficiency. Only 62% of haematinic deficiencies were appropriately managed.

51% of hip fracture patients had TFTs checked and of the 24% abnormal results, 90% were consistent with sick euthyroid syndrome. Only 2 new cases of untreated thyrotoxicosis were identified (7%). Only 45% of abnormal TFTs were appropriately managed.

**Discussion:** We identified several areas for improvement:

1. Abnormal blood tests were not consistently acted upon which has implications for patient safety
2. Inappropriate duplication of tests was noted: 7% of haematinics were repeated within the same admission. This wasteful practice could be prevented with changes to the requesting system.
3. Checking TFTs of patients who were acutely unwell with a hip fracture and potential concurrent illness has unsurprisingly shown that sick euthyroid syndrome is common in this group. TFTs should not be tested unless clinically indicated.
4. AGH uses an Orthogeriatric liaison model of care, which may lead to a lack of clarity regarding responsibility for requesting and acting on test results.

**Conclusion:** We now only check haematinics for hip fracture patients who present with anaemia. Likewise TFTs are only checked when there is clinical suspicion of thyroid dysfunction at the discretion of the Orthogeriatrics team. As a result of this project, the Orthogeriatrics team are developing a new guideline to promote better management of these clinical issues.

## CLINICAL QUALITY

### “HIP SPRINT” USING THE 2017 NATIONAL AUDIT OF PHYSIOTHERAPY TO DEVELOP QUALITY STANDARDS FOR PHYSIOTHERAPY AFTER HIP FRACTURE

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**Introduction:** Hip fracture anaesthesia and surgery are now so successful that nearly all patients will get out of bed by the day after operation. However, their subsequent recovery of mobility and independence depends on the quality of care provided by the ward's multidisciplinary team.

**Methods:** During May-October 2017 the Chartered Society of Physiotherapy (CSP) led work by >580 physiotherapists – providing data for 5,989 (78.6%) of the 7,621 people who the National Hip Fracture Database recorded in 127 hospitals. We recorded therapy each day in the week after surgery, and in any subsequent ward, community or home rehabilitation placement.

**Results:** Half (48.6%) of those admitted from home returned there directly from the acute ward. Patients averaged 118 minutes of physiotherapy in the first week, but wards which provided more were more likely to get patients up by the day after surgery (69.1% vs. 67.8,  $p<0.05$ ) and returned more patients straight home (50.3% vs. 47.3%,  $p<0.05$ ). Hip Sprint also identified weakness in early mobilisation, the intensity of rehabilitation, the quality of handover and continuity between care providers (including a gap between discharge and start of community rehabilitation that averaged 15.2 days, and was >30 days in five units) and in physiotherapists' engagement in clinical governance. These weaknesses were discussed by a group including specialist physiotherapists and patient representatives, and are now being consulted on the CSP's interactive network (iCSP) with a view to publication this year.

**Conclusion:** We propose six CSP standards for the quality of physiotherapy after hip fracture;

- Physiotherapy assessment within 24 hours of surgery to enable early mobilisation out of bed.
- At least two hours/week of physiotherapy until patients have achieved documented goals.
- Patients (and their families/carers) are asked about previous activity levels to ensure that rehabilitation meets individual needs.
- Patients moving between care providers are seen by their new team within 72 hours.
- Physiotherapists should be part of every Hip Fracture Programme's clinical governance meeting.
- Physiotherapists should record their assessment and rehabilitation plans in the shared record.

We believe that that these standards will help focus clinical teams' and health managers' attention on areas of practice that have the greatest potential to improve patients' experience and outcome.

**CLINICAL QUALITY**

**PROACTIVE IDENTIFICATION, ASSESSMENT AND TREATMENT OF MODERATELY FRAIL PATIENTS IN NORTH ISLINGTON**

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**Topic:** Frailty affects 10% of people over 65 and 25-50% of those over 85 (Clegg et al, Lancet, 2013, 381 868, 752-762). Frailty should be identified with a view to improving outcomes and avoiding unnecessary harm ([www.bgs.org.uk](http://www.bgs.org.uk), accessed 15/06/18). The proactive identification of patients with moderate frailty will allow earlier intervention and improved access to care in patients that may otherwise be missed.

**Intervention:** Nine local GP practices came together to form a population of c70000, around which a Care and Health Integrated Network (CHIN) was created. Through this, the north Islington frailty team, in partnership with the GP practices, created a register of moderately frail patients based on the electronic frailty index (eFI) and the Rockwood clinical frailty scale. The team proactively screens patients for frailty and identifies unmet needs, particularly around medication management, falls prevention and social isolation. If appropriate, a home based Comprehensive Geriatric Assessment (CGA) is undertaken and the team can give immediate interventions and make direct onward referrals. The team is multi-disciplinary consisting of a physiotherapist, pharmacist, Age UK navigator, GPwSI in elderly care, and consultant geriatrician.

**Improvement:** A total of 460 patients were identified as moderately frail. The team have telephone screened 22% (102) of these patients, finding a 58% accuracy rate in moderate frailty diagnosis using the above method. Of those screened, 48% had unmet needs, which required a CGA. 78% of these had had a fall and required falls assessment, 80% had a medication review due to polypharmacy or compliance issues, and 75% had a review for social needs.

**Discussion:** The eFI and Rockwood frailty score can be used in combination to help identify patients with frailty. This methodology enables moderately frail patients with unmet needs to be accurately identified, ensuring timely preventative intervention. The creation of a single frailty register and proactive identification of moderately frail patients across GP practices is a novel approach and demonstrates how primary care, secondary care and the third sector can work collaboratively to benefit patients. It is difficult to evaluate a proactive approach. As this project develops we will evaluate further outcomes, including unplanned admissions, improved access to services and cost savings for the NHS.



## CLINICAL QUALITY

### IDENTIFICATION AND REFERRAL OF FRAIL ELDERLY SURGICAL PATIENTS TO THE ELDERLY CARE ASSESSMENT TEAM (ECAT)

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**Evidence Base:** Frail elderly patients have poor outcomes after surgery; surgical procedures are higher risk, there is an increase in medical complications and poorer cognitive outcomes (Wilkinson K, Martin IC, Gough MJ, NCEPOD, 2010). Evidence suggests improved outcomes in these patients when proactively reviewed by specialist geriatric teams, notably reduction in medical complications, length of stay and mortality (Partridge J, Harari D, BJS, 2017). In the Royal Infirmary of Edinburgh, current access to specialist geriatric review is by referral to the Elderly Care Assessment Team (ECAT) using an intranet based referral form.

**Change Strategy:** We retrospectively analysed admission data for patients >75 years of age during a two week period. Frail patients were identified using the Health Improvement Scotland (HIS) scoring system (n=14). Of these patients, 2 had been referred to ECAT, identifying an unmet need of 86% of patients (n=12) who were not referred. Outcomes according to geriatric domains were measured in the “not referred” group; 50% had cardiac or renal complications of surgery, 15% required a catheter, 42% met sepsis criteria and 34% had delirium. 83% of patients had no documented anticipatory care planning discussion. There were 4 deaths. This demonstrated a high level of unmet need among frail elderly patients not assessed by ECAT.

Findings were presented to colleagues in General Surgery. Barriers to ECAT referral were discussed and referral criteria circulated, along with teaching sessions addressing key geriatric syndromes. The referral form was replaced by use of a dedicated email inbox address to capture referrals.

**Change Effects:** This led to an increase in referrals to ECAT in the following 2 weeks (n=19, vs n=2)

**Conclusions:** We have demonstrated that a simple change in referral system can improve identification of frail elderly patients who may benefit from specialist geriatric review. Future work will focus on the use of frailty scoring to identify patients proactively within this busy surgical unit.

## CLINICAL QUALITY

### CARE HOMES LEARNING TOGETHER INITIATIVE: A COLLABORATIVE APPROACH TO CARE HOME MEDICINE

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**Aims:** Identify residents with challenging Medical and/or Psychological problems in Residential Care and apply Principles of Comprehensive Geriatric Assessment; and compare this structured approach to best practice guidelines (Enhanced Health in Care homes – NHS England) and combine with education sessions to enhance multi-professional learning.

**Methods:** A multi-professional team was led by Primary care physician and supported by Primary Care Pharmacist, GP trainee and Specialist Registrars in Geriatric Medicine and Adult mental health services, and care home staff.

- Care home staff identified patients for review and family invited to attend consultation.
- Clinical information sought through primary and secondary care databases including Dispensing information through the patients Summary Care Record (SCR)
- Two patients reviewed per 3 hour session
- Pre-evaluation discussion with MDT followed by clinical assessment
- Re-convene for discussion of proposed management plan
- Complete educational topic and set new for following session
- Compare with key domains in guidelines

#### Results:

- Five sessions attended in two care homes.
- Seven patients assessed to date, one requiring acute admission.
- Patient demographics:
  - 4 male, 3 female
  - Average (Mean) age: 81 years old.
- Average (Mean) no. of comorbidities: 7
- 6 out of 7 had confirmed dementia (7th too unwell for further classification)
- 5 educational sessions
- Advanced care plans discussed in each case with patient and family (where available) with Advanced care plans now coded as “significant problem” in GP data-base
- 7 DNACPR forms completed
- Medication review in all resident with amendments made – overall reduced tablet burden
- 5 out of 7 patients had a plan to change psychotropic medication
- Positive feedback obtained from all clinical participants

#### Conclusions:

1. Multi-disciplinary team working practical, enjoyable and with educational value

2. Care home residents are a complex, frail and elderly population with high degree of social isolation with limited family engagement
3. Physical and mental health assessment (including dementia) can be performed and activity can be applied to many of the domains set out in NHS England's "Enhanced Health in Care homes" model.
4. Medications review helped to reduce inappropriate medication use
5. Discussion improved confidence and language around Advanced care planning
6. Telephone consultation to family proved useful
7. Shared communication via IT solutions have limitations (especially Advanced care planning) but novel work-arounds can be found

## CLINICAL QUALITY

### HEAD INJURIES IN OLDER PEOPLE: IMPROVING THE PATIENT PATHWAY INTO THE FALLS SERVICE AND INCREASING GERIATRICIAN INVOLVEMENT IN CARE

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**Topic:** Older patients presenting with head injury to Croydon University Hospital (CUH) are either admitted under non-geriatric teams or discharged with no set pathway into the falls service. We assessed the quality of care against NICE Guideline 161: “Falls in older people” (NICE, 2013) for patients aged 65 and over, making changes to improve the pathway and patient management.

**Intervention:** We reviewed all 74 admissions aged over 64 to CUH with head injury over three months (01.01.18–31.03.18). Seventy-two (97%) resulted from a fall; only 1 had Falls Clinic follow-up. During admission (mean length of stay 9.3 days), cognition was assessed in 65% (38% of whom had delirium), and 39% received a comprehensive medication review. Assessment of continence, vision, or bone-health occurred in 36%, 14%, and 9% of patients respectively. 65% were reviewed by physiotherapy, 42% saw occupational therapy. Six patients died in hospital, and 37% of those discharged were readmitted within 90 days. Departmental performance between medical and surgical/orthopaedic admissions was similar. Within the same period, 101 older patients with head injury were discharged directly from the emergency department: just 7 were followed-up in clinic.

**Improvement:** We presented our results to the Trust Clinical Governance committee and incorporated the findings into a Falls Service business case for the Clinical Commissioning Group, acquiring funding for an additional clinic and therapist. All head injuries in older patients due to falls will now be referred from A&E to the Falls Clinic, and admissions will be under joint care with Geriatrics. The pathway will be re-audited in future.

**Discussion:** Opportunities to improve inpatient comprehensive geriatric assessment and onward referral to the falls service clearly exist. Head injuries in older people usually result from falls, and frailty is prevalent in this patient group: they should be incorporated into local falls pathways for maximum benefit.

## CLINICAL QUALITY

### IMPROVING THE COMMUNICATION OF RESUSCITATION STATUS ON DISCHARGE FROM COMMUNITY HOSPITAL

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**Evidence base:** Over 50% of patients transferred to nursing home die within one year (1). Where a DNACPR is completed and discussed with the patient and/or family, this decision should be communicated clearly on discharge (2). This aligns with the aims of Realistic Medicine, focusing on individualised, patient centred care, to reduce unnecessary interventions and minimise harm.

#### **Standards:**

1. All community hospital patients should have resuscitation status documented
2. All completed and discussed DNACPR forms should be transferred with the patient on discharge to nursing home

**Change strategies:** We undertook a completed audit cycle of DNACPR documentation and communication, of all patients in a community hospital in Motherwell, whose final discharge destination was nursing home care. Data was retrospectively collected from electronic case records over a seventeen month period, evaluating DNACPR documentation and evidence of its transfer on discharge. Two change strategies were implemented:

1. Nurse education from senior medical staff
2. Adaptation of nursing transfer document to include mandatory resuscitation status

**Change effects:** 72 patients were included. Median age 85. Following intervention, the number of patients with a completed DNACPR remained at 60%. However, the document transfer rate on discharge improved from 53.6% to 93.3%. Mortality rate during the audit period was 30.6%. Of these patients, 45% had not had their resuscitation status discussed in hospital.

**Conclusion:** Our audit demonstrates the morbidity and mortality of frail patients discharged to nursing home care and the relevance of considering and communicating resuscitation status. Simple interventions have improved the communication of these important decisions on discharge. Sample numbers were small, therefore further data collection is planned to ensure that this change is sustained. Future work will focus on regular review of resuscitation status and communication of anticipatory care planning discussions in the final discharge summary.

**References:** 1) Kinley J, Hockley J, Stone L et al. Age Ageing. 2014;43(3):375-9  
2) Resuscitation Council (UK)

## CLINICAL QUALITY

### THE PATIENT EXPERIENCE OF HOME CARE SERVICES

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**Background:** Home care services are pivotal for the timely and successful discharge of frail older adults. In Ireland they are largely provided by private companies. Home Care Services accounted for €376m of Irish health expenditure in 2017. 19,807 people were in receipt of a home care package (HCP) and 46,243 of home help hours. We conducted a survey to illuminate the patient experience of home care and specific issues arising in practice.

**Methods:** We circulated a questionnaire to patients attending our Day Hospital, collecting information on demographics, level of dependence, specific home & community services, and carers and their work, with comments section at the end. Questionnaires were completed anonymously by the patient and/or family member.

**Results:** Thirty-one patients, 77% female, responded with mean age 82.8 years. The majority (27/31) of care was provided by the HSE with a mean of 12.16±6.4 hours per week. 19/31 (61%) require assistance with personal care, 18 (58%) with mobility. 42% patients felt they needed more hours. Time from application to commencement of HCP varied from immediate to 2 years, with longer waiting times observed in rural areas. Most patients (27/31) received supplemental care from friends/family, the majority unpaid. Eight (26%) had made complaints about carers' work. Fourteen (45%) reported carers turning up late more than once, while eleven (35%) reported missed visits. Most patients (80.6%) had concerns about allowing strangers into their home. 6/31 (19%) respondents were unaware of how to make a complaint about the service.

**Conclusion:** Our survey showed a high level of dissatisfaction with the delivery of home care. Limitations of accessibility to services due to geography lead to inequity in healthcare delivery. Many clients feel their hours are insufficient, and families supplement care for the majority. Older persons' autonomy is less meaningful when the necessary supports are not provided in their homes.

## CLINICAL QUALITY

### TALES FROM PRIMARY CARE: DOES A COMMUNITY-BASED, MULTIDISCIPLINARY CARE HOME VISITING SERVICE IMPROVE CARE AND REDUCE UNPLANNED HOSPITAL ADMISSIONS IN OLDER RESIDENTS WITH DEMENTIA, FRAILTY AND MULTI-MORBIDITY. RESULTS OF A THREE MONTH EXPLORATORY PILOT

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**Introduction:** Mortality in care home patients is significant; 26.2% of patients die within a year, with dementia as a leading cause of death. This exploratory pilot analysed a community-based, multidisciplinary home visiting service (called the Winter Pressures Service- WPS) which provided acute and proactive care to care home residents in the Paignton and Brixham locality, South Devon.

**Method:** The WPS team comprised a nurse, a GP, and a coordinator based in a central hub in the locality and ran from 24th December 2017- 4th April 2018. It served ten care homes in the locality.

All care homes were telephoned in the morning and visit requests were triaged by the WPS using a risk stratification tool that predicted hospitalisation and had been piloted in a neighbouring locality a year earlier. Urgent visits were seen first. The service shared the same IT as primary care.

In tandem, three GP practices in the locality created a list of all patients in the WPS care homes who had dementia and held advanced care planning conversations, culminating in a treatment and escalation plan (TEP).

The main objectives were to ascertain the effect of the WPS pilot in terms of proactive and acute care, assess referral pathways, staffing needs, and key enablers for the service.

**Results:** 931 patient visits were completed in 70 days (average 13/day). Sixty-one patients (7%) received advanced care planning conversations and TEP review and 42 TEPs were created or updated. All patients living with dementia received a TEP in the three GP surgeries piloting proactive dementia care; the vast majority documenting that a hospital admission would not be appropriate, thus preventing and admission in all cases.

The team felt that in addition to the above, a further 15 patient admissions were prevented through adequate GP cover.

A flu outbreak in a care home was successfully treated, being coordinated by public health England and the WPS.

**Conclusion:** This WPS pilot demonstrates feasibility and quality, particularly in advanced care planning of patients with dementia and preventing unnecessary hospital admissions. Shared IT was a key enabler. If the service is re-established this proactive strategy will be extended to all care home patients in the locality and effect on unplanned admissions in care home patients objectified, using time series analysis.

## CLINICAL QUALITY

### EMBEDDING CLINICAL FRAILTY SCALE IN THE EMERGENCY DEPARTMENT AND ITS IMPACT ON PATIENT CARE

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**Introduction:** Frailty (a multidimensional syndrome with loss of reserve) is an increasingly urgent issue facing healthcare service design. The Clinical Frailty Scale measures frailty on an ordinal scale (1-9), which can be used to guide treatment decisions.

This project aimed to embed frailty identification and influence patient management through training and education.

#### Method

1. *Sample* – people aged >65 attending a large Emergency Department in the East Midlands, UK
2. *Data collection* – clinical records were reviewed for evidence of frailty documentation, and accuracy (inter-rater reliability). Notes were also reviewed for evidence that frailty identification was linking to elements of Comprehensive Geriatric Assessment.
3. *Interventions* – education and training of all staff groups, individualised feedback, embedding the CFS into electronic systems (Nervecentre).
4. *Data analysis* - Run charts were used to assess CFS use. Inter-rater reliability was assessed using kappa scores. Influence on patient management was assessed looking for documented referrals to geriatric medicine, therapy or nurse coordinators, or evidence of care planning discussions in the most frail (CFS 7-9).

**Results:** From September until January 2018, there was an improvement in frailty identification in patients presenting to emergency department from 40% completion increasing to 80%.

Accuracy was good – kappa scores 0.94 for the ordinal scale, and 0.89 when collapsed into the commonly used frailty classification (robust, mild, moderate or severe frailty).

**Conclusions:** Routine assessment of frailty by using the Clinical Frailty Scale in the Emergency Department is feasible and provides clinicians with important prognostic information which can influence clinical decision making. Importantly, this may help patients and their families make informed decisions about goals of care. Identifying frailty at the front door can prompt the initiation of Comprehensive Geriatric Assessment which helps to identify medical, psychosocial and functional limitations of a frail older person in order to develop a coordinated plan to improve outcomes.



## CLINICAL QUALITY

### STAYING ACTIVE ON WARD 9, AN ACUTE MEDICAL ELDERLY WARD

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**Topic:** Deconditioning during hospital admission is a concern for elderly care clinicians. The ward team noticed patients had little to entertain them, rarely watching TV and variable visits from friends/ family. Some patients spent much of the day asleep due to lack of stimulation.

Baseline measurement in May 2017: 29 patients >80 years asked about their in-patient experience. Almost 2/3 felt time passed slowly. Only 10% said they had enough to do. 97% wanted to be involved in activities particularly gentle exercise, contact with therapy dogs and music. 90% respondents had no concern about dogs visiting the ward.

**Intervention:** Over 9 months staff set out to increase the variety & frequency of activities available by utilising local contacts. A chance encounter with a fellow dog-walker led to regular visits from a therapy dog. The ward physiotherapist established a weekly exercise class. Musical activities included local school choirs and dance groups. Seasonal activities helped to orientate patients by highlighting important events such as Remembrance Sunday.

**Improvement:** Feedback led to modified activities with each event used as a small test of change. Feedback was overwhelmingly positive and suggested social interaction, particularly between male and female patients was a vital element. Inclusivity improved by moving activities closer to patients as dance sessions were moved within ward bays. Individualised exercise programmes (either chair-based or standing) were designed to supplement usual therapy that could be done alone or with family support. A weekly newsletter informed patients about the ward's ethos and that week's activities.

Repeat patient survey in February 2018 showed marked improvement in patient experience: almost 50% reduction in those reporting time passed slowly and 70% increase in those with enough to keep them occupied.

**Discussion:** It is possible to enhance in-patient activities and experience at almost zero cost using local contacts and resources. Volunteers gave their time willingly and most asked to visit again. Ward morale improved as whole team worked together to think of innovative ideas. Activities such as cake sales and poppy-selling also generated income for the ward or charities.

**CLINICAL QUALITY**

**A FULL CYCLE AUDIT: GET UP, GET DRESSED AND GET MOVING**

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*Nottingham University Hospital NHS Trust*

**Topics:** EndPJPParalysis is a campaign to encourage older hospital inpatients to sit out in a chair, get dressed and walk as much as possible to avoid deconditioning whilst in hospital. The aims of this audit were to identify the proportion of patients sitting out, getting dressed in home clothes and walking daily in an acute geriatric medical ward of unselected acute admission.

**Intervention:** Data on whether patients were sat out in a chair at noon and 4pm, dressed at noon and had walked by 4pm were collected by a doctor by observation and questioning on two random days. Data from the audit were presented and meetings were held with stakeholders to explain results and find solutions to improve practice. A clothing bank was established and advertised through posters, social media and local radio. Local charities agreed to donate clothes monthly. Education sessions were held to increase awareness of the campaign. Re- audit was undertaken four months later.

**Improvement:** There was significant improvement in every aspect following interventions (Table 1). These excluded patients who were at the end of life, or very unwell patients.

**Discussion:** The biggest challenge was that this campaign was started in winter, a time of unremitting bed pressures, and competing service priorities. It was initially difficult to counter the absolute priority given to preventing falls by discouraging walking. Transformational and distributive leadership were demonstrated through this audit. Healthcare assistants were motivated through education and enthusiasm from senior clinical leaders. The healthcare assistants and doctor worked together, sharing leadership, ensuring the success of this campaign.

Table 1: Results from the full cycle audit.

	In chair at noon	In chair at 4pm	Dressed at noon	Mobilised by 4pm
Audit	73%	33%	53%	72%
Re- audit	100%	86%	98%	90%

**CLINICAL QUALITY**

**IS ADVANCED CARE PLANNING HELPING OLDER COMMUNITY DWELLERS ACHIEVE THEIR PREFERRED PLACE OF CARE?**

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**Background:** Recent advancements in palliative medicine have raised the profile of advance care planning (ACP). This is common practice in patients with a terminal cancer diagnosis but less established in the frail, elderly population (Detering K et al. BMJ 2010;340:c1345).

A large part of ACP is geared towards establishing and honouring a patient's preferred place of care (PPOC). This forms part of the department of health's strategy for end-of-life care (Gerrard R et al, Palliative Medicine. 2011;25(4):333-6). In Norfolk, a community geriatrician attends some of the local care homes and part of their remit is ACP, including discussing PPOC.

**Methods:** A specialist dementia care home in rural Norfolk was consented to participate in this evaluation. 31 resident deaths between January 2017 and January 2018 were identified. 1 was excluded from analysis (no available information). 30 residents were analysed using System One GP records and Norfolk and Norwich University Hospital records.

**Results:** Data was analysed from 30 residents, 16 men and 14 women ranging from 70 to 102 years old (mean 85.4 years) most of whom had complex co-morbidities including dementia and frailty. 5 residents with no ACP died in the acute hospital. The ACP was discussed with a quarter of patients themselves and 79% of the patients' families were involved in discussions, furthermore their own GP was always made aware of the ACP. 88% of residents with an ACP achieved their PPOC, dying in the care home. Those who did not achieve PPOC were sent to hospital by an out of hours (OOH) clinician. 57% of residents who died in the nursing home were prescribed end of life medication.

**Conclusions:** This review demonstrates that when ACP is done with elderly residents and their families, and is clearly communicated to their named GP and OOH staff, there is a far greater likelihood of achieving PPOC. Without ACP a person's PPOC is unclear, leading to near certainty of hospital admission.

Ensuring ACP in our frail older community dwellers is vital in helping to achieve PPOC and the role of the community geriatrician in achieving this is clearly valuable. However, to ensure that this work achieves its full potential, ensuring that ACPs are communicated to the GP and OOH service is crucial and will improve accessibility to end of life medications.

## CLINICAL QUALITY

### MARKERS OF CLINICAL COMPLEXITY IN HOSPITALISED OLDER PATIENTS WITH PARKINSON'S DISEASE AND ASSOCIATIONS WITH OUTCOMES

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**Background:** Older patients with Parkinson's disease (PD) admitted to the acute hospital are often clinically complex, but we do not know whether their clinical characteristics differ to those of non-PD admissions, or if PD is, in the face of routinely measured markers of clinical complexity, an independent predictor of outcomes. Our aim was to address this knowledge gap.

**Methods:** We conducted an observational retrospective case-control study in a tertiary university hospital in England. Routinely measured patient characteristics included demographics, clinical frailty scale (CFS), acute illness severity, Charlson Comorbidity Index (CCI), discharge specialty and presence of delirium, dementia and depression. Outcomes studied were inpatient mortality, death within 30 days of discharge, new institutionalisation, length of stay >7 days and readmission within 30 days. Statistical analyses were based on bivariate comparisons and logistic regression models.

**Results:** Between October 2014 and October 2016, there were 393 first admission episodes of PD patients aged  $\geq 75$  years. 1285 age- and sex-matched controls were randomly selected from 14,777 non-PD episodes. PD patients were: frailer than controls (mean CFS 5.9 vs. 4.8;  $p < 0.001$ ); more likely to be discharged from a geriatric ward (36.9% vs. 28.1%;  $p < 0.001$ ); more likely to have dementia (20.9% vs. 11.9%;  $p < 0.001$ ); more likely to be institutionalised (16.8% vs. 9.9%;  $p < 0.001$ ). After adjustment for markers of clinical complexity, PD was not an independent predictor of outcomes in the combined sample of cases and controls. On the other hand, CFS was an independent predictor of inpatient mortality (OR 1.8, 95% CI 1.5-2.1;  $p < 0.001$ ), post-discharge mortality (OR 1.3, 95% CI 1.1-1.6,  $p = 0.008$ ), new institutionalisation (OR 1.4, 95% CI 1.2-1.5;  $p < 0.001$ ) and LOS >7 days (OR 1.2, 95% CI 1.1-1.3;  $p < 0.001$ ).

**Conclusions:** Our study suggests that the clinical outcomes of older PD patients seemed to be more related to clinical complexity than to PD itself, emphasising the need for holistic rather than disease-centred care.

## CLINICAL QUALITY

### DO NOT ATTEMPT RESUSCITATION DECISIONS AND PATIENT CAPACITY

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**Topic:** Do Not Attempt Resuscitation (DNAR) forms are commonly completed for frail elderly patients on admission to hospital. It is standard practice to involve the patient in these discussions, and recent court cases have ruled that failure to notify the patient and allow them opportunity to express their wishes and preferences is a breach of their human rights. However, it is not uncommon for elderly patients to lack capacity on admission due to delirium or underlying dementia. In Scotland, a patient lacking capacity is treated using the Adults With Incapacity Act 2000 (AWI). Where DNAR decisions are made using AWI, the care plan should be completed to state this.

**Intervention:** Admissions to the University Hospital Monklands geriatrics unit were audited for new DNAR decisions, completion of AWI forms, and whether the care plan covered the DNAR.

A pro-forma sticker for the care plan was introduced, and this coincided with introduction of a new national DNAR form which prompted clearer documentation regarding DNAR discussions. A re-audit was conducted after these interventions.

**Improvement:** There was documented discussion with the patient in 36% vs 23% of new DNAR decisions. There was no documented discussion with the patient or documented incapacity in 14% of patients; after interventions this figure worsened slightly to 23%.

Where AWI forms were completed the interventions did achieve an improvement with 55% vs 92% documentation of capacity for DNAR decisions in the care plan.

**Discussion:** Despite clear prompting on the new DNAR forms there remain a significant minority of patients where no documented discussion or AWI form was completed at time of the DNAR decision. This may breach patient rights and leave the trust open to legal action. The introduction of a care plan sticker was helpful in improving accurate AWI completion and we aim to continue its use in our department.

## CLINICAL QUALITY

### PROACTIVE FRAILTY MANAGEMENT WITHIN AN INTEGRATED CARE SYSTEM

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*Frimley Health and Care Integrated Care System*

**Topic:** The Surrey Heath older population is projected to grow faster than the national average, meaning an increasing proportion of the population who may have additional care needs as a result of living with frailty. Identifying frailty as a long-term condition and providing anticipatory interventions provides an opportunity to meet the growth and demand for care services sustainably.

**Intervention:** The CCG funded, community based integrated Care team had already shown improved outcomes for those in crisis (-42% in A&E attendances, -28% in emergency admissions), but were aware they could do more by proactively identifying and working with people earlier to prevent deterioration.

Using our existing integrated care team infrastructure, we established a project group including clinical leads and a Consultant Geriatrician to look at evidence around frailty. By implementing the electronic Frailty Index (eFI); we cohorted our population to identify people living with severe frailty and agreed a model within existing resources to introduce a new way of working in a phased approach. Four GP practices volunteered for a soft launch and an MDT 'frailty panel' was established, providing virtual CGA with a list of anticipatory interventions depending on the needs of the individual.

**Improvement:** 106 patients were discussed and 575 anticipatory interventions delivered. Qualitative feedback showed increased patient wellbeing associated with a reduction in A&E attendances (-25%) and emergency admissions (-23.5%). There was a cost reduction of £106 per person/year (average) as a result of medication reviews.

**Discussion:** Lessons learnt include the importance of operational 'buy-in' – translating theoretical evidence into tangible benefits for health and social care staff and balancing the need to move at pace versus operational pressures. Making links between community and acute has been positive, and staff have appreciated the time to discuss individuals holistically to improve long term outcomes, rather than crisis management.

## CLINICAL QUALITY

### IMPLEMENTING HOSPITAL ANTICIPATORY CARE PLANNING IN ACUTE ORTHOPAEDIC WARDS - A QUALITY IMPROVEMENT PROJECT

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*University Hospital Wishaw*

**Introduction:** Up to 50% patients with neck of femur (NoF) fractures are deceased at one year. Mortality is only partly attributable to fracture, with frailty and co-morbidities conferring significant risk. Hospital Anticipatory Care Planning (HACP) is designed to guide interventions if patients deteriorate. It aligns well with the goals of Realistic Medicine, promoting individualised, patient-centred care to minimise harm and avoid futile treatment.

**Aims:** To assess application of HACP in elderly patients with NoF fracture in an acute Orthopaedic ward in University Hospital Wishaw and promote sustained improvement.

**Methods:** We prospectively collected audit data between January and October 2018. Patients aged over 65 with NoF fractures were identified. Case notes were reviewed regarding completion and documentation of HACP and resuscitation status. Mortality rates were reviewed at three months. PDSA methodology was applied. We conducted the following interventions: 1. Audit data presented at regional orthopaedic education meeting 2. Individualised, anonymous feedback on HACP completion to each Orthopaedic consultant, following local agreement.

**Results:** Initial data showed that 21% patients had a HACP in place; 8% were fully complete. 8% patients had an isolated DNACPR form. Documentation of HACP-related discussions with patients/families was poor. 23% patients were deceased at three month follow-up. Following intervention, 29% patients had a HACP in place; 21% were fully complete. All patients with DNACPR forms in place had a coexisting HACP and all discussions were documented. An interval cycle at four months demonstrated consistent results and thus, sustained improvement.

**Discussion:** The results of our quality improvement project showed that with education, incentivised and individualised feedback, the use of completed and discussed HACP in patients with fractured NoF improved. HACP should complement DNACPR. Ongoing actions involve working alongside the Acute Care of Elderly nurses within Orthopaedics, to embed and maintain the use of HACP in frail, vulnerable patients.

## CLINICAL QUALITY

### ADVANCED CLINICAL PRACTITIONERS AND THEIR ROLE IN DELIVERING CGA TO STREAMLINE THE MANAGEMENT OF PATIENTS LIVING WITH FRAILTY

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**Topic:** Older people living with frailty are at risk of recurrent hospital admissions. CGA is associated with decreased morbidity and better cognition. As older people are susceptible to repeat assessments, frequent moves and treatment delays consequent to poorly integrated services, mechanisms to ensure personalised care plans remain responsive to patient's needs after discharge are not always robust due to lack of clarity within the MDT of roles and responsibilities.

**Intervention:** Two newly appointed Advanced Clinical Practitioners (ACP) identified older people with frailty admitted onto the acute medical unit from a defined geographical area. Documentation was on an inter-professional proforma containing elements of the CGA as well as the clinical frailty scale (CFS). Assessments were continued during admission and completed after discharge at the patient's residence. Where appropriate, anticipatory care plans were written by the ACPs in conjunction with the patient. The ACPs remained custodians of the care plans and ensured they remained responsive to the patient's needs over time. Data was collected on admission rate in the last year as well as post implementation of the CGA process.

**Improvement:** Out of 242 patients screened, the ACPs identified 44 patients living with frailty (CFS $\geq$ 5) and conducted over 100 home visits between May 2017 and January 2018. Data was available for 30 patients. The mean admission rate pre CGA was 2.5 and mean hospital length of stay (LOS) during these admissions was 10.09 days (n=25). Advanced care plans were completed on 20 (67%) patients. Assessment, proactive care planning and follow up was associated with a mean readmission rate of 1.1 and mean LOS of 6.6 days during the readmission, a decrease of 4.3 days. Six patients died in the study period (CFS 6-8). The mean number of days between initial admission and death of 97.7 days (range 45-209).

**Discussion:** Living with moderate to severe frailty is associated with recurrent admissions and higher LOS. We were unable to control for several confounding factors but personalised, proactive care planning and follow up appears to be associated with fewer readmissions and LOS. Investing in dedicated, skilled practitioner workforce who are able to assess and manage patients living with frailty in conjunction with the MDT is likely to lead to substantial cost savings for a trust.



## CLINICAL QUALITY

### IMPROVE THE DIAGNOSIS AND MANAGEMENT OF DELIRIUM BY USING 4AT IN COMPREHENSIVE GERIATRIC ASSESSMENT

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**Introduction:** Delirium is a major presenting factor in older people requiring hospital admission. NICE guidance recommends early identification and management of delirium can improve patients' outcome. There was no local delirium assessment tool in the clerking proforma to help in the management plan in this hospital.

**Method:** Assessed the patients who were admitted with new or increasing confusion to the geriatric ward. Proforma was done adherence to the NICE guidance and silver book. There was a pilot study of comprehensive geriatric assessment (CGA) proforma introduction in the geriatric wards started. We introduced 4 AT in CGA. Data collected from patients' case notes who were admitted with confusion to the geriatric wards for five months period. Total number was 40. Half of the data collected from case notes without CGA proforma and other half of the data collected from case notes with completed CGA proforma. Educated juniors and senior doctors regarding the introduction of CGA proforma with 4AT at the weekly geriatric meeting. Ward based assistance to junior doctors provided in completing the proforma.

**Results:** Both categories performed well in taking collateral history, drug history and co morbidities. Investigation of delirium screening showed 4AT testing was undertaken in all patients with CGA proforma and none of the patients had delirium screening test in the group without CGA. The word 'delirium' used as a diagnosis in all patients with CGA and only 10% in other category. Around half of them in both categories had serial cognitive assessment and neuro examination. Patients with CGA had most of the investigations for confusion and appropriate management plan documented.

This pilot study has resulted in an acceptance for the need for CGA proforma with 4AT to help in early diagnosis and management of older people with delirium in the geriatric wards. Following this good outcome in the geriatric wards we recently introduced CGA proforma with 4AT in frontline in A&E and MAU.

**Conclusions:** Delirium remains under diagnosed and is associated with poor prognosis. It is imperative to recognise delirium early and identify the precipitating cause and initiate appropriate treatment that can improve the outcome. Implementing CGA with 4AT in older people admitted to hospital should improve patients' care and result in positive outcome.

## CLINICAL QUALITY

### PROJECT FOR VASCULAR GERIATRICIAN INPUT

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*Frimley Park Hospital*

**Objective:** We did a pilot project in a DGH to see if a geriatrician input for elderly vascular surgical patients altered the clinical outcome. So far no such service existed for any of the surgical patients in this trust.

**Method:** We utilised two sessions of consultant geriatrician time - 1.5 sessions for in-patients and 0.5 session for outpatient. We reviewed all vascular patients fulfilling the FRAIL (Falls, reduced mobility, Altered cognition, new onset or worsening of previous Incontinence, Lots of medications) criteria. We did a comprehensive geriatric assessment on them using a validated clerking proforma and actively participated in MDT and discharge planning. This group of patients were routinely screened for delirium post operatively using the CAM assessment. Special care was given to detect and treat delirium in this vulnerable group of patients and many of them were linked with mental health liaison services as needed.

Patients newly diagnosed with conditions like COPD, heart failure, incontinence issues were linked to appropriate services for follow up on discharge. Patients with falls were offered appropriate investigations and brought back in clinic for follow up.

Even in our limited time, we actively participated in discussions with patient and family on medical issues during their surgical admission. In clinic we provided CGA for the similar group of patients pre-operatively and reviewed post-operative follow ups.

Patients unfit for surgery had their treatment optimised in this clinic, including medication review and over all wellbeing.

**Results:** We compared the data of 50 patients both pre and post liaison services 6 months apart. Length of stay reduced by 1.12 days on average. 1 month re- admission rates for medical reason was 6% pre liaison, and 0% post liaison. 3 month re-admission for medical reason was 30% pre and 22% post liaison service.

**Conclusion:** Even with such limited Geriatrician input, the overall care of the frail and elderly vascular patients was improved and resulted in a lesser length of stay. Identification of medical problems in this group of complex elderly patients, as well as reduction in length of stay and decrease in readmission rates had a positive financial implication for the trust.

Hence a geriatrician input is essential for the care of elderly undergoing vascular surgery.

## CLINICAL QUALITY

### A QUALITY IMPROVEMENT PROJECT TO IMPLEMENT A FRAILTY TOOL AS AN APP AS PART OF A WELLBEING ASSESSMENT FOR OLDER ADULTS AT LARKHILL VILLAGE IN NOTTINGHAM

S Hall

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**Background:** In an ageing population where many older people have two or more long term conditions, frailty has now been identified as a long term condition (BGS 2013). ExtraCare is a charity with 30 retirement locations (villages and schemes) that offer independent living for older people. Each location has a Wellbeing Advisor who offers a wellbeing assessment for all residents. A research study commissioned by ExtraCare produced a validated frailty tool (Holland et al 2015), and recommended that this should be incorporated into the wellbeing assessment, to help identify personal goals with residents and to facilitate residents to become more resilient. The aim of this project was to implement this tool at Larkhill village in Nottingham.

**Method:** A stakeholder group was established to gauge the appetite for implementing the frailty tool the process to do so, and brainstorm how best to achieve this. The methodological approach was Plan, Do, Study Act (PDSA), and involved 4 cycles. A paper copy of the frailty tool was developed and tested as part of the implementation process. Training was given in three stages for the Wellbeing Advisor and knowledge and confidence tested pre and post training. The frailty tool was then implemented in a wellbeing app designed to be used via a tablet device.

**Results:** The training given (2 group sessions and a 1 to 1 session) ensured knowledge and confidence of the tool was significantly improved. The frailty tool was successfully implemented within the wellbeing assessment and by the end of the project each assessment also included a personal goal set with each resident.

**Conclusion:** By implementing a frailty tool within a wellbeing assessment in a retirement setting, residents can accurately have their frailty status predicted and set personal goals as a result of this. This tool has now been implemented across all 18 ExtraCare locations and frailty is re-assessed at 6 months to determine an improvement in frailty status. Details of improvement in frailty status will also be presented.

## CLINICAL QUALITY

### IDENTIFYING CARE HOME PATIENTS IN THE LAST TWELVE MONTHS OF LIFE

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**Topic:** In the UK 26.2% of care home residents die within 1 year. Patients in their last twelve months of life have more unplanned admissions and persistent symptoms as they become increasingly frail. On the Wirral Emergency Healthcare Plans (EHCPs) are used for anticipatory clinical planning, helping to reduce avoidable Hospital admissions.

Established guidelines for recognising patients within the last twelve months of life are the Gold Standard Framework Prognostic Indicator Guidance (GSF PIG) and the Supportive and Palliative care Indicators Tool (SPICT). They both provide suggested general indicators of declining health.

**Objective:** To identify how many patients >75 years old admitted to Hospital under the elderly care team are from a care home and likely to be in the last twelve months of life.

**Method:** Care home patients were identified from medical admissions over 12 days. Based on the aforementioned guidelines the following factors were identified; number of admissions in the last 6 months, deteriorating functional status and mobility status, presence of pressure sores, communicative state, oral intake and swallowing problems.

**Results:** 420 patients >75 years old were admitted under the medical team over 12 days. 53 (12.6%) patients were from care homes. 28 were Nursing Home residents and 25 from a Residential Home.

10/53 (18.9%) of patients were assessed as being likely to be in the last twelve months of life. Eight of these patients were from a Nursing Home, two from Residential Homes. Two of the patients identified as being in the last twelve months of life died during their Hospital admission. A further eight patients, who did not meet the criteria, died during their admission. Therefore 33% of patients in the sample were likely to be in the last twelve months of life on admission to Hospital. None of these patients had an EHCP in place.

**Discussion:** Based only on information gained at admission 18.9% of patients could be identified as being in the last twelve months of life by using general indicators for deteriorating health. Further training of care homes with the Six Steps End of Life Programme would increase identification of such patients, prompting consideration for EHCPs if appropriate. This would lead to better patient care and reduction of avoidable distressing Hospital admissions.

## CLINICAL QUALITY

### HELPING OLDER PEOPLE LIVE WELL: THE IMPLEMENTATION OF A SELF-MANAGEMENT SUPPORT INTERVENTION IN PRIMARY CARE

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**Topic:** Self-management support (SMS) interventions aim to increase people's knowledge about their condition, improve ability to self-care and enhance ability to utilise health services appropriately (Panagioti M, Richardson G, Small N et al. BMC Health Services Research 2014; 356:1-20). They have been shown to be effective for people living with other long-term conditions but not specifically frailty.

**Intervention:** We delivered an SMS intervention to 106 people aged 65 and over at risk of mild frailty in one general practice, using the electronic Frailty Index as a case-finding tool. We did not clinically validate frailty status. Our intervention was a guided conversation delivered by an Age UK coordinator, centring round the resource 'A practical guide to healthy ageing'.

**Improvement:** In questionnaire feedback, all 10 members of key delivery staff described their experience of joint working between primary care and voluntary care sector as positive. We undertook semi-structured telephone interviews with five service users. There was positive feedback regarding the proactive nature of the service although some felt that the service was not suitable for them as they already had satisfactory self-care abilities. Sixty-seven (63%) of the 106 service users completed the short version of the Self-Management Ability Scale (SMAS-S) at baseline, three and six months after the intervention. No differences were seen in SMAS-S scores. Exploratory analyses of healthcare utilisation data did not demonstrate significant changes but we had not undertaken a formal sample size calculation and this work was underpowered to detect such differences.

**Discussion:** Collaborative working between primary care and the voluntary care sector was feasible. This service could be implemented in similar settings but the impact of administrative burden needs to be planned for. Further refinement of targeting would be useful. The relationship between this intervention and its impact on longer-term outcomes requires further exploration.

## CLINICAL QUALITY

### DE-PRESCRIBING THE PROTON PUMP INHIBITORS - STOPPING THE EPIDEMIC

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**Topic:** In older patients proton pump inhibitors (PPIs) are commonly inappropriately prescribed, causing potential harm (e.g. association with *Clostridium Difficile* infection). De-prescribing is a planned process of dose reduction or cessation of medication that is inappropriately prescribed. Our aim was to evaluate the prevalence of PPI prescription in patients admitted to our rehabilitation ward, before and after introduction of active PPI de-prescribing.

**Intervention:** The intervention in this study was to commence active de-prescribing of PPIs on the rehabilitation ward. The guideline used was “De-prescribing proton pump inhibitors: Evidence-based clinical practice guideline” (Farrell B. *Canadian Family Physician*. 2017 May;63(5):354-364). Data was collected retrospectively for a 3 month period on those admitted to the ward pre-intervention, by reviewing the charts or the electronic discharge letters. Thereafter, data was actively collected for a 3 month period, after the intervention was introduced. Every patient on a PPI had the indication for the prescription reviewed, and based on guidelines was de-prescribed if appropriate (drug stopped, reduced dose, switch from regular use to “on demand”). Descriptive statistics included demographics, prevalence of an indication for PPIs and prevalence of de-prescription.

**Improvement:** Total number of patients in study was 73, 48% (n=35) in the pre-intervention and 52% (n= 38) in the post intervention group. Average age was 82years. In the pre-intervention group 86% (n=30) were on PPIs upon admission, with 13% (n=4) de-prescribed. In the post intervention group, 76% (n=29) were on PPIs, with 52% (n=15) de-prescribed. PPI was continued in 48% (n=14). Of these 64% (9/14) were appropriately on PPIs, with the remainder 36% (5/14) left on PPI outside guidelines.

**Discussion:** There was a high prevalence of inappropriate PPI prescription in this cohort. The introduction of active de-prescribing resulted in a four-fold percentage increase in de-prescription. Further improvements could be achieved through involvement of a clinical pharmacist.

## CLINICAL QUALITY

### EXAMINING THE UTILITY OF THE CONNECT WITH PHARMACY (CWP) INTERVENTION IN REDUCING ELDERLY READMISSION

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**Topic:** Substantial evidence demonstrates an increased risk of hospital admission when patients move between care providers. This is particularly pronounced in elderly patients who are more likely to have complex needs. We investigated whether sharing discharge information would impact on hospital readmission rates in this population.

**Intervention:** Leeds Teaching Hospitals Trust (LTHT) recently implemented a web-based intervention (“Connect with Pharmacy”; CwP) that allows hospital pharmacy staff to securely share pertinent discharge information with the patient’s community pharmacy. To evaluate intervention efficacy, data collected as part of routine clinical management were retrospectively analysed. For primary analysis, patient admission rates were tracked 6 months prior (baseline) and 6 months’ post-intervention. Secondary measures included change in total length of stay (LoS) if readmitted, emergency department (ED) attendance and duration and effect of polypharmacy.

**Improvement:** In the sample of patients (all aged 65 years and older) tracked in the first 6 months of the intervention (n = 627; Mean age = 81 years, 389 female), admission rates following referral (M=1.1, 95% CI [0.98, 1.22]) reduced by 16.16% relative to baseline (M=1.31, 95% CI [1.21, 1.42]) (v=38766; p<0.001). There was no reduction in total LoS (V = 63462, p = 0.12), but subsidiary analysis revealed a post-intervention reduction in number of days spent in hospital lasting more than 3 days ( $\chi^2 = 13.37$ , df=1, p < 0.001). There were no statistically reliable differences for number of ED visits and associated hours spent, nor was there an effect of polypharmacy (all p’s > .05).

**Discussion:** The CwP intervention has been successfully implemented at LTHT and admissions for patients referred were reduced by 16% during the intervention period. The result showing a reduction in LoS post-intervention for stays greater than 3 days indicating that there may also be further benefits for patient experience and hospital flow. Conducting economic cost-benefit analysis is the next step towards larger scale adoption.

## CLINICAL QUALITY

### ELECTRONIC DO NOT ATTEMPT CARDIO-PULMONARY RESUSCITATION (DNACPR): TOO FAR? AN EVALUATION OF PRACTICE WITHIN GERONTOLOGY AT KING'S COLLEGE HOSPITAL (KCH), LONDON, UK

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**Introduction:** DNACPR decisions are an ethical and legal challenge (*Fritz, Slowther & Perkins. BMJ2017;356:813*) with great emphasis placed on quality communication, decision-making and documentation for patient safety (*BMA Resuscouncil, 2014*). Following the introduction of a DNACPR toolbar within electronic records (*Johnson, Whyte, Loveridge. BMJ2017;6*), and a staff-survey demonstrating uncertainty around resuscitation, our study aimed to evaluate practice.

**Method:** A completed loop audit was performed within gerontology between January-June 2018. Data was collected prospectively weekly over a month, including all with a DNACPR, with discharges analysed retrospectively.

**Results:** First cycle, all 181 patients had a resuscitation status; 73% had a DNACPR decision. 100% had a treatment escalation plan (TEP), 85% had a valid explanatory form, but 15% were absent. 86% were made by a senior doctor. 68% evidenced discussions with patients/relatives, and 13% had documented MDT discussion. 88 patients were discharged; 39% of which had a DNACPR. 79% were communicated in discharge letters within a comprehensive geriatric assessment (CGA).

Following interventions, performance improved in all areas. All 176 patients had a resuscitation status, with 72% having a DNACPR decision. 100% of these had a TEP and valid form. 93% were made by a senior doctor. 71% evidenced a discussion with patients/relatives with 57% having a documented MDT discussion.

**Conclusion:** A key finding was poor communication, increasing risk of inappropriate resuscitation. Interventions demonstrated improvement, which should reduce the risk of harm and encourages a patient centred approach. The e-toolbar remains an effective prompt for making timely decisions. Revision of electronic processes and staff training led to improved documentation. We recommend the inclusion of DNACPR decisions in discharge letters via CGAs, as it improves co-ordination of care with the community. This tool is being applied trust-wide evaluating other divisions. Overall, this highlights the importance of ensuring e-systems are legally compliant with trust policy, and encouraging cultural change to impact patient safety.



## CLINICAL QUALITY

### DELIRIUM 5: AN INTERVENTION TO IMPROVE SAFETY AND RELIABILITY IN DELIRIUM CARE

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**Topic:** Delirium is extremely common and associated with significant morbidity, including falls. In our trust, cognitive impairment, including delirium, is associated with 40-50% of all inpatient falls. Incident reviews of falls with serious injuries revealed missed opportunities in the recognition and management of delirium.

**Method:** Seven multi-professional focus groups and a trust-wide 'community of practice' were instituted. Patients who had experienced delirium and their families were interviewed. Systemic issues leading to under-diagnosis, suboptimal management, poor interdisciplinary working and poor family engagement were identified.

'Delirium 5' is a campaign developed to increase reliability of delirium care through 5 key steps; diagnosis, falls risk reduction, nursing intervention, medical intervention and family engagement. It was promoted on seven 'target' wards through nursing huddles, posters, pamphlets and a smartphone resource for doctors. Local 'task forces' were established to steer improvement and increase clinical engagement. A short film was produced where a patient describes her terrifying delirium experience. It was shown to members of the target wards and over 100 staff members at key trust meetings.

Trustwide monthly clinical coding for delirium was used to give an estimate of delirium diagnosis by clinicians. This significantly increased (114 vs. 174,  $p=0.0098$ ) and is currently sustained at 200 $\pm$ 5 for the last 4 months.

**Results:** In the target wards, coding also increased significantly after the intervention (63 vs. 86 patients per month,  $p=0.0098$ ). Routinely collected falls data was analysed to determine the proportion of fallers who had cognitive impairment, including delirium. This significantly reduced from the 12 months before the intervention to the 7 after from 53% to 39% ( $n=749$ ,  $p=0.038$ ). Statistical process control methodology was used to establish that all the above trends represented 'special cause variation' by multiple criteria. In the 19-month study period as a whole, delirium coding and falls in confused patients were negatively correlated ( $r= -0.38$ ). Case note sampling was undertaken of patients identified as confused before, immediately after, and six months after intervention ( $n=53$ ). Performance rates of every one of the 5 'Delirium 5' steps improved significantly and were sustained.

An awareness campaign including a patient's story was associated with a near-doubling of delirium identification in our trust. A simple, structured multidisciplinary delirium management tool was associated with better identification and management and reduced falls.

## CLINICAL QUALITY

### AN ASSESSMENT OF THE IMPACT OF PHARMACIST PRESCRIBING IN CONSULTATION WITH A MEDICAL CONSULTANT ON PATIENT CARE IN A GERIATRIC PATIENT POPULATION

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**Objectives:** This study was conducted on the Community Reablement Unit (CRU) - a 24 bed in-patient unit in Our Lady's Hospice and Care Services (OLHCS), offering an intermediate care rehabilitation program to patients over the age of 65 years. Medication error reports from this ward were high, likely related to the limited medical cover on the ward and the high tablet burden of the patient population. Research suggests that pharmacist prescribing can improve patient care outcomes without compromising patient safety; and make better use of the skills of health professionals (*Stewart et al, 2009. Views of pharmacist prescribers, doctors and patients on pharmacists prescribing implementation. Int J Pharm Prac, Volume 17, pp. 89 - 94*).

**Methods:** A before-after interventional study was designed . Data was collated at baseline (n = 36), and following a pharmacist prescribing intervention (n = 36). During the intervention phase, where prescribing discrepancies were uncovered by the pharmacist on the completion of medicines reconciliation, the pharmacist contacted the consultant responsible for the patient by telephone, explained the prescribing discrepancy and amended it if deemed appropriate. Pharmacist prescriptions were co-signed by a medic within 24 hours to maintain validity. Statistical analysis was performed to quantify if there was a significant reduction in the number of medication errors reaching patients where hospital pharmacists performed prescribing amendments in consultation with a medical prescriber and to investigate if the intervention provided more immediate resolution of potentially dangerous prescribing discrepancies.

**Results:** Statistical testing revealed that the number of errors reaching patients on the CRU fell significantly between baseline and intervention conditions ( $p < 0.001$ ). 34 medication errors occurred secondary to 37 prescribing discrepancies at baseline, whereas just 2 medication errors resulted secondary to 36 prescribing discrepancies during the intervention phase. The length of time to resolve a prescribing discrepancy reduced significantly between baseline (mean = 21.7 hours) and intervention (mean = 3.35 hours) conditions ( $p < 0.001$ ).

**Conclusion:** The introduction of pharmacist prescribing in consultation with a medical consultant significantly reduced the number of medication errors reaching patients and the time taken to resolve a prescribing discrepancy following patient admission to the ward. Together these effects contributed to improved patient safety.

**SCIENTIFIC RESEARCH – BONE, MUSCLE AND RHEUMATOLOGY**

**LATE-ONSET RHEUMATOID ARTHRITIS (OVER 60 YEARS OF AGE): CLINICAL, BIOLOGICAL, AND THERAPEUTIC FEATURES. ABOUT A RETROSPECTIVE STUDY**

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**Introduction:** Rheumatoid arthritis (RA) is the most common type of chronic inflammatory rheumatism in adults. The objective of our study was to analyse its clinical, biological and therapeutic characteristics in subjects over 60 years old.

**Patients and Methods:** We performed a retrospective, monocentric, descriptive study based on the consultation of medical records. The data collection concerned subjects over 60 years of age who had been diagnosed with "rheumatoid arthritis" in the rheumatology and internal medicine departments of CHU Reims over a period stretching from 2010 to 2015.

**Results:** Thirty-two patients were included in our study for this period. The mean age of diagnosis was 66.6 years, with a median age of 67.5 years (min: 60 years, max: 88 years). There were 22 female (69%) and 10 male (31%) patients, with a sex ratio F / M of 2.2. The mean duration of symptom progression before diagnosis was 33.2 months. What dominates our series is the inaugural involvement of the interphalangeal proximal, wrists, shoulders and metacarpophalangeal for the vast majority of cases. Oral corticosteroids were used in 27 patients and these were the only treatment in 3 patients. Methotrexate (MTX) was introduced in 27 patients. Nine patients received biotherapy: it was TOCILIZUMAB (Roactemra®) for 5 patients, ADALIMUMAB (Humira®) for 2 patients, ABATACEPT (Orencia®) for 2 patients, ETANERCEPT (Enbrel®) for 2 patients, GOLIMUMAB (Simponi®) for 1 patient and INFLIXIMAB (Remicade®) for one patient. In our series, 7 patients were over 75 years old at the time of diagnosis of RA.

**Conclusion:** Rheumatoid arthritis remains a common condition in elderly patients and constitutes a diagnostic and therapeutic challenge. Because of co-morbidities, the clinician's perception of the patient's overall condition, and inaccuracies in the use of certain molecules in these patients, under-treatment may, on the contrary, weaken a patient whose remission will then be postponed. This was not the case in our series, thanks to a methodical use of methotrexate as well as effective dose biotherapies.

**SCIENTIFIC RESEARCH – BONE, MUSCLE AND RHEUMATOLOGY**

**PREVALENCE OF VITAMIN D DEFICIENCY IN ROMANIAN ELDERLY PATIENTS WITH OSTEOPOROSIS AND CARDIOVASCULAR DISEASES**

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**Introduction:** Meta-analysis studies have shown an association between 25-hydroxyvitamin D deficiency and the prognosis of patients with osteoporosis and cardiovascular diseases. We analysed the relationship between cardiovascular diseases and vitamin D levels at a Romanian elderly hospital.

**Methods:** Transversal study on 100 patients, 99 women, mean age 83.71±7.6y with cardiovascular risk factors. Vitamin D was analysed in all patients and comparative data were obtained. Vitamin D was recorded: deficiency<20ng/ml, insufficient=20-30ng/ml and optimal=30-80ng/ml. The presence of vertebral/nonvertebral fractures, some biochemical data (glycaemia, total cholesterol, LDL, HDL, triglycerides), bone density by dual X-ray absorptiometry were collected. Descriptive analysis by SPSS12 statistical tools.

**Results:** 73 patients had Vitamin D insufficiency (15.85±5.34,p<0.001), mean age 77.99±11.62y. 70-79y age group has the highest prevalence of osteoporosis (42%). The high prevalence of comorbidities in the case of Vitamin D deficiency was: diabetes mellitus (15.06%), high blood pressure (69.86%) and ischaemic heart disease (30.13%). Mean cholesterol levels (p<0.572) and triglycerides (p<0.134) are elevated regardless of the vitamin D level and may suspect a correlation between dyslipidaemia and osteoporosis (table 1). Patients with normal vitamin D level had low densitometry parameters: T-score hip -2.3 ± 0.9 and T-score spine -3.27 ± 0.85. Nonvertebral fracture is more common (15.08%) than vertebral (6.8%) in patients with insufficient vitamin D.

Table 1. Relationship between biochemical test outcomes and vitamin D levels			
Biochemical data (Mean levels)	Vitamin D normal	Vitamin D deficiency	P value
Glucose (mg/dl)	91.27±13.58	99.03 ±25.18	0.094
Total Cholesterol (mg/dl)	206.88±34.94	211.57±50.03	0.572
HDL(mg/dl)	57.45±13.41	59.85±16.15	0.331
LDL (mg/dl)	126.52±34.29	128.21±57.44	0.990
Triglycerides(mg/dl)	98.92±28.99	112±42.16	0.134

**Conclusions:** Chronic cardiovascular diseases are associated with vitamin D deficiency in our lot of Romanian elderly population. Although vitamin D is within the normal range, T scores are low, showing the importance of screening for osteoporosis and early initiation of treatment.

**SCIENTIFIC RESEARCH – BONE, MUSCLE AND RHEUMATOLOGY**

**INTRODUCING A NATIONAL PROGRAMME OF SCREENING WITH THE 4A TEST TO IDENTIFY DELIRIUM - THE COMMONEST COMPLICATION OF HIP FRACTURE SURGERY**

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**Introduction:** Delirium is often poorly recognised by staff looking after patients with hip fracture. The National Hip Fracture Database (NHFD) have therefore adopted the 4A test (4AT) to encourage routine assessment and help improve staff understanding of a complication that can dominate patients' hospital stay and recovery (*Bellelli et al. Age Ageing 2014*).

**Methods:** We examined NHFD data on the 63,471 patients who presented to 175 acute trauma units in England, Wales and Northern Ireland during the 2017 calendar year. The NHFD asks for the 4AT to be performed in the week following hip fracture surgery. We compared 4AT results for patients of different ages, in those with different fracture types and comorbidities, and examined the impact of delirium on patients' recovery and outcome.

**Results:** The 4AT was completed in all but 8,698 people (13.7%). Half (51.1%) scored 0, while 24% scored 1-3, and 24.9% scored 4+ 'possible delirium'. Those with an abnormal Abbreviated Mental Test score on presentation were more likely (55.8% vs. 7.4%) to develop post-operative delirium – emphasising the importance of using the AMT to identify at risk patients. Only 10.9% of people were recorded as exhibiting 'Acute change'. The 'AMT4' and 'Attention' elements of 4AT were often abnormal – minor abnormality in these meaning that the commonest abnormal score was 1-2. Abnormal 'Alertness' was seen in 6.8%, suggesting 'hypoactive delirium' – a subtype with a poor prognosis and which is easily overlooked. The importance of post-op. delirium is shown by its relationship with the outcome of patient stay. People who were admitted from their own home but developed post-operative delirium (a 4AT of 4+) were 2.0 times more likely to die as inpatients, and 2.9 and 3.9 times more likely to end up in a residential or nursing home respectively, when compared to people with a 4AT of 0.

**Conclusions:** Awareness of delirium is improving, but greater sensitivity to features such as acute change and fluctuation in patients' mental state is vital, and depends on trauma ward teams actively seeking collateral history from patients' families, usual carers and hospital night staff. As a result NHFD figures probably still underestimate the overall incidence of delirium.

**SCIENTIFIC RESEARCH – BONE, MUSCLE AND RHEUMATOLOGY**

**THE OLDER EMERGENCY GENERAL SURGERY PATIENT. FACTORS PRESENT AT THE TIME OF HOSPITAL ADMISSION THAT ARE PREDICTIVE OF DEATH AT 12-MONTHS: SALFORD POPS-GS**

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**Objectives:** Almost half of the patients admitted non-electively to general surgery are over 70-years of age. This study describes the demographic of older emergency general surgery (EGS) patients and factors that influence 12-month mortality in this population

**Methods:** A prospective study of consecutive patients aged 75-years or older admitted non-electively under general surgery between 8th September 2014 and 30th March 2017 and reviewed by our elderly care liaison team.

**Results:** 598 patients were included, with a mean age of 82.8±5.6 years, and a female predominance (56.4%). At presentation, 145 (24.5%) and 234 (39.1%) were dependent for basic and instrumental activities of daily living (ADL) respectively. 43 (7.2%) were residents in a care home and 288 (49.6%) were frail (Rockwood's Clinical Frailty Scale score of >4). Biliary conditions were the most common diagnoses (170, 28.4%). Complications affected the majority (466, 77.4%), with delirium affecting 136 (22.8%).

Most (353, 59%) were managed medically, with 103(17.2%) undergoing non-surgical procedures and only 142(23.7%) requiring surgery.

Median length of stay was 8-days with a 30-day readmission rate of 9.2% (51). In-hospital mortality was 7% (42), rising to 29.2% (175) at 12-months.

Strong predictors of mortality were ASA score III-IV (HR 2.62 IC 1.73-3.97), dependency for basic ADLs (HR 2.47 IC 1.56-3.89) and frailty (HR 1.94 IC 1.32-2.86)

**Conclusions:** Although the majority of older EGS patients survive an index hospital admission, a third are dead within a year.

ASA score, the presence of functional impairment, and frailty are strong predictors of 12-month mortality.

SCIENTIFIC RESEARCH – BONE, MUSCLE AND RHEUMATOLOGY

COMPARISON OF MORBIDITY AND MORTALITY OUTCOMES OF FRACTURED HUMERUS WITH FRACTURED NECK OF FEMUR IN OLDER ADULTS

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**Introduction:** Osteoporotic fractures are associated with significant morbidity and increased healthcare costs. While the outcomes of fractured neck of femur (NOF) are well documented, there is paucity of evidence regarding the impact of humeral fractures.

**Methods:** This retrospective study compared 95 patients with fractured humerus to a matched cohort with fractured NOF admitted to a tertiary hospital over a two-year period to December 2014. Older adults (65 years or older) with fractured humerus or fractured NOF were included in the study. Adults younger than 65 years age and those with fractures of clavicle, scapula or elbows were excluded, as were those with fractures of both humerus and NOF.

Comprehensive chart review included analysis of physiotherapy, occupational therapy and social work assessments to determine mobility, functional status and care needs pre-morbidly and at hospital discharge.

**Results:** Comparing the fractured humerus and fractured NOF groups, median length of stay was significantly shorter (2 vs 15 days;  $p < 0.05$ ). Although fewer patients were transferred for inpatient rehabilitation (19 vs 71), median length of stay on the rehabilitation unit was similar (28 vs 22 days;  $p = 0.30$ ).

A significantly lower proportion had decline in mobility (34.6% vs 69%;  $p < 0.05$ ) but decline in activities of daily living was comparable (41.3% vs 34.5%;  $p = 0.37$ ). In both groups, requirements for discharge support were high (79.5% vs 89.9%;  $p = 0.06$ ). One year mortality was significantly lower (7.4% vs 17.9%;  $p < 0.05$ ).

**Conclusion:** Overall, outcomes for fractured humerus are not as poor as for fractured NOF. Yet for substantial proportion of older people, fractured humerus is associated with long inpatient stay and significant morbidity. Further work is needed to determine how to stratify risk status and to explore whether early intervention can improve outcomes.

**SCIENTIFIC RESEARCH – BONE, MUSCLE AND RHEUMATOLOGY**

**CAN P1NP LEVELS AID DECISION MAKING IN PATIENTS WHO SUSTAIN A HIP FRACTURE WHILST ON BISPHOSPHONATE TREATMENT?**

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**Topic:** Procollagen-N-terminal-peptide (P1NP) is a bone formation marker. A level <35ug/L can be used to demonstrate therapeutic response to bisphosphonate therapy. It is known that bone turnover markers sampled up to 3 days after a new fracture may not be altered from pre-injury levels with a subsequent rise so that levels are significantly elevated at 4 and 12 months.

**Methods:** A retrospective case series of P1NP levels following neck of femur fracture (NOF#). Inclusion criteria: Patients (>60 years) identified on admission to hospital to have NOF#, who had been taking anti-resorptive medications for more than 2 years who had a P1NP level taken.

The aim was to see if this information informed decision making about bone protective therapy thereafter.

**Results:**

Between March 2017 and June 2018 11 P1NP tests were sent. Mean age 84 years. F:M – 9:2.

Intracapsular fracture – 5,

Extracapsular fracture – 6,

Subtrochanteric fractures – 0.

9 patients were taking oral Alendronic acid. 2 were taking Ibandronic acid.

3 patients had Vitamin D levels <30mg/L

Mean time from fracture to blood test (or time of arrival in ED) was 30.5 hours.

8 patients had P1NP levels showing suppression of bone turnover (range 16-36).

3 patients had significantly elevated P1NP (98, 248, 104) all with identifiable reasons.

**Conclusion:** The majority of patients in this sample had been on bisphosphonates for more than 5 years and had a low measured P1NP, indicating a good compliance with treatment – contrary to the published compliance with bisphosphonate treatment.

The majority of our patients had duration of treatment for >5years and a low P1NP – indicating treatment is working – but despite this a further fracture has occurred. In one patient the high P1NP identified non-compliance and a treatment change was made.

Ideally we would want to consider an anabolic agent for patients with low P1NP and further fractures but these may not reach the clinical criteria for Teriparatide. Changing treatment to an alternative anti-resorptive agent is unlikely to provide additional benefit as bone turnover is suppressed. Treatment options therefore are to reduce falls risk, ensure vitamin D replacement then either to continue the current treatment or instigate a drug holiday. At present there is limited evidence for either of these approaches. A larger case series would allow follow-up data to be generated for these various approaches and guide further treatment.



SCIENTIFIC RESEARCH – BIOLOGY AND SOCIAL GERONTOLOGY

A FRAILTY PROFILE FOR USE IN THE COMMUNITY: INCLUSION OF PSYCHOLOGICAL VARIABLES IMPROVES PREDICTION OF CARE NEEDS AND FALLS

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**Introduction:** Frailty is defined as a state of high vulnerability for adverse health outcomes when exposed to a stressor. Previous studies have described accumulated deficits profiles of frailty, and their use to predict mortality and institutionalisation is well evidenced. However, community use of frailty assessment in non-medical facilities to inform social care support decisions, lifestyle and prevention strategies has been less explored. This paper describes the validation of a community-based frailty index based on self-declared diagnoses and objective assessments. Importantly, it includes psychological as well as physical variables.

**Methods:** Prediction of outcomes was examined using regression analyses: level of homecare, functional impairment, limitation in social engagement, health service use (GP visits, hospital admissions, duration of stay), falls and death, based on data from older people living independently in extra care retirement villages.

**Results:** Area under the curve (AUC) compared goodness of fit for mortality with other published frailty indices, comparing favourably. Care level and whether or not someone received social care 12 months later was reliably predicted in linear regression. Baseline Physical Frailty predicted 18.4% of the variance in care needs 12 months later but cognitive function added 11.4% and depression a further 2.5%. In logistic regression the tool reliably predicted whether or not someone received social care (Chi-squared = 68.04,  $p < 0.001$ ) and could also distinguish between those who had a fall or not over the next 24 months (Chi-Squared = 10.62,  $p < 0.01$ ).

**Conclusion:** Frailty indices can be used to predict a range of outcomes that are useful in community health and non-clinical environments. Acceptability of use of the tool is being explored with well-being advisors based in extra care villages (community nurses) and older adults themselves to inform health behaviour goal setting, and work to further reduce the number of variables is under way.

SCIENTIFIC RESEARCH – CARDIOVASCULAR

PRE-CAPILLARY PULMONARY HYPERTENSION OF THE ELDERLY: ABOUT A RETROSPECTIVE STUDY

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**Introduction:** Pulmonary hypertension (PH) is a serious disease, complicating many common pathologies. PH seems to be increasing in elderly patients, but it is poorly studied. The aim of this study was to describe the features of precapillary PH in elderly patients and compare them to the features of younger patients.

**Methods:** We performed a single centre retrospective study in the regional centre of Reims, France. Patients with precapillary PH diagnosed by right cardiac catheterization between January 2008 and December 2016 were included. Elderly patients (65 years or more at diagnosis) were compared to younger patients (18-64 years). Post-capillary PH patients were excluded.

**Results:** One hundred and forty-six patients were included: 82 elderly patients (median age 74 years (68-78), 56% women) and 64 non-elderly (median age 54 years (48-61, 5), 52% women). In the elderly group, 31.7% had pulmonary arterial hypertension (PAH), of which 15% idiopathic PAH, 36.6% WHO group 3 PH, 28% WHO group 4 PH, with no significant differences as compared with the younger group. In the 56 patients with PAH, 26 were elderly (46%). Frequency of comorbidities was similar in both groups, except for arterial hypertension, which was more common in the elderly group (52% vs. 34%,  $p = 0.029$ ). Older patients often had lower limb oedema (53.3% vs 36.2%,  $p = 0.045$ ) and a reduced 6-minutes walking distance (189m vs 289,  $p = 0.004$ ). The younger group had lower FEV1 (58% vs 75%,  $p = 0.003$ ) and higher right atrial pressure (12 vs 9,  $p = 0.023$ ). Oxygenotherapy was more often used in elderly subjects (58.5% vs. 34.4%,  $p = 0.004$ ) as well as diuretics (82.9% vs. 67.2%,  $p = 0.027$ ). Three-year and five-year survival were lower in the elderly group (53% and 24% respectively, vs 86% and 63%,  $p = 0.003$  and  $p=0,004$ ).

**Conclusion:** Precapillary PH mainly affects elderly patients. Clinical and para-clinical features seems close regardless of age. After sixty-five years, prognosis seems poor.

SCIENTIFIC RESEARCH – CARDIOVASCULAR

THE EFFICACY, SAFETY AND ACCEPTABILITY OF NON-PHARMACOLOGIC THERAPY FOR ORTHOSTATIC HYPOTENSION IN OLDER PEOPLE: A MIXED METHODS STUDY

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**Introduction:** Orthostatic hypotension (OH) is a common and debilitating condition. Older people have expressed a preference for non-pharmacologic therapies over drug therapies. The current evidence base for its treatment is poor, particularly in older people. Aim: Determine the safety, efficacy and acceptability of single and combination therapies for OH in older people.

**Methods:** A three-stage, mixed-methods study consisting of a phase 2 efficacy study with a nested qualitative study to determine response rate (defined as an improvement in standing systolic blood pressure (SSBP) by  $\geq 10$  mmHg) and acceptability of therapy. Stage One compared SSBP during individual therapy to baseline SSBP. Stage Two explored the acceptability of therapies using semi-structured interviews and framework analysis. Stage Three assessed the SSBP during combination of the most efficacious and acceptable therapies. Participants (all aged  $\geq 60$  years with OH) were recruited from a Falls and Syncope Service.

**Results:** *Stage One.* Response rates to therapies were evaluated in 25 older people (74 years, 60-92): Bolus-water drinking 56% (95%CI 35, 76), abdominal compression 52% (95%CI 31, 72), physical counter-manoeuve (PCM, 95%CI 24, 65), full-leg length compression (95%CI 15, 54).

*Stage Two.* PCM was considered an acceptable therapy as no equipment is required, is only needed during postural change and can be performed inconspicuously. Water was largely acceptable but there were concerns around urinary frequency. Compression stockings were considered unacceptable due to cosmesis, practicalities and discomfort. There were mixed views on the tolerability of abdominal compression. There were no adverse events.

*Stage Three.* Response rates were evaluated in 37 older people (71 years, 60-94). Bolus water drinking + PCM 38% (95%CI 22, 55), water + PCM + abdominal compression 46% (95%CI 29, 63).

**Conclusions:** Due to its superior efficacy, safety and acceptability, bolus water drinking should become standard first-line therapy. Conversely, compression stockings should be disregarded in this population, as they are the least efficacious and most unacceptable treatment. Surprisingly, there is no additional benefit of combining therapies.

**SCIENTIFIC RESEARCH – CARDIOVASCULAR**

**ACS IN ELDERLY “LONG TERM FUNCTIONAL OUTCOME AND TREATMENT PATTERN”: A PROSPECTIVE STUDY AT A TERTIARY CARE CENTRE**

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**Introduction:** Coronary artery disease is a major cause of death in the elderly all over the world and India. Even though evidence based therapies have improved the outcomes as a whole, outcomes in the elderly are equivocal.

**Methods and Materials:** 228 consecutive cases of ACS (as per ACC/AHA guidelines) among the elderly admitted during a period of 6 months were enrolled in our study. Data was collected from EMR as well by personal interview using a semi-structured questionnaire and KPSS. After discharge, the patients were followed up at six months and one year. The mean of delta values of KPSS scores were computed each at 6 and 12 months of follow-up for both the management groups and students’ ‘t’ test was applied for statistical analysis.

**Result:** 62.7% of cases were managed medically while the rest underwent interventions. The mortality in medically treated and those intervened at end of one year was 30%, 29.4% respectively. The mean delta of KPSS score after one year in medically treated and those underwent intervention were -0.9, 2.17 respectively.

**Conclusion:** Elderly ACS patients receive less evidences based treatments. In our study we found that in elderly patients presenting with ACS, interventions including PTCA and CABG have almost similar nonetheless slightly better functional status outcomes compared to those managed medically over long term.

## SCIENTIFIC RESEARCH – DIABETES

### CLASSIFICATION OF OLDER AGE PATIENTS WITH TYPE 2 DIABETES MELLITUS IN TERMS OF SEVERITY AND GLUCOSE LOWERING THERAPY NEEDS USING LATENT CLASS ANALYSIS

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**Introduction:** Older patients with Type 2 Diabetes Mellitus (T2DM) represent a heterogeneous group regarding their metabolic profile. It complicates glucose-lowering-therapy's (GLT) choice and management, as it should be adjusted to this severity of T2DM. This study aimed to identify subgroups existing among older patients with T2DM.

**Methods:** Retrospective study of an observational cohort of outpatients followed in a Belgian diabetic clinic. Included patients (n=147; age=80.16±3.97; female=37%) were all diagnosed with T2DM, age ≥75years and benefited of a Homeostasis Model Assessment (HOMA). A latent class analysis was conducted using HOMA variables (Insulin sensitivity (S),  $\beta$ -cell function ( $\beta$ ) and hyperbolic product ( $\beta \times S$ )) and age at diagnosis to classify patients.

**Results:** The resulting model classified patients into 6 subgroups. Patients in groups 1 (10.9%) and 6 (9.5%) had the oldest age at diagnosis with a preserved  $\beta \times S$ . From Groups 3 to 5, insulin sensitivity decreased, but  $\beta$ -cell function increased inversely, resulting in a moderate decrease in  $\beta \times S$  in all 3 groups. Group 2 (25.2%) had an impaired  $\beta$ -cell function and the lowest  $\beta \times S$ . Mean total Defined Daily Dose of GLT was <1.0 in Groups 1 and 6, between 1.2 and 1.6 in Groups 3 to 5 and of 2.4 in Group 2. In the same way, other metabolic differences were found between groups.

**Conclusion:** This study identified 6 clinically subgroups in terms of severity and metabolic profile among T2DM older patients. Intensity and choice of GLT should be adapted on this basis, in addition to the other existing criteria of treatment individualization.

## SCIENTIFIC RESEARCH – DIABETES

### NEVER TOO LATE FOR DIABETIC KETOACIDOSIS (DKA)

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**Background:** Type 1 diabetes in the elderly is rarely reported. An extensive review of the literature yielded limited reports of new-onset type 1 diabetes in elderly patients. We present one such case in a 77year old female.

**Case history:** A 77-year-old Caucasian female presented with acute delirium. History from husband revealed that the patient had been lethargic for two weeks and had developed polydipsia and polyuria over two days and she had become drowsy on the day of admission. There was no history of significant co-morbidities and no regular medications. The patient did not drink alcohol but had been a heavy smoker.

On examination, the patient was confused, dehydrated and in hypovolemic shock. Rest of the examination was unremarkable with no signs of sepsis. Investigations revealed blood glucose of 47.7mmol/L, pH 6.98, pCO<sub>2</sub> 2.4kpa, HCO<sub>3</sub> 4.7mmol/l, base excess of -27mmol/L, blood ketones 10.5mmol/L and serum osmolality 373mmol/kg.

The patient was diagnosed with diabetic ketoacidosis (DKA) and treatment was started without delay. She improved clinically and Insulin was stopped, but patient reverted back to DKA. She was then commenced on a twice-daily Insulin regime. Further investigation revealed Anti-glutamic acid decarboxylase antibodies of >2000U/ml.

**Discussion:** New-onset diabetes in the elderly is usually classified as type 2 diabetes. However, this patient with ketoacidosis, Insulin dependence, and antibody positivity makes type 1 diabetes more likely. The differential diagnosis includes Latent Autoimmune Diabetes in Adults<sup>1</sup>. This is unlikely in view of rapid progression to insulin dependence.

**Conclusion:** Clinicians should be aware of the possibility of late-onset type 1 diabetes in an elderly patient.

<sup>1</sup> Ray S et al *Med J Malaysia* 2012 Vol 67 No 1

SCIENTIFIC RESEARCH – EDUCATION AND TRAINING

COMMUNITY GERIATRICS TRAINING IS INVALUABLE: A SURVEY OF GERIATRIC SPECIALTY TRAINEES

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**Background:** There is an increasing call for community geriatricians to facilitate the care of frail, multi-morbid, older people in their own homes or care homes. Community geriatrics is a core component of the geriatric specialty training curriculum, but relatively few trainees have access to a dedicated community rotation. We conducted this survey of geriatric registrars to determine the need for and benefits of specific community training.

**Sampling methods:** All geriatric registrars attending a pan-London training day were invited to complete the survey. Trainees self-assessed their level of confidence on a Likert scale across domains including safe early discharge, admission avoidance, advance care planning, managing multi-morbidity, knowledge of community services, and likelihood of pursuing a community-based career. Registrars who had completed a community rotation rated their confidence before and after the rotation. All respondents were asked to elaborate in long form answers.

**Results:** 22 registrars completed the survey: 9 had completed a community geriatrics rotation, 13 had not. The community rotation increased registrars' confidence in safe early discharge (100%), community frailty services (89%), home treatment (78%), advance care planning (100%), creating comprehensive care plans (100%) and managing multi-morbidity (78%). 78% of all respondents felt that a community rotation was essential.

The responses also implied a “veil of ignorance” amongst trainees without access to a community rotation (Noel Burch, 4 Stages of Competence, 1970). They consistently rated their abilities higher than their counterparts' pre-rotation abilities (and lower compared to after the rotation), suggesting that the rotation enables greater self-awareness of previously-lacking skills.

**Conclusions:** A community rotation leads to increased confidence amongst trainees across important aspects of geriatric care. Our survey also suggests it enables trainees to develop previously unrecognised areas for improvement. Increasing access to community geriatric rotations would benefit the future generation of geriatricians. A wider survey of views would be useful.

**SCIENTIFIC RESEARCH – EDUCATION AND TRAINING**

**OLDER PEOPLE SURGICAL OUTCOMES COLLABORATION: ACADEMIC TRAINING AND DEVELOPMENT**

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**Introduction:** OPSOC ([www.opsoc.eu](http://www.opsoc.eu)) is a collaboration of Surgeons, Geriatricians and Epidemiologists who have an interest in surgery in older people. Since 2013, data have been collected in Cardiff, Bristol, Glasgow, Manchester and Aberdeen. It now includes collaboration with centres at Belgium and US. We aim to improve care and outcomes for older surgical patients by carrying out multi- centre research studies, many of which were led by trainees or students.

**Methods:** Data were collected by trainees or students on over 2000 patients over the age of 65 years old admitted with emergency general surgical conditions during different time periods during the years 2013, 2014, 2015 and 2016. Data were stored securely centrally in Cardiff.

**Results:** Trainees and students were the authors of five publications and four further manuscripts are under submission for publications. Trainees had delivered six platform and seventeen poster presentations and won two prizes. Three students had received funding scholarship to be involved in OPSOC. In 2016, the publication was on diabetes and multi-morbidity in 413 emergency surgical older patients. In 2017, the publication was on frailty and kidney function in 402 emergency older surgery patients. The 2018 publication was on anaemia, cognitive impairment and delirium among 653 older acute surgical patients. Manuscripts awaiting publication include anti-cholinergic burden in 452 older acute surgical patients, MALE (Male, Anaemia, Low albumin, Eighty-five years or over) risk score in 1406 older patients, cognitive impairment in 539 older patients, and comparison between operative and non-operative management in 727 older patients.

**Conclusions:** OPSOC has produced numerous studies which have provided useful information in management of older surgical patients. This collaboration provides opportunities for juniors in gaining research training, presentation and publication skills. We hope our collaboration will grow bigger with more studies, publications and presentations. We would welcome collaboration from juniors.



**SCIENTIFIC RESEARCH – EDUCATION AND TRAINING**

**POOR ATTITUDES TOWARDS OLDER PATIENTS AMONGST JUNIOR DOCTORS:  
THE CONTRIBUTION OF MEDICAL UNCERTAINTY**

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**Introduction:** Work to improve doctors' attitudes towards older patients (1) rarely explores why such attitudes exist; this is especially relevant for poor attitudes and their potentially deleterious effects on care (2). This qualitative study explored attitudes towards the older patient amongst junior doctors, from a range of specialities, in a single Trust.

**Methods:** Mixed methods were adopted. An on-line questionnaire was sent to all junior doctors (n=107) with a response rate of 18.7% (n=20). 3 focus groups were held: 2 groups of elderly trainees (n=4, n=2) and 1 medical and orthopaedic group (n=5). A thematic analysis of the data was conducted.

**Results:** Junior doctors had broadly neutral or positive attitudes towards older patients. Negative attitudes were fuelled by workplace pressures such as fragmented teams, little feedback, poor continuity of care and a lack of enthusiasm for teaching. This was reported when working with elderly patients in all specialities. Within elderly teams, work intensity and managing end of life issues were emotionally exhausting and led to negative attitudes towards a career in geriatrics.

Uncertainty in caring for older patients was a strong theme and one not previously widely reported. It took two forms: medical and role uncertainty.

Medical uncertainty created feelings of professional incompetence and futility as junior doctors struggled to treat patients with multiple pathology and frailty whilst anxious about litigation. The multidisciplinary approach to care relies on coordinated collaboration from which participants reported feeling excluded, resulting in uncertainty about their role within the team.

**Conclusion:** This study extends existing research into junior doctors' attitudes towards older patients and highlights the contribution of uncertainty of role and/or uncertainty around medical care in the formation of negative attitudes.

**References:**

(1) Samra, R et al. Age and Ageing 2017; 0: 1-9

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**SCIENTIFIC RESEARCH – EDUCATION AND TRAINING**

**IS THERE SCOPE FOR SIMULATION TO TEACH COMMUNICATION SKILLS?**

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**Introduction:** Communication skills are a key part of Geriatric Medicine. It is common for a clinician discuss advanced care planning or having to break bad news to patients and/or relatives. Despite a variety of teaching courses, it is done poorly in hospitals. I did a literature review to see if simulation can be used to improve communication skills.

**Methods:** I did a literature review using Pubmed.

**Results:** The use of simulation is a teaching method that is increasing to teach a variety of skills. Many authors have established any form of teaching on communication skill is better than learning by the apprenticeship model. The main disadvantage of learning from observing is the possibility of learning bad habits. One of the benefits of simulation is it allows repetition. This gives the learners an opportunity to learn from mistakes in a safe environment. Using simulated patients (SP) can introduce realism. SPs mimic real patients and providing real-time stimuli and cues. Simulation also allows the opportunity to give learners feedback. This can occur during the simulation and also from the debrief. The debriefing period allows the learners to link their experiences to real life given them the opportunity to transfer the learned skills. Despite studies showing the learners' confidence in communication skills has improved, there are no studies that show they have become better communicators in the work place.

**Conclusion:** Simulation is a teaching technique that is being under-utilised. It is often used to teach management of emergencies. Further research needs to be done whether the use of simulation to teach communication skills can be validated.

**SCIENTIFIC RESEARCH – EDUCATION AND TRAINING**

**POSTOPERATIVE DELIRIUM FOLLOWING CARDIOTHORACIC SURGERY: A NURSING PERSPECTIVE**

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**Introduction:** Postoperative delirium following cardiac surgery affects a significant proportion of patients over age 60. This is often under recognised by healthcare professionals and is associated with increased risk of mortality, nosocomial complications, poor functional recovery and long-term cognitive decline. The aim of our study was to determine nursing knowledge and perspective of delirium in cardiothoracic postoperative patients.

**Methods:** A cross-sectional survey was undertaken across cardiothoracic wards (level 1, 2 and 3). Nursing staff completed an anonymous questionnaire encompassing various aspects of delirium, namely: identification, classification, causes, consequences, prevention, management and use of medication.

**Results:** 61 nurses participated, of whom 45% had received training on delirium and 40% had previously worked within an elderly care department or ward. Their years of experience working as a nurse ranged from 3 months to 26 years, with a mean of 8.5 years.

Most respondents could identify some of the correct features of delirium, however incorrectly identified features included language disturbance (59%), gradual onset (54%) and low oxygen saturations (41%). Hypoactive delirium was under recognised with 29% believing that agitation was essential for diagnosis. 14% thought that delirium was a type of dementia and just 31% felt confident differentiating the two.

The majority respondents correctly identified dehydration (85%), surgery (85%), urinary tract infection (82%) and pain (74%) as causes. However, old age (57%), stroke (56%) and stress (49%) were also incorrectly identified as causes. 97% felt that delirium is treatable whereas only 52% believed it is preventable.

Sedation knowledge was reflected by 23% identifying the correct dose of IM haloperidol and 40% reported being unsure. 11% stated sedation was the only effective treatment and a significant amount felt that drugs were often overused in management of delirium due to understaffing. Under acknowledged consequences of delirium included risk of nursing home placement (31%) and death (38%).

All participants stated that knowledge of delirium was important to them and 91% would like more training. 79% felt worried managing postoperative delirium and 34% have considered changing jobs due to associated stress.

**Conclusions:** It is vital that further education and support is provided to cardiothoracic nursing staff. Key areas to include are identification of hypoactive delirium, differentiating delirium from stroke/dementia, consequences of delirium and sedation protocol training.

## SCIENTIFIC RESEARCH – EDUCATION AND TRAINING

### IMPROVING GERIATRIC DISCHARGE COMMUNICATIONS

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**Background:** Comprehensive geriatric assessments (CGA) are becoming an essential part of admission to the geriatric department. We have recently introduced the CGA and multidisciplinary team (MDT) meeting pro forma to collect information surrounding the patient care. Whilst it is important to ascertain these, keeping a permanent record of, and communicating them to the GP is essential for continuity of care.

**Aim:** To improve discharge communications

**Methods:** We audited all the discharge summaries from the geriatric wards over one month and looked whether the following was recorded: 1) the resuscitation status; 2) any advance care plan (ACP); 3) patient's mobility; 4) patient's diet; 5) destination of discharge; and 6) whether a package of care (POC) was put in place. We implemented a poster reminding doctors to document this information, and re-audited the discharge summaries from the following month.

**Results:** In the first cycle (pre-intervention) 66 patients participated (34M, 32F), mean age (SD) 79.3 (15.5). After the poster was implemented the number of patients discharged was 38 (16M, 22F), mean age (SD) 80.3 (9.5). An improvement in the documentation of resuscitation status (19.7% vs 65.8% ( $p<0.0001$ )), advance care plan (13.6% vs 63.2% ( $p<0.0001$ )), mobility (37.9% vs 76.3% ( $p<0.0001$ )), and diet (16.7% vs 52.6% ( $p<0.0001$ )) was seen. Documentation of POC improved marginally (51.5% vs 55.3%) but was not statistically significant. While the recording discharge destination decreased (not statistically significantly ( $p=0.069$ )), remaining high before and after the poster (74.2% vs 65.8%).

**Conclusions:** Recording the essential parts of the geriatric assessment on the discharge summary is improved by using a reminder poster. It serves as a reference baseline allowing future treating clinicians (both GP and in-hospital) to provide continuity of care.

SCIENTIFIC RESEARCH – EDUCATION AND TRAINING

A CONTRIBUTION TO THE AGEING SOCIETY BY INTERDISCIPLINARY EDUCATION: THE MASTER'S PROGRAMME ON VITALITY AND AGEING

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**Introduction:** The world's population is ageing. Ageing societies require innovative professionals enabled with knowledge of biological, individual and societal perspectives to enhance and improve the vitality of older people. Traditionally, education on these perspectives is taught in separate studies. To prepare students to contribute interdisciplinarily to the healthcare sector in an ageing society, we developed the internationally 1-year Master's programme on Vitality and Ageing (2016). The interdisciplinary interaction in the programme is fundamentally embedded by recruiting students from diverse health-related science studies and by offering interfaculty education. Two years after the start, we explore the diversity in admittance, student's progress and the diversity in career prospects.

**Methods:** To assess the admittance, number of applicants and variation in background is described. Student's progress is assessed quantitatively by calculating number of graduations after one year and qualitatively by exploring the diversity in internships. The career prospects are assessed by exploring their working field after graduation.

**Results:** Cohorts started in 2016 and 2017 with 17 and 18 students respectively, in total with 4 (11%) international students. 17 (49%) students had a bachelor medicine as background, 7 (20%) health science, 5 (14%) biomedical science and 6 (17%) other background. The internships were carried out in various institutions (23 (72%) university, 9 (28%) non-university). Twelve (71%) students of cohort 2016 graduated within 1 year, 1 (6%) quitted study and 4 (24%) extended the study-period. After graduation, 4 (33%) students started working in research, 4 (33%) in policy/management and 3 (25%) continued with another study. More data will be available in November.

**Conclusions:** The master's programme on Vitality and Ageing attracts students with diverse bachelor's backgrounds, nationally as well as internationally. The interdisciplinary programme results in diverse internships. After graduation the students start to work in the field of research, policy or they continue studying.

**SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA**

**QUANTIFICATION OF THE IMPACT OF HIP FRACTURE AND THE OPERATIVE PROCEDURE ON PATIENTS’ BASIC MOBILITY IN THE EARLY POSTOPERATIVE PERIOD**

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**Introduction:** Cumulated Ambulatory Score (CAS) is a tool to assess three aspects of basic mobility; get in and out of bed, sit to stand from a chair with armrests and indoor walking. Each activity is scored from 0-2 depending on whether the patient can perform it independently (2), a human assistance is needed (1) or the patient is unable to do it (0)

**Aim:** To study the impact of hip fracture and surgical repair on basic mobility in the early perioperative period

**Methods:** Prospective study of consecutive hip fracture patients admitted to a UK hospital in a 6 months period. Patients’ demographics and CAS pre-fracture, on the first postoperative day and prior to discharge were assessed. Data were downloaded on Excel and analysed using descriptive statistics.

**Results:** 237 patients were admitted in the 6 months study period. 21 patients were excluded; 6 patients were treated conservatively and 15 patients died. 216 were included; 159 females and 57 males with mean age of 83.1 and 79.5 years respectively. The results are summarised in the table.

	Preadmission average	First postoperative day average (reduction %*)	Before discharge average (reduction %**)	Before discharge average (Improvement %***)
Get in & out of bed	1.90	0.94 (51 %)	1.40 (26%)	1.40 (49%)
Sit to stand	1.90	0.81 (57 %)	1.35 (29%)	1.35 (67 %)
Indoor walking	1.84	0.52 (72 %)	1.12 (39 %)	1.12 (115 %)
CAS	5.64	2.27 (60 %)	3.87 (31 %)	3.87 (70 %)

\* Reduction of mobility in the first postoperative day compared to preadmission status

\*\* Reduction of mobility before discharge compared to preadmission status

\*\*\* Improvement of mobility before discharge compared to the first postoperative day

**Limitations:** The hospital stay and rehabilitation period were variable in different patients based on their functional ability, the availability of community rehabilitation facilities and discharge destination and that may have an impact on the basic mobility before discharge.

**Conclusion:** Following hip fracture there is marked objectively measured decline of basic mobility; get in and out of bed, sit to stand and walking.

The most severe negative impact of hip fracture is on the ability to walk and the least is on the ability to get in and out of bed.

Following early rehabilitation the most relative improvement happens in the ability to walk and the least is in the ability to get in and out of bed.

## SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA

### PREVALENCE OF VITAMIN K DEFICIENCY IN HIP FRACTURE PATIENTS

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**Introduction:** Vitamin K plays an important role in normal blood coagulation. Diet is the main source of vitamin K and body stores are depleted in days, hence deficiency is common in older people. A high proportion of older patients who have sustained a hip fracture are already malnourished, compounded by fasting for surgery which might further increase subclinical vitamin K deficiency. We wanted to explore the prevalence of vitamin K deficiency in hip fracture patients and impact of a short period of fasting on this.

**Methods:** In consecutive patients hospitalised with a hip fracture we measured vitamin K levels and PIVKAll (under-carboxylated factor II – a sensitive marker of vitamin K status, undetectable unless deficient) on admission and on first post-operative day. We excluded those on anticoagulants. The study had approval by local ethics committee.

**Results:** N=62 participated; 4 had missing pre-op vitamin K sample leaving n=58. N=2 had no surgery and 1 had conservative management initially with surgery a week later so was excluded, leaving n=55 with paired samples. Mean age was 80.0±9.6y, 33% were male. Prevalence of subclinical vitamin K deficiency on admission was 36% (n=21/58) based on normal laboratory reference range of >0.15ug/L and as per a healthy population. Median time to surgery was 19h [range 8-84h]. The proportion with K deficiency after surgery was 64% (37/55); this change was significant at p< 0.05 by Wilcoxon rank sum test. 13% had detectable PIVKAll levels pre-op and 15% did post-op. None had abnormal prothrombin time. Vitamin K or PIVKAll status were not associated with subsequent post-operative haemoglobin drop or blood transfusion requirement.

**Conclusion:** Prevalence of vitamin K deficiency in hip fracture patients is high and increases further following a short period of fasting. Though no significant impact was noted on perioperative blood loss, larger studies are warranted to explore this and the potential role of vitamin K supplements perioperatively.



**SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA**

***MOVING MEDICINE* - A NATIONAL PHYSICAL ACTIVITY RESOURCE FOR FALLS AND FRAILITY**

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**Introduction:** Evidence overwhelmingly supports the role of Physical Activity and Exercise in the prevention and treatment of a range of chronic health conditions. Healthcare professionals commonly cite barriers such as knowledge, skills, time and confidence in utilising physical activity promotion with their patients. Educational resources specifically supporting evidence based disease specific physical activity counselling in the UK are lacking.

**Method:** *Moving Medicine* is a web-based physical activity educational resource for healthcare professionals covering nine specific disease areas - including falls and frailty. It has been developed through a partnership between the Faculty of Sport and Exercise Medicine and Public Health England and has been funded by Sport England. It provides interactive, evidence based, information on the benefits of physical activity and exercise for both the primary and secondary prevention of Falls and Frailty as well as advice on motivational interviewing and counselling of patients to encourage them to become more physically active. It has been developed alongside healthcare professionals working within clinical Falls and Frailty teams, charities such as Age UK and the British Geriatrics Society and, it is envisaged, will complement the 'Fit for Frailty' guidance developed by the BGS, RCGP and Age UK.

**Discussion:** We will present the evidence displayed in the resource for physical activity in Falls and Frailty and display the interactive content available for healthcare professionals to utilise during their daily interactions with patients.

**SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA**

**SHOULD NECK OF FEMUR FRACTURES (NOFF) BE ADMITTED UNDER JOINT CARE - A REVIEW OF A NOVEL HIP FRACTURE PATHWAY AT PRINCESS ALEXANDRA HOSPITAL**

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**Introduction:** In Princess Alexandra Hospital, a novel approach to manage neck of femur fractures was introduced. Originally, NOFF patients were seen on different wards, and these patients had a high mortality rate. In September 2009 a new hip fracture pathway was introduced where NOFF patients were seen jointly from admission by the medical and orthopaedic teams. NOF patients were streamlined to an orthogeriatric hip fracture unit.

**Methods:** We reviewed mortality data from 2009-2010. We then collected data monthly prospectively until 2014. We reviewed: 1) total number of admissions, 2) time taken for patients to be transferred to an orthogeriatric ward, 3) time taken for patients to be seen by a geriatrician 4) time to surgery 5) mortality rate and 6) average Length of stay.

**Results:** After introduction of the new hip fracture pathway from 2009-2014 the number of patients transferred to an orthogeriatric ward in 4 hours had increased from 21.7% to 68.2%. The average time taken had decreased from 38.8 hours to 9.3 hours. The number of patients who had surgery within 36 hours had increased from 71% to 81.9%. The average time was 26.1 hours (previously 33.2 hours). Patients being reviewed by an orthogeriatrician had increased from 12.5% to 94.3%. Falls risk assessment was increased from 40.4% to 98.7%. Mortality had improved from 16.6% to 5.9%. Length of stay had improved from 20.5 to 17.4 days.

**Conclusions:** The introduction of the hip pathway has improved care for patients with NOFFs. Getting early medical team involvement has helped optimise patients and therefore improve mortality rate and length of stay.

**SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA**

**REVIEW OF NECK OF FEMUR FRACTURE (NOFF) PATHWAY AT PRINCESS ALEXANDRA HOSPITAL**

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**Introduction:** It is well established achieving Best Practice Tariff for patients with NOFF improve patient outcomes. The care standards include, 1) patients with neck of femur fracture should be transferred to an orthogeriatric unit within 4 hours of admission 2) Surgery should be within 36 hours of admission and 3) Assessment by a geriatrician within 72 hours of admission. 4) Fracture prevention assessment (falls and bone health) 5) Multidisciplinary team rehab post-surgery.

**Methods:** We collected data based on the standards prospectively between May 2016 and May 2017

**Results:** Between May 2016 and May 2017, there were 353 admissions. The patients had an average age of 83.5. A total of 215 (60.9%) patients met best practice tariff. 77 (21%) were admitted to the orthogeriatric ward in 4 hours. On average it took 12 hours. The national average was 10.2 hours. 79% (278 patients) had surgery within 36 hours. Of those who did not, 37 (49%) patients did not due to a full trauma list, 31 (41%) were due to no Saturday trauma list. The average time to theatre was 31.7 hours. 33 patients (9.2%) patients were not reviewed by an Orthogeriatrician in 72 hours. 18 of them were because they were not on an orthogeriatrician ward. 98.9% patients were offered bone health and falls risk assessment. 95.6% patients had cognitive assessment. 99.7% patients had physiotherapy assessment on day after surgery. There were 39 (11%) deaths, with bronchopneumonia being a common cause.

**Conclusion:** NOFF patients not being operated within 36 hours correlated with an increased mortality. It is also the biggest factor for the trust to not meet best practice tariff. Improving time to theatre reduces the use of opiates, delirium and bronchopneumonia. A dedicated Saturday trauma list could improve patient outcomes. Bed capacity is often an issue during winter, so further work needs to be done to ring-fence beds for NOFF patients.

SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA

EFFECTS OF ACTIVE VIDEO GAME TRAINING ON POSTURAL CONTROL OF OLDER ADULTS

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**Introduction:** Falls are among the main causes of morbidity and mortality in individuals over 60 years of age. Although their multifactorial origin, reductions in muscle strength and balance are among the main predictors of future events. Evidence from literature suggests that postural instability increases with ageing, mainly during dual-task activities. So, exercise training that challenges both balance and cognitive abilities appears promising in maintaining postural control in older age.

**Method:** This study aims to evaluate the effects of active video game (AVG) training (Xbox kinetic) on postural control of older adults during single and dual-tasks. Thirty-one community-dwelling older adults volunteered to participate in the study and were divided into control group (n=15) and AVG group (n=16). After signing the informed consent form, the volunteers were given structured questionnaires (socio-demographic data and health profile), mental health assessment (Geriatric Depression Scale and Mini-Mental Examination State) and balance tests during single (maintenance of postural stability on stable and unstable surfaces) and dual (maintenance of postural stability on stable and unstable surfaces associated to a secondary cognitive or motor test) tasks. The variables calculated from COP displacement were: total area, root mean square of anteroposterior (RMSap) and mediolateral (RMSml) directions, and mean velocity in both directions. The AVG training was performed 2x/week, during 50 minutes/session, for a period of 12 weeks. For that, different games of kinetic sensors for Microsoft Xbox 360 were used. For all statistical analyses, the significance level was set at 5%.

**Results:** No statistical difference was observed between groups for sociodemographic variables, health profile and mental health at baseline. Task effect was found for stable and unstable surfaces (i.e, COP displacement was greater in dual-tasks). Interaction between group and training was observed for sway area and mediolateral displacement of COP (RMSml). After 12 weeks of follow up, sway area and RMSml during dual task activity increased in control group, while RMSml decreased in AVG group. In older adults, postural oscillation is great during dual task, especially when the primary task is complex (e.g., unstable surface).

**Conclusion:** Exercise-based video games were able to improve the postural stability during dual task of the trained group. More studies are needed to support the benefits of AVG training on dual task performance of older adults.

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**SCIENTIFIC RESEARCH – FALLS, FRACTURES AND TRAUMA**

**IS THERE A ROLE FOR AN ORTHOGERIATRIC MODEL OF CARE IN THE MANAGEMENT OF VERTEBRAL FRAGILITY FRACTURES IN HOSPITAL**

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**Introduction:** Patients admitted to hospital with vertebral fragility fractures (VF) have significant pain, disability and are at risk of poor outcomes. Coordinated multidisciplinary orthogeriatric care (OG) for hip fractures has led to improved outcomes. This study aims to develop the theoretical framework if there is a role for OG for hospitalised VF patients.

**Methods:** A multi-method study was conducted which brought together findings from a systematic review of hospital VF patient's characteristics and outcomes; a cohort study of these patients and their treatment; and a modified-Delphi consensus study of how these patients should be managed.

**Results:** There is a strong argument for spinal orthogeriatric care. Those admitted are older, mostly in their 80s; with a high prevalence of frailty (Clinical Frailty Scale  $\geq 5$ , 60%), multimorbidity (comorbidities  $\geq 3$ , 70%) and cognitive impairment (MoCA  $\leq 22$ , 54%). They are in severe pain and have significant disability. There is variation in pain treatment which did not correlate with patient's pain severity; a lack of cognitive assessment where it was done in 50% of patients; and there is a lack of secondary falls and fracture prevention. Although the majority were non-operatively managed, most patients had input from the surgical team. After an average of 2 weeks in hospital, up to half do not return to their previous residence and care needs. Many at 6 months remain in pain and do not return to their pre-fracture daily living. One-year mortality can be as high as 27%. Worse outcomes were associated with increasing age and comorbidities. Clinicians with responsibility for VF patients agree that a coordinated multidisciplinary approach is needed.

**Discussion:** Those admitted to hospital with VF are vulnerable to the adverse effects of their fracture and hospitalisation. A systematic organised model of care, i.e. orthogeriatric care for these patients can address their care needs.

## SCIENTIFIC RESEARCH – GASTROENTEROLOGY

### ANOREXIA IN OLDER PEOPLE AND ITS TREATMENT: A SYSTEMATIC REVIEW

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**Introduction:** Appetite loss in older people, often termed 'Anorexia of Ageing' (AA), is common. Recognised consequences include undernutrition, sarcopenia, frailty, and in-hospital increased length of stay, morbidity and mortality. Identification and management of AA is important to optimise care of older people.

This systematic review aimed to identify interventions for AA with reported effects on appetite.

**Methods:** The review followed PRISMA recommendations. Study inclusion criteria were participants aged >65, appetite measurement and an intervention for AA or undernutrition. Studies on specific health cohorts e.g. cancer were excluded. Searches were performed in MEDLINE, EMBASE, and CINAHL databases. Reference lists of included articles and relevant reviews were hand-searched. Two researchers independently screened for eligibility and assessed study quality.

**Results:** Authors screened 8729 titles, 402 abstracts and 42 full texts. 16 studies were included. The quality of included studies was largely good with one study rated poor. Settings included own home ( $n=7$ ), care home ( $n=5$ ), rehabilitation ( $n=2$ ) and acute hospital ( $n=5$ ). Three studies had combinations of settings. Appetite was measured by multiple different methods, predominantly utilising Likert scales ( $n=8$ ), or visual analogue scales ( $n=5$ ).

Interventions were categorised into education ( $n=2$ ), exercise programmes ( $n=2$ ), supplementation (fortified food, oral nutritional supplement (ONS), amino acid pre-cursor) ( $n=9$ ), drug therapy (megestrol acetate, nandrolone decanoate) ( $n=3$ ) and meal adjustments ( $n=3$ ). Three studies included combinations of categories.

Education had no effect on appetite. Exercise showed no effect alone or combined with education or ONS. Supplementation gave mixed results with transient appetite depression ( $n=2$ ), no effect ( $n=4$ ) or increases ( $n=3$ ). Drug therapies were mixed: megestrol acetate increased appetite ( $n=2$ ), nandrolone decanoate had no effect ( $n=1$ ). Flavour enhancement increased appetite whilst other meal adjustments (mealtime assistance, increased variety) had no effect.

**Discussion:** Few studies have measured appetite with an intervention for AA or undernutrition. The lack of consensus on how to measure appetite and the heterogeneity of interventions and methodologies makes pooling of results unachievable and it is difficult to draw meaningful conclusions about effects. AA warrants further research as an avenue to treating undernutrition, with its importance in the trajectory to sarcopenia, frailty and ultimately poor outcomes.

**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH**

**GER-e-TEC: TELEMONITORING PROJECT FOR ELDERLY RESIDENTS IN NURSING HOMES**

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**Introduction:** Year on year, the number of patients in the emergency departments from nursing homes continues to grow. It is necessary to provide tools to health care teams for these nursing homes, such as assistance in the prevention of decompensation of some geriatric syndromes.

**Method and Discussion:** The aim of the GER-e-TEC™ project is to study the contribution of tele-monitoring residents in nursing homes of Rouen University Hospital, with a structuring and recording of medical care in order to avoid situations of acute decompensation and complication of geriatric risks.

The objective of the project is to experiment with recorded personalized medical monitoring of the residents of the Rouen University Hospital nursing homes using the E-care intelligent telemedicine platform. The latter assists caregivers by automating the processing of information from sensors and from questionnaires in order to detect and make an early diagnosis of medical risk situations. E-care will provide personalized care for the main geriatric risks, to avoid the occurrence of an acute decompensation factor in the elderly patient. The information collected will be supplemented by codified therapeutic management, following international recommendations, directly usable in nursing homes. The E-care platform uses an intelligent algorithm to process the data and generate alerts based on medical knowledge of the pathologies treated and modelled by ontologies. The general principle adopted by this platform is the anticipation of decompensation through the detection of warning signs that ultimately lead to hospitalization. The collection of information by the platform will increase knowledge of the patients and provide a particularly effective tool for transmission between nursing staff in nursing homes. This information collection will also allow the extraction of markers to improve the early detection of any decompensation and thus improve patient monitoring and reduce the number of hospitalizations. The platform will also provide any paramedical and medical health professional with the resident's geriatric data, which will be updated regularly, including the anthropometric, nutritional, cognitive and iatrogenic data, constituting a real illustration integrated into the electronic platform of the standardised gerontological evaluation, thanks to simple and non time-consuming measures. Geriatric risks will include the risk of falling, constipation, dehydration, confusion, iatrogenicity, undernutrition, heart failure, diabetes, infections and bedsores.

**Conclusion:** This study will start in November 2018.

**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH**

**USE OF RECOMMENDED ASSESSMENTS OF PHYSICAL FRAILITY AND SARCOPENIA IN HOSPITALISED OLDER PEOPLE: IS IT FEASIBLE?**

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**Background:** Frailty and sarcopenia are common among hospitalised older people and associated with poor healthcare outcomes. Recommended gold standard tools for their identification are the Fried Frailty Phenotype and the European Working Group on Sarcopenia in Older People (EWGSOP) criteria. We studied the feasibility of using these tools on acute wards for older people.

**Methods:** Patients aged 70+ years admitted to acute wards at one UK hospital were prospectively recruited. The Fried Frailty Phenotype (unintentional weight loss; exhaustion; physical activity, gait speed and grip strength) and the 5-item self-reported FRAIL scale questionnaire covering the same domains were measured. Agreement between the two tools was reported using the Cohen kappa statistic. The EWGSOP criteria (gait speed, grip strength and muscle mass) were measured: grip strength using a dynamometer, gait speed timed over 4 metres, and muscle mass with a bedside bioelectrical-impedance machine.

**Results:** 233 participants (median age 80 years, 60% men) were recruited. Most (221, 95%) had their grip strength measured: 4 (2%) were unable and 8 (3%) had missing data. Only 70 (30%) completed the gait speed assessment: 153 (66%) were unable to walk with missing data on 10 (4%). Only 113 (50%) participants had the bioelectrical impedance assessment. The test was not feasible among 84 (38%): 25 patients declined, 21 were unavailable, 16 had clinical contra-indications, 22 results were technically invalid. Data on 26 (12%) were missing.

230 (99%) patients completed the FRAIL scale and frailty was identified among 77 (34%). Considering inability to complete grip strength or gait speed assessments as low values, data for the Fried Frailty Phenotype was available for 218 (89%) of participants and frailty was identified in 105 (48%). There was a moderate agreement between the two frailty tools (Kappa value of 0.46, 95%CI: 0.34 to 0.58). Complete data for the EWGSOP criteria were only available for 123 (53%) patients among whom 40 (33%) had sarcopenia.

**Conclusion:** It was feasible to measure grip strength and the FRAIL scale among older inpatients in hospital. Measuring gait speed and muscle mass using bio-impedance to identify sarcopenia was challenging in the acute setting.



SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH

ADHERENCE TO GERIATRIC EMERGENCY DEPARTMENT GUIDELINES IN ROUTINE CARE

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**Introduction:** There is growing interest in the complex health care needs of older people presenting to emergency departments (EDs). Geriatric Emergency Department (GED) guidelines provide recommendations on how to improve care for these patients. The aim of this study was to describe adherence to GED guidelines for older ED patients.

**Method:** A prospective observational cohort study including ED patients  $\geq 70$  years, during two months from 8am until 11pm. The following recommendations of the ACEP GED Guidelines were observed as a proxy for guideline adherence: use of urinary catheters, family presence, use of hospital bed instead of ED gurney, and provision of food. The degree of a stressful environment was measured by counting the number of involved care providers and the number of door movements of the treatment room.

**Results:** In total 998 older patients visited the ED, of which 605 (60.6%) were observed during their ED stay. Urinary catheters were used in 6.8% of all older patients. For 88.8% of patients family was present, 35.6% of patients were nursed on a bed and 7.4% of patients received food during their ED visit. The mean number of involved care providers was 8 (SD=3.7) and the median number of door movements was 41 (IQR=24-62).

**Conclusions:** Geriatric Emergency Department Guidelines adherence is low. The use of urinary catheters and presence of family in the ED seems good, but there is room for improvement of hospital bed use, presence of food and stressful environmental factors. To make sure that routine care follows guidelines, interventions such as education programs and environmental changes seem necessary.

During the conference this data will be compared with data after implementation of a system improvement program.

SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH

OLDER PATIENTS' SATISFACTION WITH EMERGENCY DEPARTMENT CARE

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**Introduction:** Patient-centred care is especially important for the growing numbers of older emergency department (ED) patients, because their complex health care needs may require other outcomes than usually investigated. We therefore investigated satisfaction of older patients with ED care as a starting point to improve care for this patient group.

**Method:** A prospective observational cohort study in ED patients  $\geq 70$  years. Within 7 days after their visit patients received the Picker Patient Experience questionnaire (PPE-15) with additional questions specific for ED care and older patients. Patients were asked to grade their ED visit on a scale from 0 to 10, 10 representing 100% satisfaction. The other questions were grouped into eight domains and coded as a dichotomous 'problem score', indicating the presence or absence of a problem.

**Results:** In total 869 questionnaires were sent of which 374 (43.0%) were returned. Patients graded their ED visit with a mean of 8,6 (SD=1,1). Domains with the highest problem scores were "physical comfort", "shared decision making" and "transition of care". Topics of worst evaluated questions were "presence of food", "shared decision making in use of additional tests" and "attention for living situation prior to discharge", in which 69.0%, 36.1% and 32.6% of the patients indicated the presence of problems, respectively.

**Conclusions:** Overall, older patients are satisfied with their ED visit. But in order to meet the complex health care needs of older ED patients, care providers need to focus more on physical comfort, shared decision making and transition of care. Future studies should investigate if results will improve after generating this awareness.

During the conference this data will be compared with data after implementation of a system improvement program.

SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH

GERIATRIC VULNERABILITY IN OLDER EMERGENCY DEPARTMENT PATIENTS  
ACCORDING TO ELECTRONIC HEALTH RECORDS

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**Introduction:** Older emergency department (ED) patients often have complex care needs and are at increased risk of adverse outcomes. Guidelines indicate that evaluation of geriatric vulnerability can lead to improved outcomes for older patients by optimizing care. The aim of this study was to assess the current registration of the risks in social, physical and cognitive domains as a proxy for clinician's awareness of geriatric vulnerability.

**Method:** A prospective observational cohort study was conducted in ED patients  $\geq 70$  years. Electronic health records were evaluated by 2 independent data abstractors who used pre-defined descriptions of geriatric vulnerability in the social, physical and cognitive domain. Records were classified in one of three categories: in the lowest category no descriptions were registered on geriatric vulnerability and in the highest category descriptions were registered and clearly taken into account in ED management.

**Results:** In 100 included older ED patients (135 health records) inter-rater agreement was good (Cohen's kappa of  $\kappa = .753$ ). In most records (N=72, 53%) no descriptions were registered on geriatric vulnerability. In 50 records (37%) at least one of three domains was described, but it was not clear if this contributed to the clinicians' policy. Only 13 records (10%) were classified in the highest category.

**Conclusions:** Despite guidelines' recommendations clinicians working with older patients in the ED rarely register signs of geriatric vulnerability. This lack of registration may reflect inappropriate clinician awareness and perhaps hampers adequate treatment of older ED patients. Future studies should investigate how to improve guideline adherence, clinician awareness and registration of geriatric vulnerability.

Due to ongoing analyses, during the conference data will be presented on n=2000 patients, including analyses of physician and patient sub-groups.

SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH

PERSPECTIVES ON QUALITY OF TRANSITIONAL CARE FROM HOSPITAL TO HOME FOR VULNERABLE OLDER PATIENTS

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**Background:** Good quality transitional care may partly prevent negative health outcomes and readmissions for vulnerable older patients after hospital discharge. For good quality care, patient satisfaction is important. However, little is known about factors of influence on vulnerable older patients' satisfaction with transitional care. Therefore, the objective of this study is to explore possible factors of influence on vulnerable older patients' satisfaction with the transfer of care from hospital to primary care.

**Methods:** Semi-structured interviews with vulnerable older patients who received homecare after hospital discharge (n=13) and their informal caregivers (n=10) and focus groups with hospital- and homecare nurses (n=9) were performed, audio recorded and transcribed verbatim. By making use of the framework method, factors of influence on vulnerable older patients' satisfaction with the transfer of care were identified.

**Results:** Overall, patients (mean age 85.5 years (SD 1.5) were satisfied with the received transitional care (mean rating 8.1 points (SD 0.3). From the perspective of vulnerable older patients and their informal caregivers, as well as from the perspective of nurses, factors of influence on satisfaction with the transfer of care were assurance of continuity of care before discharge takes place, good continuity of care at the moment of discharge, information provision to both the older patients and the informal caregiver and attention for personal wishes and needs of the patient and the informal caregiver. Furthermore, the factors medication transmission, trust in the professional care providers involved and empathy of the care providers involved were mentioned only by patients and their informal caregivers.

**Discussion:** Transitional care for vulnerable older patients can be optimised by focussing on the organisational factors of assurance of continuity of care before discharge takes place, good continuity of care at the moment of discharge, information provision, attention for personal wishes and needs and medication transmission. Furthermore, we recommend to draw professional healthcare providers' attention to the importance of trust and empathy in vulnerable older patients' satisfaction and to systematically involve informal caregivers in transitional care.

**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH**

**GOAL SETTING FOR PATIENTS WITH MULTIMORBIDITY IN PRIMARY CARE: A CLUSTER RANDOMISED FEASIBILITY TRIAL**

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**Introduction:** Establishing patients' goals, values and priorities is recommended for patients with multimorbidity by the National Institute of Health and Clinical Excellence amongst others. Goal setting has been used in rehabilitation and geriatric medicine, but there is little evidence of effectiveness or guidance about how to do it for general practitioners (GPs) and their patients. We aimed to assess the feasibility of GPs setting goals with patients with multimorbidity and at high risk of hospital admission, with a view to undertaking a future definitive trial.

**Methods:** Cluster randomised controlled feasibility trial of goal setting in 3 intervention general practices compared to usual care in 3 control practices. Eligible patients were adults with two or more long-term conditions, in the top 2% at risk of unplanned hospital admission. The intervention involved training GPs in goal setting, and asking patients to think about their goals, followed by a goal setting consultation, and a follow-up after 6 months. Outcomes were standard scales for quality of life (EQ5D), capability (ICECAP-O), care for chronic conditions (PACIC), and health status and use from electronic health records. All consultations were video-recorded and qualitatively analysed, and focus groups held with participating GPs and patients.

**Results:** Fifty-two participants agreed to participate (response rate 9%). Mean age was 78.7 years (SD 9.2), 46% were women, on median 12 (IQR 9-17) medications, with 69% having slight cognitive impairment. A median of 2 (range 1-3) varied goals per participant were set, commonly on management of chronic conditions, walking, and maintaining interests. As expected for a feasibility study, there were no substantial significant differences on quality of life or health care use. The process of goal setting was better when the patient had thought about goals in advance. Goal setting was acceptable to patients, who wanted more continuity of care to follow up goals. All the GPs liked setting goals and felt it helped care be more patient-centred.

**Conclusions:** This goal setting intervention was very acceptable to GPs and patients, recruitment and retention were sufficient, and outcome data could be collected. A larger, definitive study is needed to establish the effectiveness and cost effectiveness.

**SCIENTIFIC RESEARCH – HEALTH SERVICES RESEARCH**

**PHYSICIANS' ATTITUDES TOWARDS DEPRESCRIBING**

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**Introduction:** Deprescribing has been proposed to address the growing problem of polypharmacy. A local study involving patients attending public primary healthcare clinics in Singapore showed that majority of the patients were keen to have medications deprescribed if deemed appropriate by their prescriber. A survey of Vancouver physicians however showed that while most doctors were keen to deprescribe medications, prescription by another healthcare specialist was a barrier towards deprescribing. While this study was conducted overseas, there is paucity of literature available on the attitudes of doctors towards deprescribing in the local context. Hence this study aimed to elucidate physicians' attitudes towards deprescribing.

**Methods:** The study was conducted in Tan Tock Seng Hospital (TTSH) from October 2017 to March 2018. Physicians in the department of Geriatric Medicine (GRM) and Internal Medicine (IM) were recruited. A self-developed questionnaire was used for the study, which was developed after reviewing the literature on prescribers' attitudes towards deprescribing. Survey questions were grouped into four themes: attitudes towards deprescribing, ability and skills to deprescribe, environment or work culture-related barriers, and patient-related barriers towards deprescribing.

**Results:** A total of 80 physicians completed the questionnaire (38 from the department of GRM and 42 from IM). Most (98%) felt that deprescribing is beneficial for their patients, and 86% reported being motivated to deprescribe. Physicians reported being most comfortable deprescribing statins, and least comfortable deprescribing antiplatelets or anticoagulants. Physicians generally felt that there is a lack of guidelines or training to assist them in deprescribing (58%), which corresponded to the finding that provision of training or guidelines would help physicians deprescribe confidently (70% and 83% respectively). The most commonly cited work culture barrier was the hesitancy to stop medications prescribed by other healthcare professionals (84%). Difficulty and time required to explain to patients or their caregivers the rationale of deprescribing was the most common patient-related barrier (36%).

**Conclusion:** Our study has shown that physicians are willing to deprescribe medications for their patients. Efforts can be done in raising awareness on the availability of deprescribing guidelines, as well as potential collaboration with physicians to adapt these guidelines to the local context.

**SCIENTIFIC RESEARCH – NEUROLOGY AND NEUROSCIENCES**

**YIELD OF CT BRAIN SCANS IN VERY ELDERLY PATIENTS WITH ACUTE  
CONFUSION: A RETROSPECTIVE STUDY AT A DISTRICT GENERAL HOSPITAL**

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**Background:** Delirium is a common complaint in hospital with inpatient prevalence of delirium of up to 30 percent (Ryan et al, 2013). Many patients with delirium have neuroimaging performed, typically a CT Brain. Limited retrospective studies have shown that the yield of neuroimaging in this population is low (Hufschmidt et al, 2008)

**Method:** This retrospective study considered patients over the age of 85 who underwent a CT head with the indication of new onset confusion (or related term) when seen in the Hereford County Hospital Emergency Department over a period of a year. Patients with lateralising neurology or clearly witnessed trauma/head injury were excluded. Main outcome measured was the presence of an acute abnormality on the CT (e.g. bleed, fracture, stroke). We also recorded use of anticoagulants and its association with a positive finding on CT, the number of CT scans done during the typical hours of sleep (10pm to 8am) and to what extent the CT scans with a positive finding impacted on management (qualitatively assessed).

**Results:** There was a significant finding in 12/111 scans that were eligible for inclusion in the study (10.8%). In 12 patients due to inadequate or unobtainable documentation we were unable to accurately determine if the patient was on an anticoagulant at the time of CT. 15/99 (15.1%) of those scanned were on an anticoagulant although in our study only 1/11 positive scans were in patients on an anticoagulant (9.1%). 30/111 (27.0%) of scans were performed between 10pm and 8am and these were not more likely to have positive findings. Of the 12 positive scans, 7 were intracranial, subdural or subarachnoid haemorrhages, none of which had neurosurgical intervention and all of which were managed conservatively with a high mortality. 4 were ischaemic strokes (some subacute) given secondary stroke prevention and 1 showed a fracture (due to unwitnessed head injury).

**Discussion:** The yield of CT Head in the very elderly (>85 years of age) presenting to our rural DGH was relatively low (10.8%) and as such this test could be reserved for those with a high index of suspicion for an intracranial cause and should not be considered a routine investigation.

## SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS

### REVIEW OF ANIMAL ASSISTED THERAPY WITH VISITING DOGS IN DEMENTIA

A Farid

*No provenance declared*

**Introduction:** Dementia is complex clinical syndrome, which is progressive and irreversible and is associated with significant effect on mental function. Behavioural and Psychological symptoms of dementia are complex, having impact not only on the patients, but also their carers. (*NICE Guidelines, 2016*). Treatment of Dementia is complex and is associated with side effects.

Animal assisted therapy has been found to help evoke awareness of the patient's past and help connect with inner feelings. (*Swall et al., 2014*)

**Objective:** The objective of this review is to look at current evidence in the use of visiting dogs in dementia as of 31st March 2017.

**Method:** Database searches involving six relevant databases of CINAHL, Psycinfo, Cochrane Database, British Nursing Index and AMED was conducted. Also, manual searches were done based on references. MESH words were used. This yielded 28 studies. All selected studies were critically reviewed. Only Quantitative studies in English language were studied.

**Findings:** Total number of participants in the study varied between 4 and 124. Women outnumbered men except in 2 of the studies. Most of these studies were undertaken in the nursing and residential homes. Most studies were done in North America followed by Europe. Most studies used large dogs. Retrievers and Retriever crosses were the most common breeds used. Duration of study varied between 3 minutes to 3 hours with most studies having duration of 60-90 minutes. Also, duration of studies ranged between 4 days and 1 year.

**Results:** *Depression:* There was positive effect on depression with animal assisted therapy in most studies; *Agitation:* Most studies showed a positive benefit on agitation following animal assisted therapy; *Anxiety:* There was no definitive benefit noticed with therapy; *Quality of life scores:* This showed a positive benefit with therapy; *Social functioning:* there was improved social functioning noted with animal assisted therapy; *Hallucinations:* there was no benefit noted with hallucinations after animal assisted therapy; *Passive Behaviour and apathy:* Studies showed positive correlation with these symptoms; *Cognition:* There were mixed results as regards to cognition; *Diurnal rhythm disturbances:* There were mixed results as regards to diurnal variation of symptoms; *Medication use:* No significant differences were demonstrated with animal assisted therapy; *Caregiver burden:* Caregiver stress had decreased following animal assisted therapy.

Limitations: there were only 7 RCTs and each looked at a different domain.

**Conclusion:** Dog assisted therapy could have a positive effects on some aspects of dementia. Further randomised control trials are needed.



**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**SCREENING OF FRAILTY IN THE ELDERLY PATIENTS ADMITTED IN AN EMERGENCY UNIT. ABOUT A PROSPECTIVE STUDY**

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**Introduction:** At present, it is recognised that screening for frailty in the elderly is a major public health issue.

**Method:** A prospective study was carried out in subjects over 75 years old, coming to the Emergency department of the hospital of Troyes, from August 24th 2017 to August 30th 2017 and benefiting from the screening of the frailty by the use of the grid known as SEGAm (modified Short Emergency Geriatric Assessment) grid A; this correlated the scale with the subjective opinion of the nurse and the senior physician.

**Results:** 100 patients were included during this period, with an average age of 84.34 years (75-97), and a female predominance (56 patients, 56%), mean Charlson score of 4.28 (0- 11). The number of patients who came from home was 77 (77%). The medical history was dominated by cardiovascular pathologies; the admission pattern for elderly subjects in the series was dominated by falls for 26 subjects (26%). Hospitalisation was selected for 52 elderly subjects (52%). The average SEGAm score was 6.3 +/- 3.59. The SEGAm scoring time (pane A) was about 4min. According to Cohen's Kappa, the agreement is the average between the subjective opinion of the nurse and the mSEGA grid A, while it was good between the subjective opinion of the senior / internal doctors and the mSEGA grid A.

**Conclusion:** The SEGAm score appears to be a suitable and useful score for Emergency Unit assessment. It is easy to use, allows an overall assessment of the patient and is not time-consuming. The objective of this work is to be able to detect the frail subjects and to engage the mobile geriatric team in order to prevent the appearance or even the aggravation of possible geriatric syndromes.

**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**FRAILTY AS A PREDICTOR OF 12-MONTH MORTALITY IN OLDER PATIENTS UNDERGOING EMERGENCY LAPAROTOMY: A PROSPECTIVE STUDY**

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**Introduction:** Older patients undergoing emergency laparotomy have high rates of in-hospital mortality but less is known about their long-term survival. Whilst frailty is an established predictor of poor outcomes, evidence supporting the use of frailty scores in predicting mortality is limited. This study describes the influence of dependency, frailty score and ASA score on long-term outcomes including 12-month mortality and readmission rates.

**Methods:** All patients aged 75-years or older who underwent emergency laparotomy between 8th September 2014 and 30th March 2017 were included in this prospective non-randomised study. All patients were assessed for dependency in basic and instrumental activities of daily living (ADLs), frailty (using the Clinical Frailty Scale (CFS) score with a score of 5-9 defined as frail), and ASA grade. Primary outcomes measured were 12-month mortality and readmission rates.

**Results:** 113 patients were included with a mean age of 81.9±4.65 years. At presentation, 103(91.2%) and 79(69.9%) were independent of bADLs and iADLs respectively. 37(32.7%) had a CFS score of 5-9 and prevalence of frailty increased with age.

Despite no significant difference in length of stay between the cohorts, mean time to readmission was significantly shorter in frail individuals (266 days vs 451 days, p=0.009).

88(77.9%) patients survived to discharge (82.9% CFS 1-4 vs 67.6% CFS 5-9 p=0.065) and 12-month mortality was significantly higher in the frail population (59.5% vs 28.9%, p=0.002). Multivariate analysis showed that frail patients were 7.068 times more likely to die within 12-months. Other significant predictors of 12-month mortality included ASA score III-IV (p<0.001) and dependency for instrumental activities of daily living (p=0.037).

**Conclusions:** Frail patients undergoing emergency laparotomy have a shorter time to readmission and a higher 12-month mortality rate. We advocate the use of CFS alongside assessment of ASA grade and functional status in guiding decision making in older people requiring emergency laparotomy.

**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**TRIAL WITHOUT CATHETER: THE ROLE OF BLADDER FILLING PRIOR TO REMOVAL OF URETHRAL CATHETERS. A SYSTEMATIC REVIEW OF RANDOMISED CONTROLLED TRIALS**

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**Scope:** Urinary catheters are commonly used with hospital prevalence highest in patients over 70. In acute care, the risk of catheter-associated urinary tract infections significantly rises after two days with associated risks of sepsis, death, and estimated NHS costs of £1700/episode.[1] New initiatives are needed to minimise catheter-related harm including delirium and functional decline in older adults. Bladder filling with fluid prior to catheter removal presents a possible technique to facilitate early removal. However the clinical effectiveness of this procedure remains unclear.

**Search Methods:** A systematic review of four databases (MEDLINE, EMBASE, CINAHL and The Cochrane Central Register) was conducted in February 2018 for RCTs of bladder filling procedures prior to catheter removal in adults, compared to standard care. Risk of bias was estimated using Cochrane guidelines and quality of evidence was assessed using the GRADE criteria.

**Results:** 5893 studies were identified, four met eligibility criteria. All studies were small, indications for catheterisation were exclusively peri-operative or acute urinary retention. The majority of included patients were male. Age was documented in two studies, one reported a range of 45-87, the other a median of 70.5. We found some evidence to suggest that bladder filling procedures reduced the time to decision of TWOC outcome. There was inconsistent evidence regarding re-catheterisation rates and time to discharge. All studies had a high risk of bias with reported outcomes assessed to be of very low quality.

**Conclusion:** There is no definitive evidence that bladder filling is superior to standard catheter removal procedures. Given the number of patients requiring this procedure, many of whom are older, defining the optimal protocol is important for quality, safety and cost. Further randomised controlled trials in relevant hospital and community populations are required.

**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**WHAT FACTORS KNOWN AT THE TIME OF ADMISSION ARE PREDICTIVE OF INCREASED MORTALITY: A RETROSPECTIVE LINEAR MULTIPLE REGRESSION ANALYSIS OF ADMISSION DATA FROM 23,151 NEW PATIENT EPISODES**

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**Introduction:** An in-house tool, “Tracker”, was developed. It recorded data on dates and times of arrival, referral, clerking, “Post-take” review and discharge. Tracker also collected demographic data, predicted length of stay (pLOS) and diagnoses (within free text fields). Frailty was screened for. It was considered that these data would enable us to explore factors associated with increased mortality.

**Methods:** We carried out a linear multiple regression analysis using the statistical package “R studio”. Data were collected from the Tracker for patients admitted via the Acute Medical Unit from 08/07/2016-11/04/2018. Records that were missing data points were excluded. 23,151 admissions were assessed.

**Results:** There were 1454 deaths (6.3%). There were 10875 (47%) men and 12276 (53%) women. Ages ranged from 16.0 to 108 years (mean 67.9, median 72.9).

Many variables were associated with increased mortality, whereas hyponatraemia and admission outlier ward were associated with a low mortality (see table).

Variable	Relative risk of death	95% Confidence Interval	p
Male sex	1.36	1.20-1.55	1.9e-6
Recent discharge from hospital	1.25	1.09-1.43	0.001
Frailty	1.79		<2e-16
Age 70-80	4.30	3.20-5.78	<2e-16
Age 80-90	7.32	5.49-9.77	<2e-16
Age 90+	11.0	8.04-15.0	<2e-16
pLOS (exponential increase per day pLOS)	1.02	1.02-1.03	9.8e-13
Pneumonia	1.34	1.12-1.61	0.001
Heart failure	1.31	1.03-1.68	0.029
Cancer	2.24	1.72-2.92	1.9e-9
Acute kidney injury	1.92	1.56-2.35	5.1e-10
Liver disease	1.93	1.37-2.72	1.9e-4
Hyponatraemia	0.42	0.18-0.97	0.043
“Outlier ward”	0.64	0.54-0.77	2.8e-6

**Conclusion:** This analysis found frailty, advanced age, cancer, AKI and liver disease were the strongest predictors of mortality. Although the study appears large with 23,151 admissions, some diagnoses had low numbers and so did not attain significance. It is likely that many active diagnoses and comorbidities were missed, as only 637 (3%) patients recorded as having delirium. Future iterations of Tracker will capture more diagnoses, leading to more complete, accurate data.

**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**ADVANCED AGE AND THE PRESENTATION OF FRAILITY, RATHER THAN SINGLE SYSTEM DIAGNOSES, ARE THE MAIN PREDICTORS OF INPATIENT LENGTH OF STAY: A RETROSPECTIVE LINEAR MULTIPLE REGRESSION ANALYSIS OF 23,151 ADMISSION EPISODES**

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**Introduction:** To aid discharge planning we have investigated the accuracy of the predicted length of stay (pLOS) in a district general hospital. To improve the accuracy of the pLOS we have developed a computer algorithm to generate a pLOS from data on an electronic patients tracking application “Tracker”. It recorded data on dates and times of arrival, referral, clerking, “Post-take” review and discharge. Tracker also collected demographic data, predicted length of stay (pLOS) and diagnoses (within free text fields). Frailty was screened for. As part of this process it was decided to see if there were any variables identifiable at the time of admission that would be predictive of a longer hospital stay.

**Methods:** A key stage was estimating the effect of various demographic and clinical variables on length of stay (LOS), to help generate the computer model. We carried out a linear multiple regression analysis using the statistical package “R studio”. Data were collected from the Tracker for patients who were admitted via the Acute Medical Unit from 08/07/2016 to 11/04/2018. Records that were missing key data points were excluded. 23,151 admissions were assessed.

**Results:** There were 1454 deaths (6.3% crude mortality). There were 10875 (47%) men and 12276 (53%) women. Ages ranged from 16.0 years old to 108 years (mean 67.9, median 72.9). LOS ranged from 0 to 213 days (10.0 mean, 5.5 median).

The baseline LOS was -1.1 days and variables either added to or subtracted from this. Variables (effect in days) that clinically (>1 day) and statistically significantly affected LOS are seen in the table. The effect of these variables is summative as they have their effect independently.

Variable	Mean effect on LOS (days)	95% confidence limits (days)	p
Frailty	3.8	3.3-4.3	<2e-16
Urinary Tract Infection	2.0	0.48-3.4	0.009
Parkinson’s	14.5	10.6-18.4	2.6e-13
Falls	5.3	4.3-6.4	<2e-16
Dementia	1.8	0.34-3.4	0.016
Delirium	2.8	1.6-4.1	5.9e-6
Hyponatraemia	3.9	1.7-6.1	0.0006
Acute Kidney Injury	1.4	0.41-2.3	0.005
Non-specific (Off legs, immobility, acopia etc)	3.5	2.2-4.8	1.5e-7
Constipation	2.8	1.1-4.4	0.001

Age 70-80	2.5	1.9-3.2	1.1e-14
Age 80-90	4.2	3.5-4.8	<2e-16
Age 90+	5.0	4.0-6.0	<2e-16
Acute Coronary Syndrome	-1.6	-(0.62-2.5)	0.001

**Conclusion:** It is striking that the factors increasing LOS are all variables affecting predominately older patients. Indeed advancing age also had a major effect in increasing LOS. The more “classical” and “straightforward” system based pathologies and diagnoses were associated with little effect or a reduction in LOS.

## SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS

### URINALYSIS AND UTI IN GERIATRIC PATIENTS - A REVIEW OF PERFORMANCE IN A DISTRICT GENERAL HOSPITAL

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**Introduction:** Dipstick urinalysis is a cheap, quick, and simple bedside investigation. While there are issues with asymptomatic bacteriuria and potential inappropriate antibiotic use in the elderly, urinary tract infection (UTI) remains a common and potentially serious condition in these patients. Urinalysis can effectively exclude UTI (Devillé et al., BMC Urol, 2004, 4:4), and considering geriatric patients frequently present atypically with more non-specific signs and symptoms of infection (Gavazzi & Krause, The Lancet Infectious Diseases, 2002, 11:655), urinalysis remains worthwhile. As such we decided to review the use of urine dipsticks in our Trust.

**Methods:** Over one month we reviewed patient records recording: indication for urinalysis, urinalysis done/not done (admission complaint only) and results, medical plan requesting urinalysis, and documentation for why urinalysis/culture sample was not sent. This was a convenience sample of 30 randomly selected inpatients >75 years old, on a geriatric ward.

**Results:** The mean patient age was 87.5 (76 – 100) years old. There was documented suspicion of infection where UTI could not be excluded and/or renal impairment in 28/30 (93.3%). 9/28 (32.1%) of patients had neither urinalysis nor documentation as to why not, 4/9 (44.4%) of these had no medical plan requesting urinalysis. 5/28 (17.9%) patients had a medical plan requesting urinalysis but it was not done. 12/20 (60%) dipsticks were positive for leucocytes and/or nitrites, and 11/12 (91.7%) of these were sent for culture. 16/20 (80%) of dips were done in the ED or AMU.

**Conclusions:** Our review suggests urinalysis is justified in the majority of geriatric admissions. We also demonstrated it is still poorly carried out with 32% of indicated dipsticks not completed. Common reasons for requesting included: confusion or infection of unknown origin, in addition to patients with high suspicion of UTI with a need to determine a causative organism. We therefore recommend that despite recent guidance potentially suggesting otherwise, Geriatricians should still consider urinalysis as a crucial investigation for the majority of geriatric patients.



SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS

CHARACTERISTICS AND OUTCOMES FOLLOWING EMERGENCY ADMISSION  
AMONGST OLDEST OLD IN A DISTRICT GENERAL HOSPITAL

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**Background:** In the last decade emergency admissions of older adults have risen by 50% among those  $\geq 90$  years compared to a 10% increase in the 65-69 year age-group. Total number of bed days following emergency admission have decreased for people aged 65-84 but increased for those aged  $\geq 85$  years. We aimed to understand characteristics and outcomes following emergency admissions amongst the oldest old.

**Methods:** In this retrospective study we reviewed 50 emergency admissions in each of the  $\geq 95$  and 80-94 year age-groups. The dependant variable was age group and independent variables were; National Early Warning Score (NEWS) on admission, comorbidities, length of stay (LOS), residence on admission and discharge, in-hospital mortality, advance care planning at admission and discharge, do not resuscitate (DNR) orders at admission and discharge and 28 day readmission.

**Results:** There was no significant difference between co-morbidities, average LOS was higher amongst  $\geq 95$  years old (10 days vs 8 days,  $p=0.08$ ). A significantly higher proportion recorded NEWS  $>7$  on admission (14% vs 6%,  $p=0.05$ ), were admitted from care homes (33% vs 12%,  $p=0.02$ ). Not for resuscitation orders were in place for (45% Vs 52%) at the time of admission, significantly more patients were discharged with resuscitation orders (88% vs 66%  $p=0.045$ ). Only 4% of patients  $\geq 95$  years had advance care planning on admission, this rose to 32% on discharge. Mortality was significantly higher in the  $\geq 95$  year group (20% vs 10%,  $p=0.04$ ), there was no significant difference in readmission rates adjusted for mortality.

**Conclusion:** In this study, a higher proportion of emergency admissions in the over 95s are from care homes, they have higher NEWS scores and significantly higher in hospital mortality. By identifying these differences, it may be possible to tailor community care; improving advanced care planning in care homes, avoiding inappropriate emergency admissions and thereby enhancing end of life care.

**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**TO WHAT EXTENT ARE OLDER PEOPLE LIVING WITH CANCER INVOLVED IN THE DECISION-MAKING PROCESS REGARDING TREATMENT AND SUPPORT?**

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**Introduction:** Improving cancer care for all is a priority. Comprehensive assessment is acknowledged as a useful means to identify comorbidities and functional challenges in older people living with cancer. Current studies mainly ascertain the benefits of risk identification and shared decision making amongst the cancer inter-professional team. Our aims were to examine the range and nature of literature exploring how and to what extent older people are involved in decision making relating to their cancer care.

**Method:** A scoping review of the literature from 2001 to present was executed using the methods defined by Arksey and O'Malley (2002). Systematic searches were conducted using the following online databases CINAHL, MEDLINE, PsychINFO and EMBASE to locate articles relating to the research question. The concepts were cancer, older people, complexity and qualitative research with corresponding synonyms. Qualitative studies were sought to provide an insight into people's experiences.

**Results:** Preliminary findings indicate a number of factors that influence whether older people choose to accept or decline recommended treatment. These include relationship with physician: trust, communication and recommendations; possible adverse side effects of treatment and experiences of significant others as a consequence of treatment. None of the studies identified explicitly addressed the research question of this review. Nil focused on individual's experiences of decision-making.

**Conclusion:** We have identified significant gaps in the knowledge highlighting the need for further exploration of this important area. Increased understanding of older adults' involvement in decision-making throughout the cancer trajectory will improve how health care professionals prioritise the preferences of the person in determining what they want from their health care. This will positively influence workforce development and service delivery to identify the need for a person centred approach to ongoing supportive treatment, recovery and/or anticipatory care planning for end of life.

Arksey and O'Malley. (2002) *International Journal of Social Research Methodology* 8 (1) pp 19-32

## SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS

### A RETROSPECTIVE COHORT STUDY: READMISSIONS AND MORTALITY OF PATIENTS DISCHARGED FROM IMC OVER A 12 MONTH PERIOD

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**Objective:** To measure the readmission and mortality rate of patients who have been discharged from intermediate care (IMC) and the association between, co-morbidities, poly-pharmacy, re-admission and mortality in intermediate care patients.

**Procedures:** Retrospective cohort study using electronic data, patients' records and GP mortality rate records of 332 patients.

**Results:** Overall Intermediate Care continue to be predominately female with an average age of 82 years old, female to male ratio was 2:1. More than 80% had more than 4 long-term conditions and more than 4 prescribed medications. 12 months of readmission and mortality rate was high at 67% and 38% respectively. The largest proportion was within 30 days of discharge. A strong association between more than 4 Long Term Conditions and readmission (P=0.0000038), readmission and mortality (P=0.002).

**Conclusion:** The results of this study showed a possible weakness in the referral pathway of patients to IMC High readmission and mortality rates, within 12 months of discharge, should be considered when admitting patients to IMC.

Polypharmacy is an under-recognised cause of mortality, and prompt medications review should be conducted in the hospital, IMC and community. Referral pathway needs to be more robust in identifying appropriate and high-risk patients. The inclusion of frailty scores and specialist review prior to IMC admission may help identify suitable patients, the admission to IMC is not without risk, and this should be discussed with patients prior to admission

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**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**USE OF IoT AND SMART CITY SERVICES TO REDUCE ONSET OF MCI AND FRAILITY IN TWO DIVERSE AND CONTRASTING COMMUNITIES OF BIRMINGHAM**

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**Introduction and Method:** This paper describes the on-going work of Birmingham City4Age Project, managed by Birmingham City Council working with University Hospitals Birmingham, NHS Foundation Trust and funded by the Horizon 2020 Programme of the European Commission focused on the unobtrusive collection of data via wearable devices, outdoor sensors and other smart city systems that aims to help reduce the onset of frailty of older people. Locality and contextual data is being captured on individuals' behaviours with increased frequency to help detect early changes in daily living - physical activity and social patterns and develop technology based interventions to help reduce the risk of frailty.

It is being validated in 2 wards in Birmingham with contrasting demographics. The first study pilot started May 2017 in the affluent ward of Sutton Coldfield; average life expectancy is reported at 81.7 (males); there are 27 participating care-receivers with mean age 72. The second study is in Yardley - one of the 20% most deprived areas of England; average life expectancy is 76.9 (male); currently 28 participants with mean age 70. The Yardley pilot has a significantly higher percentage living alone (71% compared to 11% in Sutton Coldfield) recognised as an attributable risk factor of frailty and characteristic with an area of high deprivation.

**Initial results:** Initial frailty level has been assessed and validated in the Sutton Coldfield pilot through three different methods, practical and non-invasive using a series of tests that include: "The Edmonton Frailty Scale", which examines levels of cognition, general health status, functional independence, social support, use of medication, nutrition, mood, continence, functional programme (1 vulnerable; 26 not frail); Frailty Test SHARE (27 not frail); Mini-Cog (3 pre-frail). Main positive results include good level of health and participation of care-receivers in Sutton Coldfield with high levels of physical activity and social interaction. Comparative clinical assessment results from Yardley is pending but from initial profile and socio-economic survey data provided by participants these indicate increased social isolation; lower digital skills and increased health problems. Following the frailty assessments, technology supported interventions will be delivered that address both frailty status alongside contributing socio-economic, cultural, ethnicity, environmental and technology readiness (e.g. skills) factors to help delay the onset and progression of MCI and frailty and maintain independence.

**SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS**

**CLINICIAN ATTITUDES REGARDING THE UTILITY OF FRAILTY TOOLS IN MANAGING OLDER ADULTS WITH END STAGE KIDNEY DISEASE: LITERATURE REVIEW AND SURVEY STUDY**

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**Background:** The incidence and prevalence of End Stage Kidney Disease (ESKD) in Australia is rising, with the fastest increase seen amongst older adults, above the age of 65 years. However, the rate of increase of the number of older adults on dialysis has slowed over the last five years. This maybe owing to emerging evidence of the limited benefit and potential deleterious effects of dialysis initiation in frail older adults. Frailty, a clinical syndrome of increased vulnerability to adverse health outcomes, is predictive of survival in the renal population. However, there is not yet a widely accepted frailty tool for routine use in managing older adults with ESKD.

**Aims:** To describe clinicians' attitudes and practices in using a frailty tool as a decision-making aid, in older adults with ESKD approaching the need for dialysis.

**Methods:** A literature search was conducted using three online databases PubMed, Embase and Cochrane Library, with a focus on frailty assessment in ESKD. Eight studies were included in the final literature review following consideration of inclusion and exclusion criteria. A questionnaire was subsequently developed, with input from two nephrologists and three geriatricians. A prospective cohort study was undertaken. Participants were clinicians in geriatrics and nephrology. A secure web-based survey was conducted over a 12-week period from 8th May to 31st July 2017.

**Results:** 133 of 1161 clinicians responded, reflecting a crude response rate of 11.3%. The majority (81%) were geriatricians. Sixty-one percent of respondents usually or always assessed frailty. Only 36% routinely used a validated frailty tool. The most commonly used frailty tool was the Clinical Frailty Scale. Simplicity (92.3%) and utility as a bed side test (93.8%) were important attributes of a frailty tool.

**Conclusion:** There exist valid frailty assessments which can be used to prognosticate ESKD patients. Clinicians value the concept of frailty. However, frailty tools appear underutilised. If widely accessible and simple to complete as a bedside test, frailty assessment can be valuable in managing older adults with ESKD.

## SCIENTIFIC RESEARCH – OTHER MEDICAL CONDITIONS

### PSYCHOMETRIC CHARACTERISTICS OF MULTIDIMENSIONAL ASSESSMENT TOOLS FOR THE OLDER ADULTS: A SYSTEMATIC REVIEW

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**Topic:** Multidimensional instruments to assess health needs of older adults should be comprehensive and systematic, raising biopsychosocial information and identifying needs and resources to care management. To ensure the quality and effectiveness of the instruments, they must be valid and reliable.

**Objective:** This study aimed to conduct a systematic review of the literature on valid and reliable multidimensional instruments to assess health needs of older people. It also aimed to identify cross-cultural adaptations of these instruments for Brazilian population.

**Method:** A search was conducted in the Pubmed, SciELO, Scopus and LILACS from the beginning until January 2018. The key words "multidimensional geriatric assessment", "validity", "reliability" and "older adults" were combined and used in the search. Additional investigation was performed in Google Scholar database to obtain cross-cultural adaptations for Brazilian population. Two reviewers independently examined and excluded studies based on their title and abstract. After that, suitable studies were selected using the following eligibility criteria: 1) development and/or validation study; 2) sample of older adults (age  $\geq 60$  years), 3) published in English and/or Portuguese, and 4) assess at least three dimensions including: biological conditions (e.g., health status and mobility), psychological (e.g., cognition and mood disorders) and socio-environmental (social support and housing conditions). Studies that 1) were duplicate, 2) included older subjects with specific diseases (e.g., Alzheimer disease), 3) were identified as not being the original validation (i.e., transcultural adaptations of other countries), and 4) used combination of multiple validated individual scales, were not included.

**Results:** The search retrieved 1375 articles, 33 of which fulfilled the inclusion criteria. Among the included articles, 14 different scales were identified. Most of them were related to frailty and health risks. The most frequent domains among scales were functional capacity (92.8%) and social support (100%), while the least present was violence (7.1%). All scales presented reliability indices, followed by validity of concurrent criterion and content valid (78.5%). Predictive criterion-related (35.7%), face (21.4%) and construct (21.4%) validities were less identified. Only four scales have been adapted to Brazilian. Fewer scales have been tested for all the validities measurements.

**Conclusion:** The instruments found are more focused on the healthcare and have limitations in their validity processes. There is a lack of instruments originated in Brazil or adapted appropriately for their older population.

## SCIENTIFIC RESEARCH – PARKINSON'S DISEASE

### WHAT ARE THE NEEDS AND PREFERENCES OF PEOPLE WITH PARKINSON'S AND THEIR INFORMAL CAREGIVERS FOR THE EFFECTIVE SELF-MANAGEMENT OF FALLING, AS PERCEIVED BY HEALTHCARE PROFESSIONALS? A QUALITATIVE STUDY

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**Introduction:** Falls are common in Parkinson's disease, and a recognised research priority. This qualitative study aimed to establish healthcare professionals (HCPs) views of the experiences, needs and preferences of people with Parkinson's (PwP) who fall, and their informal caregivers.

**Methods:** 12 HCPs participated consisting of six Parkinson's disease nurse specialists, five physiotherapists and one occupational therapist. Two were interviewed alone, 10 in pairs. Interviews were analysed through inductive thematic analysis.

**Results:** Five themes emerged from the data: (1) causes and consequences of falls; (2) healthcare provision; (3) personalised healthcare; (4) limitations of healthcare in meeting patient needs; (5) engagement versus disengagement of service users with healthcare. HCPs described the heterogeneous nature of the difficulties experienced by PwP, and the key role that caregivers play in falls management. In the setting of cognitive impairment/ dementia, falls risk and caregiver difficulties were increased. HCPs addressed the needs of the dyad through personalised care that was provided through the multidisciplinary team (MDT). However, HCPs were sometimes unsure of other HCP roles, and communication within the MDT could appear fragmented. HCPs also identified barriers to dyads accessing and implementing HCP advice and support. PwP could be perceived to view falling as unpreventable, with non-acknowledgement of falls risk. Caregivers were perceived as stoical, but their needs were frequently identified reactively. Dyad's engagement with falls-based literature was often recognised as poor; HCPs sought to overcome this through providing relevant information in manageable stages.

**Conclusions:** Current healthcare provision may leave the varied needs of dyads unmet. Challenging dyad's misperceptions of falling, and engaging them with falls-management, may enhance communication between them and HCPs. This may in turn lead to greater identification and management of their needs. Results from this study will inform the production of a falls-based self-management guide for PwP and caregivers.

## SCIENTIFIC RESEARCH – PARKINSON'S DISEASE

### ARE FEAR OF FALLING AND CAREGIVER BURDEN ASSOCIATED WITH COGNITIVE IMPAIRMENT AMONG PEOPLE WITH PARKINSON'S DISEASE?

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**Background:** Cognitive impairment affects many people with Parkinson's (PwP) and falling is also common. Falls can lead to a fear of falling (FOF) among PwP and high caregiver burden among their close relatives, both of which can be detrimental to an individual's quality of life. The aim of this study was to examine whether FOF among PwP and caregiver burden in their relatives are affected by cognitive impairment. A secondary outcome was to determine whether FOF among PwP is associated with caregiver burden among their relatives.

**Methods:** PwP and their caregivers were recruited through Parkinson's UK support groups and data was collected in the form of questionnaires as part of a larger study. Cognitive impairment was self-reported. FOF was evaluated using the short Falls Efficacy Scale (FES – I) and caregiver burden was tested using the Zarit Burden Interview (ZBI). Data was analysed using SPSS – 24.

**Results:** 61 PwP (mean age 74 years; 67% male; median time since diagnosis 10 years) and 56 caregivers were recruited. 13 PwP (21%) reported cognitive impairment. The median FOF score for all PwP was high at 14/28 (IQR 11, 20). FOF was significantly higher in PwP who had cognitive impairment compared to those without (21 vs 13,  $P=0.02$ ) and particularly related to dressing, bathing or showering, rising from a chair, reaching for an object and climbing stairs. Mean caregiver burden for all 56 caregivers was also high at 21/40 ( $SD=9.6$ ). It was significantly higher in caregivers of PwP with cognitive impairment compared to those without (27 vs 19,  $P=0.007$ ). Importantly, a correlation was found between FOF and caregiver burden in PwP with cognitive impairment ( $P=0.06$ ,  $r=0.580$ ) compared to those without ( $P=0.996$ ;  $r=0.0001$ ).

**Conclusion:** PwP with cognitive impairment had an increased FOF and their caregivers reported a greater sense of caregiver burden. A correlation was found between FOF and caregiver burden among PwP living with cognitive impairment. These findings suggest that PwP with cognitive impairment and their carers should be offered additional support. However, this study was conducted with a small sample making generalisation to a wider population difficult and further research is needed.



## SCIENTIFIC RESEARCH – PARKINSON'S DISEASE

### EFFICACY AND SAFETY OF OPICAPONE IN PATIENTS OVER 70 YEARS WITH PARKINSON'S DISEASE AND MOTOR FLUCTUATIONS

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**Introduction:** Opicapone (OPC), a novel once-daily peripheral COMT inhibitor, has shown to be safe and effective in reducing OFF-time in Parkinson's disease (PD) patients with motor fluctuations. PD mainly affects older subjects and the incidence increases with age, being the second most prevalent neurodegenerative disease among the elderly

**Method:** This study evaluated the efficacy and safety profile of OPC as add-on to levodopa in patients over 70 years with PD and motor fluctuations. Efficacy and safety data from two multicentre, double-blind, randomised, placebo- and active-controlled studies (BIPARK I and II) were pooled and evaluated by age (<70 and ≥ 70 years). Outcome efficacy measures included the change from baseline to endpoint in absolute OFF-time and the OFF- and ON-time responder rates (≥ 1 hour). Safety was evaluated by analysis of reported adverse events (AEs).

**Results:** A total of 221 patients ≥ 70 years were analysed (N=69, 66 and 86 for placebo, 25mg- and 50mg-OPC, respectively). The mean daily OFF-time was reduced by -1.41 h for placebo, 1.77 h (p=0.4086) for 25mg-OPC and -2.26 h (p=0.0384) for 50mg-OPC. Consistently, higher proportions of patients receiving either 25mg- or 50mg-OPC achieved the OFF- and ON-time responders endpoint (p<0.05 for 50mg-OPC). AEs occurring more frequently in the elderly (adjusted for placebo) included hallucinations (4.6% vs. 0.1%), visual hallucinations (3.8% vs. 0.1%) and weight decreased (4.6% vs. 1.1%). The incidence of serious AEs was lower in OPC treated patients than placebo.

**Conclusion:** Opicapone is effective and well tolerated by PD patients over 70 years old.

**SCIENTIFIC RESEARCH – PHARMACOLOGY**

**DEPRESCRIBING INTERVENTIONS AND THEIR IMPACT ON MEDICATION ADHERENCE IN COMMUNITY-DWELLING OLDER ADULTS WITH POLYPHARMACY: A SYSTEMATIC REVIEW**

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**Introduction:** Polypharmacy, and the associated adverse drug events such as non-adherence to prescriptions, is a common problem for elderly people living with multiple comorbidities. Deprescribing, i.e. the gradual withdrawal from medications with supervision by a healthcare professional, is regarded as a means of reducing adverse effects of multiple medications, including non-adherence. This systematic review examined the evidence for deprescribing as an effective strategy for improving medication adherence amongst older, community dwelling adults.

**Methods:** Eight scientific databases were searched for quantitative and qualitative studies evaluating the effect of deprescribing or medication review interventions on medication adherence measures in community dwelling older adults with polypharmacy, in accordance with the PRISMA reporting statement. Prospero number CRD42017075315

**Results:** A total of 22 original studies, involving 5118 participants, met the eligibility criteria and underwent quality appraisal and data extraction processes. Deprescribing and adherence (as a secondary outcome) was identified in randomised controlled trials, observational and cohort studies in 13 countries between 1996-2017. There was a large variation in assessment of adherence and follow-up period. A range of health care professions led a variety of deprescribing interventions, but they were most commonly delivered by pharmacists (16/21 studies). 4 of 22 studies showed a statistically significant reduction in medication with improved adherence. Thirteen studies reported improved adherence.

**Conclusion:** Deprescribing did not routinely improve medication adherence in this patient population. Interventions described in the studies did not convincingly reduce medication burden. A range of bio-psycho-social factors influence adherence that is mostly reported as a secondary outcome. The authors recommend further study into the efficacy and outcomes of medicines management interventions and a consensus on priority outcome measurements for such interventions are indicated.

**SCIENTIFIC RESEARCH – PHARMACOLOGY**

**PREVALENCE OF ANTICHOLINERGIC DRUG USE IN OLDER ADULTS WITH DEMENTIA IN A LARGE TERTIARY HOSPITAL IN SINGAPORE**

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**Introduction:** The use of anticholinergic drugs is controversial in patients diagnosed with dementia due to increased risk of cognitive impairment and psychosis in this population. Anticholinergic drugs are often involved in explicit criteria for inappropriate prescribing in older adults. However, the extent of anticholinergic drug use in Singapore General Hospital's patient population is unknown.

This study aims to determine the prevalence of anticholinergic drug use in older patients with dementia and evaluate the association between its use with mortality and morbidity outcomes in these patients.

**Methods:** This is a retrospective cross-sectional analysis of patients aged 65 or older with dementia and at least one hospital admission in 2013 ( $n=460$ ). Identified subjects were followed up prospectively for one year after first admission in 2013 for morbidity and mortality events. Data on exposure to anticholinergic drugs three months prior to admission were collected. Anticholinergic burden was determined using the Anticholinergic Risk Scale (ARS).

**Results:** Most patients aged 75 years old and above (77.8%), with mean age,  $80.8 \pm 8.4$  years. Majority were female (60.4%) and Chinese (84.1%). Overall proportion of patients prescribed with anticholinergic drug use based on ARS scale was 55.9% ( $n=257$ ). ARS level 1 drugs were most commonly prescribed ( $n=86$ ), followed by ARS level 3 drugs ( $n=63$ ) and ARS level 2 drugs ( $n=41$ ). The top three ARS level 1 drugs prescribed were mirtazapine ( $n=36$ ), quetiapine ( $n=17$ ) and risperidone ( $n=12$ ); ARS level 3 drugs were hydroxyzine ( $n=20$ ), chlorpheniramine ( $n=11$ ) and diphenhydramine ( $n=9$ ); followed by ARS level 2 drugs, loratadine ( $n=21$ ), tolterodine ( $n=7$ ) and prochlorperazine ( $n=4$ ).

Increased use of ARS level 3 drugs was associated with more hospitalizations, increased in length of stay and emergency visits. Use of drugs with significant anticholinergic activity (ARS level 2 or 3) was found to have a significant association with morbidity outcomes but not mortality.

**Conclusions:** Anticholinergic drug use in patients with dementia is highly prevalent, especially in poly-medicated older adults. This may have contributed to increased morbidity for these patients. Efforts to increase awareness among health professionals regarding potential risks of anticholinergic drug usage may improve medication prescribing practice.

SCIENTIFIC RESEARCH – PSYCHIATRY AND MENTAL HEALTH

EFFECTS OF DIURETICS ON COGNITIVE FUNCTIONS IN PATIENTS DIAGNOSED WITH DEMENTIA

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**Introduction:** The literature regarding effects of antihypertensive medication on cognition is infused by controversy. Our objective was to examine the effect of antihypertensive medication as associated with specific anti-dementia medication on cognitive functioning: memory (MMSE, Clock Drawing Test), functionality (ADL, IADL), behaviour disorders (NPI-Q: Neuropsychiatric Inventory Questionnaire) and global deterioration (GDS Test -Reisberg) in time.

**Methods:** A randomized longitudinal study of 165 patients (67.3% female, mean age 78.08, SD 7.67) diagnosed with all types of dementia in all stages. Patients were divided in 4 groups by anti-dementia therapy type: acetylcholinesterase inhibitors (AChEi), N-methyl-D-aspartate receptor antagonists (NMDA), a combination of AChEi and NMDA(C), or no therapy (N). 135 patients had anti-hypertensive therapy from which 34 had diuretics (all types). Data were collected at inclusion (T1) and at 3 (T2), 6 (T3), 12 (T4), and 18 months (T5).

**Results:** Diuretics were the only antihypertensive medication associated to MMSE score changes in time. Specifically, administering diuretics was correlated to MMSE scores indicative of cognitive deterioration between T1-T5 ( $r = -0.20$ ,  $p < .05$ ) and T4-T5 ( $r = -0.21$ ,  $p < .05$ ). The mean decrease in MMSE scores between T4 -T5 was 0,83 units within the group without diuretics and 1,16 units within the group with diuretics . Anti-dementia therapy type was associated to a change in time of the cognitive scores in patients that received diuretics: the smallest change in MMSE scores was a decrease by 0,5 units within the combined treatment group (C), the most significant decrease in MMSE scores was for the group with no specific dementia treatment between T4-T5 (by 1,5 units). Diuretic treatment was not significantly associated to the other cognitive functions that were tested.

**Conclusions:** Diuretics had an overall negative effect on memory (as evidenced by lower MMSE scores) among patients diagnosed with dementia.

**SCIENTIFIC RESEARCH – PSYCHIATRY AND MENTAL HEALTH**

**DEPRESSIVE SYMPTOMS ARE ASSOCIATED WITH PERCEIVED, NOT OBJECTIVE, EXERTION DURING EXERCISE IN EUROPEAN, INDIAN ASIAN AND AFRICAN-CARIBBEAN GROUPS**

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**Background:** Physical activity interventions are increasingly recognised to help reduce depressive symptoms; however, fatigue and perception of increased energy expenditure, often associated with depression, may be barriers to compliance. Whether this association differs between different ethnicities is unknown. This analysis investigates associations between depressive scores and perception of exertion and physiologically measured exertion during exercise in a tri-ethnic population of older adults.

**Methods:** Participants were older adults enrolled in a tri-ethnic population-based cohort (European (n=304), Indian Asian (n=222) or African-Caribbean (n=165)). 691 participants (57% men, mean age=71.3±6.5 years) underwent an assessment of depression on the 10-item Geriatric Depression Scale (GDS) and undertook a self-paced 6-minute stepper test (6MST) to determine exercise capacity, and measure oxygen consumption (VO<sub>2</sub>). Perceived exertion was assessed using the Borg score immediately post-exercise. Data are means±SD. Linear relationships were compared using  $\beta$ -coefficients (95% confidence intervals) from regression models adjusted for age, sex and ethnicity.

**Results:** In all participants, higher GDS was associated with greater perceived exertion (Borg score) ( $\beta=0.10(0.01, 0.19)$ ,  $p=0.03$ ); this association persisted with adjustment for steps achieved during the test ( $\beta=0.12(0.02, 0.21)$ ,  $p=0.01$ ) or VO<sub>2</sub> ( $\beta=0.14(0.05, 0.25)$ ,  $p=0.01$ ). Adjusting for ethnicity did not change the pattern of results.

**Conclusions:** Older adults with higher depression scores had a greater perception of exertion during a self-paced test, despite adjustment for exercise capacity and oxygen consumption. This finding was consistent in older adults with European, Indian Asian and African-Caribbean ethnicity. Greater perceptions of exertion could hinder compliance with physical activity programs targeting depressive symptoms in older adults.

## SCIENTIFIC RESEARCH – RESPIRATORY

### HOSPITAL AT HOME REDUCES EARLY READMISSION RATES FOR OLDER PEOPLE WITH EXACERBATION OF COPD

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**Introduction:** Chronic obstructive pulmonary disease (COPD) is a significant healthcare burden, accounting for 1 in 8 hospital admissions and ~£180,000,000 of annual healthcare costs in Scotland. 'Hospital at home' provides an alternative to acute hospital admission by providing treatment and rehabilitation at home, leading to greater patient satisfaction, avoidance of hospital admission-related harm, and has proven to be cost-effective for COPD. We compared 1 year patient outcomes following admission to hospital or 'hospital at home' for COPD exacerbation.

**Methods:** We identified patients  $\geq 65$  years with an exacerbation of COPD admitted to St John's Hospital, Livingston, or 'hospital at home' between 1st October and 31st December 2016. We collected data on patient demographics, admission length and medical treatment. 25% of inpatients received non-invasive ventilation or intravenous antibiotics not able to be provided by 'hospital at home' and so were excluded from analysis. Patients were followed up for a year from their index admission. We compared readmission rates at 1, 6 and 12 months and mortality rates at 6 and 12 months.

**Results:** 108 patients were admitted to hospital with an exacerbation of COPD and 24 were treated at home. Baseline characteristics were similar in both groups (median age 77 years, admission length 4 days). There was no significant difference in the 6 month or one year mortality rate between inpatients and patients treated at home. None of the patients treated at home were readmitted within 4 weeks, compared to 20% of hospitalised patients. Readmissions at 6 months were significantly lower in patients treated at home (8%) compared to hospital (40%), but readmissions were similar at 1 year (home 33% and hospital 47%).

**Conclusions:** Treating COPD exacerbations through 'hospital at home' reduces early readmission rates with no difference in mortality. These differences may be due to patient selection, but we excluded inpatients with more severe exacerbations from our analysis. Our results likely reflect the value of the comprehensive geriatric assessment provided by the hospital at home team. Future work will explore the effect of pulmonary rehabilitation on readmission rates from hospital at home to see if these can be reduced further.

## SCIENTIFIC RESEARCH – STROKE

### DYSPHAGIA AND PNEUMONIA IN OLDER STROKE INPATIENTS ADMITTED TO A GERIATRIC WARD IN A TERTIARY MALAYSIAN TEACHING HOSPITAL

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**Introduction:** Post-stroke dysphagia (PSD), defined as difficulty swallowing after a stroke, is a common complication in the early phase of an acute stroke. It affects 37% to 78% of stroke survivors, depending on the sensitivity of the technique used. It is an important risk factor for pneumonia within the first days after stroke and previous studies reported increased risk of mortality in the acute phase.

**Objective:** To describe the incidence of pneumonia in patients with PSD and the impact on inpatient clinical outcomes.

**Method:** This was a retrospective study of all acute stroke patients aged  $\geq 65$  years admitted to the Geriatric medicine ward in University Malaya Medical Centre in 2016.

**Results:** 116 patients, with an average age of  $(81.7 \pm 6.46)$  were included. Of these, 70(60.3%) had dysphagia of whom 19(27.1%) had dysphagia as an initial presentation of stroke. 62(88.6%) required an NG tube while the rest were on a modified consistency oral diet early in their admission.

Dysphagic patients were more likely to develop pneumonia (42.9% vs 17.4%,  $p=0.004$ ), stay longer in hospital ( $19.9 \pm 18.4$  vs  $12.5 \pm 9.7$  days,  $p=0.014$ ) and die as inpatients (25.6% vs 4.3%,  $p=0.003$ ) compared to non-dysphagic patients. Seven (38.9%) dysphagic patients who died had pneumonia as the cause of death. Dysphagic patients who died were significantly older ( $85.8 \pm 5.8$  vs  $80.3 \pm 6.6$ ,  $p=0.003$ ). Prior to discharge, swallow improved for 33 patients (47.1%). NG was removed within 7 days for 18 patients (29%), 13(21%) within 14 days and 4(6.5%) within 4 weeks. Length of stay of dysphagic patients with pneumonia were longer than those without ( $27.7 \pm 24.9$  vs  $14 \pm 7.7$  days,  $p=0.007$ ).

**Conclusion:** PSD is strongly associated with development of pneumonia, increased length of stay and inpatient mortality. Patients should have a comprehensive care plan by a multi-disciplinary team to reduce the incidence of pneumonia and morbidity in the acute phase.

## SCIENTIFIC RESEARCH – STROKE

### RATES, RISKS AND ROUTES TO REDUCE VASCULAR DEMENTIA (R4VAD)

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**Introduction:** Stroke is common in older adults and increases the risk of cognitive impairment and vascular dementia. However, there is a lack of knowledge about risk factors which restricts mechanistic understanding, prevention, treatment and design of patient services. R4VAD is a multi-site longitudinal, inclusive study in patients presenting with stroke to UK Stroke Centres. The aim of the study is to determine rates of, and risk factors for, cognitive and related impairments after stroke to assess mechanisms and improve prediction models.

**Methods:** We will recruit approximately 2000 patients within six weeks of stroke and collect patient, stroke, socioeconomic, lifestyle, cognitive, fatigue, mood and informant data appropriate to the stroke stage. More detailed assessments will be obtained at 6+/- 2 weeks post baseline assessment and annual follow-up will be conducted by phone and post to at least 2 years. We will assess diagnostic neuroimaging (MR and CT) in all patients, and high-sensitivity inflammatory blood markers and genetic analysis in as many patients as possible. Participants will be in follow-up and consented for re-contact, facilitating future clinical trials.

**Results:** The study has been reviewed by ethics and the protocol is in the final stages of development with site identification underway.

**Conclusion:** R4VAD will provide reliable data on cognition long-term after stroke and will improve understanding of clinical, demographic, laboratory, neuroimaging and social predictors of post-stroke cognitive impairment and vascular dementia. This will improve risk stratification, identification of mechanisms and intervention targets.



## PLATFORM PRESENTATION – CLINICAL QUALITY

### SHOP-75: SAFER HANDOVER FOR OLDER PEOPLE 75+

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**Introduction:** Accurate Discharge Summaries (DS) play a crucial role in the continuing health care of patients discharged from hospital. The Academy of Medical Royal Colleges provides guidance on the structure and content of DS. Content required includes a social and functional assessment, a list of new diagnoses, and details of the patient's past medical history (PMH).

**Methods:** We performed a prospective audit of DS in four clinical areas (Emergency Admissions Unit, General Surgery, Orthogeriatrics and Acute Geriatric Units) to assess Trust-wide performance. We designed a data collection tool that is simple to use and gathers 38 data points per summary. We performed a survey of senior clinicians and local general practitioners to identify the main areas to include within this tool.

We analysed DS every month using a purposely-designed and novel live-feedback system that enables focused and timely feedback of results directly to each individual clinical area.

Using a Plan Do Study Act (PDSA) approach, we implemented a series of measures including induction training at the beginning of each rotation, year-wide teaching for junior doctors, posters (updated monthly) designed to provide feedback, and the creation of awards for 'Discharge Champions' (doctors or areas that have significantly improved the quality of their discharge summaries).

We presented regularly in departmental and clinical governance meetings of the different specialties involved, and engaged colleagues from primary care and the Quality Improvement department.

**Results:** We audited 482 DS across 7 different wards. Several required areas were recorded poorly in this baseline study. Examples of poorly documented areas from the 38 data points in our collection tool included: social assessment (included in only 23%), PMH (50%), and a list of new diagnoses (59%).

Our first monthly cycle was completed in November 2017, with the live-feedback approach commencing in February 2018. Subsequent cycles have seen our documented social assessments improve to 47%, and have shown improvements in the PMH and diagnoses documentation (to 82% and 65% respectively).

**Conclusions:** Accurate DS are essential for safe onward care of our patients. We identified several areas that were not being accurately recorded within our DS. We designed a novel live-feedback PDSA model, and have performed monthly feedback cycles that are already demonstrating significant improvements in the quality of our documentation.

## PLATFORM PRESENTATION – CLINICAL QUALITY

### HEAD OVER HEELS

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**Objective:** Reduce the number of in-patient falls by 25% over a 6-month period in ward 6 South BCH (Belfast City Hospital), 28th September 2016 – 28th March 2017.

**The problem:** We identified 6 South as having the highest number of in-patient falls amongst all elderly care in-patient units within the BHSCT (Belfast Health and Social Care Trust).

#### Change ideas:

- Education and training of all MDT (Multidisciplinary Team) members within ward 6 South BCH.
- Appointment of Fall Safe champions.
- Establishment of an MDT Falls working group.
- A number of initiatives were implemented on the pilot ward for example: Slipper Challenge, Risk Awareness tool displayed at individual bed space, and the introduction of safety briefs to highlight and communicate patients at risk of falls.
- Implementation of Fall Safe Bundle.

#### Measures:

- Audit tool
- Safety stick
- Ward Display of falls per month with organised MDT feedback sessions regarding each individual fall, to identify themes and learning.

**Results:** Over all there has been a reduction in the incidence of falls by 22% in the 6 month period - 28th September 2016 – 28th March 2017.

**Discussion:** This project highlighted many challenges faced within quality improvement. It was vital to engage and support staff in order to maintain motivation, challenge poor practice, inspire innovation, with the overarching common goal of patient safety.

#### Progress, one year on:

- Establishment of a MDT Falls working group in Older Peoples Services.
- Monthly auditing with shared participation from all members of the MDT.
- Falls prevention measures are now included in induction for all MDT staff within Older Peoples Services.
- Implementation of new falls alert sign for individual patients.
- There was a significant reduction (31%) in the total number of falls within Older Peoples Services since implementation and spread of the initiatives developed by the Quality

Improvement Project 'Head Over Heels'- Falls in April 2017 – 2018 = total 523 as opposed to Falls in April 2016 – 2017= total 762

**Conclusions and the future:** The importance of collaborative working, local ownership and empowering staff to be proactive and innovative in falls prevention. We look forward to working with other areas within BHSCT to implement and embed these initiatives.

**PLATFORM PRESENTATION – OTHER MEDICAL CONDITIONS**

**WHAT KEEPS YOU SHARP? PEOPLE'S VIEWS ABOUT PRESERVING THINKING SKILLS IN OLD AGE**

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**Introduction:** Changes in thinking skills are commonly experienced by older adults, though large person-to-person variation exists. To develop clear information about the factors that might predict better brain health, it is useful to first understand adults' views around halting or preventing changes in cognitive abilities. A survey was carried out to explore adults' ideas about maintaining and improving cognitive skills with age.

**Methods:** As part of "What Keeps You Sharp?" – a UK-wide survey completed by adults aged 40-98 - participants completed an open-ended question regarding their advice for "keeping sharp" in later life. Answers from 3165 individuals (95% of survey respondents) were analysed using content analysis.

**Results:** Three main themes emerged: *keeping fit and healthy in mind, body and spirit; staying engaged with the world around you; and preventing decline to maintain independence*. Many participants believed that keeping a physically and mentally active lifestyle, having a purpose in life, keeping in touch with people and a positive attitude can help with maintaining thinking skills.

**Conclusions:** In a large, representative sample of adults in the UK, people expected that cognitive skills can be improved or maintained as we age through physical and mental activity, social interaction and keeping a positive attitude. The results of this study support previous research in cognitive ageing but also offer fresh insight into the population's own views and understanding. This study can form basis for better communication with older adults about what can be beneficial to their thinking skills. Additionally, the results can be used to highlight where public spending should be increased to help older adults maintain their abilities and independence for longer.

**PLATFORM PRESENTATION – FALLS, FRACTURES AND TRAUMA**

**TIME TO REDEFINE INITIAL ORTHOSTATIC HYPOTENSION IN OLDER ADULTS?**

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**Introduction:** Recent evidence suggests that while orthostatic hypotension (OH) increases the future risk of all-cause, unexplained (UF) and injurious falls (IF) in older adults initial orthostatic hypotension (IOH) does not. Our goal was to further examine this relationship by comparing the risk of falls associated with new definitions of initial OH based on two approaches: normative data driven and physiological thresholds.

**Methods:** Continuous BP recordings during active stands were measured in participants recruited to The Irish Longitudinal Study on Ageing (TILDA) 2009-2011(wave 1) with follow-up outcome variables collected in 2012-2013(wave 2) including: falls, UF and IF. We defined IOH as a drop from baseline of 40/20mmHg, IOH60/40 as an initial drop from baseline of 60/40mmHg and IOH80/40 as initial absolute nadir below 80/40mmHg. Associations of these IOH variants with falls outcomes were assessed using modified Poisson and negative binomial regression.

**Results:** Participants (N=4128) had a mean age of 61.4(8.1) years (54% female). The proportion of those with IOH did not increase with age, while the prevalence of IOH60\_40 increased from 12.8% (50-64 year olds) to over 22.0% ( $\geq 75$  year olds) ( $p < 0.001$ ) and the prevalence of IOH80/40 increased from 37.1% (50-64 year olds) to over 41.8% ( $\geq 75$  year olds) ( $p = 0.002$ ). IOH60/40 alone demonstrated univariate associations with UF(RR: 1.7 95% CI:1.3–2.4), and IF(RR: 1.4 95% CI:1.1–1.8) with weaker trends ( $p < 0.1$ ) remaining after confounder adjustment for both outcomes UF(RR: 1.4 95% CI:0.99–2.0) and IF(RR: 1.2 95% CI:0.96–1.6).

**Conclusion:** The utility of initial orthostatic hypotension in falls risk assessment warrants careful consideration in older adults. Definitions of IOH based on consensus criteria or physiologically plausible thresholds of cerebral autoregulation are unsuitable for falls risk assessment. A new definition for initial orthostatic hypotension, IOH60/40, based on population normative data is a possible alternative that warrants further investigation however assessment of classical OH and delayed recovery remain best practice in this age group.

**PLATFORM PRESENTATION – HEALTH SERVICES RESEARCH**

**PRACTICES, ISSUES AND POSSIBILITIES AT THE INTERFACE BETWEEN GERIATRICS AND PALLIATIVE CARE: AN EXPLORATORY STUDY (INGAP)**

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**Introduction:** With the expansion of palliative care into non-malignant conditions, there is an increasing emphasis on inter-disciplinary working between geriatric and palliative care teams. This inter-disciplinary working has evolved organically and more needs to be known about current working practices. This is of policy and clinical interest as the elderly patient population continues to grow.

**Methods:** An exploratory qualitative interview study was undertaken of end-of-life care for older in-patients in a large London NHS Trust. Staff from palliative care and geriatric medical and nursing teams and patients and carers from the geriatric wards were contacted for interview. 30 semi-structured qualitative interviews were conducted with staff, two with patients and five with carers. Questions covered: recent examples where teams worked together; staff perceptions of collaboration and issues; patient and carer perceptions of clarity as to who was providing care. Interviews were transcribed and thematically analysed focusing on: examples of successful collaboration; areas of tension, duplication or confusion about responsibilities; suggestions for future practice.

**Results:** Participants were overwhelmingly positive about collaboration between the teams. Examples of what currently works well were: the referral process to the palliative care team; inter-team communication and use of face-to-face handovers; unity between the teams when communicating with patients and families. Areas of concern and for future development were: embedding palliative care within multidisciplinary team meetings within the ward; the need for continual on-ward education given rotation of junior medical staff; improving collaboration between palliative care, physiotherapy and occupational therapy; patients' and carers' lack of awareness of the different teams and whether this has a detrimental effect on their care.

**Conclusions:** There is evidence of strong collaborative working between the teams however this study provides insights into where things could be improved. The study has shown the feasibility of the methodology, particularly when interviewing patients and carers during a difficult time in their care. An exploration of these relationships in other settings is required to determine if the same themes arise with a view to inform national guidelines and policy to improve care towards the end of life.

PLATFORM PRESENTATION – FALLS, FRACTURES AND TRAUMA

A PROSPECTIVE STUDY ON FACTORS PREDICTING EARLY FUNCTIONAL OUTCOMES OF HIP FRACTURE REHABILITATION IN A SINGAPORE COMMUNITY HOSPITAL

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**Introduction:** Rehabilitation is an integral component of hip fracture management. The majority of the elderly hip fracture population in Singapore undergo rehabilitation in a community hospital. The aim of this study was to determine the factors predicting early functional outcomes post-hip fracture repair, as measured by the Modified Barthel Index (MBI) and De Morton Mobility Index (DEMMI).

**Methods:** 176 patients  $\geq 65$  years old, admitted consecutively to a community hospital for rehabilitation after surgery for a single fragility hip fracture in 2015, were prospectively recruited as part of an integrated ortho-geriatric hip fracture care pathway from orthopaedic unit to community hospital. Variables including pre-morbid function, weight bearing status, pain, post-operative medical complications, depression and cognitive status (Mini-Mental State Examination – MMSE) were studied. MBI and DEMMI were measured on admission and following 15 physiotherapy (PT) and 15 occupational therapy (OT) sessions.

**Results:** Mean age was 80.6 (SD 7.2), with MBI and DEMMI on admission  $43.0 \pm 15.3$  and  $22.2 \pm 11.4$  respectively. Majority had moderate or severe cognitive impairment (MMSE 0-10: 17.1%; MMSE 11-20: 50.6%), 64.3% had 0-1 post-operative medical complications. There was significant improvement in MBI and DEMMI after 15 PT and 15 OT sessions (mean change +13.6 and +14.7;  $p < 0.001$ ). Performing multivariable linear regression analysis with DEMMI as outcome, the number of post-op medical complications was associated with poor post rehabilitation DEMMI (-1.23 per complication, CI -2.45 to 0.0,  $p = 0.05$ ) whilst higher pre-morbid Parker Mobility Index and full weight bearing status were associated with higher DEMMI (+0.93, CI 0.38 to 1.47; +8.31, CI 4.31 to 12.33  $p < 0.001$ ). Furthermore, compared with patients with  $MMSE \geq 20$ , those with moderate cognitive impairment (MMSE 11-20) and severe cognitive impairment (MMSE 0-10) had lower MBI outcomes (-14.43, CI -20.17 to -8.69 and -33.88, CI -41.32 to -26.44;  $p < 0.001$ ) and DEMMI outcomes (+8.65, CI -11.99 to -5.31 and -16.51, CI -20.83 to -12.18;  $p < 0.001$ ).

**Conclusion:** These results provide guidance to the interdisciplinary team in prognosticating functional recovery. Presence of medical complications negatively impacts mobility outcomes, reflecting a limiting effect on rehabilitation progress, highlighting a need for quality improvement measures to minimise these complications. Furthermore, cognitive impairment strongly predicted poor mobility and global functional recovery. Future studies need to determine how to best adapt rehabilitation processes to better meet rehabilitation challenges in the cognitively-impaired elderly, hence optimising their outcomes.

## PLATFORM PRESENTATION – OTHER MEDICAL CONDITIONS

### ABNORMAL DIURNAL BLOOD PRESSURE VARIABILITY IN PATIENTS WITH RECENT DELIRIUM

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**Introduction:** Delirium is a common condition whose underlying pathophysiology is poorly understood. We hypothesise that autonomic impairment, through altering cerebral perfusion, plays a role in the development of delirium. Under normal circumstances night-time BP is 10-20% lower than daytime BP. This represents a reduction in sympathetic activity. Alterations in dipping status have previously been shown to be associated with cognitive impairment (CI) and cerebral small vessel disease. We aimed to identify if there was an association between delirium and BP dipping status.

**Methods:** Participants aged 65 years or older were assessed for delirium during an acute hospital stay using Diagnostic and Statistical Manual of Mental Disorders 4th Edition (DSM-IV) and Delirium Rating Scale Revised 1998 (DRS-R98). Pre-existing cognitive impairment (CI) was established based on a previous diagnosis of dementia or a positive AD8 informant questionnaire. 24 hour ambulatory BP monitoring was carried out at a later stage, when the patient was free of delirium and acute illness. Mean day and night systolic BP and the percentage difference between them was calculated. Participants were classified as being dippers (10-20% reduction in BP), extreme dippers (>20% reduction in BP), non-dippers (0-10% reduction in BP) or reverse dippers (rise in BP). Ethical approval was obtained.

**Results:** The study was completed by 21 participants with delirium and 14 non-delirious controls. There was no between group difference in age. 50% of the control group and 66.8% of the delirious group had pre-existing CI ( $p=0.33$ ). 42.9% of those with delirium and 71.4% of the controls were female ( $p=0.1$ ).

In participants without CI none of the delirium group were extreme dippers, 8.3% were dippers, 33.3% were non-dippers and 58.3% were reverse dippers. In the control group 28.6% were extreme dippers, 14.3% were dippers, 57.1% were non-dippers and none were reverse dippers ( $p<0.001$ ).

There was no difference between participants with delirium and CI. Dipping status did not differ with gender.

**Conclusions:** This study suggests that patients with recent delirium have more reverse dipping and higher sympathetic activity than patients with no CI and similar levels to those with CI. It may provide a link between the pathophysiology of delirium and dementia. Further research with larger patient numbers is required to evaluate this further.



**PLATFORM PRESENTATION – OTHER MEDICAL CONDITIONS**

**A GROUNDED THEORY APPROACH TO UNDERSTANDING THE ROLE OF MEDICATION SAFETY WITHIN A HOSPITAL EARLY DISCHARGE TEAM**

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**Introduction:** National priorities such as emergency department (ED) targets, increasing workload pressures in acute Trusts and social care and financial penalties for 30 day hospital readmissions have created a drive to facilitate safer early discharge. A Northern hospital's Early Discharge Team (EDT) of nurses and therapists (n=8) pro-actively supports the timely discharge of older patients from the ED and acute admissions wards. There is compelling evidence that EDTs are effective (Parsons et al., *Age and Ageing* 2018; 47: 288–294), however their role within medication safety has not been defined. This project aimed to explore the role of this EDT in supporting older patients with their medication.

**Methods:** EDT participants (n=5) were observed on sixteen occasions, allowing their 'real-time' medication assessment to be studied. In-depth interviews (n=4) gathered further insight into their lived experiences. Interviews were transcribed and analysed using a grounded theory approach. Health Research Authority approval was obtained.

**Results:** The EDT's core role with medication was found to support patient adherence in a person-centred way. Challenges to this process include having to make complex decisions in short timeframes and only ever obtaining a 'snapshot' of the patient. They work within a complex system that has numerous barriers and constraints that they must creatively work around to perform their role effectively. Despite these challenges, they support patient's adherence effectively by: knowing their patient; expertly navigating the system; flexing traditional role boundaries; having foresight; and working together.

**Conclusion:** To our knowledge, this is the first qualitative project exploring an EDT's role in medication safety. The EDT utilises advanced skills and an ability to adapt and flex within a challenging, complex system to efficiently support adherence. Other teams may benefit from capitalising on the identified factors. Further work must explore how these skills are adopted by new members of the EDT.

PLATFORM PRESENTATION – NEUROLOGY AND NEUROSCIENCES

EARLY LIFE RISK FACTORS FOR SYMPTOMS OF DEPRESSION AND ANXIETY IN LATER LIFE: ANALYSIS OF 4 COHORT STUDIES

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**Introduction:** Depression and anxiety are common at older ages and often appear as comorbid disorders. Common risk factors include disability, cognitive impairment and poor health however factors from early in life including prenatal life may also be important. Few studies have examined early life factors and symptoms of depression and anxiety in later life.

**Methods:** We analysed data from community dwelling participants from 4 cohort studies: STRADL (n= 280, mean age 62), the Dutch Famine Birth Cohort (n= 151, mean age 68), the Lothian Birth cohort 1936 (LBC 1936, n= 866, mean age 72) and the Simpson cohort (n= 130, mean age 78). Symptoms of depression and anxiety were measured using the subscales of the Hospital Anxiety and Depression scale (HADS) and the Quick Inventory of Depressive Symptomatology (QIDS-16). Early life factors included famine exposure (Dutch Famine Birth Cohort only), birth weight, childhood IQ, education (duration/attainment) and childhood socioeconomic status (parental occupation: manual/non manual). Data were adjusted for risk factors, analysed separately and then meta-analysed.

**Results:** In the Dutch Famine Birth cohort exposure to famine during gestation was associated with higher symptoms of depression (B= 0.36, p=0.01) and anxiety (B=0.30, p= 0.49). Increasing childhood IQ was associated with decreased symptoms of anxiety (B= -0.16, p=0.02). Having no qualifications was associated with increased symptoms of depression (B=0.08, p= 0.04) and anxiety (B= 0.08, p=0.02). Manual parental occupation was associated with increased depressive symptoms (B=0.02, p=0.03).

**Conclusion:** Lower childhood IQ, less education and more deprived childhood socioeconomic status are associated with symptoms of depression and anxiety in later life independent of common risk factors. These findings contribute to the understanding of how early life factors contribute to mental health in later life and could inform mental health policy and interventions to target those most at risk.

## PLATFORM PRESENTATION – PHARMACOLOGY

### MEDICATION-RELATED HARM DUE TO NON-ADHERENCE MAY EXPLAIN THE RELATIONSHIP BETWEEN POLYPHARMACY AND MORTALITY

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**Introduction:** Strong evidence exists for a relationship between polypharmacy and mortality<sup>1</sup>, independent of comorbidity. The mechanisms underlying this relationship are unclear. Medication-related harm (MRH) may occur due to non-adherence or adverse drug reactions. We sought to determine if MRH due to non-adherence or adverse drug reactions may explain the association between polypharmacy and mortality.

**Methods:** The PRIME study recruited 1280 older adults at hospital discharge from 5 hospitals in England between 2013 and 2015<sup>2</sup>. Patients were followed up in the community for 8-weeks by senior pharmacists to identify MRH using data from hospital readmissions, GP records and patient interviews. Mortality data at 12 months post-discharge were obtained from hospital records. Non-adherence was determined using a modified version of a validated questionnaire<sup>3</sup>. Adverse drug reactions were assessed using the Naranjo algorithm<sup>4</sup>. Adjusted logistic regression models were used to investigate the relationship between (1) number of medicines and MRH, (2) MRH and mortality.

**Results:** 1116 out of 1280 patients completed follow-up (median age 82 years, range 65-103 years, 58% female). Patients were discharged with a median of 9 medicines (range 0-27). A higher number of medicines was strongly associated with MRH due to non-adherence ( $p < 0.01$ ) and adverse drug reactions ( $p < 0.001$ ). In multivariable analysis, MRH due to non-adherence was associated with one-year all-cause mortality (OR 1.80, 95% CI 1.08-2.99,  $p = 0.02$ ), however MRH due to ADR was not (OR 1.20, 95% CI 0.86-1.68,  $p = 0.28$ ).

**Conclusions:** Harm from non-adherence to medications may explain the relationship between polypharmacy and mortality.

**References:** <sup>1</sup>Leelakanok N, Holcombe AL, Lund BC, Gu X, Schweizer ML. Association between polypharmacy and death: A systematic review and meta-analysis. *J Am Pharm Assoc* 2017;57:729–738.

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**PLATFORM PRESENTATION – CARDIOVASCULAR**

**DID YOU MEAN TO MAKE ME BLEED? TREATING FRAIL OLDER PEOPLE WITH NSTEMI CARRIES A HIGH RISK OF BLEEDING**

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**Introduction:** NICE guidance recommends managing NSTEMI (Non-ST Elevation Myocardial Infarction) with dual antiplatelets and antithrombin therapy but asks clinicians to consider bleeding risk. Frail older people with co-morbidities such as anaemia, heart failure and chronic kidney disease are at higher risk of bleeding, and bleeding is associated with an increased risk of adverse outcomes and death. The risk of bleeding can be estimated using a scoring tool such as "CRUSADE." We wished to investigate how older people with NSTEMIs treated in the elderly medicine department of a large teaching hospital, i.e. deemed not suitable to be cared for by cardiologists, were treated, and whether they suffered adverse bleeding outcomes.

**Methods:** We conducted a retrospective case note analysis of 47 patients admitted to the elderly medicine department between April 2015 and April 2016. We recorded demographic details, co-morbidities, CRUSADE score, initial antithrombotic therapy, discharge antithrombotic therapy, changes in haemoglobin, whether blood transfusion was given, and whether patients were re-admitted in the next year with bleeding.

**Results:** 41/47 patients (87%) had 2 or more co-morbidities. 35/47 patients (74%) were judged to have a high risk, or very high risk of bleeding as defined by the CRUSADE score. 30/47 patients (64%) were given at least 2 antithrombotic agents as initial treatment. 24/47 patients (51%) were discharged on dual antiplatelet therapy. 9/47 patients (19%) died during admission. 19/47 patients (40%) had a fall in haemoglobin during admission - 14 of these patients were classified as very high risk of bleeding using the CRUSADE score. The median fall in haemoglobin was 2 units. 12/47 patients (25%) had a blood transfusion during admission. 3/47 patients (6%) had a further admission with a bleeding related complication - this included one fatality.

**Conclusions:** Patients admitted to the elderly medicine department with NSTEMI had a significant prevalence of multimorbidity and were commonly at high risk of bleeding. Use of dual or triple antithrombotic therapy is common, as is the incidence of bleeding. It is possible that we are over-treating patients with NSTEMI and multimorbidity. Use of a bleeding risk calculator such as CRUSADE may be helpful in identifying those patients at high risk of bleeding.

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