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Poster Presentations

Cardiology
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1 THE EFFECTS OF DURATION OF ATRIAL FIBRILLATION ON ATRIAL MORPHOLOGY AND LEFT VENTRICULAR FUNCTION

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Introduction
Left atrial dilatation is common in patients with atrial fibrillation (AF) and associated with clinical deterioration. Atrial dilatation is generally considered a cause of AF, but longitudinal studies have suggested the reverse may apply (Sanifilippo AJ et al. Circulat 1990; 82:792). We examined patients with reported short and longer duration of AF to assess atrial morphology and left ventricular function using echocardiography (ECHO).

Methods
56 consecutive patients (26 male, 30 female, mean age 79 years) with clinical AF were divided into <3 month and >6 month reported duration of AF. Left atrial size was measured by M-mode and 2-dimensional ECHO, and functional mitral and tricuspid regurgitation by Doppler studies.

Left ventricular function was assessed by shortening fraction, and diastolic function by Doppler mitral E wave velocity.

Results
Age, sex distribution and heart rate were similar in both groups. Larger left atrial size in the > 6 month AF group was shown by M-mode (4.4±0.8cm vs 3.4± 0.4cm, $p<0.01$) and 2D (4.6±0.7cm vs 3.8+0.4cm., $p<0.01$) ECHO studies. Functional mitral and tricuspid regurgitation was only found where AF duration was > 6 months.

LV shortening fraction was significantly reduced with AF duration > 6 months (23±8.5% vs 33±4.1%, $p<0.01$), and Doppler mitral E wave velocity was notably greater (0.82±0.2 m/s vs 0.58 ±0.25 m/s, $p<0.01$).

Conclusion
Longer duration of AF was associated with both atrial dilatation and impaired ventricular function, and this could be a causative factor. This suggests early cardioversion in AF may be needed to prevent ventricular dysfunction and improve prognosis.

2 ANTITHROMBOTIC PROPHYLAXIS IN ATRIAL FIBRILLATON - IS THERE A VARIATION AMONGST PHYSICIANS?

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Introduction
The benefit of antithrombotic prophylaxis either with warfarin or aspirin is now well established in chronic atrial fibrillation (AF). We performed an audit to determine what proportion of patients were adequately treated and whether there were differences between Cardiologists, General or Care of the Elderly Physicians.

Method
100 consecutive discharges with a diagnosis of AF were studied. The diagnosis was confirmed by serial electrocardiograms. Patients with chronic and paroxysmal AF were categorised into high, medium and low risk based on recent guidelines (Lancet 1999; 353: 4-6 Appropriate therapy was considered to be either warfarin or aspirin according to the guidelines or if contraindications existed.

Results
81 of the 100 patients had either chronic or paroxysmal AF. The remaining 17 included transient AF and those for elective cardioversion. The mean age was 77 years (range 47 - 95). 79% of the patients were treated appropriately. 15% had no therapy despite having no contraindication. There were only marginal differences amongst the physicians: 89% of patients under the cardiologists were treated appropriately, 81% under the general physicians and 75% under the care of the elderly physicians. 79% of the high risk group with chronic AF were on appropriate therapy compared to 69% of the medium risk group.

Conclusion
Appropriate antithrombotic therapy was prescribed in about 80% of all patients. However, 15% had no therapy despite having no contraindication. There was a trend toward a higher rate of antithrombotic prophylaxis for cardiologists than for the general or care of the elderly physicians. Categorisation of patients into low, medium and high risk may facilitate decision making. Whilst our results are encouraging, we must not be complacent.

3 BAROREFLEX SENSITIVITY IN HYPERTENSIVE AND NORMOTENSIVE OLDER SUBJECTS

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Introduction
The baroreflex arc is involved in changes in short term blood pressure control. Blunted baroreflex sensitivity is associated with increased risk of orthostatic hypotension and sudden cardiac death. Studies have indicated that increasing age and blood pressure are associated with blunting of baroreflex sensitivity. The effect of hypertension on baroreflex sensitivity in very elderly individuals remains unclear. We determined baroreflex sensitivity in older hypertensive and normotensive subjects.

Methods
Subjects, 70-89 years, had clinic blood pressure measurements in the sitting position after 5-10 minutes' rest on three occasions each separated by 2 weeks. Patients with AF, recent MI, previous stroke or taking blood pressure lowering therapy were excluded. 64 hypertensive subjects (76±5 yrs, 31 female, BP 160-179 and/or 90-99 mm Hg) and 75 normotensives (75±4 yrs, 31 female, BP <160/90 mm Hg) were studied. Baroreflex sensitivity was quantified by the α-index at high (0.15-0.4 Hz) and low (0.04-0.15 Hz) frequencies using spectral analysis of spontaneous fluctuations in heart rate and blood pressure using finger plethysmography (Finapres).

Results
High frequency α-index was significantly blunted in hypertensive subjects; 5.1±3.1 vs 8.4±7.4 ms/mmHg (mean ± SD), P<0.001. Low frequency α-index was not significantly affected 4.7±3.0 vs 5.8±3.9 ms/mmHg, P=0.07.

Conclusions
Older hypertensive subjects have blunted baroreflex sensitivity in the high frequency bandwidth compared to normotensive age-matched controls. This is likely to place older hypertensives at particular risk of developing orthostatic hypotension, and possibly an increased risk of sudden death.

4 CARDIOVASCULAR REFLEXES IN YOUNG AND ELDERLY PATIENTS WITH CHRONIC RHEUMATOID ARTHRITIS

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Introduction
Previous studies have demonstrated reversible impairment of cardiovascular reflexes(CVRs) in elderly subjects with acute infections. We studied subjects with chronic rheumatoid arthritis(RA) to look for CVR impairment in a chronic inflamatory state in young and old patients.

Methods
Five standard CVRs were measured in 62 RA outpatients (age 38-84) and 41 healthy controls (age 22-82). None had overt cardiovascular disease or were taking medications which alter CVRs.

Results
The Valsalva ratio(VR) was 1.16(0.15 SD) in controls, 1.10(0.12) in RA patients (p0.03) and 1.09(0.11) in RA patients over age 60(p0.02). The heartrate variation during deep breathing(HRV) was 10.4(5.3) per minute in controls, 7.5(4.9) in RA patients(p0.01) and 6.8(4.3) in elderly RA patients(p0.002). The 30:15 ratio was 1.16(0.13) in controls, 1.07(0.12) in RA patients (p0.001) and 1.08(0.15) in elderly RA patients(p0.01). The diastolic BP(DBP) response to handgrip was 17.4(7.4)mmHg in controls, 9.5(5.6) in RA patients (p0.001) and 10.3(6.1) in elderly RA patients(p0.001). No abnormalities were found in the systolic blood pressure response to standing. Young and elderly control subjects showed no significant difference for any CVR. Patients with RA for more than 10 years had the lowest values for VR, HRV and 30:15, though on multivariate analysis neither age nor duration of RA was an independent variable for the prediction of impaired CVRs.

Conclusion
We have shown that subjects with RA have blunted CVRs, though none had postural hypotension. The degree of impairment was not significantly greater in RA patients over age 60.

5 ABDOMINAL BINDERS IN THE MANAGEMENT OF ORTHOSTATIC HYPOTENSION

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Introduction
Orthostatic hypotension (OH) is common in the elderly. Non-pharmacological methods are frequently overlooked. Haemodynamic benefit with the use of an abdominal band and inflatable inner cuff is reported in teenagers with hyperadrenergic OH. We have adapted this principle, to older patients, with an abdominal binder marketed for postoperative and post delivery abdominal support.

Methods
Nine patients (6 men), mean age of 73.2 years (61-86 years) with reproducible, symptomatic OH attending a dedicated syncope unit were studied. Seven were on the maximum tolerated doses of fludrocortisone and midodrine, in 2 medications were contraindicated. Beat to beat blood pressure and heart rate were recorded supine, after a 10 minute rest period, in the morning, by means of a Finapres 2300 (Ohmeda) and throughout 3 minutes of standing (if tolerated). After 15 minutes of rest the abdominal binder was fitted and the test repeated. Depending on abdominal girth, a medium or large abdominal binder was fitted.

Results
The drop in systolic blood pressure (SBP) ranged from 29 to 126 mmHg (median -61mmHg, interquartile range -46 to -93.5mmHg) without the abdominal binder. With the abdominal binder the median change in SBP was -54mmHg (interquartile range, -9.5 to -74mmHg, $p < 0.01$, Wilcoxon signed rank test). 8 subjects, had an improvement in their SBP at 30 seconds. 7 had clear symptom benefit. 2 patients who had been syncopal could stand for the full 3 minutes after application of the binder.

Conclusion
The abdominal binder is beneficial in the acute management of OH. Further studies of long-term benefit are warranted.

6 DYNAMIC CEREBRAL AUTOREGULATION (CA) IS UNAFFECTED BY AGEING

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Introduction
Ageing is associated with many marked changes in cardiovascular responses, including a rise in systolic blood pressure (BP) and a decrease in baroreceptor sensitivity. There is evidence that CA deteriorates in certain disease states but there have been no studies to date assessing the effect of age per se on CA. This study assessed the effects of age on dynamic CA to pressor and depressor BP stimuli.

Methodology
27 subjects ≤40 years of age, matched for sex and systolic BP with 27 subjects ≥60 years of age, underwent several different manoeuvres to cause acute pressor and depressor BP changes. Cerebral blood flow velocity, measured in both middle cerebral arteries using transcranial Doppler ultrasound, and arterial BP, measured using servo-controlled plethysmography (Finapres), were recorded contemporaneously onto a digital audio tape for off-line analysis. Using software designed in our department, indices of dynamic CA ranging from 0 (no autoregulation) to 9 (perfect autoregulation) were derived for each person for each manoeuvre.

Results
The mean age of the young group was 29 ± 5 years and the older group was 68 ± 5 years. Mean indices of dynamic CA ranged from 5.7 ± 0.3 for rapid thigh cuff deflation to 3.4 ± 0.5 for isometric hand-grip release with no difference between the two groups for any manoeuvre. Assessment of dynamic CA by analysis of spontaneous blood pressure variation at rest also demonstrated no difference between the two groups.

Conclusions
Dynamic CA, whatever the stimulus, is unaffected by ageing. Any deterioration of dynamic CA that may be found in older people is probably pathological rather than physiological in origin.

7 DEGLUTITION SYNCOPE WITH INTACT CEREBRAL AUTOREGULATION IN THE ABSENCE OF BRADYCARDIA

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Introduction
Deglutition syncope is a dysautonomic syndrome caused by stimulation of the glossopharyngeal and vagus nerves by swallowing. There is intense sympathetic inhibition and usually vagal activation causing bradycardia, peripheral vasodilation and hypotension. We report a unique case of deglutition hypotension without bradycardia and preserved cerebral autoregulation.

Methodology
An 86 year old lady with postural hypotension, achalasia and a previous Heller's cardiomyotomy, gave a three-month history of dizziness, nausea and diaphoresis after swallowing food and liquids. Two hours after her breakfast, we performed standard autonomic function tests. We then asked her to swallow iced water while undergoing monitoring with an electrocardiograph for heart rate, a non-invasive plethysmograph for blood pressure (Finapres) and bilateral transcranial Doppler ultrasound of the middle cerebral arteries.

Results
Five seconds after swallowing, symptoms occurred contemporaneous with a large fall in blood pressure but little change in cerebral blood flow velocity. Symptoms resolved within seconds of a recovery in blood pressure. Throughout the symptomatic period, heart rate was well maintained. These findings were reproduced on two further occasions in the next 10 minutes with even more profound hypotension. Graphs demonstrate a fall in resistance-area product after swallowing, indicating a probable decrease in the resistance of distal cerebral arterioles. Autonomic function tests to assess sympathetic function gave equivocal results but those testing the integrity of the vagus nerve were normal.

Conclusions
Deglutition syncope syndrome may occur in the absence of bradycardia. The transcranial Doppler recordings from our patient suggest intact cerebral autoregulation during the period and help explain this lady's maintenance of consciousness despite a profound fall in blood pressure.

8 DETERMINANTS OF ORTHOSTATIC HYPOTENSION AT BASELINE IN THE HYPERTENSION IN THE VERY ELDERLY TRIAL (HYVET) PILOT

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Introduction
Orthostatic hypotension (OH) occurs more frequently in the elderly although estimates vary depending on the definition, health status and characteristics of the population. It can be a reason for non-treatment of hypertension in the elderly. We examined the very elderly hypertensives at entry to the HYVET pilot trial to assess the determinants of an orthostatic fall.

Methodology
This was an open randomised (blind end point assessment) pilot trial of treating patients aged over 80 years with systolic and diastolic hypertension. Entry criteria was a sitting systolic blood pressure (SBP) of 160-219mmHg and a diastolic (DBP) of 90-109mmHg. Standing systolic (after 2 minutes) had to be ≥140mmHg.

Results
1283 patients were recruited, mean age 84, 814 women (63.5%). Average (SD) untreated entry blood pressure was 181/100 (±11/3) sitting. Average untreated fall in SBP on standing was 8mmHg (95% CI 7.6-8.4), average DBP fall 1mmHg (95% CI 0.7-1.3). 153 patients (12%) had OH (≥20mmHg systolic or ≥10mmHg diastolic).

Predictors of OH	Odds Ratio (95% CI)	
Mean sitting SBP*	1.25 (1.16, 1.35)	p<0.001
Serum Sodium**	1.02 (0.98, 1.06)	p=0.4
Serum Potassium**	0.26 (0.18, 0.37)	p<0.001
Age †	1.56 (0.77, 3.17)	p=0.22
Sex ‡	0.87 (0.59, 1.30)	p=0.5
Alcohol ^	1.08 (0.68, 1.73)	p=0.74

*for 5mmHg increase
** for 1mmol/l increase
† aged over 90
‡ being female
^ consumer

Conclusions
Orthostatic hypotension at baseline was dependent on mean sitting SBP but not DBP. High serum potassium had a protective effect. This may have clinical significance when treating the hypertensive patient with associated orthostatic hypotension.

9 ARE THERE BETTER WAYS OF DETECTING DIGOXIN TOXICITY IN OLDER PATIENTS?

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Introduction
Digoxin toxicity is a common problem and whilst it is easy to diagnose in the presence of clinical symptoms, characteristic electrocardiographic changes and a raised serum digoxin, these may not occur consistently. In some clinical situations toxicity may be suggested but serum digoxin can be normal or conversely elevated in the absence of symptoms or signs suggesting toxicity. There is some evidence to suggest that red blood cell sodium (rbcNa) may be a better indicator of digoxin toxicity. We have examined the relationship between serum digoxin, rbcNa and clinical/ECG evidence of digoxin toxicity.

Methodology
Forty-four elderly patients in whom digoxin estimations were being performed as part of therapeutic monitoring or due to a suspicion of digoxin toxicity were studied.

Results
Of the 44 patients studied digoxin toxicity was suspected in 13. Of these it was confirmed in 10 by two of the following features: history and examination, ECG changes and plasma digoxin. The rbcNa mmol/l (mean $\pm$ 1 SD) was significantly higher $p<0.01$ in digoxin toxic 14.6 ± 4.75 compared with 6.3 ± 1.09 for patients (n=16) not on digoxin and 6.1 ± 1.98 for patients (n=31) on digoxin but clinically not toxic. In 7 of the 13 patients with elevated rbcNa the serum digoxin was less than 2.5 nmol/l (the uper limit of the therapeutic range). In only two patients with clinically suspected digoxin toxicity was rbcNa normal.

Conclusion
We suggest that rbcNa may be an additionally clinically relevant test in suspected digoxin toxicity. Additionally it may correlate more closely with clinical symptoms and signs than the serum digoxin itself.

10 BLOOD PRESSURE CONTROL AND LIFETIME USE OF ANTIHYPERTENSIVE THERAPY IN PATIENTS WITH FIRST EVER STROKE OR MYOCARDIAL INFARCTION

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Introduction
Hypertension is one of the most important potentially reversible risk factors for stroke and myocardial infarction (MI). There is continuing evidence that identification, treatment and monitoring of hypertensive patients is suboptimal. As part of a case control study of treated hypertensive patients presenting with first ever stroke or MI, we examined: (1) the validity of patients' lifetime antihypertensive histories when compared with General Practitioner (GP) case records; (2) blood pressure (BP) control prior to the acute event.

Method
Consecutive patients presenting with first ever acute MI or stroke and previously treated hypertension were recruited over a period of 10 months. Patients and/or carers were interviewed to determine duration and antihypertensive drug history, and results compared with documented evidence from GP case records. Previous BP recordings were also abstracted from case records.

Results
357 cases were screened and 95 recruited. Of these, a full set of data was obtainable in 84. Over a lifetime, the most common antihypertensives were diuretics, taken by 71.4% of patients. Patients' and GP's accounts of hypertension duration differed significantly. Whilst the majority of patients had a BP documented in their records within three months of the acute event, in only 34.9% of cases was it under 160/90mmHg and 7% under 140/90mmHg.

Conclusions
Patients underestimated the duration of hypertension compared with GP records. BP control prior to the MI or stroke was poor and this was probably an important causative factor for the acute event. However, this may equally reflect suboptimal control of treated hypertension in the local population.

11 EFFECT OF 6 MONTHS BENDROFLUAZIDE VERSUS WEIGHT LOSS ON OGTT IN OLDER MILD HYPERTENSIVES

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Introduction
Despite recommendations to institute non-drug therapy in the initial management of mild hypertension the effectiveness of such advice provided under clinical conditions is unclear. One aim of the study was to compare 6 months of a weight loss based therapy with Bendrofluazide on glucose tolerance.

Methods
Newly diagnosed hypertensive subjects previously well with no history of diabetes, and BMI ≥ 26 kg/m^2 were randomised to a weight loss programme or Bendrofluazide 2.5 mg daily each for 6 months. A 75g oral OGTT was undertaken at baseline and 6 months.

Results
51 subjects (28 male, mean age 69 years, BMI 30 kg/m^2) underwent baseline OGTT which was normal in 27 (53%), showed impaired glucose tolerance in 17 (33%) and diabetes mellitus in 7 (14%). 22 subjects completed the 6 months weight loss programme and 25 took Bendrofluazide. As shown below there was a significant increase in 2 hour glucose following 6 months of Bendrofluazide (.9 ± 2.1 mmols/l, p<.05), but not in fasting glucose. The weight loss programme resulted in a non-significant fall of 2 hour glucose.

	Weight change (kg)	Baseline OGTT (mmol/l)		6 month OGTT (mmol/l)	
		0 hr	2 hr	0 hr	2 hr
Weight loss	-3.2*	5.1±1.4	9.3±3.3	4.8±0.9	8.5±2.6
Bendrofluazide	.05	4.8±0.9	7.1± 2.2	4.8±0.5	8.0±1.9*

*p<.05

Conclusion
Impaired glucose tolerance and undiagnosed diabetes are common in older overweight mild hypertensive persons. A weight loss programme resulting in only modest weight loss may have favourable affects on glucose tolerance in contrast to low dose Bendrofluazide therapy.

12 THE PREVALENCE OF ASYMPTOMATIC LEFT VENTRICULAR SYSTOLIC DYSFUNCTION IN PATIENTS WITH STROKE, TRANSIENT ISCHAEMIC ATTACKS AND OVERT PERIPHERAL VASCULAR DISEASE

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Introduction
Asymptomatic left ventricular systolic dysfunction (LVSD) is both common and treatable. So we ought to be identifying these patients. A cost-effective way to detect LVSD patients who would normally be missed might be to screen patients who present with their first non-cardiac vascular event, i.e. stroke, transient ischaemic attack (TIA), or overt peripheral vascular disease (PVD).

Methods
A consecutive series of 180 Stroke, TIA and PVD patients, mean age 74 years, were identified at first noncardiac presentation. 60 age and sex matched control patients were recruited from general practice. Each patient underwent 2D Echocardiography to assess left ventricular function. Left ventricular ejection fraction (LVEF) was calculated using the Modified Simpson's Rule.

Results
57 (32%) patients had LVEF ≤ 40%, of whom 40 (70%) were asymptomatic. 34 (18%) had LVEF≤35%, and 10 (5.5%) had LVEF≤30%. Among the Control group, 3 patients had LVEF≤40%, of which 2 were asymptomatic. One patient had LVEF≤30%. Prescreening these patients using major ECG abnormalities (ischaemia including previous myocardial infarction, Atrial flutter/fibrillation, Left Ventricular Hypertrophy and Left Bundle Branch Block) identified 63% of LVSD in the cases compared with 66% LVSD among controls.

Conclusion
LVSD is more prevalent in Stroke, TIA and PVD patients than in the general population. Our data would suggest that there is enough LVSD in these patients to warrant routine screening. Our data also suggests that such echo screening is likely to be even more effective if it is limited to those patients with major ECG abnormalities.

13

ANDROGEN DEPRIVATION IN MEN WITH PROSTATIC CANCER IS ASSOCIATED WITH DECREASED CENTRAL ARTERIAL COMPLIANCE

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Introduction

Arterial compliance or 'stiffness' is a modifiable risk factor for cardiovascular disease. It has been suggested that androgens might be responsible for the increased incidence of coronary artery disease in men, and androgen deprivation therapy has been shown to improve endothelial function in men.

Methodology

We performed arterial compliance studies on 21 men with complete androgen deprivation therapy as treatment for prostate cancer (Group 1) and on 2 control groups: 14 healthy volunteers (Group 2) and 11 men with prostate cancer on no treatment (Group 3). Central arterial compliance was calculated using the 'area' method (Liu et al), and by recording Aorto-Femoral pulse wave velocity (PWV) using the COMPLIOR system.

Results

There was no significant difference in age, brachial blood pressure, lipid levels, smoking history or other baseline variables between the 3 groups. Mean age was 73 ± 6.7 years.

Arterial compliance readings and pulse wave velocities for the 3 groups. All values are mean ± SD.

Group 1	Group 2	Group 3	P value	
SAC – area method (acu)	0.81±0.5	1.15±0.4	1.23±0.4	0.04
A-F PWV (m/sec)	14.1±2.9	11.9±1.6	12.9±2.6	0.05
SBP in arm (mmHg)	148±21.9	141±17	145±18.1	0.61

SAC indicates systemic arterial compliance, **acu** arterial compliance units, **A-F** aorto-femoral, **PWV** pulse wave velocity, **SBP** systolic blood pressure.

Conclusion

Androgen deprivation in men may have an adverse effect on central arterial compliance, independent of systolic blood pressure.

14 IS FOOTWEAR A MODIFIABLE RISK FACTOR FOR FALLS?

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Introduction
Inappropriate and unsatisfactory footwear has been identified as a risk factor for falling and poor balance. An initial audit of footwear worn by patients on a rehabilitation unit identified that 97% of patients wore inappropriate footwear. Following circulation of these data with recommendations a further audit was undertaken. We report here the results of the completed audit.

Methodology
On two separate occasions all inpatients on the rehabilitation unit, who were walking or weight bearing, were assessed for type and use of footwear. A questionnaire based interview technique was used. The appropriateness of the footwear was based upon criteria supplied by the hospital orthotist. After the first assessment the results together with recommendations were disseminated to medical staff and all members of the multidisciplinary team involved in the care of this patient population.

Results

Table 1 – Characteristics of patients

	First Audit	Re-audit
Eligible patients	71/80(89%)	72/80(90%)
Mean age	78years	77years
Sex distribution	40 F / 31 M	44 F / 28 M
Main diagnosis	Cerebrovascular disease 44%	Cerebrovascular disease 39%
	Falls 17%	Falls 15%
Patients mobility	Mobile unaided 25.5%	Mobile unaided 14%
	Mobile with assistance 74.5%	Mobile with assistance 86%

Table 2 – Footwear worn by patients

Type of footwear	First audit	Re-audit
Slippers	59(83%)	55(76%)
Shoes	11(15.5%)	12(17%)
Barefoot	1(1.5%)	5(7%)

In both audits none of the slippers and only 2 pairs of shoes fulfilled the orthotist's criteria for appropriate footwear

Conclusions
Appropriate footwear improves foot function, stability and balance. This audit highlights the fact the majority of patients in a rehabilitation unit continue to wear inappropriate footwear. Although it would appear that footwear is a risk factor amenable to change, this audit suggests that further work needs to be undertaken to achieve this modification.

15 FRACTURE INCIDENCE AMONG ELDERLY PEOPLE IN INSTITUTIONAL CARE: LINKING INJURY SURVEILLANCE DATA WITH A POSTCODE-BASED REGISTER OF RESIDENTIAL AND NURSING HOMES

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Introduction
Fracture prevention strategies will be most cost-effective if targeted on groups of frail elderly people who are at particularly high risk of falls and fractures. Elderly people living in residential and nursing homes are one potential target population, but fracture incidence in this setting remains poorly defined in many countries.

Methods
The All Wales Injury Surveillance System (AWISS) is a computerised system that collects injury data from Accident and Emergency departments throughout Wales. In this population based study we linked AWISS fracture data for Cardiff residents aged over 65 with a postcode-based register of all residential and nursing care homes in the city.

Results
Cardiff has 47,520 residents aged over 65, and 1,874 (3.9%) live in residential or nursing homes. Fracture incidence was 25 /1,000/year overall, and 5 /1,000/year for hip fracture. During 1997 the care home residents suffered 162 fractures, 82 of which were of the hip; an incidence of 86 /1,000/year overall, 44 /1,000/year for hip fracture. Even after adjustment for the age and sex profile of the care home population, fracture incidence remained 2.3 times higher, and hip fracture incidence 3.6 times higher than in the general elderly population.

Conclusion
Such figures support the potential cost-effectiveness of strategies that prevent fractures in care homes, and are of especial interest to those planning intervention studies in this setting.

16 THE EFFICACY OF ANALGESIA IN THE ELDERLY HIP FRACTURE PATIENT

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Introduction
Successful pain management in elderly hip fracture patients is important not only for the patient's comfort but also to help to ensure their early mobilisation and therefore reduce the risks of prolonged bedrest. This study assesses the efficacy of 3 analgesic regimes used in the perioperative fracture patient.

Methodology
Patients older than 65 years with hip fractures admitted from September 97-August 98 were considered for entry into this double blind randomised trial. Exclusion criteria were the presence of head injury, dementia, psychosis, drug/alcohol abuse and hepatic or renal failure. 78 patients were enrolled and assigned to 1 of 3 analgesic regimes. Each patient was visited daily in the perioperative period and information gathered on pain scores and analgesic efficacy. Pain relief was obtained by using intramuscular morphine or tramadol for severe pain and oral tramadol or codeine phosphate 30mg/ paracetamol 500mg capsules for moderate pain. Data was analysed using chi squared tests and Kruskal Wallis ANOVA as appropriate

Results
Patients rated their pain as being mild (19.6% of assessments), moderate (44.4%) or severe (35.6%). Pain relief was stated as being poor in 11.6%, satisfactory in 46.2%, good in 34.3%, excellent in 5.1%. There was no significant difference between the groups on any day with regard to satisfaction with pain relief, verbal pain rating, visual analogue scores or side effects (nausea and confusion).

Conclusion
The majority of patients felt their pain relief was satisfactory or good. Few felt that it was poor or excellent. Many patients experienced moderate to severe pain in all 3 regimes used. More work is required to optimise pain relief in the elderly fracture patient.

17 COST EFFECTIVENESS ANALYSIS OF BMD REFERRAL FOR DXA USING ULTRASOUND AS A SELECTIVE PRE-SCREEN IN A GROUP OF WOMEN WITH A LOW TRAUMA COLLES' FRACTURE

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Introduction
Dual energy X-ray absorptiometry (DXA) remains the gold standard for the diagnosis of osteoporosis. Quantity ultrasound (QUS) is an attractive alternative method of bone assessment because it is easy to use and relatively inexpensive. Langton et al demonstrated that the use of QUS as a selective population pre-screen could maximise the cost effectiveness of bone mass density (BMD) referral for DXA. We set out to examine how Langton's approach would perform in a specific group of women with low trauma Colles' fracture.

Method
In 46 women aged 50-80 (mean 67) years with low trauma Colles' fracture we used DXA to measure BMD at lumbar spine and hip, and ultrasound to measure Broad Band Attenuation (BUA) and Velocity of Sound (VOS) at the heel. We used the BUA of 60 dB/MHz previously defined by Langton as a cost effective threshold and examined its cost per osteoporotic subject identified together with the corresponding sensitivity and specificity in predicting osteoporotic subjects as defined by the World Health Organisation (WHO) T- score BMD threshold of -2.5.

Result
The cost per osteoporotic subject identified at a BUA of 60 dB/Mhz is £59 with the corresponding sensitivity and specificity of 93% and 84% respectively.

The cost per osteoporotic subject based on DXA measurement alone without QUS pre-screen is £77.

Conclusion
The threshold of BUA of 60 dB MHz^{-1} suggested by Langton does appear to be clinically useful and cost effective as a pre-screen for DXA in this specific group of patients with low trauma Colles' fracture.

18 IS MIDODRINE USEFUL IN ELDERLY FALLERS?

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Introduction
Orthostatic hypotension (OH) is a major risk factor for falls and syncope but treatment is difficult. Midodrine, a direct acting alpha-1 agonist, is associated with improvement in orthostatic tolerance in neurogenic OH. However specific data regarding its role in the management of patients who fall is lacking. This study assessed if midodrine was associated with benefit in select patients attending a falls/syncope clinic.

Methods
Data of all patients seen in a three-year period that were prescribed midodrine were reviewed: (i) to assess indications for therapy; (ii) any symptom improvement; and (iii) troublesome side-effects requiring withdrawal of therapy.

Results
Of 450 patients attending the clinic midodrine was prescribed in 25 (75% female), age range 26-96, median 75yrs. Indications for treatment were OH (56%) and vasodepressor vasovagal syncope (44%). Falls were reported in 80% of patients and soft tissue or more serious injury in 68% (bone fracture accounting for 25%). The mean follow-up period for this study was 13 months (range 2-32). Symptom improvement was reported in 82% either as a reduction in the number of reported falls or improvement in symptoms of OH with total resolution of symptoms in 20%. Side-effects requiring withdrawal of therapy were supine hypertension in 8% and unpleasant sensations in 8%. Other side-effects necessitating dose reduction were pilomotor reactions, sensations of coldness and urinary frequency in 20%.

Conclusion
This retrospective review suggests that treatment of hypotensive disorders is beneficial in a select group of elderly fallers. Midodrine may have an important role in the management of this difficult problem but patients require close monitoring of their blood pressure. Prospective controlled trials are needed to further assess the risks and benefits of this agent.

19 ABSENCE OF A CORRELATION BETWEEN RESPONSES TO CAROTID SINUS MASSAGE AND ACTIVE TILTING IN PATIENTS WITH FALLS

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Introduction
Orthostatic hypotension (OH) and the carotid sinus syndrome (CSS) are important causes of falls in elderly patients. These conditions are thought to occur secondary to autonomic dysfunction but their precise pathophysiology is poorly understood. We present the results of a study comparing responses to carotid sinus massage (CSM) and tilting in a consecutive series of patients referred for investigation of falls.

Methods
We studied 298 consecutive patients (mean age 76 years). The haemodynamic responses to 70 degrees head up tilt, and to carotid sinus massage were measured using digital photoplethysmography (Portapres). Responses were expressed as the percentage reduction in systolic and diastolic pressure from baseline to the nadir occurring within 30 seconds of the stimulus. Regression analysis was used to compare these responses.

Results
The sample included 167 patients with systolic BP reductions >20 mmHg on tilting, of whom 58 were symptomatic. There were 31 patients with systolic BP reductions >50 mmHg after CSM (159 with responses > 20 mmHg systolic). Coefficients of correlation for supine vs semierect and for left vs right sided CSM ranged from 0.56 to 0.7. The correlation coefficients between the responses to tilt and to carotid sinus massage were 0.06 (systolic response) and 0.11 (diastolic response).

Conclusion
The proportion of study patients with significant responses to either tilt or CSM was high. The absence of a correlation between responses to tilt and CSM suggests that these conditions (OH and CSS) are statistically independent and that their pathophysiologies may be distinct.

20 PREDICTING FALLS POST-DISCHARGE IN PROXIMAL FEMORAL FRACTURE PATIENTS

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Introduction
The influence of fear of falling on fall events post-discharge in proximal femoral fracture patients has been poorly evaluated. This study evaluates in a longitudinal, prospective design the predictive potential of fear of falling, as assessed by the Falls Efficacy Scale (FES; Tinetti, M.E., Richman, D. R. & Powell, L., J Gerontol 1990; 45: P239-243) and a single item measure of worry over falls.

Methodology
Eighty-two older people (65+) admitted to hospital as a result of a fall, with a diagnosis of proximal femoral fracture and without cognitive impairment, were assessed for physical and psychological functioning by structured interview. Post-discharge, at two months post-fall the participants were visited (69.5% response) for assessment of further fall events.

Results
There was a non-significant correlation (r=-.21) between worry over further falls and FES score. A test of a model with length of stay in hospital and previous activity problems included, against a constant-only model, was statistically reliable (Chi-Square(2)=12.27, p=.002). Comparison with an extended model that included FES and worry over further falls indicated reliable improvement in the model (Chi-Square(2)= 10.14, p=.006), although FES score did not independently significantly predict fall status (z=3.31, p=.069). The final model predicted post-discharge fall status correctly for 87.5% of patients.

Conclusion
FES score and worry about further falls appear to assess distinct aspects of fear of falling, and only worry about further falls independently predicted post-discharge fall status. The present study clearly demonstrates the potential for hospital-based assessments to increase clinician understanding of post-discharge fall risk among proximal femoral fracture patients.

21 DISCHARGE INFORMATION CONTAINED ON AN INTEGRATED ORTHOPAEDIC, MEDICAL AND NURSING FORM: A RE-AUDIT

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Introduction
An audit of discharge information sent to General Practitioners (GPs) after admission to acute orthopaedic wards for a low trauma fracture (n=20) showed that although the orthopaedic diagnosis was mentioned in 20/20, medical information was mentioned in 0/20 cases, drug changes were mentioned 0/6, services 0/20 cases, mobility status 0/20 cases. GP follow up or monitoring was requested in 0/20 patients despite only 1/20 of patients being seen in orthopaedic out-patients. The NHS continuing care form was filled in for 1/20 of patients.

Methods
An integrated structured discharge summary was formulated with an orthopaedic, medical and a nursing section. It was filled in prior to discharge and faxed to the GP within three days of discharge. A follow-up audit was performed.

Results
Consecutive discharge letters on thirty low trauma fracture patients from the acute orthopaedic wards were reviewed and information recorded.

- Orthopaedic diagnosis 30/30 (100%).
- Orthopaedic follow up 7/30(23%).
- Falls history and management recorded in 19/30(63%).
- Osteoporosis management recorded in 28/30(93%).
- Acute disease management recorded in 13/13(100%).
- Chronic disease management changes in 9/9(100%).
- Medical follow-up arranged 5/30(17%).

GP recommendations 22/30(73%). Services 17/21 (81%) (9/9 residential or nursing home care). Mobility status 27/30(90%).

Conclusions
In order to be most effective, discharge from secondary care to primary care requires GPs to be informed. They require information concerning medical, social and functional status if they are to co-ordinate ongoing rehabilitation plans in the community. The above re-audit has shown that necessary information concerning these areas is now being included in orthopaedic discharge letters. As a result of this audit we have adopted this structured discharge summary into every day practice.

22 HEALTH CARE IMPLICATIONS OF FALLS IN PATIENTS WITH COGNITIVE IMPAIRMENT AND DEMENTIA ATTENDING A CASUALTY DEPARTMENT

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Introduction
Fallers with cognitive impairment and dementia account for a significant proportion of casualty attendances. We investigated the health care implications of falls requiring casualty attendance in these patients.

Method
Data were collected as part of a randomised-controlled trial (RCT) recruiting fallers with cognitive impairment (Mini-mental state examination (MMSE) score <24), age ≥ 65, presenting to casualty.

Results
In 52 weeks screening, 576 patients met RCT entry criteria, 308 were recruited.

Mean age was 85, S.D.=7 (n=572); 40% (n=233/576) resided in the community. Median MMSE was 13 (IQR 6-18, n=308). 56% (n=325/576) sustained significant injury; 36% (n=209/576) were admitted to hospital. 40% (n=25/63, n=308) of patients admitted from the community were discharged to institutional care. They had significantly longer length of stay (LOS) than those discharged back home (median LOS 66 days IQR 41-98.5 vs. 12.5 days IQR 8-29.5, p<0.001, n=308). There were no significant differences between the groups on data collected (p>0.1). Discharge to institutional care if admitted from the community was the most significant predictor of LOS (r^2 =0.426, p<0.001, n=308). Average cost per week of in-patient stay excluding procedures for these patients was £875 compared to £346 per week on discharge to institutional care.

Conclusion
High proportions of fallers with cognitive impairment and dementia attending casualty sustain significant injury and are admitted to hospital; 40% of those admitted from the community are discharged to institutional care. Discharge to institutional care has a significant effect on length of stay and additional costs are incurred; data suggest that at least in part the increased length of stay can be accounted for by wait for social placement.

23 PREDICTORS OF FURTHER FALLS IN PATIENTS WITH COGNITIVE IMPAIRMENT AND DEMENTIA ATTENDING THE CASUALTY DEPARTMENT

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Introduction
Cognitive impairment and dementia are associated with increased risk of falls. Our aim was to determine predictors of further falls in patients with cognitive impairment and dementia who attended casualty having fallen.

Method
Data were analysed from the control group (n=144) of a randomised-controlled trial of prevention of falls in patients age ≥ 65, with cognitive impairment (Mini-mental state examination score (MMSE) <24), who attended casualty with a fall. All received multi-disciplinary assessment at baseline; data on falls were collected prospectively over the next year by diary postcards returned weekly by informants. Analysis was by logistic regression (dependent variable: fall or not) and linear regression (dependent variable: number of falls).

Results
Mean age was 84 (S.D.=6.6); 82% were female. Median MMSE was 12 (IQR 6.25-18); 89% met formal criteria for dementia. 88% (n=5799/6607) of diaries were returned. 80% had ≥1 fall; the median number of falls was 3 (IQR 1-8). Significant variables predicting a fall included: previous fracture (OR=3.65 95%CI 1.18-11.3); abnormal gait assessed by a physician (OR=3.23 95%CI 1.15-9.07); and no admission to hospital after index fall (OR=6.07 95%CI 1.96-18.8). The most significant variable predicting number of falls was number of falls in the six months prior to study entry (increase in r^2=0.223, p<0.001). A score of ≥4 on the Hachinski index (consistent with vascular dementia) also predicted number of falls (increase in r^2=0.035, p=0.002).

Conclusion
Patients with cognitive impairment and dementia are at increased risk of falls. These data allow us to predict a particularly high-risk group of fallers with cognitive impairment and dementia attending the casualty department.

24 SIX MONTH PROSPECTIVE SURVEY OF ACUTE MEDICAL ADMISSIONS FROM THE RESIDENTIAL SECTOR

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Introduction
The residential sector is caring for increasingly disabled residents despite poorly trained staff. Yet acute admissions from these homes are often equated with those from nursing homes and seen as inappropriate (Snape et al., 1997, Age and Ageing 26(4):320-1). The purpose of this study was to examine the details of these admissions and their outcome.

Methodology
From 16 November 1998 to 15 May 1999, all admissions to our Emergency Medical Unit had age, sex and residential status documented. Admissions from residential care also had reason for admission recorded and their subsequent inpatient progress prospectively followed using the medical notes.

Results
Of 3824 acute medical admissions, 250 were from the residential sector (6.5%) with a mean age of 86 years: 71% were female. Acute infections, mainly respiratory, necessitated most admissions (45% 111/250). Other reasons for admission included: cardiac failure (8% 21/250); constipation (7% 18/250) stroke (6% 16/250), and gastrointestinal haemorrhage (6% 14/250). Only 5% overall were deemed inappropriate admissions by the admitting staff. Drugs often precipitated the admission (11% 28/250) and many had pressure sores on presentation (14% 35/250).

Length of stay (LOS) ranged from 1 to 100 days. Mortality was 33% (mean LOS=14.5). All but four survivors (mean LOS=10.6 $p<0.02$ t-test) returned to their residential home on discharge with the remainder requiring relocation in nursing homes. Fifteen patients were readmitted within 30 days.

Conclusion
Most admissions from the residential sector were appropriate and did not result in prolonged stays or lengthy re-location procedures. However, the high mortality rate and incidence of pressure sores confirm the frailty of this population and raise questions regarding the appropriateness of their residential placement.

25 FOURTH TRENT CENSUS OF OLDER PEOPLE IN CARE HOMES: HEAD OF HOMES RESULTS

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Introduction
The recent Royal Commission report demonstrated that meeting the health and social care needs of frail older people requires a clear understanding of current long-term care provision. The purpose of this fourth survey, as with our previous censuses of long-term care residents, was to obtain useful epidemiological data for future service planning.

Methodology
The census was conducted in November 1997 using the Leicestershire County Council long-term care register as a sample frame. It included a questionnaire for each home manager covering the characteristics of their home. Using Chi squared testing, comparisons were made between private residential (RH), nursing (NH) and Local Authority homes (LA).

Results
Response rate was good (70% 217/311). More NHs accepted the bedridden (93% 40/43), tubefed (86% 37/43), incontinent (77% 33/43) and terminally ill (86% 37/43) resident than RHs or LAs (all $p<0.01$). However, several RHs also accepted the bedridden (19% 29/150) and offered terminal care (47% 70/150).

LAs were the sector most willing to accept demented residents (92% 22/24 $p<0.01$) but only 12 homes overall accepted severe wandering and behavioural problems.

Trained nurses accounted for 44% of NH staff but only 10% of other care staff possessed vocational qualifications with fewer in LAs ($p<0.01$) who also had the lowest staffing levels ($p<0.01$).

Over 80% of homes had written policies on continence, drugs, falls and infection but assessment tools were only widely used in NHs (91% 39/43 $p<0.01$).

Conclusion
This survey highlights the issue of inappropriate placement with homes apparently prepared to function outside their registration. It also raises questions of unmet need for the challenging resident and poor staff training.

26 ESTIMATION OF BARTHEL INDEX SCORES IN DAY HOSPITAL AND REHABILITATION WARD PATIENTS: VALIDITY OF THE "B13" SCORE

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Introduction
The Barthel Index (BI) is the most widely used assessment of activities of daily living (ADL). Hard pressed clinical staff frequently don't appreciate the assessment's relevance to the care of their patients, and often fail to find time to complete the 10 question score. A simplified "BI3" score based on just 3 BI elements (Mobility, Transfers, and Bladder) has been derived from work with stroke patients [Ellul et al., Age Ageing 1998:27:115-122]. The "BI3" estimates the full BI result, and this approach has been validated for use with stroke patients but not with other groups of elderly patients

Methods
We compared "BI3" estimations with conventional BI results in 152 people, (78 day-hospital patients, 74 rehabilitation ward inpatients), aged 55 to 95 (mean 80) years.

Results
BI was higher in day-hospital patients (mean 13.9), than in inpatients (mean 10.5). We studied the inaccuracy of "BI3" estimations for individual patients (table), and gauged the clinical significance of this by comparing it with the result with the inter-observer repeatability of conventional BI scores in a test-retest study of our patients.

Difference in results	**0**	**≤1**	**≤2**	>2
BI compared with "BI3" estimate				
Day-hospital	9%	48%	73%	27%
Rehabilitation wards	16%	49%	70%	30%
Test-retest BI results	21%	62%	75%	25%

Conclusion
The BI domains of Mobility, Transfers and Bladder are clearly crucial to a patient's overall level of independence; hence geriatricians' attention to these topics in their clinical practice. Routinely recording a "minimum ADL data-set" of individuals' function in these 3 areas would facilitate monitoring of overall dependency levels within populations, wards or departments.

27 EARLY ASSESSMENT BY THE ON-CALL MEDICAL REGISTRAR IN A&E

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Introduction
Delays in the A&E department are a frequent cause of patient dissatisfaction. We looked at the effect of a revised working pattern on the patient's stay in A&E.

Methodology
We compared a 'Classical' A&E working arrangement (fig. 1) with a revised 'Study' arrangement (fig. 2). Triage nurses on Study days were requested to refer directly to a Medical Registrar resident in the A&E department all cases which fell into one of 5 diagnostic categories:
1 Resp - Shortness of breath
2 GI - Haematemesis/Malaena, D&V/Dehydration, ?UTI, Jaundice
3 CVS - Chest pain, Arrhythmias
4 CNS - ?CVA, Fits, Headaches
5 Collapse - Collapse not fitting one of the above
On control days the Medical Registrars performed their duties normally.

Results
Hospital admission rates were similar for the 2 groups (~60%). Patients admitted on Study Days spent less time overall in the A&E than others (132 Vs 179 mins, p=0.056) but the length of time waiting in the department for a bed if requested was similar (103 Vs 106 mins). Patients were seen significantly quicker by the Medical Registrar when referred by the triage nurses directly rather than via the A&E SHOs (29 Vs 64 mins, p=0.001).

Conclusion
Our results suggest that employing a novel working pattern may produce benefits in terms of throughput of medical patients by reducing the wait to see the Medical Registrar. This is done partly by shifting some triage duties from A&E SHOs to nurses. Criticisms of this sort of working pattern include issues surrounding A&E SHO training ('deskilling') and arrangements needed to cover the ward duties of the on-call Medical Registrar.

Figure 1: 'Classical' Pathway

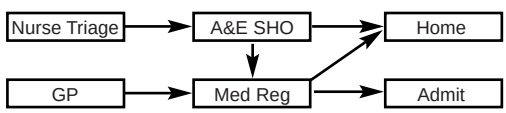
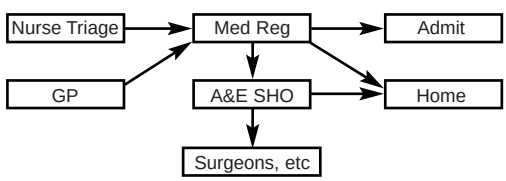


Figure 2: Revised Pathway



28 EFFECT OF EDUCATION IN IMPROVING SECONDARY PREVENTION OF OSTEOPOROTIC FRACTURES

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Introduction
Osteoporotic fracture is a cause of morbidity and mortality. Patients with one of these fractures are at risk of a further fracture but prophylactic treatment has been shown to reduce risk. (Christiansen C, Lindsay R. Osteoporosis Int 1990;1:7-13.)

The aim of this study was to improve levels of prescription of prophylaxis after fractured neck of femur and vertebral fracture by educating house officers and to see which of two educational methods was most effective

Methods
A baseline assessment of discharge prescribing took place over the three months to 1/8/98. Two groups of house officers were then studied.

Group 1 was given a seminar on osteoporosis prevention, which was reinforced by a written sheet. Prevention was not specifically mentioned during the orthogeriatric ward round. This group was studied from August to October 1998.

Group 2 was given informal teaching on the orthogeriatic ward round concerning the benefits of preventative therapy. An elderly medicine consultant conducts this round. This group was studied from November 1998 to January 1999.

The outcome measure was the proportion of patients on prophylaxis on discharge or where this was mentioned in the discharge letter. Patients were excluded if they had a fracture not secondary to osteoporosis or did not survive to discharge.

Results

	No. of patients	No. on prophylaxis	Percentage on prophylaxis
May-July 1998	29	11	37
August-October 1998	35	7	20
November 1998-January 1999	19	5	26

Conclusion
This study showed that neither form of educational intervention positively influenced prescribing of anti-osteoporosis treatment. Further work in conjunction with pharmacy is underway to improve the situation.

29 ARE SIDE ROOMS ON CARE OF THE ELDERLY WARDS DANGEROUS?

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Introduction
Three recent complaints suggested patients in side rooms felt isolated and had poor care. Communication difficulties were a major problem. Learning from complaints is important, so as part of a student Special Study Module, we decided to review our use of side rooms.

Methodology
Over three weeks, all patients in side rooms were surveyed. Each patient answered a structured questionnaire that assessed cognitive function, mood, feelings, and understanding of why they were in a side room. Contact was made with relatives or carers. The ward team was also asked why the patient was in a side room. Comparison was made with a randomly chosen control group who were patients managed on the main ward.

Results
Twenty three side room patients were surveyed. They were well matched by age, sex and cognitive function to ward controls. Reasons for use of side room were infection (11), no other bed (7), and terminal care (2). Patients on the general ward were more isolated, lonely, bored and felt down compared to those in side rooms. The majority of patients in siderooms (15) and their relatives (14) preferred a side room to the main ward. There were no perceived differences in the amount of attention either group of patients received from doctors, nurses or other staff. Interviews took the medical student 25 hours.

Conclusions
Complaints may lead one to believe an aspect of service needs attention. We demonstrated that side rooms were popular with elderly patients and their relatives. Communication and care do not appear to be compromised. This methodology is applicable to other assessments of quality and patient satisfaction.

30 AVOIDABLE DISCHARGE DELAY: ITS CAUSES AND MAGNITUDE

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Introduction
Minimising the length of in-patient stay without compromising patient outcome is a major challenge in the delivery of efficient hospital services. Recurring winter bed-crises emphasise the need for optimal patient management and discharge arrangements. We prospectively quantified Avoidable Discharge Delay (ADD) and identified the factors responsible.

Methods
An elderly care rehabilitation unit (133 beds) was studied for 4 months (November to February). The multidisciplinary teams recorded in the ADD Register (ADDR) the patients with all these criteria: (i) completed their rehabilitation programme, (ii) were deemed medically and functionally to be optimal and stable, (iii) there was no medical or rehabilitative indication for further hospitalisation, (iv) the discharge destination was agreed by patients, their carers and multidisciplinary team. Dates of entry to ADDR and of hospital discharge, and multidisciplinary data were analysed (investigator group comprised: consultant Geriatrician, physiotherapist, occupational therapist, social worker, clinical audit officer). The ADD (ie. difference between the two dates) and factors responsible were identified. Total bed occupancy was also obtained (computerised patient management system).

Results
153 patients (mean age 80 years, 68% female) had ADD; the median was 21 days (range 2-94), and resulted from awaiting for: (i) funding and/or bed availability in nursing or residential homes (64% of patients), (ii) home care package arrangements (15%), (iii) home adaptations and/or provision of aids (15%), (iv) patient and/or carer non-cooperation (6%). The total ADD bed-days were 3906, comprising 25% of the overall bed occupancy for all inpatients.

Conclusions
A quarter of all bed occupancy was unrelated to medical or rehabilitative needs, but was concerned with delays in social services and community care. By addressing these factors, inpatient length of stay might safely be reduced considerably.

31 INTEGRATED CARE FOR ELDERLY PEOPLE WHO FALL

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Introduction
The Assessment and Integrated Care Scheme (AICS) was developed as an alternative to hospital admission for older people presenting to the Accident and Emergency department with a fall. It provides integrated support from volunteers, home carers, nursing and therapy staff, with medical review in some cases.

Methods
Casenotes were reviewed for patients referred to AICS between August and October 1998 for demographic details and services provided. Outcomes (death, admission to hospital, move to long term care) were noted at 8 weeks. Hospital avoidance and bed days saved were estimated by triangulation of data from two cohorts of age and sex matched historical controls, and prospective estimates based on patient data. Cost savings based on the hospital cost of £154 per bed day were compared with the cost of AICS.

Results
204 patients received AICS during the study period (median age 83, 73% female, 73% living alone). An estimated 58% would have been admitted without AICS. Adverse outcomes by 8 weeks were death (7%), admission to hospital (24%) and move to long-term care (6%). The number of patients receiving mainstream home care services doubled after AICS compared with before. Annualized cost savings were estimated at £904,750 based on 5875 bed days saved. This compares with the £980,000 cost of AICS.

Conclusions
AICS is an example of inter-agency work to support the very old. It avoids hospital admission and identifies and meets additional need for home care. The cost of AICS is substantial, but is balanced by savings from avoiding hospital admission. These results are encouraging but need confirmation in a randomised controlled trial for cost effectiveness.

32 DEVELOPING A MODEL FOR ASSESSING APPROPRIATENESS OF EMERGENCY GERIATRIC ADMISSIONS

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Introduction
Developing reliable objective criteria for emergency hospital admission of geriatric patients will aid audits aimed at reducing the number of inappropriate admissions and improve resource utilisation.

Methodology
In 1997 the Appropriateness Evaluation Protocol (AEP) (Gertmann and Restuccia, Med Care 1981, 19(8): 855-871) was used in a simultaneous survey in 7 East Anglian hospitals. (The AEP criteria were not developed specifically for the elderly and were devised to assess continuation as inpatient, rather than admission). New consensus criteria were developed from the AEP by a regional group and applied in a further simultaneous survey in 1998, involving 8 hospitals. Objective criteria were compared with subjective assessment by the admitting consultant at the time of the post-take round.

Results
In 1997 the largest single centre assessed 230 admissions, finding 33% inappropriate by AEP and 19% by subjective judgement. Results from other centres were similar but could not be summated because of methodological differences. In 1998, 898 patients were assessed using the new criteria. This study found 15.8% inappropriate compared to 12.5% by subjective judgement. There was agreement in 90.7% (kappa value of 0.62, 95% C.I. 0.54 - 0.69). Disagreements were not evenly distributed (McNemar's χ^2 = 16.5, p <0.001) with subjective judgement assessing fewer cases as inappropriate compared to objective criteria. Differences between centres in rates of inappropriate admissions may relate to variation in admission systems.

Conclusion
A regional group can devise objective criteria for admission of geriatric patients, which correlate with subjective judgements by consultants. Further iterative development is required. Comparison of results between centres may enable admission systems to be evaluated with respect to appropriateness of admission.

33 READMISSIONS IN ELDERLY MEDICAL PATIENTS: A MARKER OF QUALITY OF CARE?

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Introduction
Readmissions of elderly medical patients are common [Gautam, Health Bulletin,1996]. The Department of Health (DoH) plans to audit readmissions as a marker of quality of care. Problems with data collection may falsely elevate the number of reported readmissions. Avoidable readmissions tend to occur shortly after discharge [Frankl, American Journal of Medicine, 1991]. The aim of this audit was to find the rate of early, unplanned readmissions of elderly patients both by hospital computer, (PAS) and by case-notes review methods and, further, to identify those which were potentially avoidable.

Methods
Unplanned readmissions of medical patients aged 75 years and over discharged over an 8 month period were identified from PAS. Case notes were inspected by a senior medical assessor, over half were inspected by a second assessor to measure inter-rater reliability.

Results
PAS identified 147 readmissions in 102 patients following 1798 discharges, rate 8.2%. Case notes examined for 99 readmissions found only 51/99 (52%) represented true unplanned readmissions, extrapolating to 4.3% of all admissions.

27/51 readmissions, (53%) were judged to be avoidable by at least one assessor, 2.2% of all admissions in this age group. Social problems accounted for 2 cases. Inadequate medical care was the most common reason (85%).

Inter-rater reliability was fair, kappa statistic = 0.3.

Conclusions
Identifying readmission from PAS gave a falsely high estimate of readmission rate. Reviewing the notes to exclude transfers or planned readmissions reduced the readmission rate and further medical assessment deemed only half to have been potentially avoidable, accounting for a small percentage of total admissions. The DoH should take into account the misleading information PAS may give and recognise the medical involvement required to produce accurate statistics.

34 IMPROVING PRESCRIBING PRACTICE THROUGH AUDIT

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Introduction
Older people may benefit greatly from medication, but are especially vulnerable to iatrogenic drug problems. There is a continuing need to improve prescribing habits.

Methodology
Setting: District General Hospital with 2,500-2,700 admissions annually. Audit began in 1992. Evidence on good prescribing reviewed and policies drawn up. Implementation by:

- formal incorporation into induction notes for new doctors;
- reinforcement of policies on ward rounds; and
- monthly feedback on prescribing practice from computerised pharmacy records.

Results
Examples of improvements.

1 In line with evidence that aspirin is beneficial for many vascular disorders, discharge prescriptions rose from 295 to 696 over 6 years. A case note survey of 200 patients showed aspirin indicated for 77 and actually prescribed for 64. Of the remainder 10 had documented contraindications.

2 Hypnotic use is causally associated with falls. Ward issues fell from 2392 to 734 monthly and discharge prescriptions from 300 to 156 annually.

3 Polypharmacy has great potential for harm. Discharge items were restricted to those considered essential. Despite pressure to increase prescribing of some drugs (e.g. aspirin) items per discharge fell from 4.03 to 3.28 per person over 4 years.

4 In line with British Thoracic Society guidelines, routine use of a second nebulised bronchodilator for acute exacerbations has been discouraged, resulting in a reduction from 4990 to 1980 nebules annually for the second line drug.

5 Non steroidal anti inflammatory drug (NSAID) use is hazardous in the elderly. NSAID use (excluding aspirin) has been reduced from 79 to 32 discharge prescriptions annually with use virtually confined to the 2 least dangerous NSAIDs.

Conclusion
This simple system of prescribing audit has closed several audit loops, is widely applicable and can achieve significant, lasting and worthwhile improvements.

35 RENAL REPLACEMENT THERAPY, ETHNICITY, AGE AND SURVIVAL

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Introduction
The 1991 UK census showed that 6% of the population was non-white. Minority ethnic groups are a heterogeneous group of people reflected also in the distribution of end-stage renal disease (ESRD) patients on renal replacement therapy (RRT) in Leicestershire.

Methodology
In an analysis of 638 individuals who started dialysis between Jan 1991 and Dec 1995 and followed up until June 1998, we studied the population demographics and survival of patients from ethnic minority groups. The main outcome measures were survival rates using the Kaplan-Meier method, compared by using the Log-Rank test.

Results
Ethnic Indo-Asians (EIA) constitute 17-21% of all new patients on RRT, and Afro-Caribbeans comprise 3%. The average age of the Indo-Asian RRT patient was 53 years as compared to 61.5±15.9 for Caucasians. In EIA, the overall median survival at the point of analysis was 51.9±3.5, in <65 yrs olds 52±7.2, and in >65 year olds 29±9.8 years respectively; the corresponding figures in Caucasians were 48.5±1.48, 61.2±2.3, and 26±1.6 years respectively. The mode of RRT at the point of analysis in EIA was CAPD/CCPD in 34.1%, Haemodialysis in 27.3%, and Transplantation in 38.6% respectively.

Conclusions
After correcting for age, survival on RRT was worse in EIA's as compared to Caucasians. EIA's comprise one fifth of all patients on RRT. However there are very few EIA patients aged above 75 years on RRT, as compared to 9% of Caucasians, explained by a relatively young age and a decreased life span due to various risk factors. Since the ethnic population in the UK is increasing, this data has important implications for future health policies.

36

IS ROUTINE BLOOD SCREENING USEFUL AND COST EFFECTIVE IN THE CONTINUING CARE SETTING?

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Introduction
In many continuing care settings it has been traditional practice to screen patients annually. However there is no data available to show whether this is clinically useful or cost effective. We aimed to determine the usefulness of routine screening tests in this area for detecting treatable conditions, and the cost involved.

Methodology
64 patients in 4 continuing care wards were included. Screening tests included full blood count, thyroid function, blood glucose and full biochemical screen. Where abnormal results were found the medical notes were reviewed to determine if this was a new finding, and further investigation and management undertaken if indicated.

Results
53 patients (34 women and 19 men) had screening tests performed, at a cost of £1,340. Two patients refused and eight were unfit for venesection. There were 59 abnormal results, of which nine were previously known. There were two cases of iron deficiency, and one of folate deficiency, requiring replacement therapy. One patient with moderate renal impairment needed alteration of medications. One new case each of hypothyroidism and of primary hyperthyroidism was detected. Most significantly, 22 patients had low serum calcium and/or raised alkaline phosphatase. Ten of these had serum PTH and vitamin D levels checked - in eight the results suggested vitamin D deficiency.

Conclusion
We do not feel that the number of significant abnormal results in our study supports the use of routine blood tests screening in the continuing care setting. Rather, a more cost-effective strategy might be to ensure nutritionally adequate diets and to implement routine vitamin D supplementation in this group with a high risk of deficiency.

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CLOCK DRAWING AS A SCREENING TOOL FOR COGNITIVE IMPAIRMENT IN ELDERLY INPATIENTS

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Introduction
Cognitive impairment is common in elderly inpatients, but often goes undetected. We investigated use of clock drawing as a screening test for cognitive impairment in hospitalised elderly patients. We also aimed to determine the prevalence and recognition of cognitive impairment in this group.

Methodology
Patients aged 65 years and over on 10 wards in a teaching hospital were included. Patients were asked to produce a clock face by placing numbers and hands on a pre-drawn circle. Clocks were scored 0 (normal) to V (poor) according to the Shulman scale. Patients with a score of II-V completed an MMSE. Delirium was diagnosed using the Confusion Assessment Method and dementia by DSMIV criteria.

Results
172 patients were aged over 65 years, of whom 5 refused and 35 were unable to attempt clock drawing (because of impaired consciousness, poor vision, or physical inability.) Thus 132 (77%) completed a clock drawing, of whom 69 scored II-V on the Shulman scale. 50 of these patients had an MMSE score <25, of whom 18 had a recognised delirium, 5 known dementia, and 4 another relevant diagnosis. There was no documentation of cognitive impairment for the remaining 23 patients with poor clock drawing and low MMSE score. Of the 63 patients with a clock score 0-I, 3 had resolving delirium and one dementia. 11 patients with a poor clock score had no significant cognitive impairment.

Conclusion
Clock drawing is a useful tool for detecting cognitive impairment in elderly inpatients, which is still often unrecognised. It is acceptable, quick to perform and score, and highlights patients who warrant further assessment.

38 ANTICOAGULATION IN ATRIAL FIBRILLATION IN THE OVER 80s

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Introduction
Nonvalvular atrial fibrillation [NVAF] in the elderly markedly increases the risk of stroke. The safety and efficacy of anticoagulation (a.c) in those over 80 with a.f is not clearly documented. The elderly are vulnerable to side effects of anticoagulation, hence risk/benefit assessment is important.

Methodology
Literature review [Cochrane review and primary sources]. The review studied:
- ♦ trials methodology;
- ♦ proportion of those above 75 and above 80;
- ♦ end points: stroke/death/major bleeding; and
- ♦ data to calculate number needed to treat [NNT] for each study and for pooled endpoints.

Results
Eight studies were identified (Table 1). Most studies were unblinded and had strict exclusion criteria. Some studies excluded those over 75. Only one study reported the number of patients over 80 [7.6%]. A third of those on warfarin were outside the expected range.

Conclusion
1 Efficacy of a.c is clear but NNT indicates gross uncertainty of magnitude.
2 Secondary prevention was most effective.
3 High incidence of major bleeding in a.c.
4 As number above 80 is unknown, the results may not apply.
5 Risk stratification is essential for informed decision.

Table 1

	Stroke NNT/ year	Stroke 1000 patients/ year	Death NNT/ year	Death 1000 patient/ year	Major bleeding NNT/ year	Major bleeding 1000 patients/ year
AFASAK	42	24	54	19	-84	12
BAATAF	36	28	46	22	-434	2
SPAF-I	44	23	34	29	-334	-3
CAFA	132	8			-118	-8
VA	36	28	420	2	-254	-4
SPAF-II[1]	120	8	142	7		
SPAF-II[2]	66	15	334	3		
SPAF-III	36	28	42	24	-1000	1
EAFT[3]	8	125	56	18	-46	-22
Pooled	140	7	166	6	-30	-33

1 age under 75
2 age over 75
3 secondary prevention

39 ARE SECONDARY CARE PRESCRIBING INDICATORS FOR ELDERLY PATIENTS APPLICABLE TO PRIMARY CARE?

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Introduction
We have developed prescribing indicators to enable the measurement of prescribing and the effects of intervention in elderly inpatients(Oborne et al. Br J Clin Pharmacol 1997; 43: 91-97). The same indicators were applied to primary care to study their value and ease of use.

Methodology
Electronic prescribing data were downloaded from the prescribing software of a local general practice. Clinical data were collected from patients' notes by 2 hospital doctors trained in data collection. There were 363 patients aged 65 years and over taking drugs out of a total of 428 patients. All prescriptions over a period of 6 months were screened. Indicators are divided into 3 groups-descriptive, harmful /unnecessary prescribing and indicators of appropriateness of prescribing (Table 1).

Results
Total number of items prescribed were 1891, a mean of 5.21 per patient receiving drugs. Use of generic names was 85% and documentation of frequency for prn items was 60%

Table 1

Indicator	Observed	Appropriate
Benzodiazepine use	11%(41/363)	46%(19/41)
β 2-agonist with steroid	73%(24/33)	88%(21/24)
β 2-agonist without steroid	27%(9/33)	77%(7/9)
Digoxin with anti-coagulant/aspirin 300	60%(7/11)	100%(7/7)
Digoxin without anti-coagulant/aspirin 300	40%(4/11)	25%(1/4)
GTN with aspirin	62%(8/13)	100%(8/8)
GTN without aspirin	38%(5/13)	40%(2/5)

Conclusions
A number of important differences from use in hospital were observed. The documentation of drug sensitivity status was not possible in view of prescribing software idiosyncrasies. Drug duplication was also not assessable. Evidence based indicators were applicable to primary care (Table 1). Of interest General Practitioners (GPs) were able to demonstrate 10 patients where the hospital team had incorrectly defined prescribing as inappropriate by virtue of their greater familiarity with GP notes.

40 IMPLICATIONS OF ADHERENCE TO THE BRITISH THORACIC SOCIETY GUIDELINES FOR THE MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE ON A GERIATRIC UNIT

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Introduction
The British Thoracic Society (BTS) guidelines for chronic obstructive pulmonary disease (COPD) management (The COPD Standards of Care Committee of the BTS Thorax 1997:52:S5) recommend that inhaled corticosteroids be prescribed only for patients with a documented spirometric response, yet about 60% of those prescribed for COPD are deemed unnecessary (Anon Pharmaceutical Journal 1999;262:797). The BTS guidelines also stress the need for diagnostic spirometric measurements of ventilatory capacity, reversibility testing to bronchodilators, and inhaler counselling. We assessed these aspects of the guidelines on a geriatric unit.

Methods
The casenotes of 41 admissions with a primary diagnosis of COPD or acute exacerbation of COPD were studied retrospectively to assess these key areas of the guidelines, and the implications of current and ideal practice costed.

Results
Of 41 patients (mean age 77.3 years, 21 male), only 13 (31.7%) had ever had spirometric testing - 10 during the audited admission - and only 5 had predicted normal values recorded. Reversibility to bronchodilators was not tested during any admission. Of 19 patients discharged on inhaled corticosteroids, only 2 had a previously documented positive response. Inhaler counselling, documented for one patient, resulted in a therapeutic change. Discharge corticosteroid inhaler costs were £335.34 per annum, compared with an estimated £134.13 if the guidelines were followed. Reasons for non-compliance with the guidelines included lack of knowledge and inaccessibility of spirometers.

Conclusions
Education of the multidisciplinary team and monitoring of compliance with the guidelines will provide a cost-effective improvement in COPD patient care. Savings in primary care gained from more appropriate prescribing of steroid inhalers will far exceed the modest savings for this Unit.

41 THE ROLE OF ELDERLY CARE PHYSICIANS IN THE MANAGEMENT OF LUNG CANCER

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Introduction
Both the British Thoracic Society and the Department of Health in its Good Practice Guidelines recommend that all patients, irrespective of age, who have a possible or definite diagnosis of lung cancer should be referred to a respiratory physician. We investigated to what extent this is current practice and whether it is felt to be appropriate.

Methodology
Consultants in elderly care in the old Yorkshire region were sent an anonymous questionnaire regarding their current management of patients over 65 years of age with a suspected diagnosis of lung cancer. It asked for information regarding referral rates, reasons for non-referral and current practice.

Results
54 questionnaires were sent of which 36 replied (67%). 15/36 (42%) referred at least 90%, 7/36 (19%) referred 75%, 10/36 (28%) referred 50% and 4/36 (11%) referred 25% or less. The reasons for non-referral were: inappropriate e.g. dying/patient's wish (97%), unnecessary as they were confident about management (31%), limited service provision (6%) and referral to another appropriate specialist e.g. Oncologist (53%). 5/36 physicians (14%) had a particular interest in respiratory or cancer medicine. 13/36 (36%) were aware of a local policy about referring patients with lung cancer.

Conclusion
Referral of patients over 65 years to a respiratory physician was variable, with nearly 40% of consultants not referring up to half of their patients. The implementation of local referral policies is recommended.

42 INHALER TECHNIQUE IN RELATION TO COGNITIVE SCORES, BARTHEL INDEX, DYSPRAXIA AND EXECUTIVE FUNCTION

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Introduction
Studies have shown that some elderly people are unable to learn to use a metered-dose inhaler(MDI) despite a normal abbreviated mental test score(AMT). This might be due to dyspraxia, executive dysfunction or unrecognised cognitive impairment. Our study explores this hypothesis.

Methods
We studied 30 inhaler-naive inpatients (age 76-94). All had an AMT of 8-10, adequate vision and hearing and no focal neurological loss. Standard MDI training was given and the level of competence reached was scored(IS) on a scale of 0-10. A separate observer performed the mini-mental test(MMT), Barthel index (BI), geriatric depression scale(GDS), ideational dyspraxia test(IDT), ideo-motor dyspraxia test(IMD) and the Hayling and Brixton tests for executive function(EFT).

Results
No correlative or threshold relationship was found between IS and BI, GDS, IDT or EFTs. A significant correlation was found with IMD (r 0.45, p 0.05) and MMT (r 0.48, p 0.05) and a threshold effect emerged with MMT in that no subject with a score of less than 22/30 had an IS of 5/10 or more (adequate technique requires 6/10 or more).

Conclusion
We have shown that IS correlates with cognitive function(MMT) and ideo-motor praxis in elderly people with a normal AMT. The MMT might be a more discriminating test than AMT when predicting a satisfactory IS.

43 THE EFFECT OF AGE ON MANAGEMENT OF RESPIRATORY INFECTIONS

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Introduction
About 30% of acute medical admissions are managed by geriatricians. Respiratory tract infection is the second commonest cause of acute medical hospital admissions in the UK. Morbidity and mortality rise significantly with age. The aim of the study was to examine the affect of age on investigations and use of antibiotics using British Thoracic Society guidelines as a standard.

Methodology
Records of patients admitted between March and August 1998 to our hospital with a discharge diagnosis of chest infection (CI) and pneumonia (PNEU) were obtained. We compared 30 young (<80 years) with 30 older (>=80 years) patients in each group. All statistical comparisons were by Fisher's test.

Results
Of 405 patients with respiratory infections, 216 (53%) had CI. Of these, 156 (72 %) were young. 105 (26 %) had pneumonia of which 66 (16.%) were young.

It was found that older patients were less likely to have investigations done. Investigations (young vs old): sputum 6/30 vs 0/30 (p=0.03); liver function tests 22/30 vs 13/30 (p=0.04); blood cultures 17/30 vs 9/30 (p=0.07 NS); atypical pneumonia screen 7/30 vs 1/30 (p=0.06 NS); and blood gases 23/30 vs 10/30 (p=0.002). Old patients were also more likely to receive two antibiotics for CI: 4/30 vs 13/30) (p=0.02) and to receive a cephalosporin : 2/30 vs 7/30 (p=0.15 NS).

Conclusion
In this study important investigations were less likely to be done in older patients who were more likely to receive multiple antibiotics. This may partly explain the poorer outcome and the higher incidence of drug induced side effects in older people. Older patients should receive the same standards of treatment as the young.

44 VALIDATION OF MANCHESTER RESPIRATORY ACTIVITIES OF DAILY LIVING QUESTIONNAIRE (MRADL) AS A POSTAL QUESTIONNAIRE

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Introduction
MRADL is a new scale designed to assess respiratory disability in elderly outpatients with chronic obstructive pulmonary disease. However, it is not validated as a postal questionnaire. Validation as a postal questionnaire would justify its use for clinical monitoring of home-based programmes, for clinical screening and for the purpose of epidemiological research. Aims: to investigate test-retest reliability of the MRADL as a postal questionnaire; and to compare face to face administration by a physiotherapist against postal completion.

Methods
2 single-blinded studies were performed. In study 1, subjects were 51 (27 men), aged 61-87 (mean 74) years representing approximately one third of subjects previously reported as an [Yohannes et al. Age Ageing. 1999;28:40]. They completed the MRADL twice mailed to them at home, (second questionnaire after two weeks). In study 2, a separate and previously unstudied group of 36 (24 men), aged 60-82 (mean 71) years also completed the MRADL twice, first face to face by a physiotherapist and then two weeks later at home. Subjects were clinically stable in the previous six weeks and cognitively intact.

Results
Mean (SD) one second forced expiratory volume (FEV_1s) were: study 1 = 0.93 (0.30) litres; study 2 = 1.01 (0.43) litres. Mean [SEM] difference between two periods MRADL score (study 1) was 0.07 [0.3] and (study 2) was 0.17 [0.5]. 95% confidence limits of repeatability were -0.69 to + 0.54 and -1.21 to + 0.87 respectively for MRADL. Intraclass correlation coefficients were: study 1 = 0.96; study 2 = 0.84.

Conclusion
MRADL has good test-retest reliability as a postal questionnaire.

45 ABSENCE OF RELATIONSHIP BETWEEN FEV_1 AND DISABILITY IN OLDER SUBJECTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

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Introduction
Poor relationship exists between forced expiratory volume in one second (FEV_1) and exercise capacity and activities of daily living in COPD. British Thoracic Society (BTS) and American Thoracic Society guidelines in COPD suggest classification of severity based on percentage FEV_1 or other pulmonary function tests (largely because of its ability to predict mortality). However, in old age morbidity is of at least equal importance. Aims: to assess relationship between severity of COPD as classified by BTS guidelines [Thorax 1997;52:Sup.3] and disability as measured by the Manchester Respiratory Activities of Daily Living (MRADL) questionnaire.

Methods
Subjects were 232 (121 men) COPD outpatients aged 60-95 (mean 76) years data from whom have been previously reported [Yohannes, Age Ageing 1998:27: 155 and Yohannes, BGS, Cork]. They completed the MRADL self-administered scale. Exclusions: acute respiratory exacerbation or use of oral steroid within 6 weeks and acute/chronic confusion. We used the BTS guidelines to stratify subjects FEV_1 (% predicted): mild (60-80%); moderate (40-59%); and severe (<40%) groups.

Results
Mean (SD) FEV_1 = 0.93 (0.33) litres. Subjects were classified as: mild [n= 32 (14%)]; moderate [n=97 (42%)] and severe [n=103(44%)]. There was no difference in mean (SE) MRADL score between the three groups: mild 11.2 (0.9); moderate 12.6 (0.5) and severe 11.5 (0.5) [ANOVA, F= 1.36; p= 0.25].

Conclusion
As in younger subjects with COPD, FEV_1 cannot be used to predict level of disability in elderly patients symptomatic enough to outpatient referral. Indeed ADL level is similar over a wide range of FEV_1, reinforcing the need for ADL assessment in planning treatment/ care provision in this subject group.

46

HYPOXIA IN THE ELDERLY - UNRECOGNISED AND UNTREATED

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Introduction
Normal ageing changes within the lung reduce respiratory reserve, rendering elderly patients susceptible to hypoxia. This study aims to establish the frequency and severity of hypoxia in elderly medical patients, and to observe the current management of hypoxia.

Methodology
The admitting doctors assessed 315 elderly medical patients, admitted to a needs-related geriatric service. Clinical impressions of oxygen saturation (clinoxsat) and illness severity were made. Oxygen saturation (SaO2) by pulse oximetry (pulsoxsat) was recorded and vital signs noted. A subset of 94 consenting patients, matched for age and pulsoxsat, gave daily SaO2 readings for 1 week, producing a lowest SaO2 recording. Outcome data was collected.

Results
Pulsoxsat identified 169 non-hypoxic (SaO2 95%+), 62 mildly hypoxic (SaO2 93-94%), 50 moderately hypoxic (SaO2 90-92%) and 34 severely hypoxic cases (SaO2 <90%). Clinoxsat overestimated SaO2 in 177 cases (Wilcoxon's rank sum test $p<0.0001$). 59 of the 84 admission cases with moderate/severe hypoxia were undiagnosed clinically.

68 follow-up cases had no or mild hypoxia on admission. 20 (29.4%) of these developed moderate or severe hypoxia later. Admission hypoxia did not significantly relate to mortality, but subsequent moderate/severe hypoxia did ($\chi^2=12.83$, $p<0.001$).

Oxygen therapy was commenced in 15.9% of cases. 26 follow-up patients had moderate/severe hypoxia on admission, but only 10 (38.5%) received oxygen treatment.

Conclusion
Clinical estimations of oxygen saturation are insufficient to identify hypoxic patients, and therefore pulse oximetry on all patients at admission is advisable. However, more severe hypoxia can develop following admission, and therefore the continued routine use of pulse oximetry on the ward is recommended. SaO2 <93% should be considered clinically significant, and oxygen therapy should be instituted.

Thursday 16 December 1999

Platform Presentations

Cardiology
Falls, Fractures & Trauma
Stroke
Psychiatry

47 EFFECTS OF OESTROGEN REPLACEMENT THERAPY ON VASCULAR NITRIC OXIDE ACTIVITY

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Introduction
Cardiovascular disease is the leading cause of death in women in the developed world, with the incidence increasing after the menopause. Epidemiological studies suggest oestrogen replacement in post-menopausal women is associated with a reduction in the incidence of cardiac events, although randomised controlled trials have yet to confirm this. Changes in vascular nitric oxide (NO) activity may be a mechanism contributing to these possible benefits of oestrogen. We determined the effect of oestrogen replacement on arterial NO activity, sensitivity, and stimulated NO release.

Methods
Vascular NO activity, sensitivity, and stimulated NO release were determined in 20 healthy post-menopausal women (mean age 60 years) before and after 14 days of conjugated equine oestrogens (625µg daily). Forearm blood flow (FBF) responses (maximum and sum response at 3 doses) to brachial arterial infusions of L-NMMA (250-1000µg/min, NO synthase inhibitor), and noradrenaline (40-160ng/min) (n=10), and GTN (250-1000ng/min, NO donor) and serotonin (18-180ng/min) stimulated NO release) (n=10), were determined using venous occlusion plethysmography.

Results
Following oestrogen, constriction to L-NMMA increased (max 54±3% vs. 40±5%, P<0.05; summary 132±17 vs. 89±14, P<0.05) whereas constriction to noradrenaline was unchanged (max 45±6% vs. 38±6%, P=0.28; summary 117±14 vs. 97±14, P=0.27). Dilatation to GTN (max 96±18% vs. 101±14%, P=0.80; summary 214±38 vs. 219±29, P=0.88) and serotonin (max 92±26% vs. 74±12%, P=0.17; summary 199±26 vs. 162±25, P=0.19) were unchanged.

Conclusions
Vascular NO activity is increased during oestrogen replacement therapy, with no change in smooth muscle sensitivity to NO, or stimulated NO release. These changes may contribute to the cardioprotective effect of oestrogen replacement therapy.

48 CENTRAL α-2 ADRENOCEPTORS DO NOT MEDIATE VASODEPRESSOR CAROTID SINUS HYPERSENSITIVITY

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Introduction
Up-regulation of central α-2 adrenoceptors has been proposed as the primary lesion in the vasodepressor (VD) component of carotid sinus hypersensitivity (CSH). Testing this hypothesis in vivo in humans is impossible, so we addressed this issue using yohimbine, a central α-2 adrenoceptor antagonist. The VD response varies with the degree of bradycardia/asystole induced by carotid sinus massage (CSM), so we controlled for this confounder by studying patients with pacemakers implanted for CSH.

Methodology
Objective: To assess whether yohimbine diminishes the VD component in CSH patients treated with permanent pacemakers. *Design:* Double-blind, randomised, placebo-controlled cross-over trial. *Subjects:* Consecutive CSH patients referred for pacemaker implantation through our syncope facility with minimum VD of 20mmHg on CSM post-pacing. *Intervention:* Intravenous yohimbine and normal saline administered in randomized double-blind fashion a minimum of 48 hours apart to ensure elimination of active drug (t 1/2 7 hours). Bilateral CSM was performed pre- and post- each injection with continuous ECG and blood pressure (BP) monitoring (Finapres). *Yohimbine dose:* 0.063mg /kg (to provoke rise in BP, proxy for α-2 adrenergic antagonism). *Statistics:* T-test for differences in BP pre/post yohimbine/saline, 3 way ANOVA with patient, intervention and side of CSM as dependent variables.

Results
18 subjects, 9 female, mean age 73.9 years (sd 8.31), none taking medications influencing α-2 adrenoceptor function. Mean rise in systolic BP post-saline +15mmHg, post-yohimbine +40mmHg (p=0.0037). No significant differences in VD following yohimbine or saline (see table).

CSM	Pre-saline	Post-saline	Pre-yohimbine	Post-yohimbine	P=
Mean systolic VD (mmHg)[sd]	23 [18]	17 [16]	26 [14]	23 [15]	0.763

Conclusion
Central α-2 adrenergic up-regulation is not a factor in the pathogenesis of the vasodepressor component of CSH.

49 CENTRAL ARTERIAL COMPLIANCE IS LOWER IN PATIENTS WITH VASCULAR DEMENTIA

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Introduction
Arterial compliance (AC) is related to arterial disease. Vascular disease has been found to be an important association of age-related dementia. We hypothesise that patients with dementia have reduced AC compared to age and sex matched controls and is independent of blood pressure.

Methodology
Sixteen patients with Alzheimer's Disease (mean age 77.7 ± 8.3 years), thirteen subjects with vascular dementia (mean age 79.8 ± 5.3 years) and fifteen age and sex group matched controls (75.9 ± 6.9 years) were recruited. Pulse wave velocity (PWV) was measured as the carotid-radial, carotid-femoral and femoral-dorsalis pedis interval and from the ECG (R wave) to the pulse wave in the left middle finger (ECG-Finapres). Central arterial compliance (CAC) was measured using applantation tonometry on carotid artery and simultaneous recording of aortic root flow.

Results
The three groups were comparable for age, blood pressure and lipid status. CAC was significantly lower in subjects with vascular dementia compared to the Alzheimer's and control groups (0.57 ± 0.46 vs. 1.16 ± 0.60 and 1.11 ± 0.47 Arbitrary Compliance Units, respectively, ($p = 0.002$)). The vascular dementia subjects were found to have the highest index for PWV from the heart to the finger of 12.1 ± 1.7 m/s compared to the Alzheimer's disease and control groups with mean indices of 11.3 ± 1.4 m/s and 10.3 ± 1.5 m/s, respectively, ($p = 0.02$). Differences were still significant after adjustment for blood pressure and smoking status.

Conclusions
1 Patients with vascular dementia had lower compliance in central (elastic) and possibly peripheral (muscular) arteries.
2 Arterial stiffness in patients with Alzheimer's Disease was no different from controls.

50 DONEPEZIL EXAGGERATES NEUROCARDIOVASCULAR INSTABILITY IN DEMENTIA

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Introduction
Dementia is a common disabling condition which affects 5% of over 65s and 20% of over 80s. New anticholinesterase treatment confers some benefit particularly in Dementia with Lewy Bodies (DLB) patients. Neurocardiovascular instability (NCVI), manifesting as orthostatic hypotension (OH) and carotid sinus hypersensitivity (CSH), is particularly common in Alzheimers (AD) and DLB (70% vs 10% non-demented elderly [Ballard et al Neurology 1998;51:1760-1762]). Falls and syncope are consequences of NCVI in dementia. Theoretically, anticholinesterase treatment could exaggerate haemodynamic derangements and consequent fall rates. Our objective was to determine whether NCVI is exaggerated by anticholinesterase treatment (donepezil) in a pilot series.

Methodology
Twenty patients (79+/-6 years) with AD (12) and DLB (8) had Mini-Mental State Examination (MMSE), Neuropsychiatric Inventory, active stand (3 minute stand, abnormal >20 mmHg drop ie OH) and carotid sinus massage (supine and upright measuring heart rate and phasic blood pressure, abnormal >3 second asystole or >50 mmHg drop ie CSH) at baseline and after 4 weeks treatment (10 mg od). Daily symptom diaries recorded falls/syncope.

Results
Eight AD and 5 DLB had baseline OH, a further 3 AD and 3 DLB developed OH with donepezil. Six AD and 7 DLB had CSH at baseline, a further 2 patients developed CSH with donepezil. Four falls were recorded in 3 patients, all of whom had exaggeration in NCVI after treatment. Mean MMSE 17.9+/-4.9, neuropsychiatric symptoms unchanged.

Conclusions
The previously reported high prevalence of NCVI is confirmed in this series. In frail elderly with dementia, cholinesterase inhibitors may have a clinically significant impact on the development of neurocardiovascular instability, which may trigger potentially serious adverse events, either falls or syncope.

51 CARDIAC PACING REDUCES FALLS IN CAROTID SINUS HYPERSENSITIVITY

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Introduction
Retrospective evidence supports a causal association between carotid sinus hypersensitivity (CSH) and non-accidental falls (NAF). Our objective was to determine whether cardiac pacing reduced fall frequency in a prospective study of patients with cardioinhibitory CSH (CICSH).

Methods
Prospective RCT of pacing in a consecutive series of adults >50 years attending the ER. Cognitively normal patients who had fallen, with no apparent extrinsic or medical explanation for falls, had carotid sinus massage (CSM) supine and upright, with phasic heart rate and blood pressure monitoring. Patients were randomised to pacing (RDR, Medtronic) or not. Outcomes were falls and syncope during the following year (diary cards). CICSH was defined as 3 seconds of asystole during 5 seconds of CSM.

Results
175 patients were randomised (73±10 years; 60% female; (median 3(1->100) falls, over median 1(0-16) years pre-randomisation)), 70% had sustained injury and 32% fractured during episodes. Control and paced patients were matched for baseline clinical characteristics. Controls were more likely to fall (OR 4.1(2.4-11.4)) than paced patients. Recurrent fallers (≥2 falls in 1 year, including index fall) were more likely to fall than other patients (OR 2.5(1.1-5.3)). Subjects randomised to pacing were more likely to fall in the weeks pre-pacing (OR 2.7(2.1-3.5)). Paced recurrent fallers were less likely to fall than non-paced recurrent fallers (OR 0.35(0.16-0.57)). Patients with ≥2 unexplained falls pre-pacing were less likely to have falls or syncopal episodes post-pacing (n=64; falls 3(1.9-4.4); syncope 0.2(0.2-0.5); controls 50; falls 12(6-17.7); syncope 0.9(0-1.4); $p<0.01$; $p<0.003$).

Conclusion
Cardiac pacing significantly reduces falls and syncope in older adults with CSH. This has major implications for health service provision and BPEG/ACC Pacing Guidelines.

52 THE PROLONGED HEAD-UP TILT TEST AND SUBLINGUAL NITRATE PROVOCATION IN ASYMPTOMATIC OLDER SUBJECTS

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Introduction
Neurocardiogenic syncope (NCS) is increasingly being recognised as an important cause of falls in the elderly. The prolonged head-up tilt test (PHUT) is often used in the diagnosis of NCS. There is, however, no consensus as to the exact protocol of the tilt table test (degree and duration of tilt and the use of provocative agents such as nitrates or isoprenaline). Furthermore, only limited data are available regarding head-up tilt testing in normal older subjects. The aim of the present study was, therefore, to assess the responses to the PHUT followed by provocative administration of sublingual Glyceryl Trinitrate (GTN) in asymptomatic older subjects.

Methods
64 healthy subjects (without history of syncope, cardiovascular or cerebrovascular disease) over the age of 60 years underwent a PHUT for 30- 40 minutes in two centres (Leicester and Nottingham respectively). If the subjects remained asymptomatic (absence of presyncope or syncope) at the end of this period, they received sublingual GTN and tilting was continued for further 15 minutes. Heart rate and blood pressure were monitored continuously using a cardiac monitor and digital plethysmography (Finapress).

Results
6/64 (9.4%) subjects demonstrated a positive response (syncope or presyncope) to PHUT prior to nitrate provocation. Following GTN administration, in the remaining 58 subjects, 30 (51.7%) showed a positive response.

Conclusion
These data shows that in healthy asymptomatic older subjects, the PHUT has an acceptably low positive rate. However, the addition of sublingual GTN as a provocative agent following the PHUT to diagnose NCS in older people is questionable, as even in asymptomatic subjects the positive rate is high.

53 CAN MULTIDISCIPLINARY INTERVENTION PREVENT FALLS IN PATIENTS WITH COGNITIVE IMPAIRMENT AND DEMENTIA ATTENDING A CASUALTY DEPARTMENT?

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Introduction
We report the results of a randomised-controlled trial of multidisciplinary intervention in fallers with cognitive impairment and dementia attending casualty.

Method
Patients age ≥65, with cognitive impairment (Mini-Mental State Examination score (MMSE) <24), who attended casualty having fallen, were randomised to receive multidisciplinary intervention or usual care. Follow-up was for 1 year.

Results
274 patients were recruited (144 control, 130 intervention). Mean age was 84 (S.D.=6.6); 80% were female. Median MMSE was 13 (IQR 6-18); 90% met formal criteria for dementia. Intention-to-treat analysis showed no significant difference in number of fallers or falls. However, patients who complied with intervention fully or partially (35%, n=45/130) were significantly less likely to fall than the control group (67% vs. 82%, OR=0.44, 95%CI 0.20-0.97) and in patients with full compliance (15%, n=19/130) there were significantly fewer falls than controls (median 0 IQR 0-2 vs. median 3 IQR 1-7, p=0.003). Compliance remained a significant predictor of fallers and falls after correcting for confounding variables (decrease in -2 log likelihood =4.65, p=0.031, increase in r^2=0.058, p=0.001). The compliant patient group contained significantly more patients with a cardiovascular diagnosis than non-compliant intervention patients (full and partial compliance 81% vs. 60%, OR=2.91, 95%CI 1.20-7.09, full compliance 94% vs. 63%, OR=10, 95%CI 1.29-76.9).

Conclusion
Intention-to-treat analysis showed no benefit from multidisciplinary intervention in fallers with cognitive impairment and dementia attending casualty. However, analysis using patients who complied with intervention found a significant reduction in both fallers and number of falls. Data suggest that fallers with cognitive impairment and dementia who have a cardiovascular diagnosis may benefit most from intervention.

54 CAN GAIT BE IMPROVED IN PATIENTS WITH COGNITIVE IMPAIRMENT WHO FALL?

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Introduction
It is often assumed that gait impairment in older cognitively impaired patients cannot be improved. As part of a randomised-controlled trial (RCT) we have measured change in gait performance following multidisciplinary intervention.

Method
Cognitively impaired (Mini-Mental State Examination score (MMSE) <24) older patients (age ≥65) attending casualty following a fall, were recruited to a RCT and randomised to either multidisciplinary assessment and intervention or conventional care. Gait was measured at baseline, 3 and 6 months using Tinetti's performance orientated assessment (score 9-18, normal =9, impaired >9). All patients with gait impairment in the intervention group were given 3 months' gait re-education by a physiotherapist as well as multidisciplinary interventions as indicated.

Results
274 patients entered the study (130 intervention, 144 control). The mean age was 84 years (SD 6.6), 80% were female and their median MMSE was 13 (IQR 6-18). 78% were resident in institutional care. 94% had gait impairment on the Tinetti assessment. The median baseline gait score was 16 (IQR 13-17) in the intervention group and 15 (IQR 12-17) in the control group (p=0.375). At 3 months, there was a median 2 point improvement in the intervention group (p=0.011), which was significantly better than the control group (p=0.022). The differences were still significant when corrected for differential drop-out. The improvement was not maintained at 6 months.

Conclusion
We have shown that multidisciplinary intervention can effect a significant change in gait performance in older cognitively impaired patients who fall. The contribution of physiotherapy relative to other interventions cannot be determined by this multidisciplinary trial. Further investigation is warranted.

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PROFET - IMPROVED CLINICAL OUTCOMES AT NO ADDITIONAL COST

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Introduction

The Prevention of Falls in the Elderly Trial (PROFET) is a randomised controlled study of a structured bidisciplinary assessment of older people attending A&E with a fall. Results have shown a significant reduction in the number of further falls in the intervention group as well as preservation of function. The present study is an economic analysis of PROFET.

Methodology

The cost of the intervention package was estimated by applying national unit costs (Netten & Dennett, 1998) to the staff inputs, and local cost data for the additional hospital tests carried out. Health service costs incurred during the follow-up period were estimated by applying national unit costs to service use data obtained from patient questionnaires and hospital activity data. Analyses were conducted using non-parametric bootstrap methods (Efron, 1993).

Results

147/397 patients were admitted to hospital as a result of their index fall, occupying a mean of 26 bed days at a mean cost of £5793 per admission.

Table 1:
Costs to health service for 12 months after randomisation

Service (unit cost)	Mean Control (n=213)	Intervention (n=184)	Mean difference	(SE)	95% CI
Medical and OT assessment					
(£90.00)	0	74	-		-
Admissions					
(£220.77)	2434.78	1717.90	716.88	(554.9)	(-371, 1804)
Outpatient visits					
(£58.38)	92.09	122.79	-30.7	(14.12)	(-58, -3)
GP visits					
(£17.89)	62.90	51.74	11.16	(8.37)	(-5, 28)
Total	2548.68	1952.67	596.01	(543.1)	(-468, 1660)

Conclusions

PROFET is a model of good clinical practice shown to alter outcome in terms of further falls and functional ability. This analysis highlights that this was at no additional cost to the primary or secondary health care sectors.

56 OXIDATIVE DAMAGE AFTER ACUTE ISCHAEMIC STROKE

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Introduction
Free radical production appears to be an important mechanism of brain injury after exposure to ischaemia and/or reperfusion; this is partially determined by antioxidant balance. We have measured markers of antioxidant capacity and oxidative damage in acute ischaemic stroke patients and 2 control groups.

Methodology
We studied 24 acute ischaemic stroke patients (mean age [SD] 73.7 [10.3] yrs; 10 men); 24 age-matched hospitalised non-stroke patients (7 men) and 23 age-matched community-based healthy controls (8 men). Non-fasting venous blood was obtained on admission (baseline), 24 hours and after 7 days for hospital patients and at baseline for community controls for measurements of vitamins E & C, Thiobarbituric acid reactive substances (TBARS) (markers of damage to membrane lipids) and C-reactive proteins (CRPs).

Results
After adjusting for smoking, drugs and acute illness (CRPs), serum vitamin C concentrations deteriorated significantly in stroke patients and differences between the cumulative changes in serum vitamin C between stroke patients and hospital controls were statistically significant (p = 0.0130) [Table]. TBARS were highest in stroke patients compared with both control groups (p = 0.04), and remained so during the study period. No significant differences in vitamin E concentrations between groups occurred.

	Strokes patients			Hospital controls			Community controls
Markers	**Baseline**	**24 hr**	**7 days**	**Baseline**	**24 hr**	**7 days**	**Baseline**
Vitamin C	39.0 (6)	33.3 (4)	32.1 (5)	31.2 (4.9)	28.6 (5.8)	30.4 (6.3)	66.6 (5.9)
TBARS	5.64 (0.5)	5.08 (0.4)	5.90 (0.5)	5.27 (0.3)	5.57 (0.4)	4.52 (0.4)	4.26 (0.2)

Conclusion
We found evidence of increased lipid peroxidation and decreased antioxidant reserve in patients with stroke disease with evidence of a delay in recovery of antioxidant balance.

57 WHO GETS UPPER LIMB PAIN AFTER STROKE?

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Introduction
Shoulder pain hinders rehabilitation after stroke, but estimates of incidence vary widely. Identification of a high risk group could facilitate prevention strategies. This prospective study examined the initial clinical factors associated with the later development of upper limb pain (ULP).

Methodology
Patients with acute stroke admitted consecutively over 12 months to a district general hospital underwent structured interview and standardised upper limb neurological examination at day 3, day 7, month 1, month 3 and month 6 post-stroke. Patients were excluded if >72 hours since stroke, or unable to reliably indicate pain. Results are presented as odds ratios (OR) with 95% confidence intervals.

Results
95 subjects completed the 6 month assessment (mean age 71±2 yrs; 55 male; 15 POCS; 32 LACS; 28 PACS; 20 TACS). 52 subjects (55%) complained of ULP at least once, including 15 subjects with pre-stroke shoulder pain (OR 20 (2-162)). When these subjects were excluded, logistic regression analysis identified severity of arm weakness at day 3 as the strongest association with ULP reports at day 7 (OR 2 (1.1-3.5)), month 3 (OR 2.4 (1.4-4)), month 6 (OR 2.8 (1.6-5)) and overall (OR 3.6 (1.8-7)). At month 1, early biceps hypereflexia had the strongest association (OR 4.5 (1.4-14)).

Conclusion
In this prospective study ULP was common. Patients most at risk had a history of shoulder pain and greater initial arm weakness. Hypereflexia at day 3 was an important association at 1 month, possibly following the development of painful spasticity. Identification of groups at higher risk of ULP after stroke appears possible.

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EFFECT OF AGE AND OTHER RISK FACTORS ON STROKE PROGRESSION

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Introduction
A substantial proportion of acute stroke patients suffer significant neurological deterioration in the first 72 hours, leading to marked worsening of outcome. "Stroke Progression" (SP) is more common after severe strokes and in the presence of Atrial Fibrillation (AF) and raised body temperature. We assessed the effect of age and other risk factors on the incidence of SP in patients with ischaemic strokes admitted to 10 European centres.

Methods
We used the definition of SP agreed by the European Progressing Stroke Study (EPSS) group. Patients admitted within 24 hours of stroke onset had standardised neurological assessments and physiological observations on Days 1,2,3 and 7. Stroke severity was classified using the admission Scandinavian Stroke Scale (SSS) score.

Results
Of 399 patients, 80 (20%) experienced SP: 7% with initially mild strokes (admission SSS ≥45), 24% of moderate (SSS 19-45) and 36% of severe (SSS <19) strokes. The risk increased steadily with age from 12% in those aged <65 to 36% for those ≥85. Age-trends were seen in all severity groups, but more marked in the severe groups. The risk of SP was 32% in those with a history of AF and 17% in those without: AF was associated with 33% of SP episodes in patients aged ≥75 and 21% <75 years. 31% of those with temperature >37°C during the first 72 hours suffered SP compared to 16% ≤37°C. The temperature effect was seen in all age groups but was more marked in those with more severe strokes.

Conclusions
Elderly patients are at increased risk of Stroke Progression, and part of this increase is linked with potentially correctable factors such as pyrexia and haemodynamic instability associated with AF.

59 AN INVESTIGATION OF VISUAL SENSORY STATUS AND VISUAL HALLUCINATIONS IN PATIENTS WITH DEMENTIA

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Introduction
Visual hallucinosis occurs in up to 40% of patients with dementia and it has been suspected that in some cases hallucinosis is associated with loss of normal sensory input. This study examined the association between objectively rated visual acuity, ambient illumination levels and hallucinosis in patients with dementia.

Methods
Thirty dementia patients with visual hallucinosis plus 30 non-hallucinating dementia patients were recruited from referrals to community mental health teams in Leicestershire. Data were collected by means of a carer interview (including the Neuro-Psychiatric Inventory (NPI) and Clinical Dementia Rating scale (CDR)), patient assessment (including Mini Mental State Examination (MMSE) and measures of corrected visual acuity) and photometric assessment of the room most frequently occupied by the subject.

Results
Hallucinators and non-hallucinators did not differ significantly in respect of age (mean ages 80.5 vs 82.1), cognitive status (mean MMSE 14 vs 16) or global dementia severity (mean CDR-S 10.4 vs 8.9). Fifty percent of hallucinators had a Snellen visual acuity of 6/24 or worse compared with 27% of non-hallucinators. Comparison of Log transformed values for distance- (Snellen chart) and near-vision (Sussex test-types) revealed significantly worse visual acuity for hallucinators on both measures (Mann-Whitney $p< 0.05$ and $p<0.01$ respectively). Levels of artificial illumination in the centre of the room were significantly lower for hallucinating subjects than for non-hallucinators (median values 200 vs 345 Lux respectively; Mann-Whitney $p<0.05$).

Conclusion
These results are consistent with previous findings suggesting an association between visual hallucinations and poor visual acuity in patients with dementia, and introduce environmental illumination as another possible aetiologically relevant factor. Interventions aimed at improving visual function in this patient group now require evaluation.

60 CONTROLLED MULTIDISCIPLINARY INTERVENTION REDUCES INAPPROPRIATE NEUROLEPTIC PRESCRIBING

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Introduction
Neuroleptics (NLs) in elderly people are associated with significant morbidity. National consensus guidelines for NL prescribing in nursing homes (NHs) are implemented in America but not in the UK. Interventions to enhance appropriate NL prescribing in NHs were assessed.

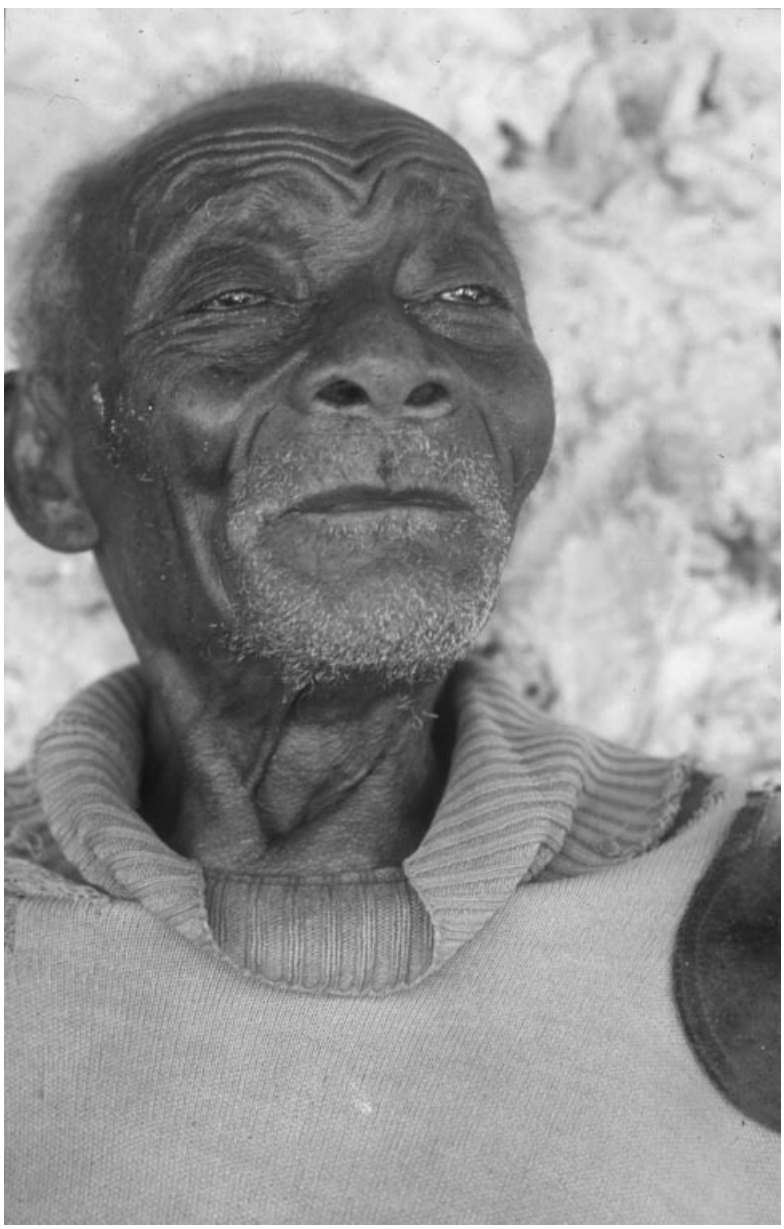
Methods
A stratified random sample of 22 NHs was recruited. Clinical data were collected from nursing and medical notes of elderly residents prescribed NLs. Prescribing was appropriate if the indication was included in American OBRA guidelines, indication objectively and quantitative documented and withdrawal attempted within six months or reason for not withdrawing/ reviewing specified (Semla, J.Am.Geriatr.Soc 1994;42:648). Nursing homes were randomised to multidisciplinary verbal intervention, memo-based immediate concurrent feedback (ICF), or control.

Results
At baseline 934 residents and 234 NLs were seen. Only 42/234 (18%) NLs had appropriate indications, frequency and review documented. Most prescriptions were inappropriate for several reasons. Prescribing appropriateness improved after active interventions, particularly behaviour frequency documentation (verbal 30%:63%, ICF 29%:67%, control 27%:39%). Total NL prescriptions were unchanged.

Baseline:	**Verbal**	**ICF**	**Control**	**Total**
Neuroleptics/ residents	91/347 (26%)	65/311 (21%)	78/276 (28%)	234/934 (25%)
Appropriate neuroleptic/resident	15/347 (4%)	15/311 (5%)	12/276 (4%)	42/934 (4.5%)
Inappropriate neuroleptic/resident	76/347 (22%)	49/311 (16%)	64/276 (23%)	189/934 (20%)
Appropriateness unclear	0	1	2	3
Post-intervention:				
Neuroleptics/ residents	86/341 (25%)	67/274 (24%)	88/265 (33%)	241/880
Appropriate neuroleptic/resident	40/341 (12%)	42/274 (15%)	11/265 (4%)	93/880
Inappropriate neuroleptic/resident	42/341 (12%)	24/274 (9%)	76/265 (29%)	142/880
Appropriateness unclear	4	1	1	6
Change in inappropriate neuroleptics*	-10%	-7%	+5%	

(*Logistic regression, $p<0.05$)

Conclusions
This is the first UK controlled intervention of NL prescribing in a random sample of NHs. Verbal intervention and ICF enhanced NL prescribing appropriateness in NHs.



Omari Kichachu Jecha, 94. Mfumbui, Zanzibar. © Andrew Jackson

Friday 17 December 1999

Poster Presentations

Stroke
Clinical Practice
Epidemiology
Gastroenterology
Psychiatry

61 ARE ABNORMAL LIP AND TONGUE FUNCTION IN ACUTE STROKE ASSOCIATED WITH ASPIRATION?

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Introduction
Following acute stroke, aspiration occurs in 21-42% of those with dysphagia. The oral phase of swallowing is important for bolus preparation. Both lip and tongue function are required for this to occur. Studies examining lip and tongue function have been done during the recovery phase of stroke; few have been conducted during the acute phase of stroke.

Methods
Patients admitted within 24 hours of stroke onset were recruited into the study. A videofluoroscopy was conducted within a median time of 2 days of admission and a comprehensive swallow assessment was conducted by a speech and language therapist, specialised in dysphagia management, within 24 hours of videofluoroscopy. Lip and tongue function were examined as part of this assessment and have been correlated with the presence of aspiration as demonstrated on videofluoroscopy.

Results
82 patients were recruited. 17 were noted to be aspirating on videofluoroscopy. Abnormalities in lip and tongue function were noted more commonly in patients aspirating than in those not aspirating. Patients were more likely to have improper lip closure at rest ($\chi^2(1)=6.878$, $p<0.01$), whilst eating ($\chi^2(1)=6.186$, $p<0.025$)and whilst speaking ($\chi^2(1)=4.133$, $p<0.05$), there was no increased incidence of drooling. Similarly problems with tongue protrusion ($\chi^2(1)=8.219$, $p<0.01$) and lateral movement ($\chi^2(1)=6.548$, $p<0.025$), but no difference with velar movement or whilst eating and drinking.

Conclusion
The presence of aspiration during the acute phase of stroke is associated with abnormal lip function and difficulties with tongue protrusion and lateral movement. However, there was no association with velar movement. This may result in failure to prepare the bolus sufficiently prior to its presentation to the pharynx, resulting in an increased risk of aspiration.

62 LONG-TERM ANTICOAGULATION FOR STROKE PREVENTION IN ATRIAL FIBRILLATION: IS THERE AN ALTERNATIVE?

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Introduction
Stroke prevention in atrial fibrillation (AF) has focussed on long-term anticoagulation with warfarin. The recognised under-utilisation of warfarin may be due to fear of haemorrhagic complications, particularly in the elderly. An alternative strategy could involve restoration of sinus rhythm by electrical or chemical cardioversion. However, cardioversion is unlikely to succeed if atrial enlargement or mitral valve disease is present. We have investigated the potential to offer this intervention in an unselected group of patients with AF.

Methods
A study was undertaken in 234 patients with AF presenting to medical outpatients over 1 year. They were comprehensively assessed for clinical stroke risk; echocardiography was undertaken to identify features of high stroke risk and structural abnormalities of the atria that would make successful cardioversion unlikely.

Results
The average age was 67.1 ± 11.8 years. 112 patients (48%) were male. Median duration of AF was 17.5 months (range 2 to 34 months). A normal atrium compatible with successful cardioversion was seen in 110/234 (49%) of all patients and in 44/189 (23%) of patients at high risk of stroke. In those patients with high stroke risk, there was no statistical difference between the prevalence of normal atria between the under and over 75s (30/115 (26%) vs 14/74 (19%) $P=0.25$ χ^2). No patient in the study was offered cardioversion.

Conclusion
A substantial proportion of patients with AF has the potential to be offered cardioversion on echocardiographic grounds. This includes patients with high risk of stroke in all age groups. This intervention appears to be under-utilised.

63 OUTCOME FOLLOWING STROKE: AT ADMISSION VERSUS OCCURING AS INPATIENT

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Introduction
There have been few studies on strokes occurring as inpatients. Generally, the annual incidence rate of stroke in patients who are already hospitalised is higher than in the general population.

We have examined the difference in outcome between patients admitted with a stroke (AS) and those who had strokes while inpatient (IS).

Methodology
100 inpatients and 1274 admitted stroke patients who were recorded and had consecutive entries onto Aintree stroke register between October 1994 and March 1997 were identified and examined. Main outcome measures used were mortality, length of stay (LOS)and discharge destination. Documentation of risk factors was compared in both groups.

Results
There were similar proportions of stroke subtype among IS and AS. However, there were significantly more lacunar infarcts in AS than IS(X^2 =4.96,$p<0.01$). 60% of IS died in hospital compared with 27.6% of AS(OR 3.94,95%CI 2.55 to 6.15). The LOS, subsequent to the stroke, was significantly longer in IS ($p<0.0001$). Pre-admission residence was examined against discharge destination. Only 24% of IS returned to their pre-admission residence while 62.5% of AS did so (OR 0.19, 95% CI 0.11 to 0.31).

Although not statistically significant, IS patients were more likely to be newly discharged to an institution (OR 1.77, 95% CI 0.93 to 3.61).The documentation of many known risk factors for stroke was significantly lower in IS compared with AS patients.

Conclusion
Patients admitted to hospital with a primary diagnosis other than stoke, who subsequently have a stroke while in hospital, stay in hospital longer, are more likely to die in hospital, are more likely to require new institutional care and have poorer documentation of stroke risk factors.

64 PREVALENCE OF UNRECOGNISED DIABETES MELLITUS IN ACUTE STROKE

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Introduction
Diabetes Mellitus (DM) increases stroke risk by 2-4 fold. The prevalence of unrecognised DM in acute stroke, as estimated using elevated admission glycosylated haemoglobin (HbA_{1c}) concentrations, is 10-30%. However, no large study has performed an oral glucose tolerance test (OGTT) in the recovery phase of stroke to accurately measure DM prevalence.

Methods
The Glucose Insulin in Stroke Trial is a randomised controlled trial investigating the benefits of maintaining euglycaemia in acute stroke patients with hyperglycaemia (admission glucose ≥6.1 mmol/l). Randomised subjects surviving at 3 months underwent a 75g OGTT. Results were compared to admission HbA_{1c} values to measure the accuracy of admission hyperglycaemia and elevated HbA_{1c} in predicting the presence of DM.

Results
144 subjects were randomised of whom 21 (15%) had DM. No OGTT was performed in 82 subjects due to death (n=50), presence of known DM (n=21) and inability to follow the OGTT protocol (n=11). Of the 62 OGTTs performed, 26 (42%) were normal, 23 (37%) demonstrated impaired glucose tolerance (IGT) and 13 (21%) demonstrated DM. Therefore, of 83 subjects surviving at 3 months 35 (42%) had DM and 23 (28%) had IGT. Admission hyperglycaemia of ≥6.1 mmol/l and HbA_{1c}>6.2% accurately predicted the presence of DM (sensitivity = 90% specificity = 88%). Applying these criteria to data from 605 consecutive acute stroke admissions suggested 88 (14.5%) to have unrecognised DM in addition to the 100 (16.5%) with recognised DM.

Conclusions
One third of acute stroke admissions have DM. IGT or DM is present in over two thirds of survivors at 3 months. Admission plasma glucose ≥6.1 mmol/l and HbA_{1c}>6.2% accurately predicts the presence of DM at 3 months.

65 POTENTIALLY MODIFIABLE CAUSES OF POOR STROKE OUTCOME

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Introduction
There are still difficulties in reliably predicting acute stroke outcome due to interaction between markers of stroke severity. This study examined clinical variables, which make an independent contribution to acute stroke outcome using multivariate and survival analyses.

Methods
215 hospitalized stroke patients had their clinical details including demographic data, nutritional status, disability (Barthel), handicap (Modified Rankin [MR]), morbidity and mortality recorded prospectively during the hospital stay and at three months.

Results
Out of 10 clinical variables urinary incontinence explained most of the variance for the Barthel and MR scales at admission (45% and 30% respectively). However, urinary incontinence explained more variance for the Barthel scale than it did for the MR scale.

After adjusting for the MR score, age and co-morbidity urinary incontinence at admission was a significant predictor of stroke death at three months (hazard ratio 2.8 [95% C.I 1.3 - 5.8], p = 0.006). However, when the MR score was replaced by the Barthel score the relationship was not statistically significant (hazard ratio 1.6 [95% C.I 0.65 - 3.8], p = 0.319).

Incontinent stroke patients were significantly more disabled, less well nourished, and possibly more dehydrated at admission and their nutritional status deteriorated further during the hospital stay compared with continent patients. During the hospital stay 34 stroke patients incontinent of urine had 82 infective complications compared with 94 patients without incontinence who had 36 infective complications, p value < 0.001.

Conclusion
Acute stroke outcome measures, which do not include continence of urine as one of their main domains, may underestimate morbidity and mortality. Part of the poor outcome associated with incontinence of urine after acute stroke may be due to potentially modifiable risk factors.

66 IMPROVING SERVICES FOR PATIENTS WITH ACUTE STROKE IN A DISTRICT GENERAL HOSPITAL

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Introduction
Recent studies have demonstrated improved survival amongst stroke patients admitted to an acute stroke unit (ASU) compared to a general medical ward. We opened a 6-bedded ASU to facilitate early stroke management and research, without input of extra resources. All aspects of management were evidence-based where possible and a clerking proforma was introduced. We examined the care provided for the first 100 patients admitted to the unit.

Methodology
Data related to different aspects of inpatient care were prospectively collected for the first 100 admissions. Times from hospital admission to CT brain scan after the ASU opened were compared with 50 consecutive stroke admissions before the unit opened. Standard of documentation was audited by examining 50 case notes using the Royal College of Physician (RCP) stroke audit format, before and after the introduction of the ASU.

Results
CT scan was performed in 90% of patients. 64% of the CT scans were done within 48 hours compared with 44% before the ASU opened (χ^2=5.5, p=0.02). 78% of patients received physiotherapy within 2 days. 83% of patients with unsafe swallowing were started on nasogastric feeding within 3 days. 30% of patients were entered into clinical stroke trials. The average length of stay was 3.9 days and 9% died. Standard of documentation improved significantly (p<0.05) for 44/60 items in the RCP audit after the ASU opened.

Conclusions
Introduction of the ASU increased the proportion of CT scans performed within 48 hours. The clerking proforma improved the standard of documentation. Improvements in the care of patients admitted with acute stroke can be accomplished in a district general hospital with no formal input of extra resources.

67 BODY POSITION AND CEREBRAL PERFUSION IN ACUTE STROKE

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Introduction
In an acute ischaemic stroke, normal control of cerebral perfusion is affected. Current practice in nursing of acute stroke patients varies on consciousness level but many are positioned semi-recumbent. The presumed advantage of this positioning is to increase oxygenation of brain tissue. Recent work on brain injury patients shows that moderate head elevation reduces intracranial pressure without jeopardising regional cerebral micro-circulation and maintains cerebral perfusion pressure. The aim of this pilot study is to test the hypothesis that postural change affects cerebral blood flow in patients with acute stroke

Methods
Six patients (4 male, age range 64-85 years, mean age 72 years) were studied within 48 hours of presentation with an acute stroke (partial anterior circulation infarct confirmed on CT scanning). The tracer for regional cerebral blood flow (rCBF) - 99TCM HMPAO was injected in two body positions (semi-recumbent and supine). Outcome measures included visual analysis of change in blood flow and semi-quantification using asymmetrical regions of interest

Results
On visual analysis there were significant differences in rCBF between supine and semi-recumbent postures in 5 of the 6 patients (no change in 1 patient). The rCBF in the semi-recumbent position was better in the temporal and frontal lobes (4 patients) and better in temporal lobe and worse in the frontal lobe (1 patient). Preliminary semi-quantification confirms the visual report.

Conclusions
These preliminary findings suggest that we have been able to detect changes in regional cerebral blood flow with posture in acute ischaemic stroke and there appears to be better regional cerebral blood flow in a semi-recumbent posture.

68 EVALUATION OF AN INTEGRATED CARE PATHWAY FOR STROKE UNIT REHABILITATION

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Introduction
Integrated Care Pathway (ICP) method is the implementation of an organised, goal-defined and time-managed plan for stroke rehabilitation which has the potential of facilitating timely interdisciplinary co-ordination, improving discharge planning and reducing length of hospital stay. We examined whether use of an ICP on a stroke rehabilitation unit would achieve these aims.

Methodology
A ICP for stroke rehabilitation was developed by the interdisciplinary team. 152 patients admitted to the stroke rehabilitation unit within the first two weeks after acute stroke were then randomised to receive care directed by the ICP and co-ordinated by an experienced nurse (n=76), or traditional care led by a consultant physician (n=76).

Results
The mean age of patients was 79. No differences between the two groups at randomisation were noted. No significant improvements in outcome measures were seen with use of the ICP. Patients in the ICP group showed a non significant trend in favour of increased length of stay (45 days compared to 40 days, $p>0.25$) and increased mortality (13% versus 8%, odds ratio 0.56: 0.26-2.26). There was no significant difference in Barthel or Rankin scores between the two groups at the end of the study period. However, patients in the non ICP group had significantly better quality of life at the end of the study period (Euroqol 63 vs 72, $p=0.005$)

Conclusion
ICP led management represents a major change from traditional health service practices. In a specialised setting such as a stroke rehabilitation unit, there is no evidence that ICP method offers any advantages over traditional consultant led models of care.

69 REACTION TIMES FOLLOWING STROKE: THE EFFECT OF AN EVERYDAY MOTOR ACTIVITY

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Introduction
Cognitive abilities may be impaired following a stroke. This study aimed to determine whether an everyday motor task (e.g. walking) disrupted stroke patients' performance of a verbal cognitive task. It also investigated whether those susceptible to disruption could be identified using clinical assessments of balance and attention/working memory.

Methods
Subjects were aged over 60 years and were within seven months of stroke. They performed a choice verbal reaction time (RT) task in two conditions: sitting and walking, in a counterbalanced order. Equipment to measure RT was modified following a pilot study (Bowen et al, Age and Ageing, 1999; 28 (Supp.1): 47). Head CT scans were reviewed and clinical assessments of balance (Berg) and attention/working memory (Digit Span) were conducted.

Results
No significant difference was found between the sitting and walking conditions (p=0.895). RTs did increase when walking compared with sitting for some, but not all, of the 12 patients studied. Side of lesion and attention/working memory capacity appeared to distinguish between two subgroups. Balance did not appear to be a clear predictor of susceptibility to cognitive disruption. Exploratory analysis suggested the counter-intuitive finding that those with right sided infarcts (5) and impaired/borderline Digit Span (3) had shorter RTs when walking.

Conclusion
Cognitive ability was not compromised by walking for the overall group. However, this may have been due to the heterogeneity of clinical factors (e.g. side of lesion, attention/working memory capacity). Two distinct subgroups were suggested. Further research using larger samples is warranted, given the importance of cognitive skills such as attention, in stroke rehabilitation.

70 EFFECT OF EXPERIENCE OF SEVERE STROKE ON SUBJECTIVE VALUATIONS OF QUALITY OF LIFE AFTER STROKE

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Introduction
Previous work suggests that the quality of life associated with severe stroke is rated very poorly by members of the public, often as worse than death. Other evidence suggests that the experience of illness alters perceptions of its severity.

Methods
Eleven patients with severe stroke who were able to complete a standard gamble interview (from an initial group of 140), 22 age- and sex-matched controls, and 20 health professionals took part. A standard gamble interview was carried out to determine the quality of life (utility) associated with three hypothetical scenarios representing mild, moderate and severe stroke, and current health. A sample was retested for reliability.

Results
All three subject groups showed wide variation in the utilities they gave each of the scenarios. Control subjects' valuations were lower than either patients' or staff members', especially for moderate stroke (median utility 0.30, 0.73, 0.68 respectively). About half of each group rated severe stroke at least as bad as death. There was no significant correlation between patients' utilities for their current health and other measures of health status, including Barthel index and Rivermead mobility scores. Other indicators of the internal validity of the standard gamble scores were reasonable, but test-retest reliability was modest (limits of agreement about plus or minus 0.20).

Conclusions
We cannot assume general population valuations are robust when translated to patient groups or clinical situations. For clinical practice it is unsafe to make any assumption about subjective quality of life after stroke, due to the wide range of valuations given, although we must be aware that many people rate moderate or severe stroke as bad as death.

71 ANKLE BRACHIAL PRESSURE INDEX (ABPI) INFORMS DEEP VENOUS THROMBOSIS (DVT) PROPHYLAXIS

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Introduction
Graduated elastic compression stockings (GECS) are standard DVT prophylaxis for acute stroke and long-term rehabilitation. GECS are contra-indicated in severe leg ischaemia but pulse palpation is a poor indicator of arterial insufficiency. ABPI measurement by hand-held Doppler is a pre-requisite before compression therapy for chronic leg ulcer but is not routine before applying GECS for DVT prophylaxis. In practice, even clinical assessment for arterial disease is variably performed before applying GECS.

Methodology
Prospective study of consecutive admissions to geriatric assessment/rehabilitation wards. Systematic clinical assessment for arterial insufficiency compared with ABPI standard: ABPI <0.8 indicates arterial disease (SIGN Guideline 26).

Results
We studied 57 patients (16 males) age 55-93 (mean 80) years. Forty-seven (82%) patients had risk factors for peripheral vascular disease (PVD): ischaemic heart disease (15); cerebrovascular disease (36); smoking (15); and diabetes (6). Clinical assessment revealed PVD history (6), claudication (4), absent peripheral pulses (16), chronic leg ulcer (6) in 21 patients (37%). Compared to ABPI standard, history or symptoms of PVD was specific (100%) but insensitive (29%). Absent peripheral pulses had sensitivity 57%, specificity 89%. Combined clinical assessment improved sensitivity to 71% with 83% specificity. In 20 patients with acute stroke prescribed GECS before systematic clinical assessment and ABPI measurement, 9 (41%) had ABPI < 0.8 and at least relative contra-indication to GECS.

Conclusion
ABPI measurement improves ascertainment of arterial insufficiency and informs decisions about GECS use for DVT prophylaxis. The utility of routine ABPI measurement is particularly high in an acute stroke population with high venous thromboembolic risk but high prevalence of arterial insufficiency.

72 A MOTOR RECOVERY SCALE FOR STROKE PATIENTS: RESULTS OF A VALIDITY STUDY

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Introduction
Predicting the outcome of patients with stroke of intermediate severity (the group most likely to benefit from therapeutic intervention) remains a challenge. This 'middle' group has a good prognosis for survival but an uncertain prognosis for recovery. The aim of this study was to test the predictive validity of a Motor Recovery Scale for Stroke (MRSS) in a group of patients presenting with 'first' stroke of intermediate severity.

Methodology
Stroke patients who scored between 3 - 5 on the Orpington Prognostic Score (OPS) were studied prospectively over a 6 month period. Motor function was assessed at baseline and 6 months using the MRSS. Premorbid activity levels were assessed using the Frenchay Activity Index (FAI). The predictive validity of the MRSS was assessed by comparing it to in-patient length of stay, 6 month placement status and activity level in a series of multivariate analyses, adjusting for age, stroke severity and premorbid activity levels.

Results
Twenty-three patients were included. Average age (mean [s.d.]) was 69.7 [11.3] years and 14 patients (61%) were female. Baseline MRSS score was significantly associated with increased subsequent length of stay (t ratio = - 5.2, p <= 0.0001), likelihood of being at home at 6 months post stroke (f ratio = 4.5, p < 0.05) and 6 month activity level (t ratio = 3.1, p < 0.05).

Conclusion
The MRSS measured at 2 weeks following stroke onset is capable of predicting discharge and handicap at 6 months in a group of patients with stroke of intermediate severity.

73 A MOTOR RECOVERY SCALE FOR STROKE PATIENTS: RESULTS OF A RELIABILITY STUDY

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Introduction
Little is known about the extent to which stroke recovery is influenced and the effectiveness of rehabilitation is a much debated subject. Clinical instruments that specifically reflect the recovery of movement following stroke, while possessing adequate psychometric properties are needed. The aim of this study was to test the reliability of a motor recovery scale specifically developed for stroke.

Methodology
The Motor Recovery Stroke Scale (MRSS) measures five functional movements. A video recording of a group of stroke patients performing these activities was shown to seven physiotherapists at two time points separated by a 3 week period. Patient performance was rated using the MRSS. Internal consistency was assessed using Cronbach's Alpha. Agreement on each of the 5 items was assessed using the Kappa statistic. Inter and intra rater reliability was assessed using the Generalisiability Correlation Coefficient (GCC).

Results
There were 12 patients (6 female) in the study. Cronbach's Alpha was 0.68 at time 1 and 0.69 at time 2. Kappa statistics ranged from 0.70 to 0.83 indicating good to very good levels of agreement. Interrater reliability had a GCC of 0.95, intrarater reliability had a GCC of 0.96. Overall reliability had a GCC of 0.95.

Conclusion
The MRSS had high internal consistency indicating that it is measuring a single domain. There were high levels of agreement among the raters for each of the 5 items in the scale. Inter and intrarater reliability was very high. This scale is a reliable instrument and is suitable for use in assessing recovery following stroke.

74 NOCTURNAL HYPOXIA IN PATIENTS WITH ACUTE STROKE

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Introduction
Sleep related breathing disorders are common in the elderly and may lead to episodes of nocturnal hypoxia, even when daytime oxygenation is normal. Patients who have had a stroke are further at risk of hypoxia through alterations in the central regulation of respiration, aspiration and respiratory muscle weakness. The aim of this study is to assess the incidence of nocturnal hypoxia in stroke patients.

Methods
Oxygenation was assessed by pulse oximetry (Minolta 3i) before bedtime and from 23.00-7.00 in patients with acute stroke (within 72 hours) and in control patients (no stroke, clinically stable). Patients with an oxygen saturation below 90% while awake at study entry were excluded. Groups were compared by unpaired t-tests or chi-square tests where appropriate. Significance was accepted at $p<0.05$.

Results
Patient groups were well matched for age, sex, body mass index, respiratory and cardiac comorbidity and smoking habit. The differences between the two groups were not statistically significant.

	Controls n=18	**Acute Stroke n=33**
Mean awake O_2 saturation (%)	95.1 sd 1.0	94.5 sd 1.6
Mean nocturnal O_2 saturation (%)	94.1 sd 1.5	93.1 sd 2.1
Lowest nocturnal O_2 saturation (%)	85.2 sd 4.41	81.7 sd 4.7
% of patients with 5 or more 4% desaturations/h	22	27
Time spent with O_2 saturation <90% [h:min (range)]	0:14 (0:0-2:13)	0:40 (0.:0-5:22)
Time spent with O_2 saturation <80% [h:min (range)]	0:0 (0:0-0:07)	0:02 (0:0-0:56)

Conclusion
One quarter of patients with normal oxygen saturation when awake were shown to have significant nocturnal desaturations. There was no significant difference between stroke patients and controls.

75 REGIONAL VARIATIONS IN STROKE CARE IN ENGLAND, WALES AND NORTHERN IRELAND: RESULTS FROM THE NATIONAL SENTINEL AUDIT OF STROKE

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Introduction
Initial results from the National Stroke Audit showed that standards of care varied widely between trusts. Overall care appeared to fall well below acceptable levels. For the 18% of patients, who received more than 50% of care on a stroke unit, standards were significantly better compared to both generic rehabilitation and general medical wards.

Methods
Retrospective audit of up to 40 sets of notes of consecutively admitted patients with a diagnosis of stroke between 1 January 1998 and 31 March 1998 using the Intercollegiate Audit tool.

Results
Over 80% of trusts treating acute stroke patients participated in the audit contributing 6894 patients. Significant differences were apparent between the 10 regions, particularly in some of the case mix and outcome measures. Mean age of admitted patients varied between 68 years and 75 years. 30 day mortality was 21% in Northern Ireland and 33% in West Midlands with a national mean of 28%. Access to stroke unit care ranged between 10% (North Thames) and 27% (Northern Ireland). Most striking was the difference in use of institutional care after discharge (10% of audited cases in North Thames and 27% in North West).

Conclusions
Research is required to identify the reasons behind these differences. Audit can only indicate area where work is required. It only measures documented care and can be heavily influenced by differences in case mix. Nevertheless, clearly there is a need for a national strategy to raise the profile and resources allocated to stroke. It is vital that this process is led by clinicians.

76 STANDARDISING THE DEFINITION OF "PROGRESSING STROKE"

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Introduction
Early neurological deterioration or “Stroke Progression” contributes substantially to mortality and disability in acute stroke, but its study has been hampered by lack of agreement on terminology and standardised assessments. The European Progressing Stroke Study (EPSS) group agreed a standardised protocol for assessing neurological changes in the first 72 hours. “Significant” changes could be defined using simple reliable signs:
- “Early Deterioration” (ED): a fall of ≥2 points in conscious level, arm, leg or eye movements, or ≥4 points in speech [Scandinavian Stroke Scale (SSS) definitions] between successive neurological assessments.
- “Stroke Progression” (SP): an equivalent deterioration between the initial and Day 3 assessments.

Methods
Patients admitted to 10 centres (in 6 countries) within 24 hours of stroke onset had standardised neurological assessments on Days 1,2,3 and 7, with Barthel Index measured at 1 week and at discharge.

Results
Of 519 patients, 30% had at least one episode of ED and 24% underwent SP during the first 72 hours. SP occurred in 78% of those who had an ED episode. ED and SP were more common in those with severe strokes (EP 58%, SP 45% with initial SSS <19; ED 9%, SP 8% with initial SSS >44). ED and SP were strongly associated with poor outcome, independent of initial stroke severity: 66% of deaths and 48% of those discharged with Barthel score <10 had an episode of ED, and 58% and 37%, respectively, had SP. Reducing the threshold change in speech score to 3 points slightly improved sensitivity for poor outcome.

Conclusions
The agreed definitions of ED and SP (with modified speech criterion) are workable and useful, and should become the standard for future studies of Progressing Stroke.

77 PLASMA OSMOLALITY AND STROKE OUTCOME

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Introduction
Increased plasma osmolality (pOsm) has been shown to be associated with high mortality in acutely ill elderly patients. The aim of this pilot study is to establish whether pOsm in the first week of acute stroke is related to 3-month mortality.

Methods
Consecutive patients with a diagnosis of stroke (WHO criteria) over a 6 month period had their pOsm measured within 24 hours, day 1, 3 and 7 after stroke. Baseline characteristics such as age, sex and case severity (incontinence, dysphagia, dysphasia, coma and paralysis) were recorded. Survival was recorded at 3 months. Univariate comparisons of admission, maximum (max) and area under curve (AUC) pOsm between dead and alive patients were analysed using the t test. Multiple logistic regression was performed to determine the influence of admission pOsm on outcome after adjusting for age, sex and stroke severity.

Results
80 patients were included. The mean age was 71.9 years (11.7). At 3 months 59 (73.8%) patients were alive. Significant differences in admission pOsm were seen in dead patients (297.8 mOsm/kg) (8.4) and alive patients (292.6mOsm/kg) (8.1) (p=0.01). There were also significant differences in max pOsm between dead patients (306.6 mOsm/kg) (18.2) and alive patients (298.3 mOsm/kg) (9.2) (p=0.01). AUC pOsm between dead patients (296.9 mOsm/kg) (11.7) and alive patients (292.1mOsm/kg) (7.5) were also significant (p=0.04). After adjusting for age, sex, stroke severity, admission pOsm > 300mOsm/kg was the best predictor of stroke mortality (OR = 5.12), (95 % CI: 1.1 to 23.9) (p=0.04).

Conclusion
High plasma osmolality, particularly within 24 hours of stroke, appears to be related to stroke mortality. Plasma osmolality may be of prognostic significance in stroke outcome.

78 MANAGEMENT OF PHYSIOLOGICAL PARAMETERS IN STROKE: A EUROPEAN PERSPECTIVE

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Introduction
In a European study, comparing case fatality rates from stroke between 3 regions of Europe (Dijon, (France), Erlangen, (Germany), AND London), we have identified unexplained differences after adjustment for case mix, with the UK having the poorest survival. We hypothesise that differences in the management of abnormal physiological parameters in the acute phase of stroke contributes to this. Pilot data comparing the management of physiological parameters in the first week of stroke in Dijon (D) (low case fatality) and London (L) (high case fatality) are presented.

Methods
Standardised data were collected in both centres, measuring case mix (age, sex, coma, incontinence, dysphagia, dysphasia) and co-morbidity on all admitted stroke patients. Data collected in the first week of stroke, included management of hydration, oxygenation, feeding, hypertension, glycaemic and temperature control.

Results
106 cases were collected in (L) and 56 in (D). There were significant differences in case mix (dysphagia, incontinence) p<0.001. Of those who were pyrexial in the first week (>37.5º), there were significant differences in the use of anti-pyretics between (L) (61%) vs (D) (24%) p=0.002. 14% of patients in (L) had no feeding compared to 0% in (D) p=0.005. Higher rates of anti-hypertensive therapy were continued in the first week (D) (86%) vs (L) (56%) p=0.01 as were ionotropes for hypotension (D) (13%) vs (L) (0%) p<0.001. Diabetic medication was continued more frequently in (D) (90%) vs (L) (33%) p=0.05.

Conclusion
Data collection across 2 European sites is feasible. Variation in the management of acute physiological parameters appears to occur. This may imply different styles of practice or differences in case mix.

79 GAIT VELOCITY, DOUBLE SUPPORT TIME AND WIDTH OF BASE IN NORMAL ELDERLY ADULTS

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Introduction
The aim of gait re-training in patients with neurologically-based gait disorders is to normalise gait. However, an increase in velocity may be accompanied by reduced stability. Double support time (as a percentage of stride time, DST%) and width of base (WOB) are associated with instability. This pilot study aims to quantify these gait parameters in normal elderly people, accounting for velocity, gender and height, against which to compare abnormal gait parameters in patients.

Methods
17 men and 21 women were recruited, mean(SD) 70.1(3.9) years, height 1.67(0.1)m, with no history or clinical signs of disorders that would affect their walking. Velocity, WOB, and DST% were recorded from three sets of four walks along an instrumented walkway. Although subjects walked at self-selected slow, normal and fast speeds these data refer only to normal speed.

Results
For each subject, lines were fitted using a multi-level regression model allowing random intercepts, with a fixed mean gradient fitted for gender. Height was not significant if DST% and WOB were modelled in terms of gender and velocity. WOB fitted against velocity and gender showed a significant relationship (gradient -0.032, $p \leq 0.03$) for all subjects, plus a significant gender difference ($p \leq 0.001$).

DST% fitted against velocity and gender showed a significant relationship for all subjects (gradients -6.892 men, -2.469 women) with a significant gender difference ($p \leq 0.025$).

Regression equations fitted for individual subjects, for DST%/velocity and WOB/velocity produced slopes with means(SD) of -7.103(13.648) and -0.020(0.172) for women and -5.954(10.999) and 0.002(0.384) for men.

Conclusions
Step-by-step parameter evaluation reveals surprising variability in gradient, within the overall relationships. Do normal young adults have the same inter-subject slope variability for these relationships as the elderly?

80 THE STIFFNESS OF CONDUIT ARTERIES IN OLD AGE, HYPERTENSION AND STROKE

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Introduction
Increased large arterial stiffness in old age results in amplification and increased velocity of reflected pulse waves. This is a potential independent predictor of cerebrovascular disease. We report on a study comparing pulse wave characteristics of five patient groups - healthy young (HYV), healthy elderly (HEV), elderly with isolated systolic hypertension (ISH), "mixed" hypertension (MHT), and CT confirmed lacunar stroke (LAC).

Methods
Subjects were allocated to the above groups, based on age, blood pressure and CT brain data. The carotid pulse wave augmentation index was measured using applanation tonometry.

Results
Results, with standard errors, are displayed below. Comparisons are by Student's t test.

	HYV(n=14)	HEV(n= 9)	ISH(n= 8)	MHT(n=10)	LAC(n= 6)
Age	27.0 (1.4)	77.8 (1.2)	76.3 (3.8)	70.4 (1.8)	68.6 (2.5)
BP	131/72 (4/3)	132/76 (4/3)	174/92 (8/5)	161/98(6/4)	152/100(7/4)
AIx (%)	-2.1 (5.2)	23.7 (5.2)	30.1 (5.1)	31.5 (4.8)	31.3 (7.9)
Cholesterol	4.4 (0.3)	6.0 (0.4)	7.1 (0.5)	5.6 (0.4)	5.6 (0.3)

Conclusion
Our data confirmed the elevated augmentation index in the elderly relative to the healthy young ($p < 0.001$), and suggests a trend towards increased augmentation indices in the hypertensive and lacunar stroke groups compared with healthy elderly ($p < 0.2$). There was no evidence of a difference in augmentation index between lacunar stroke patients and uncomplicated hypertensive patients or between the "mixed" and isolated systolic hypertensives. These data support a strategy of pharmacological manipulation of large vessel stiffness in older patients as a means of altering cardiac risk.

81 DOES NOCTURNAL DIP IN 24-HOUR BLOOD PRESSURE AFTER ACUTE STROKE PREDICT LONG-TERM SURVIVAL?

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Introduction
Elevated blood pressure (BP) following acute stroke is well recognised and is associated with poor short-term outcome. However, the relation between acute BP change and long-term outcome remains unclear. We prospectively assessed the relation between day-night BP change after acute stroke and long-term survival.

Methodology
221 patients (125 male) of median age 73 years admitted within 24 hours of ictus underwent casual and 24-hour BP using Spacelabs 90207 recording at 15 minute intervals. Mortality was recorded over a median follow-up of 3 years from the Death Register. Pre-selected criteria recorded within 24 hours of acute ictus were used to predict subsequent mortality, using Cox's proportional hazards model. The difference between 24-hBP dippers (>10% fall in mean day to mean night BP) and non-dippers were initially inspected by a plot of the Kaplan-Meier survivor function. Statistical analyses were carried out using SAS 6.12.

Results
Single variable Cox's proportional hazards model

Variable		n	HR (95%CI)	p
Dipper in night Time BP	SBP+DBPdip	40	1.00	
	Non-dipper	181	2.40(1.04,5.56)	0.041
Multiple variable Cox's				
Dipper in night Time BP	SBP+DBPdip	40	1.00	
	Non-dipper	181	2.18(0.94,5.07)	0.069
Rankin scores on admission	≤2	63	1.00	
	≥3	158	2.11(1.07,4.16)	0.030

Age, sex, WCC and glucose were not associated with mortality. Therefore, non-dippers had a statistically significant increase in mortality. This becomes marginal when the admission stroke severity is added to the model. The interaction between the 'Dipper' and admission Rankin is not significant (p=0.61).

Conclusions
Non-dipping in 24-hour BP following acute stroke is not independently associated with increased mortality over a median follow-up of 3 years, though mean 24-hr BP levels are.

82 BLOOD PRESSURE AND STROKE OUTCOME

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Introduction
Increased blood pressure (BP) levels, beat-to-beat BP variability (BPV) and reduced diurnal BP change are associated with target organ damage. High absolute 24 hour BP levels following acute stroke are also associated with poor prognosis. This study aimed to examine the influence of stroke subtype, BP levels and BPV on 30 day outcome within 72 hours of cerebral infarction.

Methodology
92 patients with CT confirmed ischaemic stroke (54 cortical, 29 subcortical and 9 posterior circulation infarcts) were examined. Beat-to-beat BP (Finapres) was recorded for 10 minutes, and BPV calculated as s.d. of these readings. Subjects were divided into quartiles of systolic, diastolic, mean BP and pulse pressure (PP), and each group into high and low variability subjects. 30 day outcome was defined as independent (Rankin ≤2) or dead/dependent. All results were calculated by logistic regression.

Results
The odds ratio for death/dependency was higher in cortical infarcts than other stroke subtypes (OR 4.14, p = 0.003), but stroke subtype did not influence BP levels or BPV. Adjusted odds ratio for death/dependency with every 10mmHg increase in SBP, DBP, MAP were 1.19 (p=0.03), 1.42 (p=0.02) and 1.03 (p=0.01) respectively; PP did not influence outcome. Only diastolic and mean arterial BPV influenced outcome with adjusted OR 1.33 (p=0.02), and 1.33 (p=0.02) respectively; in addition within quartiles of these two measurements subjects with the highest BP variability had a poorer outcome.

Conclusions
Short-term non-invasive BP recordings provide useful prognostic information with increasing mean SBP, DBP, MAP levels, and diastolic and mean arterial BPV increasing the risk of death/dependency. Whether pharmacological manipulation of these parameters will have therapeutic benefit deserves further study.

83 INDICES OF DYNAMIC CEREBRAL AUTOREGULATION DEPEND ON TEST STIMULUS

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Introduction
Transcranial Doppler has revolutionised the study of cerebral autoregulation (CA). Previous studies have measured dynamic CA using thigh cuff release, a depressor stimulus. It is unknown whether different depressor, or pressor, stimuli produce similar results. The aim of this study was to examine the response to pressor and depressor dynamic BP stimuli in older persons.

Methodology
61 healthy volunteers (35 male) mean age 67 ± 10 years were examined. Middle cerebral artery velocities (SciMed QVL 120), arterial BP (Finapres), surface ECG and pCO2 (TINA, Radiometer) were recorded. Dynamic pressor stimuli were achieved by the Valsalva (VM) and cold pressor (CP) manoeuvres, depressor stimuli via thigh cuff (TC) and isometric hand grip (HG) release. Autoregulation indices (ARI's) were derived using previously described methods. Pressor and depressor tests were compared using a paired t-test, significance was taken as $p<0.05$*. Results are presented as group mean ± s.d. (limits of agreements).

Pressor	ARI	VM 4.4 ± 2.7	CP 4.8 ± 3.0
		Difference 0.86 ± 3.72 (-6.58,8.3)	
	BP (mmHg)	VM 22 ± 8	CP 18 ± 8
		Difference 4.6 ± 10.6* (-25.9,16.7)	
Depressor	ARI	T C 6 ± 2.3	HG 3.7 ± 3.6
		Difference -2.61 ± 4.34*(-11.3,6.07)	
	BP(mmHg)	TC-21 ± 9	HG-23. ± 11
		Difference 3.5 ± 11.4*(-26.3,19.3)	

Conclusions
Both pressor and depressor tests led to significantly different BP stimuli, but only the depressor ARI's were significantly different. These results indicate that tests of dynamic CA are not interchangeable, and that there are factors other than BP stimuli influencing CA even in a healthy population.

84 THE IMPACT OF PRIMARY INTRACEREBRAL HAEMORRHAGE ON MORTALITY AND DEPENDENCY

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Introduction
Stroke, either primary intracerebral haemorrhage (PICH) or cerebral infarct (CI), can only be distinguished with certainty by computerised axial tomographic brain scan (CT). Although PICH has a higher mortality, little previous work has focussed on dependency in PICH survivors [Warlow et al., 1996].

Methods
A retrospective study was undertaken of stroke patients admitted between October 1994 and July 1999, including stroke type, mortality, Rankin score pre-stroke and Barthel score on discharge.

Results
2544 patients with a clinical diagnosis of stroke were considered. CT scans were performed on 2160 (85%) patients of whom 265 (12%) were PICH and 1895 (88%) CI. Mortality was greater in PICH compared with CI patients (100 [38%] vs. 310 [16%], $\chi^2 = 67.7$, odds ratio 3.1 [2.3-4.1], $p = 0.00001$). Pre-stroke Rankin score (table) revealed more "handicap" in CI patients. However, on discharge, PICH patients were more likely to have moderate and severe Barthel scores than CI patients (table).

	PICH	CI	Odds Ratio	p value
Demographics	n=265	n=1895		
Median age	72 (64-79)	74 (65-80)		n.s.
Females	137 (52%)	962 (51%)		n.s.
Rankin score pre-stroke				
no handicap (0-1)	215 (81%)	1307 (69%)		
some handicap (2-5)	50 (19%)	588 (31%)	2.2 (1.5-3.1)	0.0001
Barthel score at discharge	n=165	n=1585		
mild (18-20)	62 (38%)	814 (51%)	0.6 (0.4-0.8)	0.001
moderate (10-17)	57 (34%)	439 (28%)		
severe (0-9)	46 (28%)	332 (21%)	1.8 (1.3-2.5)	0.0008
Length of stay days	38 (16-79)	18 (8-52)	U=95322*	<0.0001

*Mann-Whitney

Conclusions
PICH patients have a higher mortality than CI patients. Contrary to perceived wisdom, at discharge, PICH patients were more likely to be dependent in activities of daily living.

85 ASPIRIN THERAPY IN ACUTE ISCHAEMIC STROKE

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Introduction
The results of IST and CAST studies confirm that early aspirin therapy lowers deaths and non-fatal recurrent strokes by 9 per 1000. Recommendations for treatment of acute ischaemic stroke (SIGN, RCP) suggest starting aspirin (150-300mg) within 48 hours of presentation, after radiological exclusion of intracerebral hemorrhage. Suggestions for secondary prophylaxis include addition of dipyridamole or substitution with clopidogrel.

We undertook a review of the use of aspirin in acute ischaemic strokes with the view to improve management of ischaemic strokes.

Methods
135 acute strokes admitted between April 1998 and August 1999 to two major DGHs in South Wales were screened to identify time taken to perform brain CT scans and commence aspirin after admission for non-haemorrhagic strokes. Measures for improvement were implemented and performance assessed 3 months later by subsequent review of 56 new cases.

Results
The number of ischaemic strokes was similar in both groups. Improvements in performance were noted in the following: number of CT scans performed (86% vs. 80%); proportion of scans undertaken within 72 hours of admission (67% vs. 56%); number of patients prescribed aspirin (70% vs. 61%); proportion prescribed 150-300 mg. vs. 75 mg aspirin (69% vs. 42%)***; number of recurrent strokes already on aspirin in whom either clopidogrel was substituted or combination therapy with warfarin or dipyridamole prescribed instead (18% vs. 7%)***; total number of cases offered prophylactic treatment in the absence of any contraindications (100% vs. 79%)***. There was no improvement in time taken to commence aspirin (52% vs.58%).
[*** $p < 0.01$]

Conclusion
Our management of acute ischaemic strokes has scope for improvement particularly in the use of early aspirin therapy.

86 VARIATION IN LENGTH OF STAY AND DISCHARGE OF ELDERLY STROKE PATIENTS TO NURSING HOMES IN ENGLAND

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Introduction
The 1988 King's Fund Consensus Conference on the treatment of stroke concluded that the provision of care for stroke patients in the UK was haphazard. Since then, there has been development of organised stroke services across England. We demonstrate the variability, according to district, in the length of stay of stroke patients prior to their discharge to nursing homes in England.

Methods
Data from the English Hospital Episode Statistics database was obtained on 126,119 stroke episodes, for patients over 65 in English hospitals between 1 April 1994 and 31 March 1995. Discharge destinations were determined. Length of stay by district was analysed, using grouped length of stay and the intra-class correlation coefficient.

Results
Grouped length of stay prior to discharge to all destinations (including death) showed a national pattern: 40.5% were discharged within 0-6 days, 39% were discharged within 7-20 days, 13% were discharged within 21-41 days, and 6% were discharged within 42-97 days. Only 1.5% were discharged after 98 days. The intra-class correlation for nursing home discharges = 0.118 (95% C.I. 0.099 – 0.138), compared with the intra-class correlation for all other discharges = 0.037 (95% C.I. 0.03 – 0.039). ($p < 0.0001$).

Conclusions
The effect of district on the length of stay of stroke patients discharged to nursing homes is much greater than for those who are discharged to other destinations. Further work needs to be done to elucidate the causes for this variability in the length of stay, in order to develop well-organised and equitable stroke services in the UK.

87 DO NOT RESUCITATE POLICIES IN NURSING HOMES: THE VIEWS OF NURSING HOME MATRONS

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Introduction
Do not resuscitate (DNR) orders are widespread in hospitals, but less is known about those in nursing homes (NH). We have determined the views of NH matrons on this subject.

Methodology
A questionnaire regarding resuscitation policies, training, experience and equipment was administered by telephone to matrons of 72 NH locally.

Results
46 of the matrons contacted were able to participate. 48% were aware that the local hospital had a DNR policy. 91% of NH did not have a formal policy but 78% felt it was appropriate to have one. In the event of a cardiac arrest, 61% of matrons would perform cardiopulmonary resuscitation (CPR), 37% dialled 999, 2% called the general practitioner (GP). Only 18% of matrons had training in basic life support (BLS) within 12 months. Life support equipment available included; airway (70%), oxygen (74%), bag and mask (37%) and intravenous cannulae (2%). No NH provided defibrillation. Matrons wanted staff to be BLS trained. Over the last 12 months CPR had been performed on 9 occasions but matrons had reported 421 deaths. The factors considered important in making DNR decisions included; serious illness (68%), quality of life (76%), patients views (78%) and relatives views (37%). In mentally alert patients matrons felt the following healthcare professionals should be consulted; G.P. (93%), NH staff (89%), patient (78%). 43% of matrons felt relatives should be consulted with or without the patient's consent. Most had heard of living wills (79%). Only 6% of NH had patients with these.

Conclusion
Matrons want a formal DNR policy for their NH and regular BLS training for staff. A DNR policy would allow CPR decisions to be implemented but would require further staff training. Development of policies requires guidance.

88 A STRUCTURED ASSESSMENT TOOL WITHIN THE DISCHARGE PLANNING PROCESS: A QUALITATIVE EVALUATION

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Introduction
Discharge planning processes include assessment, documentation and communication. In clinical practice formalised and informal mechanisms facilitate these processes. The role of a standardised comprehensive assessment instrument, the MDS-HC (Minimum Dataset-Home Care), linked with structured documentation, was evaluated as a component of the discharge planning process on geriatric rehabilitation wards using a qualitative methodology.

Method
Patients on four geriatric rehabilitation wards were studied over a 6 month period. Standard discharge processes (SDP) were maintained throughout for statutory reasons.

	Wards 1/2	**Wards 3/4**
Month 1-3	SDP	SDP + MDS-HC
Month 4-6	SDP + MDS-HC	SDP

Research nurses completed MDS-HC assessments. The assessments and associated documentation were incorporated into the discharge planning process. An experienced research worker conducted four focus groups with ward team members to determine the benefits and disadvantages of the intervention. Tape-recordings were transcribed for analysis.

Results
Benefits: improved assessment information independent of assessor, often neglected domains were highlighted e.g. depression, the generated problem list was helpful, the documentation provided useful information for care managers and staff unfamiliar with patients, communication within the team was facilitated.
Disadvantages: some individualised information was lost in the structured assessment, the existing layout and length were difficult to use. The benefits can only be realised when incorporated into clearly defined formal and informal channels of communication.

Conclusion
A comprehensive standardised assessment tool with associated well structured documentation contributed to the discharge planning process. The presentation of the documentation needs to be improved. The tool is just one part of a complex network of formal and informal interactions that need to be established for effective discharge planning.

89 CLINICAL FEATURES OF FALLBACK - A PILOT STUDY

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Introduction
Older people with poor mobility who lean backwards are well recognised in geriatric practice but rarely studied. A definition and a clinical test for those with this fallback phenomenon is suggested. Some of the clinical features of these patients are described in this pilot study.

Methods
Fallback is characterised by an attempt to preserve a stance where the body's centre of mass remains behind their base of support. The tilt table test involves tilting subjects from horizontal to 85 degrees of head up tilt. A positive test is characterised by a forward movement of one of the subject's legs during tilting in an attempt to maintain fallback. 9 people with fallback and 9 people matched for poor mobility but without fallback were recruited from the inpatient beds of a district geriatric service. Tilt table testing and clinical characteristics of each group were recorded.

Results
All 18 patients had a history of falls. 8 out of 9 patients with fallback had a positive tilt table test compared with none of the controls ($p<0.0005$, Fisher exact test). 8 of the fallback group exhibited abnormal sitting posture compared with no controls. 7 of the fallback group, but only one control, had precocious parking (attempting to sit before arriving at a chair). Rigidity, akinesis, tremor and grasp reflexes were more frequently found in the fallback group. There was no difference observed in abbreviated mental test scores, Snellen chart visual acuity nor ankle flexion power between the two groups. All but one of the control group were discharged home in contrast to the fallback group where 3 were discharged home, 2 discharged to institutions and 4 died whilst in hospital.

Conclusion
Older people who lean backwards show measurable responses on tilt table testing. They have some distinguishing clinical features and a poor overall outcome. More knowledge and possible treatment strategies may be discovered by continued examination of this interesting group of patients.

90 THE 2/2/2 REGIMEN FOR LOW DOSE INITIATION OF WARFARIN IN AF

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Introduction
A large number of older people are now being anticoagulated. The Fennerty regimen (BMJ 1984; 288: 1268) is often used for initiation of Warfarin though some suggest it does not correctly predict the maintenance dose in the elderly (Age Ageing 1998: 27; 655).

We found in the first half of this audit study on the initiation of Warfarin in 27 patients that the INR on day 4 exceeded the target (2-3) in 18 (67%). The 10/10/5 and Fennerty regimens both lead to over-anticoagulation. We also found the median Warfarin maintenance dose in a group of 66 elderly patients to be between 2 and 3 mg/day which is below the level predicted by the Fennerty regimen.

Methods
Since January 1999 we have been using a low dose Warfarin initiation regimen (2/2/2) (2mg/day for 3 days then dose adjusted according to INR). Data has been collected on 31 consecutive patients in AF anticoagulated up to the end of July 1999. 21 of these had the low dose initiation (2/2/2).

Results
Data is presented for each of the initiation regimens in the table below.

Regimen	n	mean age (years)	INR>3 on Day 4	INR>3 during initiation
2/2/2	21	73.3	0 (0%)	3 (14%)
10/10/5	22	82.5	14 (64%)	16 (73%)
Fennerty	8	79	8 (100%)	8 (100%)
Others	7	82.4	3 (43%)	6 (86%)

The median interval to achieving an INR between 2 and 3 with the 2/2/2 regimen was 11 days (IQR 7-18 days).

Conclusion
Low dose initiation in AF avoids the problems of immediate over-anticoagulation. We invite other clinicians to review their policy for initiation of Warfarin in the elderly.

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CAN THE ELDERLY USE GTN SPRAYS?

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Introduction
Glyceryl trinitrate (GTN) sprays and tablets are amongst the most commonly prescribed drugs due to their effectiveness and low cost. However, doctors may fail to educate patients in their correct use and administration which could make treatment ineffective.

Methodology
A questionnaire was completed by 100 patients (mean age 81 years, range 65-103) currently prescribed a GTN spray. This covered drugs prescribed, information given (and by whom) and necessitated a demonstration of their ability to use their particular device (a selection of placebo sprays were acquired for this purpose).

Results
59% of patients had been started on GTN by their GP. In only 48% of patients had a doctor explained what the spray was for, in 23% nobody had provided information. Similarly in 24% of patients no explanation as to when or how to use the spray had been given. 93% of patients thought they could use their sprays correctly. On demonstration 24% were unable to use them: unable to; depress the spray (15%), remove the device cap (3%) and 6% lacked the dexterity to adequately spray under their tongues. Lack of dexterity was often due to arthritis. 49 patients had previously been taking GTN tablets, 4 were still taking them with their spray and 38/49 did not know the correct shelf life of their medication.

Conclusion
Patients' capability and understanding of the use of a GTN spray is commonly deficient and not consistently assessed. This may lead to increased morbidity and mortality as patients are deprived of GTN, as well as cost implications not only for wasted prescriptions but also increased healthcare consultations.

92 FACTORS INFLUENCING ACTIVITIES OF DAILY LIVING AMONGST PEOPLE AGED 75 OR OVER

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Introduction
Little is known about the extent of disability and need for services amongst elderly people. This analysis was to estimate the extent of disability, as measured by activities of daily living (ADLs), amongst people aged 75.

Methodology
This analysis used information from 31,200 participants aged 75 or over in the MRC Study of Assessment and Management of Elderly People in the Community. Participants were asked about 8 ADLs relating to self-care, home-care and mobility; in addition, information on social conditions was collected.

Results
8209 participants (26%) reported they were able to do all activities with no difficulty; 5% were unable to perform any self-care activities; home-care activities could not be performed by 9%, while 7% were unable to do the activities relating to mobility. 3% were unable to do any of the 8 ADLs. Inability to perform any self-care activity was higher in women (Odds Ratio (OR)=1.7), those with low social contact (OR=1.4) and with increasing age (OR=4.4 ages 85 and over). Those with difficulty managing their finances were at increased risk of inability to perform self-care (OR=4.9), as were those with memory problems (OR=3.9). Similar patterns were found for home-care and mobility. Sufficient help was available to the majority who reported they were unable to perform self-care activities (87%), home-care (87%) or activities relating to mobility (77%)

Conclusions
These analyses have identified groups at most risk of problems with ADLs. While the majority of people receive sufficient help to perform these tasks, efforts should be concentrated on those who receive insufficient assistance.

93 SOCIO-ECONOMIC, SOCIAL FACTORS AND DEPRESSION IN THE ELDERLY

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Introduction
Depression in elderly people is often missed by the medical profession. This study investigated levels of self-reported depression to identify and target people at greatest risk.

Methodology
The MRC Trial of Assessment and Management of elderly people in the community is being conducted in 106 general practices the UK. People aged 75 plus on the practices' lists were invited to undergo a brief assessment consisting of questions on social contact, daily activities, and health problems (80% response rate). Participants who gave a response of "often" or "always" to a question on depression were defined as depressed. The relationships between depression and socio-demographic, economic and lifestyle factors were investigated using multivariate logistic regression with additional adjustment for clustering.

Results
9% of the study population (n=31,200) reported themselves as being depressed. In multivariate analysis, being a woman (Odds Ratio (OR)=1.5, 95% CI: 1.3, 1.7), living alone (OR=1.3, 95% CI: 1.2,1.5), financial problems, (OR=2.6 95% CI: 2.1,3.2), difficulty with heating the home, (OR=2.2, 95% CI: 1.7,2.8), low physical activity (OR=5.6, 95% CI: 4.5,6.9), and current smoking (OR=1.3, 95% CI: 1.2,1.5) were associated with depression. In univariate analysis, activities of daily living and older age were also associated with an increased risk of reporting depression, but in multivariate analysis these associations were no longer observed.

Conclusion
These results showed inequalities by gender and socio-economic circumstances and reinforce the need to identify and target elderly people at high risk of feeling depressed. Once activities of daily living have been taken into account, very old people are no more at risk at being depressed than those ten years younger.

94 DEVELOPMENT OF A POSTAL QUESTIONNAIRE TO MEASURE LOWER GASTROINTESTINAL SYMPTOM PREVALANCE IN THE ELDERLY: TEST-RETEST RELIABILITY

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Introduction
The prevalence of lower gastrointestinal symptoms in elderly community dwellers is unclear, previous studies having concentrated on younger populations. We have previously reported the validity of a self-completion postal questionnaire in the assessment of lower gastrointestinal symptoms (Chaplin, Age Ageing 1997). This study examines the test-retest reliability of the instrument in an elderly community population.

Methodology
An age and sex stratified random sample of 500 people, aged 65 years and over were sent a questionnaire. All those who returned the questionnaire were approached to complete a second identical questionnaire at two weeks. The chance-corrected measure of agreement, the Kappa coefficient, was calculated for individual questions.

Results
Three hundred and ninety seven subjects (80%) returned the first questionnaire, of which 316 (63%) returned the second questionnaire. Overall, the reliability of the questions was good. The median Kappa coefficient was 0.62 (interquartile range 0.52-0.70). All but one question had a Kappa coefficient of 0.40 or greater suggesting at least "moderate to good agreement". No significant differences in agreement were found with respect to age, sex or time between questionnaires.

Conclusion
This self-completion postal questionnaire is a reliable instrument for assessment of lower gastrointestinal symptoms in a community based elderly population. This is important if the instrument were to be used to assess change in symptoms over time or in prospective studies of prognosis.

95 A HUMAN INTESTINAL MODEL TO STUDY CELL AGEING

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Introduction
The small intestinal epithelium contain cells of different sub-types: (i) 'young' crypt cells (C); (ii) 'middle age' villus cells (lower to mid villus); and (iii) 'old' villus tip cells (V). Cell separations of these sub-types remain a challenge.

Method
A 'chelation technique' was used to separate epithelial cells from endoscopic intestinal biopsies. Purity of cell sub-types was confirmed by assaying for alkaline phosphatase activity (mainly in V) and 3H-methylthymidine incorporation (mainly in C). To demonstrate mRNA expression, transferrin receptor (TfR), predominant expression in C, sucrase-isomaltase (SI), predominant expression in V, and ferritin, equal expression between C and V cells were used.

Results
Alkaline phosphastase activity (μmol/mg protein) was highest in V, lowest in C (1.32 ± 0.16 vs 0.47 ± 0.09 $p<0.01$). Thymidine incorporation (disintegration per minute/mg protein) was higher in C than V (2.3 ± 0.6 vs 5.1 ± 0.8 $p<0.05$). TfR expression (arbitrary units) was greater (6 fold) in C compared to V (0.08 ± 0.01 vs 0.52 ± 0.09, $p<0.01$.). SI expression was greater (4 fold) in V to C (1.41 ± 0.12 vs 0.34 ± 0.06, $p<0.01$) while ferritin was not significantly different between V and C (0.95 ± 0.09 vs 0.85 ± 0.03 $p>0.05$).

(n=6, mean ± S.D, 'old' villus vs 'young' crypt cells)

Conclusions
Human small intestinal epithelial cells of different age is easily obtained. Potentially, proteins and genes that modulate the ageing process could be examined from these cell sub-types.

96 THE PALATABILITY OF DIFFERENT HIGH-ENERGY FOODS TO ELDERLY MEDICAL IN-PATIENTS

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Introduction
Poor nutritional status and intake are common amongst elderly in-patients and usually managed by dietary supplementation with sip-feeds. Maintaining adequate intake of these supplements can be problematic. We assessed the palatability to elderly medical in-patients of a preferred sip-feed and five readily available high-energy foods differing in taste and consistency - crisps, cheese biscuit, cereal bar, chocolate and Guinness beer.

Methods
49 elderly medical in-patients (16 men) were recruited. Exclusions were: MSQ <7, diabetes, dysphagia, and medical instability. Weights and demi-spans were used to calculate indices of nutritional status. A preferred sip-feed and the five other foods were offered to the subjects in a predetermined order, and rated for taste on a validated scale. Ratings were analysed by a repeated measures ANOVA followed by post-hoc Scheffe F-tests.

Results
All foods received a favourable mean rating, except Guinness. 24 subjects tasted all six foods offered, and a significant difference was found between foods tasted ($p=0.0001$). This was due to the low ratings for Guinness, with no significant differences between other foods. The same result was obtained if foods not tasted were given the lowest rating, and all 49 subjects' ratings analysed. When the Guinness was removed from the analysis a difference between the foods tasted ($p=0.004$) was accounted for by the sip-feed being significantly preferred to the cereal bar. Ratings for each food did not differ significantly between men and women, and between differently nourished patients.

Conclusions
On the basis of taste alone sip-feed supplements are acceptable to elderly medical in-patients, and do not differ significantly in palatability to certain commercially available high-energy foods of alternative tastes and consistencies.

97 PERCUTANEOUS ENDOSCOPIC GASTROSTOMIES: ATTITUDES OF GENERAL PRACTITIONERS

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Introduction
The number of percutaneous endoscopic gastrostomies (PEGs) performed is increasing. We have assessed general practitioners' (GPs') attitudes to the current situation and how patient management may be improved.

Methods
A postal questionnaire was sent to a randomly selected GP from each practice within N. Ireland.

Results
275 responses from 365 GPs (75%). 91% of GPs had received no education regarding PEGs, 54% perceived their knowledge as poor, 38% as fair, 7% as good and 1% as very good. 79% would like to receive further education. 53% of GPs had patients on their list with PEGs and 25% had referred patients for PEG insertion. Indications for insertion were stroke (48%); motor neurone disease (13%); multiple sclerosis (8%); dementia and anorexia (8%); cerebral palsy (6%); Parkinson's Disease (3%) and other (14%). 53% had encountered problems with PEGs; tube blocked (30%); tube dislodged (25%); tube leakage (18%); local sepsis (16%); pain (8%) and other (3%). 40% of problems were managed in the community, 33% required casualty attendance and 27% hospital admission. 78% thought a telephone advice line would be helpful. 80% saw a role for a nurse specialist. When asked who should perform PEG replacement in the community, 37% felt this required day case in hospital; 25% consultant domicilary; 10% nurse specialist; 10% casualty attendance; 6% GP and 12% did not know. 19% of GPs felt there were too many PEGs performed, 50% did not and 31% did not know.

Conclusions
GPs would like more education, review of guidelines re indications and ethics of PEG insertion, easier access to problem solving in the community and formatted follow-up. Management of these patients could be improved by setting up a specialist service. This has resource implications.

98 CLOSTRIDIUM DIFFICILE DISEASE - IS THERE A PROTECTIVE RESPONSE?

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Introduction
It has been suggested that host immune response to Clostridium difficile (CD) may influence the development of Clostridium difficile disease (CDD). We conducted a prospective study on sequential antibody responses to CD among elderly patients who develop CDD.

Methods
Pre-infection serum was obtained from 336 patients admitted to Care of the Elderly wards. Acute phase serum was then collected from patients who developed CDD. Protein extracts of patients, infecting CD strain (homologous strain) were probed with the patients serum using SDS-PAGE with Western blotting. IgG responses were examined.

Results
24 patients went on to develop CDD. 20 of these patients failed to show an increase in antibody response between pre-infection and acute phase. 8 patients died shortly after developing the illness. Convalescent serum was available for 14 patients: five of these patients showed new antibody responses to strain-specific CD proteins and one patient showed a response to a subsequent different strain. Four of these six patients did not develop any further episodes of CDD. One patient showed an overall increase in existing immune response to CD proteins while seven patients showed no change in antibody response at any stage and six of these went on to develop further relapses.

Conclusions
This is the first study to look prospectively at patients who develop CDD using Western blotting. This study shows that most patients fail to develop a response to Clostridium difficile during the acute phase of the infection. A small number of patients appear to develop a protective response.

99 NUTRITIONAL STATUS AND QUALITY OF LIFE OF OLDER HOSPITAL INPATIENTS

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Introduction
Undernutrition is common amongst older patients admitted to hospital and associated with increased morbidity (Potter J et al, Age & Ageing, 1995;24:131-36), which may impair quality of life. The aim of this study was to examine the independent effect of nutritional status on the quality of life of older patients admitted to hospital.

Method
A prospective study was undertaken of patients aged over 65 years, admitted to our Acute Care of the Elderly unit. Patients were excluded if they had cognitive impairment or communication difficulties, malignancy, renal or heart failure. Nutritional status was assessed using anthropometric and biochemical measures. Quality of life was measured using the Philadelphia Geriatric Centre Morale Scale (PGCMS).

Results
48 patients were included with a mean (SD) age of 77 (6.53). 54% were male. On admission, 4% had a serum albumin below 35g / l, 10% had a body mass index (BMI) below 20 and 8% had a triceps skin fold thickness (TSF) below the 25th centile.

	BMI (kg / mm^2)	Serum albumin (g / l)	TSF (mm)	Mid arm circumference (mm)	PGCMS
Admission	26.64 (5.49)	40.90 (3.57)	15.64 (7.10)	300.67 (38.70)	11.31 (4)
1 week	26.93 (6.84)	39.28 (3.74)*	15.89 (7.12)	301.40 (46.36)	11.88 (3.23)
Discharge	26.93 (5.83)	39.44 (3.38)	16.29 (5.90)	305 (44.39)	12.19 (3.51)
3 months	27.91 (5.22)	40.69 (4.20)	15.85 (6.33)	301.74 (404.49)	11.97 (4)

Mean (SD) *paired t test p = 0.009

Logistic regression analysis showed no significant independent effect of nutritional variables on quality of life (which was dichotomised : ≤11; >11), after adjustment for age, gender, comorbidity, disability and depressive symptoms.

Conclusions
Nutritional status has no independent effect on quality of life of older patients admitted to hospital.

100 COGNITIVE PERFORMANCE IN NORMOTENSIVE AND MILDLY HYPERTENSIVE OLDER SUBJECTS

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Introduction
The effect of hypertension on cognitive function in older individuals remains unclear. We determined cognitive function in older mildly hypertensive and normotensive subjects using an extensive, validated computerised assessment battery.

Methods
Subjects aged 70-89 years were recruited from local general practices. BP was measured on 3 occasions during a 6 week period. Mild hypertension was defined as 160–179 and/or 90-99, normotension <150/90 mmHg. Subjects with known cognitive impairment, previous stroke, or taking benzodiazepines or neuroleptics were excluded. A computerised cognitive assessment battery (Cognitive Drug Research) comprising 8 tests was administered to subjects.

Results
134 untreated hypertensives (164±9/89±7 mm Hg, 65 female) and 134 normotensives (131±11/74±7 mmHg, 54 female) were studied. Mean age (76±4 years), years in education (10±2), MMSE score (28±1) were identical in both groups. Prevalence of comorbidities and concomitant medication were similar.

Data are mean(SD) msec / %

		Hypertensives	Normotensives	P value
Simple reaction time		347(96)	318(57)	< 0.01
Choice reaction time		513(75)	498(71)	0.10
Number vigilance	accuracy	98.9(2.9)	99.8(1.4)	< 0.01
Memory scanning	reaction time	874(371)	790(161)	< 0.05
Immediate word recognition	accuracy	88.6(11.6)	89.8(9.7)	0.36
	reaction time	935(225)	893(189)	0.10
Delayed word recognition	accuracy	82.9(16.5)	87.0(10.6)	< 0.05
	reaction time	917(216)	867(189)	< 0.05
Picture recognition	accuracy	86.4(14.8)	89.3(10.2)	0.06
	reaction time	961(216)	895(135)	< 0.01
Spatial memory	accuracy	62.6(33.0)	77.3(22.1)	< 0.001
	reaction time	1446(531)	1280(433)	< 0.01

Conclusions
Mild hypertension in older subjects is associated with impaired cognition in a broad range of areas. Since pre-morbid cognitive dysfunction is a risk factor for dementia, hypertension may place older subjects at increased vulnerability for developing dementia.

101 ASSESSMENT OF QUALITY OF LIFE OF OLDER PATIENTS

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Introduction
The Philadelphia Geriatric Centre Morale Scale (PGCMS) is recommended for assessment of well being and the Geriatric Depression Score (GDS) to screen for depression (Royal College of Physicians / British Geriatric Society, 1992). The value of the PGCMS in older hospital inpatients has been questioned (Coleman PG et al, Age and Ageing, 1995;24: 416-20). The aim of this study was to examine the relationship between the GDS and PGCMS in older hospital patients.

Method
A prospective study as undertaken of patients over 65 years, admitted to our acute Care of the Elderly unit. Patients were excluded if they had cognitive impairment or communication difficulties. Patients were asked to self complete the 30 point GDS (GDS-30) and the PGCMS on admission, after 1 week, on discharge and at 3 months.

Results
48 patients were included with a mean (SD) age of 77 (6.53).

Descriptive statistics for GDS and PGCMS

	GDS-30	GDS-15	PGCMS
Admission	9.15 (5.32)	4.27 (2.64)	11.31 (4)
1 week	7.25 (3.73)	3.33 (1.97)	11.88 (3.23)
Discharge	8.38 (5.71)	3.91 (2.87)	12.19 (3.51)
3 months	8.00 (4.83)	3.97 (2.46)	11.97 (4)

Correlations between PGCMS and GDS

	Admission		1 week		Discharge		3 months	
	R	p	R	p	R	p	R	p
GDS-30	-0.77	<0.001	-0.79	<0.001	-.79	<0.001	-0.73	<0.001
GDS-15	-0.67	<0.001	-0.57	0.004	-0.70	<0.001	-0.65	<0.001

R : Spearman's rank correlation

Conclusions
There is great similarity between the GDS and PGCMS assessment tools when used in older hospital patients.

102 INFORMING PATIENTS ATTENDING A MEMORY DISORDERS CLINIC OF THEIR DIAGNOSIS

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Introduction
There is a lack of consensus among health professionals as to whether and in what manner patients with dementia should be told their diagnosis. Although family members of sufferers acknowledge the benefits of knowing the diagnosis, they are fearful about the patient being informed (Maguire BMJ 1996; 313: 529-30). We assessed consecutive attendees to a memory disorders clinic for level of insight into their deficits, depressive symptoms, suicidal ideation and anxiety and instituted a structured method of informing the patient of their diagnosis. Patients were subsequently reassessed at home to ascertain the effects of being informed of their diagnosis.

Methodology
36 patients were assessed. 19 had dementia (of whom 11 had probable Alzheimer's Disease) (mean MMSE: 15.5; RANGE 7-23), 11 had cognitive impairment, 4 had memory problems possibly secondary to depression, 1 had age-associated memory impairment and 2 patients had no deficits. Insight was determined using two previously validated scales.

Results
All non-demented patients had full insight into their deficits. Only three patients with dementia had full insight. 11 demented patients were informed of their diagnosis but most had little comprehension of the consequences of the disease. 8 patients with dementia were not informed of their diagnosis at the expressed wish of their families. When subsequently assessed at home, there was no increase noted in depressive or anxiety symptoms in those patients told their diagnosis.

Conclusion
Most patients attending a memory disorders clinic with a diagnosis of dementia have impaired insight into their condition. In our study, the diagnosis was withheld from 8/19 of these patients at their relatives' request. There was no increase in depressive symptoms in patients given their diagnosis.

103 ASYMMETRIC CEREBRAL ATROPHY ON CT BRAIN SCAN IN PATIENTS ATTENDING A MEMORY DISORDERS CLINIC

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Introduction
Neuropsychological studies show that the left hemisphere is primarily responsible for language function and the right for visuospatial function. Regional blood flow studies examining asymmetry have supported this finding. We retrospectively reviewed CT brain scan reports of 170 consecutive patients attending a memory disorders clinic, specifically looking for asymmetric atrophy. We examined for differences in patient characteistics and neuropsychological tests between those with left and right sided atrophy and between those with asymmetric atrophy and those without.

Methodology
39 patients had asymmetric cerebral atrophy (19 left sided: 20 right sided). All the CT Scans had been reported by a single neuroradiologist. Patient characteristics examined included patient age and gender, duration of memory loss, years of education, symptoms at first presentation, behavioural symptoms and the Hachinski Ischaemia Scale. The neuropsychological tests peformed on each patient included the MMSE, tests of verbal and visual memory, language and central executive function, and cube analysis.

Results
Patients with asymmetric atrophy had a significantly lower Hachinski Score ($p < 0.05$) and a higher score in the visuospatial colour-sort test ($p = 0.02$) compared with those without. Patients with right sided asymmetric atrophy attended earlier ($p = 0.04$) and had a higher verbal learning score ($p = 0.02$). Patients with left sided atrophy were more likely to have expressive aphasia ($p < 0.05$) and depressive symptoms ($p < 0.04$) at presentation.

Conclusion
Patients with asymmetric left sided atrophy on CT Brain Scan are more likely to suffer from expressive language problems and, possibly as a result of this, depressive symptoms. We failed to show a loss of visuospatial function in those with right sided hemiatrophy.

104 ASSESSING TESTATMENTARY CAPACITY IN ALZHEIMER'S DISEASE

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Introduction
The assessment of testamentary capacity in Alzheimer's Disease is likely to become more common in the coming years due to the ageing population and probable increase in AD sufferers. Many authors suggest that the cognitive reasoning that underlies competency is closely related to frontal lobe dysfunction. The present study examines the ability of selected neuropsychological tests to assess testamentary capacity in AD.

Methods
17 AD patients (NINCDS-ADRDA, mean age 71 yrs) and 13 controls (mean age 72 yrs) were assessed using the Mini-Mental State Examination (MMSE), the Executive Interview (EXIT), Category and Letter Fluency. Each subject and a primary informant were also interviewed by a psychiatrist who assessed the testamentary capacity of the subjects. The optimum sensitivity and specificity were obtained using receiver operating curve characteristics. The association between each psychometric test and testamentary capacity was obtained using a series of analysis of covariance models, adjusted for the relevant demographic variables.

Results
Using a cut-off of 18/19 out of 30, the MMSE was 100% sensitive and 86% specific in assessment of testamentary capacity of this population. In comparison the EXIT was 78% sensitive and 85% specific. The letter fluency test obtained 78% sensitivity and 91% specificity. The MMSE ($F=36.0$, $p \leq 0.0001$) was the only psychometric test able to differentiate patients with and without testamentary capacity.

Conclusions
Whilst the cognitive tests were comparable in distinguishing patients and controls, the MMSE, a test measuring global cognitive impairment, was the best discriminator of competent and incompetent patients. Using these tests, there does not seem to be an close association between testamentary capacity and frontal (executive) dysfunction.

105 RECOGNISING DEPRESSION: DOCTORS' PRACTICE AND THE GDS

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Introduction
Although the prevalence of depression in geriatric inpatients is estimated to be approximately 20%, less than half of depressed patients are recognised in hospital. Routine screening using the Geriatric Depression Scale (GDS) is recommended by the British Geriatrics Society, but few departments implement this in practice. This study investigated doctors' identification of depression, and their attitudes to using the GDS.

Methods
Interviews with two rotations of doctors from one geriatric medicine department were conducted. Doctors were asked if they felt able to recognise depression, and what symptoms made them suspect depression. They were asked to read and comment on the 15-item GDS.

Results
Seven house officers, five SHOs, and 8 Specialist Registrars were interviewed. Two doctors said they seldom looked for depression; 4 felt unconfident, 7 felt they could recognise obvious cases, and seven felt they could identify most depression. One hundred and twenty-seven symptoms were mentioned, categorised as follows: observations of mood and behaviour (55), somatic symptoms (22), psychological symptoms (26), informants (14), and history (10). One hundred and nineteen comments were made on GDS items; five items in particular (1, 2, 3, 4, 8, 11) attracted negative comments. Only two doctors said they would use the GDS routinely; seven definitely would not use it. Although they would like an objective method of depression screening, 10 felt the GDS was too “depressing”; others said it was insensitive or unspecific, artificial, and too long. Most preferred to incorporate some GDS items naturally into their examination of the patient.

Conclusions
Doctors rely mainly on observations of patients' mood and behaviour to identify depression. A more clinically appropriate and less cumbersome method than the GDS may improve screening practice.

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106 WHAT DO OLDER PATIENTS EXPECT FROM HEALTH AND SOCIAL CARE?

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Introduction
A survey was conducted to identify the outcomes of community care for people aged 75 years and over considered most important for their quality of life; and to compare responses between recipients of care, and health and social work professionals.

Methods
Initial pilot interviews were conducted with 10 older people to identify the most common desired outcomes. These outcomes were then incorporated into a postal questionnaire in which we invited older people (n=165) as well as the health and social care professionals (n=157) to rank them in order of importance.

Results
Pilot interviews generated six desired outcomes: company, mobility, pain relief, personal hygiene, safety and social support. Response rates of 72% from older people (mean age=80 years) and 64% from health and social work professionals were achieved in the main survey. The survey showed that there were few differences between older people and health and social care staff regarding the ranking of the six identified outcomes. Company and mobility were the most highly ranked outcomes and personal hygiene the least.

Conclusion
Six areas of life - company, mobility, pain relief, personal hygiene, safety, and social support - are considered by people over 75 years and their professional carers to be both important to a good quality of life, and to be the key desired outcomes of health and social care in the community. Both groups tend to value mobility and company most highly. Any package of measures for use in such settings must at least provide an assessment of these six outcomes.

107 A RANDOMISED TRIAL OF PREVENTATIVE HOME VISITS FOR COMMUNITY DWELLING OLDER PEOPLE AT LOW RISK AND AT HIGH RISK

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Introduction
In-home preventive visits with multidimensional geriatric assessments can delay the onset of disability in older people.

Methodology
Stratified randomised trial. Participants were 791 over 75-year-old community-dwelling people in Bern, Switzerland. The participants' risk status was based on six base-line predictors of functional deterioration. The intervention consisted of annual multidimensional assessments and quarterly follow-up in-home home visits by three public health nurses, who, in collaboration with geriatricians, evaluated problems, gave recommendations, and provided health education. Each nurse was responsible for conducting the home visits in one zip code area.

Results
At three years, surviving people at low base-line risk in the intervention group were less dependent in instrumental ADL as compared to controls (odds ratio, 0.6, 95 percent confidence interval, 0.3-1.0, P=0.04). Among subjects at high base-line risk, there were no favourable intervention effects on ADLs and an unfavourable increase in nursing home admissions (P=0.02). Despite similar health status of subjects, nurse C identified fewer problems as compared to nurses A&B. Subgroup analysis revealed that among low-risk subjects visited by nurses A&B, the intervention had favourable effects on instrumental and basic ADL (P<0.01), reduced nursing home admissions (P=0.004), and resulted in net cost savings in the third year. Among low-risk subjects visited by nurse C, the intervention had no favourable effects.

Conclusions
These data suggest that this intervention can reduce disability among elderly people at low risk, but not in those at high risk for functional impairment, and effects are likely related to the home visitor's performance in conducting the visits.

108 CHANGES IN BRAIN ACTIVATION WITH DONEPEZIL IN ALZHEIMER'S DISEASE

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Introduction
Functional neuroimaging studies have shown reduced regional cerebral blood flow and metabolism, particularly in the temporal and parietal lobes, in Alzheimer's Disease (AD). Acetylcholinesterase inhibitors produce objective changes in cognition in AD but have failed to demonstrate consistent changes in cerebral blood flow or metabolism. The aim of this study was to use functional MRI (FMRI) to investigate the effect of donepezil on cortical activation in AD.

Methods
Eleven patients (mean age 75.3 years and mean MMSE 21.6) satisfying the NINCDS-ADRDA criteria for AD underwent cognitive assessment and FMRI scanning at baseline and after 12 weeks therapy with donepezil (10mg daily). FMRI scans consisted of a visual activation paradigm and a structural scan. Brain activation was mapped onto a structural template. Group maps were constructed and the differences between baseline and 12 weeks analysed.

Results
At baseline there was reduced primary visual cortical activation in the AD patients. Twelve weeks of donepezil treatment produced apparent increases in cortical activation in multiple areas of the brain, although interestingly these did not include the primary visual cortex. Areas with significant increases in activation ($p = 0.05$) were the frontal and parietal areas.

Conclusions
An age related reduction in visual cortical activation has previously been demonstrated (Ross et al; Neurology 1997;48:173-6). Our AD subjects showed much less visual cortical activation than we have previously seen in young volunteers and has previously been shown in AD (Mentis et al;Am J Psychiatry 1996;153:32-40). This is the first report of FMRI demonstrating a change in brain activation with donepezil.

109 SEX STEROIDS AND DISEASE PROGRESSION IN ALZHEIMER'S DISEASE

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Introduction
It has been known for over a decade that patients with Alzheimer's Disease (AD) have an abnormality of the hypothalmic-pituitary-adrenal (HPA) axis though attempts to link this to disease progression have been equivocal. We have shown that AD patients have higher levels of sex steroids (BGS Autumn 1998), and that sex steroids are associated with better verbal memory (BGS Spring 1999). We have now studied the association between endogenous steroids and disease progression in subjects with AD.

Methodology
Serum samples were taken from 40 community dwelling postmenopausal women with AD (DSM IV criteria) and analysed by radioimmunoassay for oestrone (E1), oestradiol (E2) and cortisol. None were taking steroids or oestrogen replacement. Subjects were assessed twice, a mean (s.d.) of 11.5 (2.5) months apart. Assessment was by the Mini Mental State Examination (MMSE), and the Clinical Dementia Rating (CDR) Scale. Interval change on each of the tests was compared to baseline serum hormones in three multivariate analyses adjusted for age, education, interval between tests, alcohol intake and use of a cholinesterase inhibitor.

Results
Higher oestradiol ($t=-3.44$, $p=0.0014$) and oestrone levels ($t=-2.21$, $p=0.034$) were associated with greater decline on MMSE score. Cortisol levels were not associated with decline on MMSE and no hormone was associated with decline on CDR scale.

Conclusion
Higher levels of endogenous sex steroids are associated with greater subsequent cognitive decline in women with AD. This lends support to the theory that sex steroid production is altered in AD. Future studies of the HPA axis should incorporate measures of sex steroids as well as glucocorticoids.

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THE ROLE OF LEPTIN IN ALZHEIMER'S DISEASE-ASSOCIATED WEIGHT LOSS

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Introduction
Weight loss is common in Alzheimer's Disease (AD) and is significantly correlated with both disease progression and overall mortality. Leptin, a 16kDa protein secreted by enlarged white adipocytes, has been implicated in the regulation of food intake and energy expenditure in both animals and humans. The hormone is believed to act via a feedback loop to suppress appetite and increase energy expenditure. This study was undertaken to determine whether leptin plays any role in AD-associated weight loss.

Methods
Serum was collected from 10 patients in each of the following groups:
1 AD, body mass index (BMI) >25;
2 AD, BMI <20;
3 Non-Alzheimer's (vascular) dementia (NAD), BMI >25; and
4 NAD, BMI <20.
A BMI <20 was taken to represent a weight-losing state, while a BMI >25 was taken to represent a weight-stable or weight-gaining state.

Results
Mean serum leptin levels were significantly lower in weight-losing patients, both AD and NAD than in non-weight losing controls (4584pg/ml vs 15026pg/ml, $p<0.001$). AD weight losing patients had a significantly lower mean serum concentration than weight-losing NAD controls (2474pg/ml vs 6054pg/ml, $p<0.05$). Univariate analysis revealed a strong correlation between BMI and serum leptin levels for the entire population ($r=0.78$), however for weight losing patients, both AD and NAD, the correlation was less significant ($r=0.43$ and 0.21).

Conclusions
Weight loss is a feature of AD. We have shown that the afferent limb of the leptin feedback loop is intact in these patients. In addition serum leptin levels are significantly lower among weight-losing AD patients compared to NAD controls perhaps suggesting more dynamic weight loss among these patients.

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ADVERSE DRUG REACTIONS IDENTIFIED FOR DONEPEZIL THROUGH SPONTANEOUS REPORTING

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Introduction
Donepezil is indicated for the symptomatic treatment of mild to moderately severe Alzheimer's dementia and was first marketed in the UK in 1997. The Yellow Card Scheme receives reports of suspected adverse drug reactions (ADRs) from doctors, dentists, coroners and pharmacists. All reports are entered onto a specialised database for analysis and interpretation.

Methods
UK Yellow Card Reports of suspected ADRs received since the market launch of donepezil were reviewed.

Results
There have been 268 case reports of 492 suspected ADRs received from the UK for donepezil. A number of reports were of suspected ADRs not recognised at the time of licensing. The following ADRs were reported most commonly:

Reaction	No. of UK reports received	Reaction	No. of UK reports received
Diarrhoea**	28	Confusion	12
Convulsions*	21	Rashes	12
Nausea**	17	Hallucinations*	11
Headache**	16	Dizziness**	10
Aggression*	15	Muscle cramps**	9
Nightmares	14	Dry mouth	9
Agitation*	13	Insomnia**	7
Vomiting**	12		

** identified in clinical trials, included in product information
* identified in post-marketing surveillance, now included in product information

Other important ADRs identified through the Scheme and other sources include gastric/duodenal ulcers, heart block, gastrointestinal haemorrhage and liver dysfunction. These have all been included in the product information. Reports of ADRs not included in product information have either been confounded by other factors or are being closely monitored.

Conclusions
The identification of new and suspected ADRs emphasises the important role of the Yellow Card Scheme in helping to ensure the safe use of medicines. Prescribers are encouraged to report all suspected ADRs to donepezil to assist with the continuing identification of previously unrecognised undesirable effects.

Hall of fame: Autumn Meeting

E. Woodford-Williams Prize

This prize (currently £200) was established in 1985 in memory of Professor E. Woodford-Williams, one of the founder members of the British Geriatrics Society, and was made possible by donations from members upon her death. It is presented each year for the best paper read at the Autumn Meeting by a member of the Society who is not a consultant.

1985	G. McElligott
1986	A. Rodgers
1987	*No Autumn Meeting*
1988	G. Yu
1989	P. Wiseman
1990	I. Philp
1991	M. D. Fotherby
1992	R. A. Shinton
1993	R. I. Lindley
1994	G. E. Mead
1995	J. Potter
1996	T. A. Gluck
1997	J. C. T. Close
1998	S. L. Dawson
1999	S. Dhoat

Norman Exton-Smith Prize

This prize (currently £200) was established in 1989 to honour Professor Norman Exton-Smith, past President of the Society, and is awarded each year for the best poster presented at the Autumn Meeting by a member of the Society who is not a consultant.

1989	S. C. M. Croxson
1990	K. A. McLean
1991	E. Mulkerrin
1992	R. Lindley
1993	S. McIntosh
1994	P. D. Wanklyn
1995	R. Prettyman
1996	E. Brierley
1997	S. Gupta
1998	J. P. Hobson
1999	S. L. Dawson

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