NHS Greater Glasgow and Clyde Strategy for Osteoporosis and Falls Prevention 2006-2010

AN EVALUATION
2007-2009

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Executive Summary

The remit of this report is to evaluate the current osteoporosis and falls service in relation to the NHS Greater Glasgow Strategy for Osteoporosis and Falls Prevention Strategy Document 2006 – 2010. The audits and anonymised data collected and reported on within this report were gathered through discussions with leads and service providers on all aspects of the service between Jan 2007-July 2009.

The main aim of the Strategy is to reduce the number of falls, which result in serious injury, and ensure effective treatment and rehabilitation for those who have fallen. Evaluation of the number of falls admissions and number of hip fractures sustained by older people in Greater Glasgow and Clyde (GGC) shows that the Strategy is effective and making a positive impact on the lives of people with a history of falls. In fact, a number of National Awards have been won based on effective delivery of services to patients with a history of falls in the NHSGGC area. The Community Falls Prevention Programme sees nearly 175 patients a month in their own home to assess risk factors and intervene on modifiable risk factors. This compares to an average of 20 patients a month seen in falls services in England. The Fracture Liaison service sees over 500 patients a month and the Falls Pharmacy services nearly 90 patients a month. This is a considerable reach to find and treat people with a history of falls but there is always scope for improvement, particularly in people living in residential settings. Comparison of the GGC service with the NICE 21 Falls Guidelines and the more recent Department of Health Prevention of Falls and Fractures Package is extremely favourable and the recommendations within each section of the report are suggested to ensure an equitable service throughout GGC and that all currently acknowledged evidence based interventions are in place.

Over a ten year period, 1998 to 2008, there has been a reduction in admissions due to falls in the home by 32%, falls in residential institutions by 27% and falls in the street or highway by nearly 40%. This trend is very positive and compares extremely favourably with only a 5% reduction in admissions due to falls over a similar period Scotland wide and a worrying growth in falls admissions of over 5% a year in England over the same period. Over the same ten year period, the number of admissions for hip fractures has decreased by 3.6%. This trend is also positive and compares with a growth of hip fracture admissions of nearly 2% in England.

Falls and fractures in Hospitals are a major cause of concern but within GGC over the period April 2008 and March 2009, there has been a decrease in falls in hospital across all directorates but particularly in the Rehabilitation and Assessment Directorate (30%). As this is the directorate with the most falls, this is a significant improvement. Perhaps more importantly, there has been a considerable decrease in in-patient fractures of 27%. This represents a considerable reduction in resources necessary following fractures in hospital.

Finally, the evaluation work contained in this report involves time and work by the authors and beyond the original costings of the evaluation. Therefore, this work has been supported by HealthQWest and the School of Health at Glasgow Caledonian University. HealthQWest receives funding from the SFC, SGHD, NES and CSO to support it’s translational and implementation research aimed at improving the health and wellbeing of the public and benefit people with long-term conditions. It is hoped that the considerable investment by HealthQWest and Glasgow Caledonian University will be recognised by the RAD and that future research funding bids to large funding bodies (such as the NIHR and CSO) by the team to support translational research into falls risks and interventions to reduce falls, will be supported by the RAD in terms of engaging with recruitment of participants and potential future secondment opportunities. It is important that regular audit and research feeds back into the system for patient benefit.
1.0 Introduction

In March 2007, Dr Dawn Skelton and Professor Phil Rowe from HealthQWest put in a bid to evaluate the Osteoporosis and Falls Prevention Strategy. Following discussions and clarifications, Fiona Neil (Formerly Team Leader and an OT within the Community Falls Prevention Programme) was seconded to work 0.5 FTE with Dr Skelton on the evaluation for one year starting in January 2008.

1.1 Remit:
To evaluate the current osteoporosis and falls service in relation to the NHS Greater Glasgow Strategy for Osteoporosis and Falls Prevention Strategy Document 2006 – 2010 (see App 1 / GG&C Strategy Falls and Bone).

1.2 Process:
1. In order to fully understand the current evaluations and internal audits performed by different subgroups of the service, Fiona Neil and Dawn Skelton visited representatives from all parts of the service named in the strategy and discussed previous/current audits, data collection and current assessments, outcomes, interventions, protocols and processes. Some of the data was updated in February and July 2009 to allow the most up to date data to be audited and presented within this report.

2. Any previously gathered audit or outcome information (for presentations at conferences etc) was collected as well as raw data where possible. To avoid ethics approval all data was blinded by the relevant service before being collected by HealthQWest and permission to seek data in this way was sought from the Caldicott Guardian for NHSGGC.

3. Some small audit projects and two Masters Projects (Glasgow Caledonian University students, with full NHS ethical approval) were undertaken during the life of this evaluation and this information is also presented.

1.3 Conflicts of Interest:
Fiona Neil was previously employed within the Community Falls Prevention Programme. Dr Dawn Skelton has previously been involved in the training of the Physiotherapists and Exercise instructors who lead the Falls Exercise Sessions within the Falls Prevention Service.

1.4 Acknowledgements:
The authors would like to thank all members of the services evaluated within this report and the Clinical Governance dept. Their help, willingness to share, clarification and time in anonymising data for this report proved invaluable. They would like to thank those at NHSGGC Information Services and Health and Safety Dept and also the ISD in Edinburgh who all provided population and incidence data to inform this report. Dr Jonathan Bayly, Derby University, provided the data to compare with admissions, bed days and fractures in England over 1998-2008. Finally, the authors would like to thank the Greater Glasgow and Clyde Health Board for funding the evaluation of the Osteoporosis and Falls Strategy.
2.0 Comparison of current strategy with the NICE guidelines 21: Clinical protocol for prevention of falls

The first UK operational guidance on falls prevention was provided by the National Clinical Excellence (NICE) 21 Guideline, a clinical practice guideline for the assessment and prevention of falls in older people, in 2004. This guidance is summarised below (see App 2 / NICE 21_2004 Summary). Throughout the evaluation, different aspects of the GG&C Strategy and current service for Osteoporosis and Falls was compared to the NICE guidance. Further information is found in relevant sections of the document and a summary is provided at the end of this section (2.3).

2.1 NICE Summary

**Case/risk identification**
- Older people in contact with healthcare professionals should be asked routinely whether they have fallen in the past year and asked about the frequency, context and characteristics of the fall.
- Older people reporting a fall or considered at risk of falling should be observed for balance and gait deficits and considered for their ability to benefit from interventions to improve strength and balance.

**Multifactorial falls risk assessment**
- Older people who present for medical attention because of a fall, or report recurrent falls in the past year, or demonstrate abnormalities of gait and/or balance should be offered a multifactorial falls risk assessment. This assessment should be performed by healthcare professionals with appropriate skills and experience, normally in the setting of a specialist falls service. This assessment should be part of an individualised, multifactorial intervention.
- Multifactorial assessment may include the following:
  - Identification of falls history
  - Assessment of gait, balance and mobility, and muscle weakness
  - Assessment of osteoporosis risk
  - Assessment of the older person’s perceived functional ability and fear relating to falling
  - Assessment of visual impairment
  - Assessment of cognitive impairment and neurological examination
  - Assessment of urinary incontinence
  - Assessment of home hazards
  - Cardiovascular examination and medication review.

**Multifactorial interventions**
- All older people with recurrent falls or assessed as being at increased risk of falling should be considered for an individualised multifactorial intervention.
- In successful multifactorial intervention programmes the following specific components are common (against a background of the general diagnosis and management of causes and recognised risk factors):
  - Strength and balance training
– Home hazard assessment and intervention
– Vision assessment and referral
– Medication review with modification/withdrawal.

• Following treatment for an injurious fall, older people should be offered a multidisciplinary assessment to identify and address future risk, and individualised intervention aimed at promoting independence and improving physical and psychological function.

The Grades of evidence on interventions were as follows:
- Strength and balance training - A
- Home Hazard Intervention and Follow up – A
- Medication Review / Withdrawal – B
- Cardiac Pacing - B

**Encouraging the participation of older people in falls prevention programmes including education and information giving**

• Individuals at risk of falling, and their carers, should be offered information orally and in writing about what measures they can take to prevent further falls.

• To promote participation of older people, falls prevention programmes should:
  - discuss changes a person is willing to make to prevent falls
  - information should be relevant and available in languages in addition to English
  - address potential barriers such as low self-efficacy and fear of falling

• Programmes should be flexible to accommodate different needs.

• Information on the following should be provided orally and in writing:
  - measures to prevent falls
  - motivation
  - preventable nature of some falls
  - physical/psychological benefits of modifying risk
  - further advice and assistance
  - how to cope with a fall

**Professional education**

• All healthcare professionals dealing with patients known to be at risk of falling should develop and maintain basic professional competence in falls assessment and prevention.

**The specialist services for falls and for osteoporosis should be operationally linked or dovetailed.**

The NICE guidance also gave information on Interventions that **cannot be recommended** because of insufficient / conflicting evidence.

• There is no evidence that **brisk walking** reduces the risk of falling. One trial showed that an unsupervised brisk walking programme increased the risk of falling in postmenopausal women with an upper limb fracture in the previous year. However, there may be other benefits of brisk walking by older people.

• **Low intensity exercise** combined with **incontinence programmes**. There is no evidence that low intensity exercise interventions combined with continence promotion programmes reduce the incidence of falls in older people in extended care settings.
• **Group exercise (untargeted).** Exercise in groups should not be discouraged as a means of health promotion, but there is little evidence that exercise interventions that were not individually prescribed for community-dwelling older people are effective in falls prevention.

• **Cognitive/behavioural interventions.** There is no evidence that cognitive/behavioural interventions alone reduce the incidence of falls in community-dwelling older people of unknown risk status. Such interventions included risk assessment with feedback and counselling and individual education discussions. There is no evidence that complex interventions in which group activities included education, a behaviour modification programme aimed at modifying risk, advice and exercise interventions are effective in falls prevention with community-dwelling older people.

• **Referral for correction of visual impairment.** There is no evidence that referral for correction of vision as a single intervention for community-dwelling older people is effective in reducing the number of people falling. However, vision assessment and referral has been a component of successful multi-factorial falls prevention programmes.

• **Vitamin D.** There is evidence that vitamin D deficiency and insufficiency are common among older people and that when present they impair muscle strength and possibly neuromuscular function via CNS-mediated pathways. In addition, the use of combined calcium and vitamin D3 supplementation has been found to reduce fracture rates in older people in residential/nursing homes and sheltered accommodation. Although there is emerging evidence that correction of vitamin D deficiency or insufficiency may reduce the propensity for falling, there is uncertainty about the relative contribution to fracture reduction via this mechanism (as opposed bone mass) and about the dose and route of administration required. No firm recommendation can therefore currently be made on its use for this indication. Guidance on the use of vitamin D for fracture prevention will be contained in the forthcoming NICE clinical practice guideline on osteoporosis, which is currently under development.

• **Hip protectors.** Reported trials that have used individual patient randomisation have provided no evidence for the effectiveness of hip protectors to prevent fractures when offered to older people living in extended care settings or in their own homes. Data from cluster randomised trials provide some evidence that hip protectors are effective in the prevention of hip fractures in older people living in extended care settings who are considered at high risk.

### 2.2 Summary of comparison of service/strategy against NICE

In brief, the GG&C Osteoporosis and Falls Strategy and Service meets most of the guidance given in the NICE 21 guidance. There are a few areas of excellence (as defined by meeting the guideline and using evidence based practice to inform that delivery), a few areas of good work that could be capitalised on and improved and one or two areas where there is little evidence of either Strategic input or service delivery. These are few and far between but it would be useful for the RAD to consider if there is a case to be made for further investment in these areas.

Each section within the report gives further detail but a summary is given in the table overleaf.
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<th>Getting there</th>
<th>Getting there</th>
<th>Getting there</th>
<th>Negative</th>
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<td><strong>Case/risk identification</strong></td>
<td>Large number of referrals into CFPP. Telephone Triage followed by home visit and onward referral. Linkages and communication with CHCPs, DART, IRIS &amp; COPT to support case risk identification. Risks identified in terms of bone health as well as falls</td>
<td>Needs work on reducing refusals and non-responses to invite letters from CFPP. Also on DNAs to Falls Clinic.</td>
<td>Need to engage GPs and A&amp;E Depts to identify high risk fallers (eg. those who have presented with a fall)</td>
<td>Small number of people referred from FLS/DADS into CFPP. Although leaflets distributed perhaps a direct referral (or list for CFPP)?</td>
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<td><strong>Multifactorial Falls Risk Assessment</strong></td>
<td>Excellent links with Fracture Liaison Service and Direct Access DEXA Scan and Pharmacy to ensure bone health is also considered</td>
<td>Urinary Incontinence, Fear of falling, anxiety and depression is minimal.</td>
<td>Roll out of DADS into Clyde. Work to reduce refusals &amp; DNAs to different parts of service</td>
<td>Consider DADS for all Falls Clinic attenders?</td>
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<td><strong>Multifactorial Interventions</strong></td>
<td>Evidence based exercise delivery continuum. Good OT input to CFPP interventions. Excellent links with Fracture Liaison Service, Pharmacy</td>
<td>Needs dedicated support time for CFPP (&amp; Falls Clinics) Clinical Psychology. Hospital based OTs to ensure more home visits before hospital discharge</td>
<td>Need equitable access to services across GBC&amp; (eg syncope clinic for potential cardiac pacing). Vision interventions appear minimal.</td>
<td>Needs more work with the CHCPs to ensure long-term support of home exercise programmes and primary prevention programmes</td>
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<td><strong>Patient Engagement</strong></td>
<td>Participation in National Falls Awareness Day each year with good patient turnout. Good leaflets in hospitals on falls risk and patient /carer information.</td>
<td>Falls Clinics / CFPP need to engage with patients who refuse/DNA to understand barriers. CFPP leaflets may need updating to link in with current evidence on motivators to take part in falls interventions</td>
<td>Evidence of patient satisfaction questionnaires in exercise programmes and pharmacy but needs to change questioning style so possible to tailor to suit feedback.</td>
<td>Lack of patient engagement in many parts of service (satisfaction questionnaires)</td>
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<td><strong>Professional Education</strong></td>
<td>Evidence based and Nationally Accredited training for exercise delivery</td>
<td>More regular CPD or update training necessary for OT home visitors (eg on anxiety/ depression awareness etc)</td>
<td>Suggest more training by FPCs to care home staff and hospital ward staff. Also leaflets for patients on reasons for progression of exercise.</td>
<td>Representatives working with QIS to ensure standardisation of training on falls risks and interventions for healthcare staff</td>
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2.3 Brief comparison of service/strategy against 2009 Department of Health ‘Prevention Package’ guidance on Services for Falls and Fractures

Since the initiation of this evaluation, England’s Department of Health has issued guidance to NHS boards and trusts on prevention of falls and fractures (DoH 2009). This guidance, including specific information on evidence based implementation of the NICE guidelines, provides another benchmark with which to compare the NHSGGC Strategy and service. Further details of the guidance can be found in App 2/DoH Effective Interventions Falls and Fractures_2009; App 2/DoH_Secondary falls prevention and fragility fracture pathway_2009 and App 2/DoH Exercise Training to Prevent Falls_2009.

The NHS GGC Exercise Interventions initiated by the CFPP are evidence based, are delivered by appropriately trained professionals and allow for an effective duration of exercise for positive outcomes. However, the availability of a home based supported programme of exercise for those who are unable or unwilling to join group exercise requires attention.

The other main objectives of the DoH prevention package and a brief comparison of the NHS GGC Strategy and Service are detailed overleaf. On the whole the NHSGGC Strategy and Service evaluates well against this guidance.
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<th>Recommendations to be considered by NHSGGC</th>
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<td><strong>Objective 1:</strong> Improving the experience of hip fracture surgery <em>(Pg 8 of DoH document)</em></td>
<td>Not within the scope of this Strategy or Evaluation.</td>
<td>- AHP staff on ortho-rehab wards offer 7 day therapy input.</td>
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<td>- IRIS/DART “work in partnership with an ortho-geriatrician.”</td>
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<td>- Commissioning of an “integrated ortho-geriatric service to specified quality standards”.</td>
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<td><strong>Objective 2:</strong> Respond to the first fracture and prevent the second <em>(Pg 11 of DoH document)</em></td>
<td>GCCNHS have an established Fracture Liaison Service <em>(FLS)</em> which identifies patients with new fragility fractures, those at risk of osteoporotic fractures and those who have fractured in the past. The FLS service is integrated with the local falls services and has a specialist osteoporosis physiotherapy exercise programme. The FLS also works collaboratively with community pharmacy services to monitor and maintain medication adherence.</td>
<td>- Develop a primary care-based fracture liaison programme to undertake proactive case finding of unassessed fragility fracture using primary care records to identify fracture risk and using professional consensus guidance such as FRAX. NB. This tool is currently under review within NHSGGC.</td>
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<td><strong>Objective 3:</strong> Early intervention to restore independence and reduce future injuries. <em>(Pg 14 of DoH document)</em></td>
<td>The NHSGGC has in place all the recommended interventions: <strong>a falls care pathway; a falls service; a falls coordinator; multi-factorial interventions; community-based therapeutic exercise.</strong> In addition, it meets the recommendation to have in place a means of evaluation to identify unmet needs and additional information.</td>
<td>- For clients who are unable or do not wish to attend group exercise sessions in community venues an exercise booklet is issued with no follow up. Recommend domiciliary exercise is delivered by trained exercise instructors from statutory and/or voluntary sectors.</td>
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<td>- People with a cognitive impairment may not be included in group-based exercise sessions. Physiotherapists use professional judgement as to whether client is able to participate meaningfully.</td>
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<td>- Involvement of voluntary sector is recommended to ensure quality and capacity.</td>
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<td><strong>Objective 4:</strong> Prevent frailty, promote bone health and reduce accidents. <em>(Pg 18 of DoH document)</em></td>
<td>NHSGGC provides a wide range of activities to improve postural stability and strength. This is the case for those in hospital and those living at home who have had a fall, but is not the case for Care Home residents <strong>Home environment assessment</strong> and modification is initiated for all clients entering the Community Falls Prevention Programme <em>(CFPP)</em>. This intervention is limited for those who are in patients and identified as at risk of further falls due to resources. <strong>Recommended interventions for Care Home residents</strong> are all in place with the Falls Coordinators providing staff training, education for residents and environmental assessments and the Pharmacy staff overseeing the prescription of bone strengthening supplements. Therapeutic exercise programmes are not yet provided. The role of <strong>ambulance services</strong> is currently being embedded in the care pathway via NHS24 which will link to the CFPP. <strong>Home Improvement Agencies</strong> are already embedded in the care pathway.</td>
<td>- Provision of community based exercise classes for those who are at risk but who have not yet fallen.</td>
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<td>- Provision of home based exercise with support for those not able/willing to engage in group based exercise provision</td>
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<td>- Establish Falls Coordinators for Care Homes in the Clyde area.</td>
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<td>- Strategy to promote improving strength and balance of care home residents. However, recent appointment of Rehabilitation consultant to Care Commission may assist this development.</td>
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<td>- More effective case-finding will require commissioners to consider additional therapy services to meet additional demand.</td>
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<td><strong>Key Outcomes</strong> <em>(Pg 21 DoH doc)</em></td>
<td>These have been considered and reported on in the Evaluation by HealthQWest.</td>
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3.0 Specific evaluation of components of Falls and Bone Health Strategy

3.1 Introduction

All page numbers given in brackets within this section relate to the original strategy document for ease of finding the information. The structures have changed slightly from the original strategy document to the current service. The service is ever evolving so this is a snapshot in time.

3.2 Organisation of Planning and Management Structures

3.2.1 Original Strategy Document Overview

The original strategy document discusses the need for a review of the planning and management structures in light of the GGNHS response to Partnership for Care (p3).

The subgroups of the Osteoporosis and Falls Prevention Service within the Strategy Document were:
- Care Homes Subgroup
- Home Falls Prevention Subgroup
- Hospital Subgroup
- Osteoporosis Subgroup
- Physical Activity Subgroup

3.2.2 Current Planning and Management Structures
Planning Structure:

Rehabilitation and Assessment Directorate

Osteoporosis and Falls Steering Group

- Community Falls
- Osteoporosis
- Physical Activity
- Falls and GORU

NB. Falls and GORU sub-group covers Falls Clinics, fall and bone health and rehabilitation following orthopaedic admission.

There have been changes in the management structure since the Strategy was implemented. The main change is the “loss” of the Care Homes Sub-Group of the Osteoporosis and Falls Steering Group. Throughout the lifetime of this evaluation we were aware that many individuals and groups had prepared audits and reports that had been submitted to the Steering Groups. We believe we were able to obtain most of these but other sites and individuals were often not aware that these had been performed. It would be extremely beneficial if information or a brief summary of audits and reports were made available to all those working with fallers in GG&C. This evaluation has gathered much information together and will be available to view on a CD – however, future work must inform others. It is suggested that communication down to practitioners from the Steering Group is vital and perhaps an online repository (through GG&C website, or through ProFaNE) could be set up to allow this information to be disseminated more usefully.

3.2.3 Proposal to de-centralise services to CHCPs

In mid 2008, work on redesign of Rehabilitation and Enablement services considered the Community Falls Prevention Programme as part of a range of community services currently managed within the Acute setting. Since the services formed a small component of this work and the final evaluation document had not been completed, it was decided to review this position again when the new service models had been developed and implemented and the recommendations of this evaluation had been considered.

The conclusions and recommendations paragraphs of each section of this report contain information where the service meets (or not) the guidelines/standards of the NICE 2004 or American Geriatric Society/British Geriatric Society 2001/2008 (see App 3 / Ref_ABS_BGS_2008_DRAFT).

Both guidelines and the more recent Department of Health ‘Prevention Package’ (see App 2 / Ref_DoH_Effective Interventions Falls and Fractures_2009) suggest that although opportunistic
screening is important, a dedicated falls service (covering all assessments and interventions) is likely to be the most effective. The Glasgow Falls Service sees more patients per month than any other service in the UK, is based on evidence for best practice - particularly in the tiered exercise service, comprehensive triage and home visits within 5 days. - the SDO report (see App 3 / Ref_SDO-Report_Lamb_2006) on falls services in England, Wales and Northern Ireland did not have another service to compare to Glasgow's. In fact, this report recommends that falls services do not “refer onward to other services” but to be most effective, the individual has all assessments and interventions delivered concurrently. There is much evidence to show that patient burden (in terms of number of visits and referrals made) is a real issue and leads to greater refusal rates. The decentralisation of the service could potentially lead to greater patient burden (repeats of the same assessments by different parts of the service delivery) and also the need for extra education and updating of staff coming into contact with fallers will lead to an increased burden on scarce resources.

There are many things the localities (CHCPs) can do to support the strategy - like case finding, primary falls prevention, working more with those discharged from the service (or ineligible) or indeed, working with those not willing to attend exercise classes and preferring home-based exercise. The need to increase case identification of those with visual impairment, sensory abnormalities and urinary symptoms, and the potential interventions to reduce risk are other ways that the CHCPs may increase the effectiveness of the current “one stop shop” service.

One example of the liaison with the CHCPs and CFPP, is the addition of falls risk factor questions to the single shared assessment process in East Renfrewshire CHCP. Extensive mapping and implementation phases are included up to July 2010. Further information about this initiative can be found in a presentation by J Wight in App 3 /E Renfrewshire single shared assessment and falls.
3.3 Key targets and Indicators of Effectiveness of Strategy

In developing the strategy (p3) the Department of Health’s National Service Framework for Older People (DoH NSF OP) 2001 Standard 6: Falls was a core document (see App 3 / DoH NSFOP 2001). The key target for reducing the number of falls which result in serious injury and ensure effective treatment and rehabilitation for those who have fallen has been in place within GGC for some time, even though the Strategy has only been in place for three years.

The three ‘means’ of achieving this target within the Strategy are in place, i.e.:
- prevention (including the prevention and treatment of osteoporosis)
- improving the diagnosis, care and treatment of those who have fallen
- rehabilitation and long term support

However, the degree to which they have been implemented varies. In particular the long term support of fallers is not in place due to financial constraints on both healthcare and leisure service budgets. However, there is the opportunity for the faller who leaves the service to attend community leisure service classes should they have the ability (e.g. transport, health) and interest. There is no ‘tie-up’ of information on “discharge” from the service, no way of knowing if the referrals to interventions delivered outwith the CFPP are completed/effective and no ‘follow-up’ at a future time point to ascertain if the person is still having falls. The GG&C Strategy has focussed mainly on prevention of falls and fractures and rehabilitation of the faller. The evidence behind services for the rehabilitation of fallers is more robust but there is still little consensus on what “long term support” exactly is.

The very recent update of the Cochrane Review (see App 3 / Cochrane Review Falls Prevention_2009) on Prevention of Falls in Community Dwelling Older People also supports the rehabilitation of a faller through exercise and onward referral to address other known risk factors for falls and fractures. To support the Cochrane Review, a systematic review of exercise to reduce falls (see App 3 / Sherrington_Ex_Review_2008) suggests three key components of the rehabilitation of a faller;
- a dose of at least 50 hours of exercise
- exercise should be highly challenging in terms of balance
- there should not be a walking programme recommended unless the above two factors have been considered.

The exercise component of the falls service (see Section 5) does meet these guidelines.

The different aspects of the original DoH NSF OP (2001) main targets are highlighted below with the relevant sections where information is available within the report.

3.3.1 Prevention (including the prevention and treatment of osteoporosis)

Indicators which might show this might include:
- number of people through the falls service as a whole (see Section 5)
- number of people through the Fracture Liaison Service and other bone health services
- links between falls and fracture services (see Section 10)
- Any groups not getting targeted? (see Section 6 and 11)
- Equity (see Sections 4, 5, 6, 7, 10 and 11)
3.3.2 Improving the diagnosis, care and treatment of those who have fallen

Indicators which might show this might include:
- a comparison with what was in place before the strategy for people with a history of falls and rates of diagnosis and treatment for osteoporosis (see all Sections)
- What about psychological effects? (see Section 11)
- Any groups not getting targeted? (see Section 6 and 11)
- Equity (see Sections 5, 6, 7, 10 and 11)

3.3.3 Rehabilitation and long term support

Indicators which might show this might include:
- time people stay in contact with the service (see Sections 5 and 10)
- number of readmissions (to the service or to hospital) by use of hospital episodes data and service information (unable to ascertain as codes and areas have changed over the period 2005-present however Section 4 covers some aspects of this)
- number of people entering residential care (information not obtainable however some information is available in Section 5)
- Any groups not getting adequate rehab or long term support? (see Sections 5, 6 and 11)
- Equity (see Sections 5, 6, 7, 10 and 11).
4.0 Population

**What the Strategy Says:**
The strategy has been developed in the context of a strong evidence base of over 60 randomised controlled trials of interventions to prevent falling. The evidence shows that risk assessment and multifactorial intervention programmes can achieve a substantial (15-30\%) reduction in the incidence of falls among older people. Effective interventions are relatively simple and much can be achieved by redesign and coordination of existing services. Fracture risk can be reduced by targeting effective, evidence based drug treatments to patients with osteoporosis.

The scale of the problem of falls and fractures in Glasgow was well illustrated in the original strategy (p4) for the year ending 31 March 2003 (see App 1 / GG&C Strategy Falls and Bone). In the year ending 31 March 2003, 2463 people aged 65 and over were admitted in Greater Glasgow as an emergency following falls and 83 died as a result of falls. In the year ending 31 Dec 2008, in the same area, 2598 people aged 65 and over were admitted as an emergency following falls and 88 died as a result of falls. At first glance, it may appear that the Strategy and changes in service delivery have not reduced the considerable burden of falls in older people. However, over this time period, there has been considerable emphasis on identifying fallers, coding falls at admission and this will mean that there is more accurate reporting/coding now than there was in 2003. This section illustrates the scale of the problem in more recent years and shows that the Strategy has been successful in many areas and indeed the trends in falls admissions and hip fractures in Greater Glasgow and Clyde is bucking the general trend pan Scotland and England for an increase year on year.

There is discussion in the strategy of work to develop valid and workable indicators of the performance of the falls prevention strategy. Comparison of hospital admission data (fractures due to falls and other hospital admissions due to falls) year on year is one way of doing this, as long as coding is consistent enough between sites and year on year. Process and outcome data from the CFFP been collected for some time and has been evaluated and the uptake of other parts of the service has been assessed and reported later in the report. Suggestions as to the core process and outcome data sets for the future will be recommended after discussion of the results with the steering committee.

A key development that has been implemented as a result of this evaluation process and collaboration with key staff is the introduction of a trigger question into the Electronic data Information System (EDIS) which asks whether reason for presentation at A&E at the Southern General is due to a fall. A list of patients is generated and the CFPP use this list to contact patients and invite them to have an assessment (home visit). This allows proper linkage between data sets recorded by the Hospital and sent to ISD and the information actually reaching the attention of the services to allow effective intervention.

4.1 Admissions due to falls

Data were obtained from ISD on the number of hospital admissions due to falls (ISD codes W00; W01; W04-08; W010; W018-19) between 1998 and 2008 (see App 4 / ISD Admissions due to falls 1998-2008_ Place). Further information on the methods they used to obtain the data can be found in Appendix documents.
In 2008, in total there were 4,240 emergency admissions in Greater Glasgow and Clyde as a result of a fall. This is up from 2006 where there were 3,850 admissions due to a fall. The equivalent number in Greater Glasgow was 2,598 emergency admissions in 2006 and 2,883 in 2008 (see App 4 / ISD Admissions due to Falls _Place). This rise in emergency admissions as a result of falls is heavily influenced by the raised awareness of the issue of falls within A & E and the increase in reporting the incident fall as the cause of admission rather than the “outcome” of the fall (fracture etc.) as well as a rise in the population of over 65s in Glasgow and Clyde.

4.1.1 All fall admissions by age (2008)

Figure 1 shows that patients admitted to hospital following a fall tend to be very young or aged 65+ (see App 4 / ISD Admissions due to Falls _Age). In fact, those aged 65+ account for 57% of admissions for Greater Glasgow & Clyde and 55% in Greater Glasgow (this age group makes up 16% of the population in Greater Glasgow and Clyde and 15% of the population of Glasgow) (see Figure 2). At age 75+ this is 43% for Greater Glasgow & Clyde and 42% for Greater Glasgow (this age group makes up 7% of both the population of Greater Glasgow & Clyde and Greater Glasgow). At 80+ this is 31% for Greater Glasgow & Clyde and 30% for Greater Glasgow (this age group makes up 4% of the population of both Greater Glasgow & Clyde and Greater Glasgow) and at 85+, 17% for Greater Glasgow & Clyde and Greater Glasgow (this age group makes up 2% of both the population of Greater Glasgow & Clyde and Greater Glasgow).

Figure 1: Emergency admissions due to falls in the home by age group, in 2008 (----- Greater Glasgow and Clyde and ---- Greater Glasgow)
4.1.2 Fall admissions (65+) by place of fall (2008)

Approximately 65% of all emergency admissions due to falls were falls that occurred in the people’s own homes (see Figure 3). Selecting only those with a fall in a known place of occurrence, in Greater Glasgow and Clyde in 2008, out of a total of 1,631, 64.8% (1,057) were at home, 13.8% (225) were in a residential institution and 12.2% (199) were in the street or highway. The percentages for all other places were in single figures. In Greater Glasgow the equivalent figures were, out of a total of 1,114, 66.3% (739) were at home, 12.5% (139) were in a residential institution and 12.6% (140) were in the street or highway. This highlights the need to educate and work on risk factors that will decrease risk of falls in a person’s own “safe” home environment.

Figure 3: Percentage of emergency admissions by place of fall in those aged 65+ in 2008.
4.1.3 Falls admissions (65+) by number of medical conditions and previous falls (2008)

Most persons admitted to hospital as the result of a fall in 2008 have had between 2 and 6 medical conditions recorded from their admission in 2008 or from previous admissions (regardless of the reason for admission) stretching back to 1981. The number of patients increases with the number of conditions up to 5 or 6 and then gradually declines as the number of conditions increase. (see App 4 / ISD Admissions due to Falls_MultipleFalls_Conditions and Figure 4).

Of the 2,334 persons admitted in Greater Glasgow during as a result of a fall, 304 (13.0%) had been admitted for at least one fall within the previous year. Selecting those whose fall occurred in a known place 84.2% (64) of falls in the home in Scotland had occurred in the home on the previous occasion. In Greater Glasgow & Clyde of the 3,473 admitted during 2006 as a result of a fall, 483 (13.9%) had been admitted for at least one fall within the previous year. Selecting those whose fall occurred in a known place 81.4% (96) of falls in the home in Scotland had occurred in the home on the previous occasion (see App 4 / ISD Admissions due to Falls_Previous Falls).

Figure 4: Number of admissions due to falls in relation the number of medical conditions diagnosed in those aged 65+ in 2008.

4.1.4 Falls admissions (in the home, 65+) injuries and bed days (2008)

In 2008, the largest proportion of falls in the home, ending in an emergency admission, resulted in injuries to the hip and thigh (GG&C- 35.6%, 376 admissions) – see Table 1. The second largest group are those admitted due to injuries to the head (GG&C- 16.8%, 178 admissions)(see App 4 / ISD Admissions due to Falls_Injuries).
Table 1: Emergency admissions and bed days occupied from falls

<table>
<thead>
<tr>
<th></th>
<th>Injuries to Hip and Thigh</th>
<th></th>
<th>Injuries to the Head</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Emergency Admissions for falls (number)</td>
<td>% total adm. for falls</td>
<td>Bed Days (average number)</td>
<td>% total bed days for falls admissions</td>
</tr>
<tr>
<td>Greater Glasgow and Clyde</td>
<td>376</td>
<td>35.6%</td>
<td>33.5</td>
<td>51.1%</td>
</tr>
<tr>
<td>Greater Glasgow</td>
<td>271</td>
<td>36.7 %</td>
<td>32.8</td>
<td>52.6%</td>
</tr>
</tbody>
</table>

Injuries to the hip and thigh account for over half of total bed days occupied following admissions due to falls (see App 4 / ISD Admissions due to Falls_BedDays_Diagnosis).

4.1.5 Falls admissions (in the home, 65+) and deaths by deprivation (2008)

For both Greater Glasgow & Clyde and Greater Glasgow the data shows little relationship between the number of persons being admitted as an emergency after a fall in the home and deprivation (see Fig 5 and App 4 / ISD Admissions due to Falls_SIMD). Although there may be a trend in males that the least deprived are less likely to die as a result of their fall, numbers are small in different categories and coding remains unreliable (see Fig 6 and App 4 / ISD Admissions due to Falls_Deaths_Deprivation). The data on SIMD is only available up to 2006 for this report.

Figure 5: Number of admissions due to falls in relation to deprivation in those aged 65+ (2006)
4.2 Trends in falls injuries 1998-2008

There has been little fluctuation in the population of those aged 65+ in the Greater Glasgow and Clyde area. Since 2001 there has in fact been a small decrease (1.8%) in total numbers of over 65s. Therefore data has not been adjusted to population size as we would be looking for a greater reduction in admissions than this 2% to show effectiveness of the service.

4.2.1 Falls admissions 65+ (1998-2008)

The total number of admissions due to falls in Greater Glasgow and Clyde decreased from 3939 in 1998 to 3850 in 2006. This equates to a 2.3% reduction in admissions over the 8 year period. There was, however, then a rise in admission in the next two years, so by 2008, there were 4240 admissions, an increase in admissions due to falls (7.6%) compared to 1998. This could be an increase in awareness to record the admission as a result of a fall, or it could reflect more falls. To explore this in greater depth, the place of fall that precipitated the admission was considered. The falls services concentrate on reducing risk of falls at home and whilst out in the street, so these areas have been considered (Table 2). The more recent introduction of falls-co-ordinators concentrates on reducing falls in residential settings, so these were also considered (Table 2).

| Table 2: Emergency Admissions due to falls over a ten year period (1998-2008) in GGC |
|---------------------------------|-------|-------|-----------------|
| Total admissions due to falls in 65+ | 1998  | 2008  | % change over 10 yrs |
| Admissions due to falls at home    | 1566  | 1057  | -32.5%            |
| Admissions due to falls in residential institutions | 309  | 205  | -27.2%            |
| Admissions due to falls in the street/highway | 330  | 199  | -39.7%            |
| Unspecified or unknown place      | 1561  | 2074  | +32.9%            |
4.2.2 Falls admissions (in the home, 65+) (1998-2008)

Over the ten year period, in GG&C, the number of admissions due to falls at home decreased by 32.5% (Table 3, Figure 7), due to falls in the street by nearly 40% and within institutional settings, by 27%. The decline in admissions has been continuous over the 10 year period and there is not an obvious greater effect post strategy (2006 onwards), however work on reducing falls has been in place before the strategy was published. These figures are masked by the increase in admissions coded as falls in an unknown place or unspecified place. There needs to be a concerted effort to code the place of fall as this will help the falls service concentrate its efforts on the areas most needed.

These data must be interpreted with care as they do not reflect any change in population over this period. Population data for the 65+ age group were obtained for 2005, 2006 and 2007. Over this period there was a reduction in over 65+ age group population of only 1.5% for Greater Glasgow and 0.75% for Greater Glasgow and Clyde, suggesting that there is a real trend for reduction in emergency admissions over the more recent time period.

A comparison with Scotland-wide figures suggest that GG&C’s strategy is having a real impact, showing a decrease in falls admissions that are far greater than other areas in Scotland (Figure 8) and England (Figure 9, see Appendix 4_Bayly_HES data ENGLAND_98-08).

Table 3: Bed days, emergency admissions and mean stay due to falls in the home in the 65+ age group 1998-2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Greater Glasgow Bed Days</th>
<th>Greater Glasgow Bed Days Number of admissions</th>
<th>Greater Glasgow Bed Days Mean Stay</th>
<th>Greater Glasgow &amp; Clyde Bed Days</th>
<th>Greater Glasgow &amp; Clyde Bed Days Number of admissions</th>
<th>Greater Glasgow &amp; Clyde Bed Days Mean Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>34248</td>
<td>1173</td>
<td>29.2</td>
<td>48261</td>
<td>1567</td>
<td>30.8</td>
</tr>
<tr>
<td>1999</td>
<td>28695</td>
<td>1035</td>
<td>27.7</td>
<td>39711</td>
<td>1398</td>
<td>28.4</td>
</tr>
<tr>
<td>2000</td>
<td>25041</td>
<td>953</td>
<td>26.3</td>
<td>37044</td>
<td>1330</td>
<td>27.9</td>
</tr>
<tr>
<td>2001</td>
<td>21548</td>
<td>851</td>
<td>25.3</td>
<td>32038</td>
<td>1185</td>
<td>27.0</td>
</tr>
<tr>
<td>2002</td>
<td>25935</td>
<td>891</td>
<td>29.1</td>
<td>37709</td>
<td>1310</td>
<td>28.8</td>
</tr>
<tr>
<td>2003</td>
<td>18913</td>
<td>688</td>
<td>27.5</td>
<td>30856</td>
<td>1113</td>
<td>27.7</td>
</tr>
<tr>
<td>2004</td>
<td>23456</td>
<td>787</td>
<td>29.8</td>
<td>35478</td>
<td>1256</td>
<td>28.2</td>
</tr>
<tr>
<td>2005</td>
<td>24691</td>
<td>809</td>
<td>30.5</td>
<td>35293</td>
<td>1183</td>
<td>29.8</td>
</tr>
<tr>
<td>2006</td>
<td>21577</td>
<td>797</td>
<td>27.1</td>
<td>32090</td>
<td>1125</td>
<td>28.5</td>
</tr>
<tr>
<td>2007</td>
<td>20015</td>
<td>663</td>
<td>30.2</td>
<td>30063</td>
<td>1042</td>
<td>28.9</td>
</tr>
<tr>
<td>2008</td>
<td>16909</td>
<td>740</td>
<td>22.9</td>
<td>24624</td>
<td>1059</td>
<td>23.3</td>
</tr>
</tbody>
</table>

% Change 1998 to 2008
-50.6% -36.9% -21.7% -49.0% -32.4% -24.5%

% Change 2005 to 2008
-31.5% -8.5% -25.1% -30.2% -10.5% -22.1%
Figure 7: Number of emergency admissions due to falls in the home (--- Greater Glasgow and Clyde and ---- Greater Glasgow) (1998-2008)

Figure 8: Number of emergency admissions due to falls in the home (--- Scotland and ---- Greater Glasgow and Clyde) (1998-2006)
4.2.3 **Bed days due to falls admissions (in the home, 65+) (1998-2008)**

Between 1998 and 2008 the number of **bed days due to falls** in Greater Glasgow fell by **half** from 34,248 to 16,909. The equivalent figures for Greater Glasgow & Clyde were 48,261 bed days in 1998 to 24,624 in 2008 (see Table 3, Figure 10) (see App 4 / ISD Admissions due to Falls_Bed days).

**Figure 10: Bed days due to admission for falls in the home in the 65+ age group (--- Greater Glasgow and Clyde and ---- Greater Glasgow) (1998-2008)**
A comparison with Scotland-wide figures suggest that GG&C’s strategy is having a real impact, showing a decrease in falls admissions that are far greater than other areas in England (Figure 11, Appendix 4_Bayly_HES data ENGLAND_98-08).

**Figure 11: Number of bed days due to admission for falls in the home (England) (1999-2007)**

*With thanks to Dr Jonathan Bayly for these figures/graphs*

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4.2.4 **Mean Stay due to falls admissions (in the home, 65+) (1998-2008)**

Between 1998 and 2008 the mean stay due to falls in Greater Glasgow fell by 24% from 29.2 to 22.9 bed days. The equivalent figures for Greater Glasgow & Clyde were 22%, 30.8 bed days in 1998 to 23.3 days in 2008 (see Table 3, Figure 12) (see App 4 / ISD Admissions due to Falls_Bed days).

**Figure 12: Mean Bed days due to admission for falls in the home in the 65+ age group (----- Greater Glasgow and Clyde and ---- Greater Glasgow) (1998-2008)**
4.2.5 **Hip fractures (65+) (1998-2008)**

Between 1998 and 2008 the number of *hip fractures* (as assessed by ISD codes S.72-S.72.2) in Greater Glasgow decreased by **7.3%** from 1377 to 1276 fractures. The equivalent figures for Greater Glasgow & Clyde were **3.6%**, 2026 fractures in 1998 to 1953 fractures in 2008 (Figure 13) (see App 4 / ISD_Hip fractures GGC 98-08).

**Figure 13: Hip fractures in the 65+ age group (--- Greater Glasgow and Clyde and ---- Greater Glasgow) (1998-2008)**

Again, this trend compares favourably with the growth in number of hip fractures year on year in England (Figure 14, Appendix 4_Bayly_HES data ENGLAND_98-08).

**Figure 14: Hip fractures in the 65+ age group (England) (1998-2008)**

*With thanks to Dr Jonathan Bayly for these figures/graphs*
4.3 Deaths due to falls

Data were obtained from ISD on the number of deaths due to a falls (see App 4 / ISD Death due to fall 02-08). They sourced data from the GRO death records and considered all deaths identified through the ISD codes W00 to W19 in the Greater Glasgow and separately the Greater Glasgow and Clyde areas. This was requested as the roll out of the GG&C Strategy into Clyde has only just been completed. Figure 15 below shows that the number of deaths due to falls has not reduced significantly over the last 6 years. However, this data does not take into consideration the population during this time period as the data are not standardised for size of population. ISD sourced population data from the General Registrars Office to gain population data for the Greater Glasgow and Clyde regions (see App 4 /ISD_ NHS GG&C catch pop & CHP SAPE 2005, 2006 and 2007) and although these regions do not tie in exactly with the health board areas they give an indication of the change in population of older people in these areas. Fig 16 shows the number of deaths due to falls as a percentage of population in those areas. This shows the same trend, there has not been a reduction in fall deaths over the lifetime of this strategy.

Figure 15: Deaths due to falls (both genders) in Greater Glasgow and Greater Glasgow and Clyde Health Boards.

Figure 16: Deaths due to falls (both genders) in Greater Glasgow and Greater Glasgow and Clyde Health Boards as a percentage of the population.
5.0 Preventing Falls in Individuals at Home.

5.1 Community Falls Prevention Programme - CFPP

<table>
<thead>
<tr>
<th>What the strategy says:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Falls Prevention Programme- CFPP, (formerly known as HFPP - Home Falls Prevention Programme) will develop, in agreement with other service providers, a clear and simple referral pathway for patients who have fallen.</td>
</tr>
<tr>
<td>The service will be rolled out across NHS Greater Glasgow and Clyde using the developed model of the CFPP (Piloted in the North East of Glasgow). This involves administering of the agreed Falls Risk Assessment Screening Tool by a highly skilled Occupational Therapy support worker (Grade 1 Technical Instructor) in the clients home, followed by referral on to a wide range of existing services for individualised assessment and multifactorial interventions e.g. Pharmacy review, a focused medical assessment, physiotherapy, occupational therapy, bone density scans etc.</td>
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<table>
<thead>
<tr>
<th>Current service:</th>
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<tr>
<td>Following core funding in 2004 and a phased roll-out, the CFPP service is now available across the whole of the NHS Greater Glasgow and Clyde area (NHSGGC). The roll out was staged by hospital catchment areas moving anticlockwise geographically from the initial pilot area of Stobhill Hospital in the North East of Glasgow: Stobhill 2001; Western Oct 2005; Southern March 2006; Victoria June 2006; Royal May 2007 and then incorporating NHS Clyde: Royal Alexandria Hospital, Inverclyde Royal Hospital and the Vale of Leven in June 2008. In 2008 the CFPP won an award for clinical effectiveness from Quality Improvement Scotland. A general introduction to the Community Falls Prevention Programme in Glasgow, presented by Dr Lynsey Simpson to NHS Quality Improvement Scotland in 2007 gives a general overview of the services available to a faller (see App 5_CFPP PPT Presentation to QIS_2007).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>The main aims of the service are to:</th>
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<tbody>
<tr>
<td>Identify risk factors for falling</td>
</tr>
<tr>
<td>Intervene on any modifiable risk factors</td>
</tr>
<tr>
<td>Link in with specialist services on any risk factors not dealt with “in-house”</td>
</tr>
<tr>
<td>Improve independence, confidence and quality of life in those referred</td>
</tr>
<tr>
<td>Raise awareness of falls, their consequences and their prevention</td>
</tr>
<tr>
<td>Provide advice and support for patients, families and carers (see App 5/CFPP service leaflet)</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Currently the service has the following staffing:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls Lead for Acute and Community</td>
</tr>
<tr>
<td>2 X Snr 1 O.T.</td>
</tr>
<tr>
<td>1 X Snr 2 O.T. (rotation with Acute services)</td>
</tr>
<tr>
<td>3 X Snr 1 P.T. (1 X Specialist in Osteoporosis)</td>
</tr>
<tr>
<td>3 X Snr 2 P.T. (1 X rotation with Acute services)</td>
</tr>
<tr>
<td>5 X Tech 10.T. Support workers</td>
</tr>
<tr>
<td>5 X Tech 3 P.T. Support workers</td>
</tr>
<tr>
<td>3 X Admin staff</td>
</tr>
</tbody>
</table>
The CFPP has worked collaboratively with the existing older people’s assessment and rehabilitation services to produce a referral pathway for community dwelling older people (aged 65 and older), living in the NHSGGC area who have had a fall (see App 5/CFPP Flowchart of Pathway):

- The older person, who has had a fall in the last year and who is already being seen by either the hospital discharge teams (IRIS/DART) or the Community Older Peoples (rehabilitation) Teams (COPTs), or equivalent teams, remains with those services.
  - The older person should receive an equivalent CFPP modelled Falls Screening and Data Collection tool allowing them equal access to the same range of multifactorial interventions across the NHSGGC area (see App 5/ DART-IRIS Falls Risk Checklist and DART-IRIS ICR).

- Each of these services has a distinct set of inclusion criteria; response times and different target populations (see App 5/Service Specs Rehab Teams) For DART and IRIS services ,on average, 67% of their caseload (per month) is concerned with people who have fallen.

- Anyone not in receipt of the above services is seen directly by the CFPP.

Reasons for people not being eligible for the CFPP include:

- Anyone living in residential or nursing care or currently in Hospital
- Anyone under the age of 65 (would be referred onto other services)
- Anyone receiving care from IRIS/DART or COPT teams or equivalent services

The CFPP takes referrals from a wide variety of sources (GP, A & E and Hospital Wards (upon discharge), Therapists, Fracture Clinics, Nursing and Health Visitors and other rehabilitation teams). The CFPP is one of the few services that accept referral direct from client, their family/carer or other “non-professionals” (averaged 15 % of all referrals in 2007). Upon referral, a telephone call to triage the client is undertaken directly by the CFPP and if appropriate a home visit is arranged, within 5 working days.

The Falls Risk Screening and Data Collection Tool (See App 5 /CFPP Falls Screening and Collection Tool) has been continually reviewed with a final version being agreed early 2008 allowing for the implementation of the new web based database, developed in conjunction with the IT department. A summary of the main risk categories screened for are listed on page 2 of the CFPP Pathway document (App 5 /CFPP Flowchart of Pathway). This Tool is used at the home visit and all information recorded.

The Falls Risk Screening and Data Collection Tool is intricately linked to a “Trigger List” which guides the OT support worker as to which services the client should be offered referral on to. (See App 5 /CFPP Trigger List) This process has now been programmed into the new database, which can produce an electronic version of the individualised Clients Action Plan in response to the information entered by the support worker during the client/carer interview. This Action Plan is then further discussed and signed consent sought from the client/carer. A full range of services which the client may be referred on to is also described on page 3 of the CFPP Pathway document (App 5 /CFPP Flowchart of Pathway).
There are two of these services which remain “in-house” and are resourced by the CFPP i.e. community based Physiotherapy (PT) and Occupational Therapy (OT) services. There are two main operational tasks for these services:

1) To provide assessment and recommendation reports to inform the multidisciplinary team meeting following the client’s medical assessment at outpatient Fall Clinics: This is discussed in more detail in section 5.3 under AHP resource for clinics.

2) Where a client is not attending for an outpatient medical review, is not housebound but requires either OT or PT intervention, then this is also delivered by the CFPP services.

The PT service (CFPP) is linked with assessment for, and delivery of, a strength and balance training exercise programme in the community. This is looked at in more detail in section 5.4 Tiered Exercise programme.

The OT service (CFPP) responds to those clients identified by the Falls Risk Screening Tool as requiring assessment to explore potential problems such as reduced confidence, fear of falling, loss of independence since their fall, risk behaviours and hazards within their home environment; overall, aiming to improve their safety, health, well being and reduce risk of further falls. The Westmead Home Safety Assessment (Clemson 1996) is the main tool used to identify and guide intervention on environmental hazards (see App 5 / Ref_Westmead). The Falls Efficacy Scale – International (FES-I) (Yardley 2005; Kempen 2008) is a recent addition to the OT tool kit to help identify, inform intervention and measure changes in fear of falling (see App 5 / Ref_Short_FES-I and App 5 / Ref_FES-I validation Yardley). This addition followed discussion and recommendation by Dr Dawn Skelton.

Evaluation

Information in the Evaluation is, where appropriate, separated into two time periods, Jan 2007 to Dec 2007 (where there was complete roll-out of the CFPP throughout Greater Glasgow from May) and Jan 2008 to June 2008 (where roll-out included Clyde from June).

Précis of CFPP Evaluation

- The largest falls service in the UK per capita (comparison with SDO report, Lamb 2008).
- Single point of access and administration (for all referrers and clients).
- Contact with client within 5 working days.
- Direct interventions provided by trained staff in local areas allowing equity of service across GG & C.
- Follows published guidelines (NICE 2004; ABS/BGS 2008) and responds quickly to new research evidence base. Monitored regularly and quality assured.
- Multi-disciplinary team allows cover for annual/sick leave and ensures workload management and inter-professional understanding and training.
- Works closely with other rehabilitation teams in the area (COPT/DART/IRIS/MATCH/other equivalents) to ensure a continuum of care for all older adults with a history of falls. Ensures those not currently eligible for other rehabilitation teams have early detection and management of mobility problems.
Referrals to CFPP

- The **simple and inclusive referral pathway** adopted by the CFPP appears in most instances to be working. Referrals to the CFPP in 2007 averaged 150 people a month but with the roll-out completed in June 2008 referrals have risen to **221 people a month** - a rise of 150% on the same period in 2007 (see Figure 17 below and in App 5/CFPP Figures: 1). Since Jan 2007 (to June 2008), the CFPP have had 3184 referrals. In simple terms, in the 18 month period, the CFPP saw some 5% of the “potential fallers” within the NHSGG&C area.

Figure 17: CFPP Average Referrals per month over the 18 month evaluation period.

- The CFPP use a central telephone number (ease of recall, ease of communication between services in different areas (e.g. across different CHCPs). However, most CFPP referrals arrive by post (48%) but since the introduction of email referrals there is a steady growth in email referrals. Approximately 27% of referrals come by phone and 20% by fax (see App 5 /CFPP Figures: 2 and 3).

- There is **a wide variation in referrals from different sources**. With the introduction of referrals from Pendant Alarm in early 2008 there has been a large number of referrals from this source and in comparisons of referral rates from Jan 07 to Jun 08, referrals from Pendant Alarm stands at 30% of total referrals, GPs at 25%, Physiotherapy 15%, Self/Family/Carer 15% (see App 5 /CFPP Figures: 4).
  - Closer inspection of the numbers of referrals from therapists, A & E and Fracture Clinics show distinct differences and it is recommended that the referral pathways within these settings are re-addressed (App 5 /CFPP Figures: 5). Considering 8% of all A&E admissions for over 70s and 10% of the ambulance workload are as a result of a fall in Glasgow (see App 5/ CFFP PPT Presentation to QIS 2007_Lynsey Simpson) this
needs to be addressed. Currently there are referrals only from the Fracture Clinic at the Western and the A & E at Stobhill refers regularly but there are few referrals from other A & E sources. The National Hip Fracture Audit for England showed that 40% of patients left hospital without an adequate assessment of their osteoporosis and 56% did not have a falls assessment (see App 5 / Reference_NHFD England 2009).

- **Audit of A & E Attendees at the Southern General Hospital**

  Dr Lara Mitchell performed a recent audit (July-Sept 2008) of A & E attendee’s at the SGH (see App 5 / Unmet need at A&E of elderly fallers SGH 08). The inclusion criteria were that the patient had to be over the age of 65 attending A&E but not being admitted. The flow chart below shows that 32% of all A & E attendee’s over the age of 65 have had a fall. 65 had had a fracture and half of these had a history of falls, yet few are referred to the CFPP.

- **Finding the fallers from A & E**

  Following two small audits of all 65+ attendees at the Southern General Hospital A & E, it is clear that most people who arrive as a result of a fall are recorded as such on the A & E
paperwork and are not referred on to the CFPP. When a list of the fallers was sent onto CFPP, the patients were contacted by letter to see if they would like a home visit. Only 2 responded to the letter and both declined a home visit. So two potential problems were found:

- Firstly, the recording of a fall in the ISD codes is not common and may require prompting
- Secondly, potentially leaving contact with the CFPP for some time after discharge means that older people rarely accept the invitation for a home visit.

Another audit, in collaboration with two Registrars, was performed between Oct and Nov 08 where 221 people aged 65+ had presented to A & E. This time further notes were considered and of the 65 with a fracture, 34 had recurrent falls in the past. Of the 159 with no fracture, 91 had a history of a fall somewhere in their notes. This suggests we are not recording those with a fall history at A & E and therefore have little hope of preventing the next fall or injury.

Dr Lara Mitchell has been in discussions with the data manager, Kenny Ross, at the Southern General Hospital over the course of 2008 and a report was generated on the health Information Systems at the end of each week to be sent to the administration centre within the CFPP. This report captures any admissions due to falls (or suspected falls) in the 65+ age group. Patients are then called and the normal telephone triage checklist is performed. This is working well but needs to be repeated across all A & E departments with GG&C. The Southern General has now implemented a “Trigger Question” that is completed by A&E staff nurses and the search for patients is done on this question. In effect all patients over 65 who have fallen are referred straight over to CFPP via an excel spreadsheet every week. Dr Lara Mitchell currently oversees and actions this task. This should also be implemented across all sites to ensure the needs of older fallers are addressed.

However, this could potentially increase the workload of the administration centre and the team that responds with a home visit and performs a more in-depth falls risk assessment. An audit will need to be performed to understand the workload outcomes if this were to be rolled-out across GG&C. This could be further enhanced by the introduction of a new software package available for falls recording which generates letters e.g. to falls coordinators or GPs. This is currently being piloted in Perth NHS. Alternatively, letters to the persons GP could include information about the CFPP and information on referral. These methods should increase the onward referral and enhance appropriate case risk identification.

- Referrals to the CFPP by Hospital Area (App 5 /CFPP Figures: 6-9) generally follows the same trends as the over 65 population in the Hospital Areas (App 1 /CFPP Figures: 2), varying from 50 clients a month (23% of total referrals) from the North West (Western) to 21 clients month (11% of total referrals) from the Inverclyde Royal and Royal Alexandra, areas rolled out more recently.

- Referral to CFPP by CHCP Area (App 5 /CFPP Figures: 10-13) generally follows the same trends as the over 65 population in the CHCPs, varying from 37 clients a month (18% of total...
referrals) from the Glasgow West CHCP to 3 clients a month (1% of total referrals) from the North Lanarkshire CHCP.

**Telephone Triage**
- Following receipt of referral the CFPP undertake a telephone triage to see if the person requires the CFPP service or some other dedicated service (e.g., DART, IRIS, and COPT or equivalent community interventions services). The CFPP service aims to have **booked a home visit to all appropriate referrals within 5 working days**.
  - A breakdown of time between the referral arriving into the CFPP and the first attempt to call the client shows that this is generally done within 3 working days (see App 5 /CFPP Figure: 3). This delay is mainly due to weekends delaying first calls. If the client is not home (varies between 20%-60% over the period assessed; see App 5 /CFPP Figures: 14 and 15) then a letter is written asking for them to call the service.
  - A breakdown of the time between receipt of the referral and the first available home visit appointment (reflected in working days) is on average 5.6 days (see App 5 /CFPP Figures: 3). The majority of this delay is the poor first call response rate and then the slow return of calls from clients who receive letters from the CFPP. An average of 5.6 working days between receipt of referral and home visit, however, is still a very short period of time and is to be commended with the sheer volume of referrals received. As the triage call identifies any potential “fast-track” reasons why the client should not wait for a home visit (e.g. Black outs, requiring rapid access to home rehabilitation etc) this cannot be considered a “blockage” in the pathway. However, it is recommended that another call is made a few days after the letter has been sent to the client, as a prompt and to ensure a quicker appointment for a home visit is made, if appropriate.

**Home visits not appropriate or not completed**
- At the first telephone call on receipt of referral, between **20-67% of clients are not home** and this triggers a letter to be sent to their home address inviting them to call the service (see App 5 /CFPP Figures: 14 and 15). A small audit was completed looking at the low number of clients actually accepting/receiving a home screening visit (51%: 2007 see App 5/CFPP Figures: 16 and 17). The low return of calls following the sending of the letter was identified as the largest group with which there was a chance to increase uptake. Recent evidence (Yardley 2006) suggests that older people do not perceive themselves as “vulnerable” or “fallers” and so Dr Dawn Skelton amended the wording and gave some different examples of wording and look. The original (see App 5/ CFPP OLD invite letter) and amended letters (see App 5 / CFPP NEW invite letter) were sent out to a group of older people and subjected to a **service user evaluation** (in collaboration with Pauline Fletcher -User Involvement Development Worker at Dalian House) and a modified (more friendly and informative) letter was implemented Sept 2008. It is too early to see if this has made a considerable difference to the numbers of people responding to the letter, however, feedback from the User Group was unequivocal; they did not like the original letter and were unlikely to respond to it.
Following telephone triage a number of the clients are not appropriate for a home visit (App 5 /CFPP Figures: 14 and 15). This varies from about 15-20% declining the service, 5-7% requiring only direct access into the exercise sessions, 3-5% requiring fast track to the Fall clinic because of a potential “black-out”, and about 12% are inappropriate (too young, out of area, in Hospital, No fall, Care home dweller, IRIS/DART/COPT or equivalent services already involved).

**Home Visits – Falls Risk Screening Tool**

- Between Jan 2007 and Jun 2008 55% of clients referred had a home visit (1751 people). Between Jan 2007 and Dec 2007 the CFPP undertook on average 73 home visits a month and in the period Jan 2008 to June 2008 this rose to 102 home visits per month (see App 5 /CFPP Figures: 16 and 17). As of October 2009 this had again risen to 175 home screening visits. Despite the telephone triage before the visit a small number (8-12%) of clients declined any screening or intervention, cancelled the home visit, were inappropriate at home visit or were just out and not available (see App 5 /CFPP Figures: 18 and 19).

- The NICE guidelines (2004) recommend that people who have had more than one fall or one fall with difficulties in gait/balance, receive a multi-factorial assessment as part of a specialist Falls service. The *Screening and Data Collection Questionnaire* (multi-factorial assessment, App 5 /CFPP Falls Screening and Collection Tool) is performed in the client’s home by a trained OT technician. This questionnaire covers the majority of screening questions required to see if a further assessment is required, either through a dedicated Falls Clinic or through the other referral options (see App 5/CFPP Trigger List). The tool is comprehensive and helps guide in terms of onward referral options, including to other rehabilitation teams.

  - The main risk factors, identified by NICE but not covered in any depth in the screening tool currently used are:

    - **Assessment of urinary continence.** The tool does ask about getting up at night and whether nocturia occurs but there is nothing asking about incontinence. However, on average there are 4.7 referrals a month to the Continence Service from the CFPP so it appears that some clients are being identified as needing further intervention.

    - **Assessment of neurological function & cardiovascular function.** These are covered only briefly by questions about dizziness, medications, vision, hearing, postural hypotension, whether feet are affected by Diabetes – however, any problems or difficulties trigger a specialist assessment at the Falls Clinic or the Sensory Impairment Team where these risk factors will be assessed more rigorously.

**Home Visits – Interventions**

- Following screening at the home visit, a “Trigger List” of potential interventions is used at the home visit (see App 5 /CFPP Trigger List).

- NICE (2004) recommends that people with a history of falls be offered (as appropriate and individualised) one of five evidence based interventions (Strength and Balance Training; Home hazard assessment and intervention; vision assessment and referral; medication review
with modification/withdrawal; cardiac pacing). The recent SDO report on Falls Services (Lamb et al 2008) recommended *direct interventions* rather than referral onto services (where there may be a waiting list or the referral may not be taken up) to ensure effectiveness.

- The CFPP has the ability to refer directly into its dedicated strength and balance tiered exercise sessions (in collaboration with Glasgow Culture and Sport) and a dedicated OT service for home hazard interventions and behavioural modifications. There is feedback gained on the interventions and outcomes within the CFPP database.

- The medication review and modification/withdrawal interventions require the CFPP referring onto a specialist Pharmacy team (see section 5.6). The vision assessment/intervention, triggered by the Screening and Data Collection Tool, is the only intervention where there is no referral but instead a *recommendation* to the client to visit an Optician. Although the Pharmacy team do keep a database of referrals and outcomes, it is not linked to the CFPP database and there is no “tie-up” letter back to the CFPP. At present, there is no way of knowing if the vision review or any visual impairment interventions are actually carried out, although the OT will give advice and support related to the clients visual impairment.

- In the period Jan 2007 – June 2008, there were on average the following referrals per month to the various potential interventions (see Figure 2 below and App 5 /CFPP Figures: 20):
  - Physiotherapy (including specialist tiered exercise sessions) – 55 (approx 72% of clients visited)
  - Specialist Falls Clinic – 50 (approx 65% of clients visited)
  - Occupational Therapy (including home hazard and safety) – 47 (approx 61% of clients visited)
  - Pharmacy - 45 (approx 57% of clients visited)
  - Pendant Alarm – 22 (approx 30% of clients visited)
  - Podiatry – 10 (approx 10% of clients visited)
  - COPT (or equivalent service) – 10 (approx 10% of clients visited)
  - Referrals to Audiology, Continence Services, Dietician, SWOT, DADs and Sensory Impairment were chosen for 5% or less of clients visited)

*Figure 18: CFPP Home Visit Triggered Referrals per month in evaluation period.*
**Integrated Working with other rehabilitation teams**

- The Strategy wished to ensure integrated working with existing older people’s rehabilitation and enablement teams. This strategy should ensure that fall prevention interventions are standardised for each of these services, their different target populations (see App 5 /Service Specs Rehab Teams) and ensure that patients can move from one service to another appropriately as determined by their needs – see App 5 / CFPP Flowchart of Pathway doc.
- Integrated working is exemplified by the exchange of referrals between the services. See tables 5.1 and 5.2.
  - Table 5.1: CFPP have an agreement to refer to a COPT or equivalent service, following the initial telephone triage where there is considered to be an immediate need to rapidly assess and secure the functional safety of the older person or where client is housebound as a result of the fall. (Less than 1%: 2007 and 2008 data). CFPP may also refer to COPT or equivalent service following the Screening Home Visit where the client requires multidisciplinary interventions and declines to attend fall clinic or day hospital (Average 17% in 2007 and 7 % in 2008). There may be a gap in service here as it is not clear if all COPT teams and their equivalents have access to medical input, and certainly won’t be able to undertake the full assessment that is done at a clinic.
  - The low percentages of referrals moving between CFPP and the 10 COPT or equivalent teams across Greater Glasgow (Table 5.1) may exemplify the variance in the needs/frailty of the target populations of these different yet integrated services and also exemplify that clients are being referred to the appropriate service at the point of need i.e. referring agents are deciding at the point of need that the more able older person is appropriate for the CFPP with the more frail/housebound person, appropriate for the COPT type of service.
  - Table 5.2: exemplifies the opposite flow of referrals from COPT/IRIS/DART/day Hospital/ Falls Clinic and equivalents services, into the CFPP community exercise classes where a client’s functional ability is considered to have reached a significant and safe level to allow exercise delivery within a class/group environment (determined by standardised criteria). The lowest percentages are from COPT/IRIS/DART/ equivalents, which again exemplifies the differing needs/functional status/frailty of the client populations served by these teams i.e. their client group is of a more dependent nature.

**Table 4: Referrals from CFPP to COPT and equivalents**

<table>
<thead>
<tr>
<th>CFPP</th>
<th>Telephone triage indicates 24hour response needed e.g. where client is housebound since fall</th>
<th>COPT 2007</th>
<th>COPT 2008 (1st half)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td>&lt; 1 %</td>
<td>&lt; 1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 1 client /month</td>
<td>&lt; 1 client /month</td>
</tr>
<tr>
<td></td>
<td>Where Screening Visit determines that multidisciplinary input is required and the client declines falls clinic/day hospital option</td>
<td>17%</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>average 11.3/month</td>
<td>average 6.2/month</td>
</tr>
</tbody>
</table>
Table 5: Referrals received by the CFPP fall prevention exercise classes in 2007

<table>
<thead>
<tr>
<th>Referring service</th>
<th>Approx. % fallers in caseload</th>
<th>Average number referrals/month to CFPP exercise classes</th>
<th>As a % of total referrals into the classes/month (36.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COPT and equivalents</td>
<td>78%</td>
<td>1.8</td>
<td>5%</td>
</tr>
<tr>
<td>IRIS/DART</td>
<td>66.5%</td>
<td>3.7</td>
<td>10%</td>
</tr>
<tr>
<td>Day Hospital</td>
<td>Approx 80%</td>
<td>4.8</td>
<td>13%</td>
</tr>
<tr>
<td>CFPP</td>
<td>100%</td>
<td>9.3</td>
<td>77%</td>
</tr>
<tr>
<td>CFPP Via Falls Clinic</td>
<td></td>
<td>18.6</td>
<td></td>
</tr>
</tbody>
</table>

Information and data received:

- CFPP service leaflet, triage pathway and data collection form. Service flowchart describing referral on options and exercise classes. Screening assessment paperwork and accompanying trigger list. HADS screen.
- Copy of QIS presentation by Lynsey Simpson, which led to an award for CFPP.
- Databases from CFPP 2007 and 6 months of 2008.
- OT Datasheet for referrals within CFPP and output data from analysis.
- Old and new letter of invite sent to referred clients with data provided to date.
- Service specs for other rehab services such as COPT, DART/IRIS (hospital discharge teams) MATCH in Paisley (hospital discharge and community referrals).
- Also, example of ICP record and falls add on tool used by IRIS/DART.
- SWOT for CFPP and their service spec.
- Falls workshop agenda and final report from the Rehab Coordinators.

Conclusion:

The CFPP is the largest falls service in the UK, with over 220 people a month being referred to the team. Although a percentage of those referred are not appropriate (and require referring on to other rehabilitation teams) and a percentage decline any intervention (seen in the literature as normal), the team undertakes approximately 100 home visits a month. Approximately 75 people per month (270 attendances) take part in evidence based group exercise sessions and between 60-80% of clients assessed require onward referral to the Specialist Falls Clinics, Occupational Therapy, Physiotherapy or Pharmacy. The strengths of the service lie in the single access point, equity across all areas of NHSGG & C and the constant update training the multi-disciplinary team receive to ensure evidence based practice. Opportunities that could be capitalised on include: linking more closely with A & E departments and some fracture clinics; including a home based exercise programme for those not able/interested in participating in the group exercise sessions and not eligible for other rehabilitation teams; ensuring a formal follow-up or “tie-up” at discharge to document what interventions were actually completed (not just referred) and linking more closely with CHCPs to address primary falls prevention and follow-up for those discharged from the service.
RECOMMENDATIONS
The CFPP works efficiently and is evidence based. However, the following recommendations apply.

Telephone Triage
As the number of people not returning first call from CFPP is so high and the numbers replying to the Invitation Letter are so low, suggest a second call a few days after the Invitation Letter is sent out.

Screening and Data Collection Tool
Q21 – Suggest adding a question such as “Having had your fall, are there any activities which you feel you may not resume?” OR “Do you think you may stop doing certain things (curtail any activities) as a result of your falls?” (Links with strategy section 9 on psychological consequences). Q28 – Suggest adding a question on urinary incontinence and other lower urinary tract symptoms (frequency/urgency) as new evidence suggests an important role in falls risk.

Follow-up / “Tie-up” on discharge
Suggest the need for a “TIE UP” for client after they may have attended all the services agreed in their fall prevention action plan – this could be in the form of a “Passport” they get on first home visit and actions completed could be stamped. Potential people to finalise the document could be Hospital Falls Co-ordinators (at clinic review if available), CHCP Falls Co-ordinators, PTs (at end of group exercise sessions), OTs (at end of home support visits)? The CFPP would have to identify who was appropriate for each client? One suggestion was a SAE postcard (detachable from Action Plan) to be sent back to service by client/carer when Action Plan complete? At CHCP level, perhaps volunteers/mentors (ex service users) or CHCP Falls Co-ordinators could follow up and gather clients perspectives, number of falls, or “mentor” continuing exercise at home? It is however acknowledged that at present, there is no agreed board wide remit for the CHCP Falls Co-ordinators with some acting purely as advisor and others heavily involved in training etc.

Primary Falls Prevention
Strong links should be formed with CHCPs to ensure that prevention of the first fall is addressed and home exercise programmes can be supported.

Links with A & E
At present referrals from A & E are small and yet this is an area where CFPP has a chance to ensure prevention of future admissions. Working closely with each A & E clinic (through Hospital Falls Co-ordinators) is recommended. Work on identifying fallers in SGH through A & E is being piloted and should be rolled out across all Hospital sites.

Links with NHS24 and the Ambulance Services
The CFPP is currently developing links with NHS24 and the Ambulance Services so that there can be direct referrals from these sources. The numbers triaged by the Falls Administration Centre and the number referred directly to COPT teams or equivalent (immediate needs) should be evaluated.
5.2 A Falls Administration Centre

**What the strategy says:**
A Falls Administration Centre will be established to receive all referrals centrally and to deliver a triage function. This will work in conjunction with a central database to monitor activity, assist resource planning, support service audit (e.g. equity of service), evaluation and research. The database will allow clinical information to be collected in real time in client’s homes and in hospital outpatient falls clinics forming a dataset that can be viewed and added to by all relevant clinicians.

**Current service:**
The *triage function* is administered by *specially trained administrative staffs who* communicate with the client/carer according to a predetermined line of questioning and guidelines (see App 5 /CFPP Triage Call and Information Sheet). The triage pathway and options are described on page 1 of the CFPP pathway (see App 5/CFPP Flowchart of Pathway) and may include recommendations to client/carer to contact their GP, A&E or call 999 where a more immediate response is deemed to be required e.g. an injury has not yet been attended to. Where a loss of consciousness (LOC) is described or suspected to have been the cause of the fall then an “urgent” appointment is made with the local Fall Clinic Consultant using an agreed “fast track” communications system involving a senior member of the CFPP team. Where the client has become housebound as a result of the fall or has suffered a significant loss of functional ability, then a “fast track” referral is made to the local COPT type of services, again involving a senior member of staff in the communications process.

The *central database* for the CFPP is now operational with further developments in progress to allow for data inputs in *real time* via wireless internet connections, from the OT technicians interviewing the clients in their own homes. The database holds data from 2005, with a full dataset for the whole NHS Greater Glasgow area available from May 2007, and for NHS Greater Glasgow and Clyde available from June 2008. Currently, the CFPP team are the only service able to view this data electronically; electronic access to and input into this database by the outpatient falls clinics and other relevant clinicians is still to be rolled out.

**Evaluation:**
Information relevant to the Falls Administration Centre is available in Section 5.1 of this report. The main findings are summarised below:
- The administration centre deals with approximately 220 referrals a month.
  - A breakdown of time between the referral arriving into the CFPP and the first attempt to call the client shows that this is generally done within 3 working days (see App 5 /CFPP Figures: 3). This delay is mainly due to weekends delaying first calls. If the client is not home (varies between 20%-60% over the period assessed, see App 5 /CFPP Figures: 14 and 15) then a letter is written asking for them to call the service
  - A breakdown of the time between receipt of the referral and the first available home visit appointment (reflected in working days) is on average 5.6 days (see App 5 /CFPP Figures: 3). The majority of this delay is the poor first call response rate and then the slow return of calls from clients who receive letters from the CFPP.
Information and data received:
- Anonymised datasets for all of 2007 and the first half of 2008 for analysis.

Conclusions:
The Falls Administration Centre acts as a single point of access and deals with a large number of referrals in an efficient manner. Documentation within the database allows ease of quantification and analysis. Real time entry of data to the database is now available during home visits.

RECOMMENDATIONS:
Electronic access to and input into the CFPP database by the outpatient falls clinics and other relevant clinicians/therapists would aid communication and allow “tie-up” of action plans.
5.3 Outpatient Falls Clinics

**What the strategy says:**

| LINKAGE to CFPP: Using agreed set of referral criteria, CFPP will provide Screening Tool Documentation to inform the specialist medical review at all the outpatient fall clinics. |
| Medical staff and AHPs will meet following the clinic review and agree appropriate action plan for client. |
| Falls Clinic Consultants to develop an agreed set of protocols and procedures to be reviewed and evaluated regularly in line with any new evidence. (vision? vitD?) |
| Work will be done to scope the demand on day hospital services. |
| Define role of dedicated syncope service (agree referral criteria, patient pathways and resources) |

**Current service:**

As of June 2008 all Outpatient Falls Clinics across Greater Glasgow and Clyde NHS are now formally linked with and receiving referrals from the CFPP. There has been both a “fast track” pathway and a “routine” pathway developed and agreed. The “fast track” pathway has been described in the previous section 5.2 and in the majority of cases is initiated at the point of telephone triage when the client reports an actual or likely loss of consciousness as the cause of their fall. This provides the client with an “urgent” medical appointment at their local falls clinic. The “routine” pathway is initiated following the application of the Falls Risk Screening Tool where a client reports at least one of the following regarding their fall:

- Feelings of faint, sick, dizzy, off balance, palpitations just prior to fall
- At least two falls in the last 6 months or three or more falls in the last year
- Walking or movement limited by dizzy spells or episodes of feelings of faint
- Where fall is unexplained e.g. “Just went down” or “don’t know” then one of the above must also be reported.

Currently, CFPP provide hard copies of the patients Data and Triage doc and Falls Risk Screening Tool doc in a timely manner for each clinic appointment.

Referrals to clinic **direct from GP** are discouraged and should be rerouted via the CFPP for triage in the first instance.

Falls Clinic models and protocols differ across GG&C (see App 5 / Falls Clinics_Models & Attendance 2008), some are nurse-led (Drumchapel), some patients are not seen at a Falls Clinic but by a Geriatrician at a General Medical Clinic (RAH). Some allow referrals from sources other than the CFPP.

**Model for AHP delivery to clinic.**

Where a client has also been referred for a focused medical assessment at their local day hospital Falls Clinic, the PT and, in approx. 56% of cases (from 2007 data) also the OT, assess the patient and generate reports with recommendations to be considered at the multidisciplinary meeting (MDT) which should follow the Consultants medical assessment.

**Physiotherapy (PT)**

Where possible the CFPP PTs work collaboratively with their secondary care colleagues to resource these clinics and ensure these assessments are undertaken in a timely manner. The following table provides example of the split in resource provision at the Drumchapel Day Hospital site.
The exceptions to the collaborative model of PT staffing at the Falls Clinics are at Inverclyde and RAH, where the CFPP is the sole provider. And at the Vale of Leven Falls Clinic where the local Day Hospital PT staff are the sole providers.

Occupational Therapy (OT)
The OT service no longer follows this model of collaborative working with secondary colleagues but delivers the clinic assessment reports solely from the CFPP resource. This was seen as necessary to control the waiting time for OT assessment at the clinics. The wait time had often meant that the patients were not being assessed and reported on in time for the outpatient MDT patient review. Appointing of OT home assessments is now a function of the CFPP Admin centre. As the OT assessment is undertaken in the client’s home, the OT is in a position to encourage/remind client to attend their imminent clinic appointment. NB. Not all clinic attendees require OT assessment therefore this “OT prompt” will only affect about 50% of cases.

Pharmacy currently provides clinical medication reviews in a timely manner to inform the clinic process across all of the Greater Glasgow NHS clinics. See section 5.6 for further details. Currently not involved with the Fall Clinics in Clyde i.e. RAH, Inverclyde and Vale of Leven. To be progressed.

Further developments: Not all services to support the medical review process are yet linked up but are currently being progressed. E.g. pharmacy medication reviews for the Clyde Fall Clinics and physiotherapy exercise classes at the Day Hospitals. Further refinement also required around agreed protocols and procedures e.g. ensuring majority of referrals are directed firstly through the CFPP Falls Administration Centre; minimising clinics acceptance of referrals direct from GPs. An audit of this information is due to be undertaken by the Falls Lead person.

Evaluation:
Originally we hoped to quiz the database held by Iain Lennox at the Mansionhouse Unit but unfortunately the database now regularly crashes and cannot be quizzed. As this was the only Falls Clinic to record information onto a database about visits and referrals, we have had to gather disparate audits on different falls clinics throughout GG&C.

Models of delivery of Falls Clinics
In some clinics there is a telephone prompt as a reminder for the clinic appointment (and they appear to have lower DNA rates). In some clinics there are longer waiting lists than others and not all have accessibility to exercise classes nearby. Some clinics are led by consultants, some by Nurses. Whilst it is not imperative that clinic models run identically (particularly as there will be different population groups, different staffing arrangements etc) it would be useful to ensure that at least referral-on options were similar to allow equity to the patients across GG&C. Some clinics have access to TILT testing and group exercise and education classes, some do not. There is no consensus or agreed protocol for follow up of any of the patients seen in Clinic. The NICE guidance is that there is long term follow up of patients seen in clinic to ensure any onward referrals are attended and to consider
the outcome of the assessment and interventions on the patients future fall history and quality of life.

The table giving an overview of service models (see App 5 / Falls Clinics_Models & Attendance 2008) brought about some useful discussion and some issues arose out of the discussion as follows:
1. Reminder strategy where the nurses phone the day before can help to reduce the DNA rate.
2. Using the Day Hospital as a base seems overall to work better.
3. Return patients, even if only seen at Day Hospital, still use resources.
4. There was a general agreement that some sort of follow up for many patients is useful.
5. Specialist Registrars can be helpful in reducing waiting times but as they are supernumerary, they cannot be built into the formula.
6. It was agreed that an acceptable wait for a Falls clinic appointment was no more than four weeks.
7. Overall it was felt that the Consultant sessional input to the Royal, Southern and Stobhill, existing or about to change, was adequate but that 1.5 to 2 new sessions ideally were required for Falls clinic work between the Victoria and Gartnavel/Drumchapel. It should be noted that additional Consultant sessional input would need to be supported by additional AHP support.
9. Finally it was felt that an audit of the waiting list for Falls clinic/CFPP could usefully be carried out by the Falls Coordinators once they are fully settled into post to establish the fracture rate, occurrence of other incidents etcetera.

**Referral numbers into Clinics across GG&C**

Just over half of patients seen at home visits by the CFPP are referred onto a Falls Clinic. This equates to approaching 50 patients a month (68% of home visits). Of these, the majority are sent a routine referral (65%) and a minority a fast track (3%) (see Figure 19). There is little difference in the percentages of patients referred to different falls clinics.

**Figure 19: Referrals per month from the CFPP to Falls Clinics (Jan 08- June 08).**
The RAH accepts GP, self and other referrals into its clinics. After consultation with the CFPP all referrals were passed back to the CFPP and for one month the outcomes of the referral back to the CFPP were recorded (see App 5 / RAH referrals to CFPP June 2008). There was concern that few referrals to the CFPP in the RAH catchment area were being seen in the clinic. The audit showed that of the 15 people referred by these sources, 6 received Clinic appointments. Of the 9 not receiving clinic appointments, 4 were un-contactable by phone so received a letter and did not respond, 1 declined further input, 1 was under the age of 65, 1 was admitted to Hospital and the final 2 required only OT and PT input. This suggests that CFPP screening saved a lot of Clinic time.

**Appropriateness of Referrals**

This is a difficult question to assess as no information is kept by the clinics. At Drumchapel Falls Clinic there is the view that there are a reasonable number of inappropriate referrals but this is not the view held by other Falls Clinics. In light of lack of data to consider, we have looked at a number of audits of attendees of falls clinics to gauge the potential number of inappropriate referrals. All audits (mostly at SGH) have shown that most attendees have Vitamin D deficiency, gait and balance problems and a variety of medical conditions that require management or at least medication review. In order for this question a future brief audit tool to be completed at the end of each clinic appointment should be formulated and used consistently for a period of 3 months across all clinics. Specialist Registrars may be willing to perform this work as part of their research remit.

**DNAs at Falls Clinic**

A major audit of DNAs was carried out in the MHU from Jan-Dec 2007 (see App 5_Falls Clinics_DNAs Mansionhouse Unit 2007). All patients due to attend clinics were included. In total there were 2345 appointments across all Out-Patient Clinics. In total there was a 20% (n=471) DNA rate (124 cancelled, 26 had transport problems, 4 had died since appointment was made and 34 were now inpatients). Within the Falls Clinics alone (see App 5_ Falls Clinics_DNAs Mansionhouse Unit 2007_by Consultant), there were 49 clinics over the year with 283 appointments. 19% (n=55) DNA (12 cancellations, 4 were now inpatients, 1 had since died and 10 had transport problems). Considering the same data by month does not suggest that weather or holidays cause an increase in DNA, nor does day of the week (see App 5 / Falls Clinics_DNAs Mansionhouse Unit 2007_by month). This suggests that DNAs are no higher in Falls Clinics than other Clinics with older patients (Stroke, General and Parkinsons).

**Who attends Clinic and with what risk factors/conditions?**

*Audit on Attendees to SGH Falls Clinic 2005-2006*

An abstract was presented at the NOS Conference (see App 5 / Falls Clinic_SGH Attendees_Diagnosis 2005-6 and App 5 / Falls Clinics_SGH Attendees_Poster). 75 patients (58% female) were retrospectively assessed using the letters generated by the clinic, which review modifiable causes of falls as well as medication changes. Gait and balance was the most prevalent risk factor in 81% (of which 31% and 30% were related to cerebrovascular disease and osteoarthritis respectively), followed by orthostatic hypotension (51%), neurological deficit (32%), visual defects (16%), reduced confidence/anxiety/depression (13%), medications related (12%), bifocal glasses (7%), and benign paroxysmal postural vertigo (7%). Patients had an average of three risk factors. Polypharmacy was prevalent (71% on ≥4 medications) of which 73% were on cardiovascular medication, 21% on antidepressants, and 11% on benzodiazepines. Medication changes were made in 42% of patients with beta-blockers being stopped in 42%, Ca2+ channel blockers in 21% and diuretics in 13%. 6% were prescribed Bisphosphonates and calcium and vitamin D.
**Vitamin D Status**

Again at the SGH, serum 25-hydroxyvitamin D levels was measured in 114 consecutive patients (81F) attending the falls clinic between Jan 2007 and Dec 2007. The patient’s drug history was obtained, including any Calcium and vitamin D supplementations taken. 78 patients (68%) had 25-hydroxyvitamin D levels ≤50nmol/L. 32 patients were already taking calcium and Vitamin D supplementation prior to their clinic attendance. Of the 82 not on supplementation, 66 (80%) were deficient in vitamin D3. Of the 32 patients already on vitamin D supplementation, 12 (38%) were deficient in vitamin D. So, the majority of patients not taking supplementation were deficient in vitamin D and a significant number of patients already on supplementation were also found to be deficient in vitamin D (raising the importance of patient education to improve compliance).

**Need for exercise interventions**

At Drumchapel, a five month audit (July-Nov 2006) of all Physiotherapy assessments performed (n=59) to determine the need for exercise intervention suggested that 25% either declined (n=5) or were not appropriate (n=9) for exercise (too fit or too frail). 15% (n=9) were offered a home exercise programme they could perform themselves, 22% (n=13) were offered a CFPP Community Exercise Class, 10% (n=6) were referred back to the COPT teams and equivalents and 29% (n=17) were offered one to one physiotherapy intervention at the day hospital.

**Referral onto Vision Out-Patients Clinic**

At the SGH and MHU there was been an audit in 2007 of 18 (16F; 2M; 14 were aged 75+) patients which had basic visual assessments performed at the clinics and were referred on to the Vision Out-Patients Clinic (see App 5 Falls Clinic & Vision Report SGH). Of these 18 referred on from the clinics, only one person had 1 risk factor identified, 5 had 2 risk factors identified, 8 had 3 risk factors identified, 3 had 4 risk factors identified and 1 had 5 risk factors identified. 13 of the 18 had impaired vision immediately identifiable, but 9 had cerebrovascular disease, 7 had postural hypotension, 7 had osteoarthritis, 1 vaso-vagal syndrome, 5 were considered “accidental” and 7 had “other causes”. Once at the Vision Out-Patient clinic (mean waiting time 48 days), 12 patients were assessed (6 DNAs). 7 had cataracts (4 of which were not picked up at the Falls Clinics), 8 had other vision pathologies but in 2 no pathology was identified. 10 people were advised to see their Optometrist, 3 were referred to Ophthalmology, 1 referred to Orthoptics. It is clear that vision assessment is an important component to assess (NICE guidance) and this audit shows that onward referral (although lengthy in terms of wait times) does lead to improved outcomes in patients attending falls clinic. However, the DNA rate is fairly high (a third) so ideally there needs to be some thought as to how to engage the patients to attend the Vision Out-Patients Clinic.

**Referral onto Syncope Service**

There is a dedicated Syncope clinic run jointly between the Falls Consultants and Cardiologists at the SGH but also receives referrals also from the Victoria Infirmary. This is reported to be in use to maximum capacity. North refers via Cardiology. A report on the development of the SGH Syncope Service (which currently allows referral in from a variety of sources including GPs, medical physicians, neurologists and emergency medicine but not widely from catchment area) is available (Dated Oct 2008, see App 5 / Falls Clinic & Syncope Report SGH). Although new, this service has seen 40 patients of which 25 have had TILT tests (60% were positive), 8 have had echo, 9 a 7 day monitor and 4 a BP monitor. 2 implantable loop recorders have been directed but no permanent pacemakers.

**Patient Satisfaction with Falls Clinics**

One falls clinic (SGH) has recorded patient satisfaction with their attendance at Clinic. This audit was performed in 2006 and a completed questionnaire was returned by 22 out of a possible 31 attendees of the falls education programme. The authors of this report have not seen the questionnaire to
assess the validity of the questionnaire. However, 100% of responders found the educational session beneficial, 68% have made changes to their environment as a result of the programme. Although suggestions for changes were made the majority of responders did not feel the programme needed to change. It would be useful for a yearly audit of patient satisfaction to take place across all Falls Clinics, preferably with the same questionnaire so results can be pooled.

**Information and data received:**

- Copy of Ed Spilgs report from 2006 which describes **models of falls clinics** and **wait times** across GGNHS “Falls clinic table’06” and “Comments on falls table’06” Info received from other Clinics to complete table
- DNAs - Baseline audit data from Jan – Dec 07 of DNAs at clinics by Liz Burleigh Hard copies of the report were provided and e-data sheet also. “DNAs Mansionhouse 2007”
- An audit of hip fractures and whether known to CFPP or FLS - Claire Langridge.
- Physio Falls Clinic registers which highlights amount of time CFPP Physio vs Hospital Physio undertakes the assessments at clinic. See “fall clinic physio register’”
- RAH analysis of referrals - Referrals over the month of JUNE’08 from RAH area to CFPP- Also those who trigger for clinic review – see “June 08 RAH referrals”.
- CFPP database with information on referrals to Falls Clinics (Jan 07-Jun08)
- Copy of a PowerPoint presentation from Dr Lara Mitchell which describes a whole years worth of data from the syncope service. Received 19/06/09 and therefore unable to integrate into main report. (See App5_Syncope GP May 2009v2.ppt)

**Conclusions:**

The Falls Clinics across GG&C have different working models, different referral-on options and different staffing. However, a large number of patients are referred to the Clinics by the CFPP (and still some referrals come out with the CFPP) and are seen in an acceptable time. Ideally follow up of patients (even if only by letter) would ensure that the NICE guidance is followed. No comment can be made as to the interventions made by the Clinics as there is no useable database to query. However, in discussion with all Falls Clinic leads, all the NICE recommended assessments are made (or at least covered briefly). Ratifying referral-on options to ensure equity would be a useful step forward as would a database held in each Falls Clinic (but with standardised fields) would allow closer monitoring of outcomes of this resource.
**RECOMMENDATIONS:**

There is a need for a robust cross-GGC audit of falls clinics referrals, appropriateness of referrals, DNAs, workload and onward referrals. This should include where referrals come direct from the GP or other services. Ideally all referrals should come through the CFPP to minimise inappropriate referrals to the Falls Clinics. Ideally all Falls Clinics should have equitable referral-on options available to them and a standardised database to allow auditing of patient outcomes.

The Physiotherapy (PT) assessment at the MDT clinics in the Clyde area is provided solely by the CFPP. In all other areas of Glasgow, the PT service is jointly resourced by the Hospital and by the CFPP. This model appears to work well in terms of workload and should be encouraged.

The Pharmacy Service needs to roll out to the Clyde area so that the MDT Falls Clinics at Inverclyde, the RAH and Vale of Leven have a report from Pharmacy on patients referred to them by the CFPP and attending the Falls Clinics/Older Person General Medical Clinics.

The Syncope Service would ideally be referable into by all Falls Clinics across GG&C to allow equity of service. The NICE guidance suggests that cardiovascular assessment (including TILT) is available to all Falls Clinic patients if they have syncope or pre-syncope presentations.

Yearly patient satisfaction questionnaires to Falls Clinic Attendees would ensure the service was meeting the needs of its patients. Engaging patients who do attend to give advice on how to decrease DNAs would be useful.

An audit of Pharmacy referrals from Falls Clinics would inform practice.
5.4 Tiered Exercise Programme

**What the strategy says:**
A comprehensive and graded exercise and balance programme will be rolled out across GGCNHS. Referral criteria for entry to the appropriate level of the exercise programme will be based on the clients Tinetti falls risk assessment score and/or Elderly Mobility Scale (EMS) score as assessed by a Physiotherapist from the CFPP or from another Primary or Secondary care service. 

*Day Hospital exercise classes* will be increased to 10 weeks and delivered twice-weekly. (First 6 weeks PT led and then coach led)

Duration of the *community based physiotherapy led exercise programmes* (level 1) will be increased up to 18 weeks. Where appropriate, patients will then be discharged/progressed into instructor led classes (level 2) which will run for up to 12 weeks. Upon completion, patients will be offered an exercise consultation to promote and support exercise as part of their lifestyle in the longer term. The level 1 and 2 classes will operate once weekly and be based in various community centres around GGC and will be shared by both physiotherapy led and coach led classes to maximise adherence during transition from one level of class to another.

*Falls Education Programmes* are to be considered and to be run with the exercise classes. Provision of *transport* for the hospital based and community based (level 1) classes is to be negotiated to remove this potential barrier to class uptake and adherence.

**Current service:**

*Hospital based*: Strength and balance classes are currently available across 4 out of the 8 NHSGGC day hospitals. Drumchapel and Inverclyde are due to come online early 2009. RAH and Vale of Leven are in discussion. Hospital transport is provided free where required. These classes are generally offered to patients once or twice weekly over a period of approx. 10 weeks. In tandem with the classes the patients are also instructed on an individual basis and encouraged to undertake exercises at home. In some cases they are encouraged to record this in a diary. For a directory/timetable of classes see App 5/Exercise Classes-Hospital Based.

*CFPP Level 1* community based PT led exercise classes now available on a weekly basis to clients across all GGCNHS areas exemplified in a directory/timetable (see App5/Exercise Classes Community). Transport is provided free and coordinated by the Community Transport Glasgow. Access to these classes is by referral only and is mapped out in a PT referral pathway document (see App5/ Exercise classes -PT referral pathway from falls clinic and Tech 1s etc.). In tandem with attendance at classes, the clients participate in a Falls Prevention Education programme which follows a structured series of presentations (see App5/Education Class Presentation), discussions and advice sharing. This is delivered by the OT support staff, having been developed and piloted by the OT staff.

*Vitality Level 1* community based instructor led classes (by a Qualified L4 Postural Stability Instructor). These were formerly known as level 2 classes within the original strategy document but have since be rebranded by the Culture and Sport Glasgow to sit within a Vitality framework of levels 1 – 4. They still focus on strength and balance exercises. Following a successful pilot in the North West of Glasgow these are now also available on a weekly basis for clients across most of GGCNHS with three more about to be brought on line across Clyde area. Transport is provided where required. Cost for class (£2). Buddy/mentoring scheme being considered and will include encouragement to use public transport and longer term adherence to exercise. NB. Some classes are full (blockage).
Where it was able to be negotiated, both level 1 CFPP and Vitality classes operate from the same community venues within a locality. To date, within the Glasgow area, this has been possible in 5 out of 8 venues (See App 5 /Exercise Classes Community)

The “passport” by which clients may access any of the above 3 levels of class or progress from one level of class to another is the PT assessment report which uses the Tinetti Balance Scale score as a guide. Where this score is below 19 then another assessment is used to guide the interventions (Elderly Mobility Scale) and it is likely that one to one PT interventions at Day Hospital or in their home will be required. The PT assessment format and documentation (See App 5 /CFPP Physio AxDoc) has been collaboratively developed and agreed across the CFPP, CHCP and secondary care PT services where possible (see App 5/Exercise Classes PT referrals from Tech 1s/COPT/DART/IRIS-equivalents). This standardisation across all PT services aims to promote equity of access and minimise duplication of assessment for the client.

Transport for both these classes is now the responsibility of Community Transport Glasgow (CTG). In 2008, a service level agreement was established between CTG and Culture and Sport Glasgow and NHSGGC.

**Evaluation:**

**A continuum of Exercise Provision**

- In line with ABS/BGS Guidelines (2001) and the NICE (2004) Falls Guidelines the CFFP has a tiered Exercise Programme. Referrals into the Tiered Exercise Programme can be made from the Falls Clinic, Tech 1s following home visits for CFPP and from the COPT/IRIS/DART/equivalent teams or direct following telephone triage. Attendance at the first stage (tier) of the exercise programme is for between 12-18 weeks and then there is the opportunity to move on to the community Vitality classes.

- In terms of the evidence base for the exercise programme, the service meets most of the recent evidence base reviews on exercise and effectiveness (Sherrington et al. 2008). In other words the service conforms to the best evidence on delivery of effective exercise programmes:
  
  a) it involves evidence based exercises (Skelton et al. 2005; Robertson et al. 2001)
  b) it is delivered by trained postural stability instructors (Skelton et al. 2004) and physiotherapists
  c) it is accompanied in most instances by a falls education component as well as the exercise programme
  d) It is run once a week for each participant but also encourage home exercise twice a week for between 12-18 weeks. (According to recent review by Sherrington 2008, the aim is to reach a dose of 50 hours of highly challenging balance – so if a person attends for 17 weeks AND does their home exercise too then they will reach this target but obviously the ideal is to get them to continue with the Vitality classes and increase their chances of improving their balance and strength past a threshold falls risk value)
  e) There is regular assessment to ensure that the participant is improving their balance (6 week and 12 week assessments as standard)
Evaluation of the CFPP Exercise Sessions

- All attendees of the 7 exercise locations (some locations have more than one class) across Greater Glasgow in 2007 had pre-exercise assessments and then were re-assessed after their average 11.9 weeks of attendance at the classes. Over 2007, 277 people attended classes on average every month in Glasgow (see Figure 19). Each month, on average, 17 new patients were assessed for the classes and 15 started classes and the remainder (n=245) were ongoing attendees. Tinetti scores are the main outcome measures assessed, but in a smaller number of people the following assessments were made: 180 degree turn, functional reach, timed up and go, confidence in maintaining balance, Tinetti’s Falls efficacy Scale and the Elderly Mobility Scale (see App 5 /CFPP Outcomes of Exercise Sessions).

Figure 19: CFPP Exercise Class Attendances during 2007

Note: data spans Jan-Dec 07 and therefore does not include Clyde classes that started in 2008. Seven venues for classes were available for referrals over 2007.

- Apart from the Elderly Mobility Score (EMS) all outcome measures are validated for use as falls risk functional tests and all (apart from the EMS) showed significant improvements in the attendees over the period of the classes (see Table 6). In fact the timed up and go (TUAG) post-exercise came close to the 16 second cut off for “low risk” of falls (ABS/BGS 2008 consultation), the confidence in maintaining balance score showed considerable confidence improvements in maintaining balance during activities of daily living and the falls efficacy scale changes suggest considerable reduction in self-efficacy to prevent falls and fear of falling.

- Following this evaluation, the EMS is now only used in clients who have a Tinetti Balance Score of less than 19 to avoid ceiling affect.
The Tinetti Score showed considerable improvement, however, the change was dependent on duration of exercise attendance (Table 6 and Figure 20). As the class attendance is targeted at between 12 and 18 weeks, every effort should be made to ensure the participants attend for as long as possible to maximise balance improvements. Those attendees that drop out of sessions before 12 weeks are unlikely to see clinically significant changes in their balance. This is in line with the recent systematic review of exercise (Sherrington et al. 2008) where a dose of at least 50 hours confers little benefit to fall risk reduction.

Table 6: Improvements in Outcome Measures following exercise sessions

<table>
<thead>
<tr>
<th>Test</th>
<th>Number of clients</th>
<th>Before exercise sessions</th>
<th>After exercise sessions</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tinetti Balance Score</td>
<td>274</td>
<td>23.1</td>
<td>24.8</td>
<td>0.000</td>
</tr>
<tr>
<td>180 deg turn</td>
<td>253</td>
<td>5.5</td>
<td>5</td>
<td>0.000</td>
</tr>
<tr>
<td>Functional Reach</td>
<td>112</td>
<td>19.2</td>
<td>20.9</td>
<td>0.000</td>
</tr>
<tr>
<td>EMS*</td>
<td>129</td>
<td>19.0</td>
<td>19.1</td>
<td>0.391</td>
</tr>
<tr>
<td>TUAG</td>
<td>137</td>
<td>18.6</td>
<td>16.3</td>
<td>0.000</td>
</tr>
<tr>
<td>ConFBal</td>
<td>162</td>
<td>19.4</td>
<td>16.9</td>
<td>0.000</td>
</tr>
<tr>
<td>Tinetti FES</td>
<td>43</td>
<td>29.3</td>
<td>21.5</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

*Note: clients attended on average 11.9 weeks of exercise. Paired t-tests used. All data normally distributed. *No change was seen in EMS, a ceiling effect was visible before treatment – suggest not using this outcome measure with this population group.

Figure 20: Duration dependence balance outcomes

Audit of provision of strength and balance class provision from GG Culture and Sport

In March 2008, Culture and Sport produced a report on the strength and balance class provision (see App 5 /GC&S Exercise Class Report) for people leaving the CFPP and
transitioning into self management of their falls risk. The main report highlights current class provision, attendees, customer comments and any issues that have been highlighted since the new classes started on Jan 7th 2008 following the pilot (see Evaluation of CFPP classes above). All classes delivered by GG Culture and Sport in conjunction with NHSGGC are instructor (postural stability) led and community based.

- 65% of clients referred are attending classes, 52% on a regular basis and 13% on a sporadic basis. Those not attending have generally had illness or are awaiting GP approval for starting/continuing classes. A small percentage is not attending because of the cost of the sessions. Agreement between the CFPP and GGC&S on the referral processes, data given on referral and management of class bookings have now ironed out any early issues. Transport overcrowding continues to be a problem.

**Changes in fear of falling, balance confidence and quality of life following exercise sessions**

- In the summer of 2009, Gaynor McGrath, a MSc Rehabilitation student chose to do her dissertation on the effects of the CFPP exercise sessions on fear of falling, balance confidence and quality of life. The student previously worked for the CFPP so anecdotally saw the improvements in clients but this project gave the opportunity to quantify the improvements and determine effectiveness. She considered whether a 12 week strength and balance exercise class improved an individual’s perception of their fear of falling, balance confidence and quality of life and whether there was an inter-relationship between outcome measures pre and post the exercise intervention. Questionnaires specific to fear of falling (SFES-I), balance confidence (CONFbal) and quality of life (SF-12) were completed prior to and on completion of the 12 week exercise intervention were completed in 13 women aged 65+. There was a significant reduction in fear of falling (p<0.05), together with a significant improvement in balance confidence (p<0.05) and quality of life (p<0.05). This shows that the service is delivering important psychological benefits in patients referred to the exercise sessions.

**Effects of additional Falls Education Lectures on hazard awareness**

- An audit, in late 2007/early 2008, by Karen Bell (OT) at Lightburn Day Hospital considered the effects of additional Falls Education Lectures on top of the exercise sessions run at Lightburn Day Hospital. The groups ran on Tuesdays, Thursdays and Fridays and only the group on Fridays were given additional lectures on falls prevention. The main outcome measure was the Falls Behavioural Scale (FaB, see App 5/CFPP OT Tool FaB Scale) which is validated to raise awareness of potential fall hazards and evaluate the effectiveness of fall reduction interventions that aim to encourage protective strategies when negotiating the environment, mobilising and doing activities of daily living (Clemson 2007). A copy of the audit presentation (ppt slides) is available in App 5/Day Hospital OT audit FaB).

- The audit considered the FaB scale before and after the sessions in a convenience sample of 14 people (7 having both exercise and education, 7 having exercise only) before the start of the sessions and repeated after 6 weeks of sessions. On average, FaB scores of patients who attended falls education group on a weekly basis increased by 5.14 (suggesting more protective behaviours). Conversely, FaB scores for patients who attended falls exercise only
decreased on average, by 6. The audit suggested that lower scores were indicative of a potential increase in risk for falls but there is no published evidence that a lower score on FaB means an increased risk of falls. The tool is really to allow discussion of certain protective behaviours in light of each individual’s ability and self efficacy.

- **We would recommend that this audit is repeated** with larger numbers of subjects in order to be powerful enough to show statistical differences in these scores and also the actual questions considered in more depth as some of the responses are scored as protective but are not necessarily going to improve quality of life (e.g. A person may go out less in cold weather to avoid risk of falls but this in the long run is isolating and potentially reduces habitual physical activity which in turn may reduce balance and increase risk of falls in the future). There is also evidence that some older people resent advice that is always telling them to be careful (Yardley et al, 2006). However, the NICE guidelines and the ABS/BGS Guidelines both suggest that falls education groups alongside exercise groups are effective. Indeed the audit concluded that the all exercise groups should have the falls education lectures alongside the programme in order to ensure that FaB scores and protective behaviours are improved equitably across the service.

- **Patient Satisfaction after attending tiered exercise classes**
  During late 2007/early 2008 attendee’s of exercise classes were asked to complete Patient Satisfaction forms at week 10 of their exercise programme (n=117 issued). 91 patients returned the forms (response rate 78%, see App 5 /CFPP Patient Satisfaction Questionnaire). 85% had received information about the class before the sessions started and most (83%) found the pre-class information useful. Only 1% thought the class was not in a suitable location; the staffs were not helpful; the exercises were rushed, too short or not well explained (showing a high degree of satisfaction with facilities and delivery). 98% felt the exercise classes were beneficial and 94% thought the sessions were good or very good. An open response category on the form allowed people to write in what benefits / improvements they felt had occurred as a result of the classes and the most common comment was improved confidence, sense of wellbeing and improved mood (a third of respondents wrote comments on these) (see Figure 21 and App 5 / CFPP Patient Satisfaction Questionnaire Outcomes).
Figure 21: Open responses to Satisfaction Questionnaire following exercise sessions

In another open question about any other comments that they would like to make, 6% said the transport was crucial; 4% would have liked longer in the classes and 25% commented on the helpful and supportive staff.

Audit of patient transport use to the exercise sessions
- Many patients attending the community based classes require transport. An audit of patient transport was carried out in the first 6 months of 2008 (see App 5 /Exercise Classes Transport Audit Coach-led). Between Jan and Jun 2008 there was over 2500 miles worth of transport provision for the exercise classes. This was made up of 887 passengers and 1774 passenger journeys. A total of 52 completed Customer Satisfaction Surveys were received and processed. Most found the vehicles clean (98%), comfortable (100%), punctual (98%) and the driver was helpful (100%) and driving standards were good (100%). 98% had no problems with the length of time they had to spend in the vehicle (picking up other passengers etc.). Main comments on open question feedback were that people felt that the transport allowed them to attend whereas had they had to make their own way they would probably not attend.

Transition between the physiotherapy led and the coach led exercise classes
- The numbers of clients moving from the physiotherapy led classes to the coach led Vitality classes are not as high as the CFPP service would like, in order to ensure an adequate dose of balance and strength exercise to reduce future falls. To address this, Aisling O’Connor, a student at Glasgow Caledonian University studying for her MSc Rehabilitation, undertook a qualitative study (Summer 2007) on the transition between the two settings. Five clients were interviewed for an hour the week before their potential transition to the coach-led class. For three of the clients, the coach-led class was to be held at the same venue and for two others they would have to travel to a different venue. The themes that came out of the interviews were: lack of knowledge about the coach-led class or the transition (even when they were aware there was a potential transition they did not feel they knew enough about
potential transport difficulties (transport may have been provided but they were not sure if it still was to be provided for the coach-led classes); they did not know who the new instructor would be and were concerned about meeting a new group of people; they felt they had improved enough to not need another class. However, on further discussion all felt they probably would continue if the therapist felt it would benefit them more to stay active.

- The conclusion of this qualitative study was that written information needed to be provided to the clients to reinforce what was said in the class about the transition. Also that education as to the need to remain active and continue in exercise that would maintain strength and balance was important. It is therefore recommended that the coaches visit the therapist led classes on a regular basis (maybe even co-teach the last few classes) so that the older clients feel they have got to know the new instructor. If this is not possible, then a leaflet on the transition, chance to meet new people, continue with the improvements in confidence and balance etc be provided a few weeks before the end of the therapist-led classes.

Pilot Otago home exercise leaders training programme in West of Glasgow CHCP
- In conjunction with Jane Beresford, West of Glasgow CHCP Primary Falls Prevention, Dr Skelton is piloting some training with older adult volunteers to become Otago home based exercise Leaders in March-June 2009. They will work within their own communities to encourage physical activity and lead low level balance exercise amongst their peers but also will be able to support home exercise referrals from the CFFP by providing peer support to the older fallers. They will be educated in the inclusion criteria for all the rehabilitation services and exercise opportunities in their area. The main aim of this pilot is to start to address primary falls prevention within the West Glasgow CHCP summer 2009.

Information and data provided:
- Copies of PT assessment forms and pathways.
- Patient satisfaction questionnaires for level 1 – hard copies – entered into SPSS.
- Satisfaction Questionnaire on experience of transport to level 2 classes – access via Anna Baxendale.
- Aisling O’Connors Masters dissertation on transitions between exercise sessions.
- Audit report from GC&S – number attending each class and those referred from level 1 class.
- Video to promote adherence – report progress and plan.
- OT audit on use of educational sessions alongside exercise delivery.(FaB tool )

Conclusion
On average, one person is assessed by a Physiotherapist at home with approx 17 /per month assessed at class sites and approx 9/month at Falls clinic for potential exercise interventions. The tiered exercise programme delivered by the CFPP is evidence based and, based upon small audits, effective in terms of improvements in known risk factors for falls and injury. At present a small number of clients decline the intervention or are at a functional level lower than is safe to participate in group exercise. Some of these clients are referred onto community rehabilitation teams (but none of these have interventions long enough to be effective in terms of falls exercise, ref: Sherrington 2008). Satisfaction questionnaires indicate that the clients enjoy and perceive benefit from the sessions.
**RECOMMENDATIONS**

The only downside to the tiered programme is the lack of the choice of a home exercise programme only for those who do not wish to attend a group class or who do not have the baseline functional ability in order to safely take part in group exercise. At present these people are either referred on to DART/IRIS/COPT/ equivalents or are given a home exercise programme booklet. These rehabilitation teams, combined, are currently able to offer approx 16 weeks of home based exercise interventions and support. Issue of the home exercise booklet is currently not combined with any follow up support either by a visit or telephone. None of these services are therefore able to deliver the length of intervention (6 months) evidenced to ensure uptake or adherence to such a programme. These, the frailest of the population generally, are a group who would very much benefit from support to complete home based exercise and are the group most likely to have hospital admissions due to falls so our recommendation would be that the CFFP be given resources to implement some support mechanisms for those being offered home exercise booklets or work closely with local CHCPs to ensure that there are support mechanisms in place.
5.5 Falls and Osteoporosis (Direct Access DXA Services)

**What the Strategy says:**
Direct access to DXA service (DADS) for those patients who fall and who have clinical risk factors for osteoporosis is to be rolled out across GGCNHS. Numbers through this service should therefore increase.

**Current service:**

Direct access DXA service (DADS) has been rolled out alongside the CFPP and is now available for all NHSGG clients who fall but is not yet available across Clyde. Criteria for referral are standardised and only registered health professionals can refer by use of a referral form (See App 5/ Direct Access Dexa Ref Form). In 2006 direct referral was accepted from the CFPP OT Support Worker using the referral form. However, the model for referral changed in mid 2007 when referrals were no longer accepted from the CFPP OT Support Worker and they had to inform registered professional staff who would complete the referral if appropriate. However, the model was then changed again from Nov 2007 when instead the CFPP OT Support Worker would suggest a referral to DADS was needed and this was added to the letter going out to the clients GP. The new referral system (July 2009) permits only those designated referrers who have undergone IRMER training to refer directly.

During the period of this evaluation, the CFPP were only referring to DADS indirectly i.e. where the Falls Risk Screening Tool identifies relevant risk factors for osteoporosis but the client also requires a pharmacy clinical medication review; the osteoporosis risk factors are confirmed by the pharmacist, who then makes referral to DADS (direct referral by the pharmacist) where appropriate. Alternatively, if no medication review is indicated, recommendation to the clients GP to refer to DADS is made.

DADS service is still only available in Greater Glasgow and NOT Clyde yet. Paisley comes online in summer 2009. Others may follow.

**Evaluation:**

NB. Links with section 10 which looks at the reverse process of referrals from Fracture Liaison Nurse (FLN) to CFPP

Direct Access DXA Services provision and the protocols for provision of this service seemed to be at an early stage of development within the original Strategy document (p10). Number of patients referred to the service gives an indication of the demands on the service and also how many people at risk of fracture were identified using this service. There is also a “reverse” referral process by which the Fracture Liaison Nurse can refer any patients seen for DEXA Scanning to the CFPP for a falls risk assessment (see Section 10).

In the early part of 2007, the CFPP made few direct referrals into the DADS service. Between Jan 2007 and Nov 2007, on average 1-2 people per month were referred directly (1.5% of home visit referrals) (Figure 22). In the time period, 46 people per month were referred on to Pharmacy (61% of home visit referrals). The CFPP have now stopped directly referring to the DADS service so data on referrals into the FLS need to be looked at to see if the GP referrals have gone up and whether referrals from Pharmacy have gone up.
Figure 22: Direct Referrals into DADS from CFPP Jan 2007 – June 2008

There were, however, many more indirect referrals to the DADS service, by the CFPP, through their ability to refer to Pharmacy.

An internal audit by Pharmacy, in the period April 2006 to Feb 2007, showed the CFPP referred 75% of home visit clients and that of these clients 5.5% required referral onto DADS. Those not referred on to DADS include those who have previously had a DEXA Scan (21%) or have one scheduled (2.5%); those who were already on osteoporosis medications (36%); those who declined or who were inappropriate (5%) or those with who did not indicate a referral (33%). In approximately 2% of cases Pharmacy commence the client on osteoporosis medications without the need to refer to DADS for a DEXA.

Figure 23 presents data for a period of 6 months in 2007 (Jan-Jun) where Pharmacy followed up referrals from the CFPP in terms of detection of osteoporosis (see App 5/Pharmaceutical Care Award 2007). From 83 referrals (approx. 14 patients/month) to DADS, 47 actually attended for the scan and of these 20 (43%) were diagnosed with osteoporosis. Approximately 70% of referrals to DADS resulted in the commencement of bone strengthening treatment. However, the high percentage of referrals not translating into actual scans (57%) needs follow up.

A hard copy of an evaluation of DADS Patient compliance to recommended prescription was received from the Western. In 2006, 261 patients were seen with a T-score of <-2 or -2.5. These were followed up (mean 12 (sd 3) months after recommendation by a postal questionnaire with a 66% response rate (n=171). Prescribing and adherence to Bisphosphonates remained at 83% (previous audits in 2001-2005 showed a range of 79%-88%).

There has been an increase in number of patients seen by the DADs service over the last two years, suggesting referral routes are working. Between Jan-Dec 2007 586 patients were seen in the service and this rose to 814 between Jan-Dec 2008. In 2008 the DADs service referred 7 patients back to the CFPP service (5 in 2007), 241 to a Physiotherapist (147 in 2007), 66 to the Mineral Metabolism Clinic (20 in 2007) and 420 were initiated with treatment (298 in 2007) (See App 5 / DADs Jan-Dec 2007&2008).
A more recent audit of services in 2008, showed that in the first 6 months (Jan – Jun 08), 59 patients were seen by pharmacy, 25 had DEXA scans and of these, 1 had had a vertebral fracture, 13 were osteoporotic, 3 had Osteopenia. 16 were treated with Bisphosphonates and Calcium (See App 5 /Pharmacy Outcomes 2008).

Referrals to DADS from CFPP (direct) and Pharmacy (indirect) equate to about 10 people a month, of which approximately 7 are commenced on bone strengthening treatment. With one 6 month follow-up of Pharmacy referrals to DADS, up to 24% of DADS referrals did not result in scans or appointments (DNAs, unknown, “lost” referral) so these need to be followed up. However, feedback from the Pharmacy service suggests this has improved with pharmacists referring directly.

Further information on DADS service in South Glasgow can be found in Section 10.

**Information and data provided:**
- CFPP database
- Pharmacy reports and audits (referred to in Section 5.6)
- Data from DADS on patients seen and outcomes 2007-2008.
Conclusion:

Direct Access DXA Service referrals have shown a significant increase over the time period of the Evaluation, the numbers of patients who are receiving evidence based treatment following DEXA show that the service is receiving appropriate referrals. The small direct referral rate from the CFPP is not of major concern. Onward referral to Pharmacy is often indicated to ensure appropriateness of DADS referral and strong Pharmacy support in terms of any bone strengthening treatment indicated. There is an obvious time delay in this form of indirect referral to DADS but follows evidence base in ensuring that there is medication support to ensure uptake and adherence to the treatment indicated.

RECOMMENDATIONS:

Suggested audit
An audit of the percentage of referrals into DADS that do not result in a DEXA scan and the average length of time between referral and scan and DNAs

Regular yearly audits of referrals, particularly in light of the increase in recent years and the possibility of the GP Directly Enhanced Service increasing number of patients referred to DADS.

Service
Continued roll out of service across Clyde
5.6 Community Pharmacy

What the strategy says:
Pharmacy will provide three levels of support
1) Community Pharmacists, having received specific training, will identify those at risk of falls/fractures, review medication, provide ongoing support for concordance with medication and offer referral onto the CFPP in line with local protocols.
2) Clinical Medication Reviews (by a Specialist Falls and Osteoporosis Pharmacist) will be offered to those referred by the CFPP and Community Older Peoples Team (COPTS) or their equivalents. These reviews may occur either at the community pharmacy, by telephone or during a home visit.
3) Provision of pharmacy led clinical medication reviews at all the outpatient falls clinics will be rolled out across GGCNHS. This will allow all the relevant primary care information to be presented at the outpatient medical review i.e. GP prescription, information on actual collection from community pharmacist and compliance. The Falls Pharmacist will also ensure a link back to community pharmacy re outcomes of Falls Clinic medical assessment.

Current service:
See flowchart on pharmacy service and linkage with CFPP, DADS and Community Pharmacy (App 5 /Pharmacy process). The strands of the service delivery within Pharmacy review was based on three themes:
  - **Comprehensiveness** (delivered unmet need relating to patient identification, referral onwards, medication review, supply, adherence support)
  - **Co-ordination** (rapid and useful communication within and between the pharmacy system and the multidisciplinary Falls system)
  - **Continuity** (pharmaceutical care provided to patients over the long term through Community Pharmacies rather than as a single, isolated episode).

Co-ordination of all Pharmacy strands was needed to achieve this across Primary and Secondary Care in the form of joint working. **A Pharmacy Falls Centre**, staffed by an administrator, is needed to co-ordinate the multiple inputs and outputs, ensure reviews take place and collate information for clinical audit. The Pharmacy Falls centre works closely with the CFPP. The strategic fit of the Pharmacy Falls Prevention process is described within App 5/Glasgow Pharmacy Falls Service_2007).

The Team
- Central team of specialist pharmacists who cover the whole area of Greater Glasgow & Clyde
- Referrals are received from the Community Falls Prevention Programme (CFPP) and Community Older Peoples Teams (COPT).
- Central administrator co-ordinates appointments with GP practices & patients; and links with CHCPs, community pharmacists, falls clinics, and the CFPP.

Medication Review Process
- Pharmacist visits general practitioner & carries out an holistic paper-based medication review, concentrating primarily on withdrawing potentially falls-inducing medicines & referring for DXA / starting bone-strengthening therapies where appropriate
- Patient review is then carried out at the patient’s own home. This includes assessment of all medicines, compliance, and blood pressure monitoring if indicated.
• Any recommendations agreed with the patient are then made (usually in writing) to the GP. Those recommendations that the GP accepts are then actioned by the practice staff.
• On receipt of the returned action plan, the pharmacist writes to the patient to advise them of the action(s) being taken.
• The patient’s local community pharmacist is informed of the outcome of the review and is asked to follow-up changes that have been made at the review and/or to provide ongoing long-term adherence support.

Community Pharmacists (and other staff within pharmacy) are now also identifying suitable patients and initiating referral into the CFPP by issuing of service leaflets containing self-referral forms. Training for Community Pharmacists has been delivered and is ongoing.

Current referral criteria from CFPP are 4 or more medications. The falls pharmacist conducts a clinical medication review with client consent. This involves accessing patient’s notes from GP surgeries. The patient interview generally occurs in the patient’s own home, which allows full assessment of medication and compliance. Indeed most reviews (80-90%) are by home visit. Home visits for medication review are conducted by specialist falls pharmacists. The clients lying and standing BP is usually taken to assess whether postural hypotension may contribute to falls. Calcium and Vitamin D is initiated for appropriate housebound patients. If required, a referral can now be made directly to the DADS service (previously referral was made via GP). Any medication alterations are recommended to GP e.g. reduction/withdrawal of potential falls inducing medications. The pharmacist sends a routine follow up letter to the patient to check on any alterations and adherence. Community Pharmacists are then contacted (with consent of patient and GP) and are remunerated for agreeing to follow up patient and support adherence with anti-osteoporotic therapy. Bimonthly contact is recommended where adherence is a concern.

For those CFPP patients also being referred to the Falls Clinics, the Falls Pharmacist now provides a copy of the medication review report in a timely manner to inform 5 out of the 8 clinics across NHSGGC, saving consultant time to undertake this assessment and intervention. This involves linkage to community pharmacy pre and post clinic attendance. Where possible and appropriate, the pharmacist also attends the MDT after the clinic appointment to follow up client as appropriate and exchange relevant medical information with the clinic Consultants. This is done on a “needs” basis and not routinely. At one of the clinics, (Stobhill), there is a secondary care Pharmacist who conducts the medication review at the Fall Clinic on the day of the client’s appointment.

Developments:
Additional resource has now been made available to standardise the service across all of GGCNHS, and a permanent pharmacist has been recruited. Further developments are currently being piloted between DXA services and Pharmacy to improve support for long term adherence with those patients with newly diagnosed osteoporosis. These include plans to involve a Masters Student in a service user evaluation on the community pharmacy support service and adherence. This would complement some work already undertaken with service users (see App 5 / Pharmaceutical Care Award).

Evaluation:

Home visits from Pharmacy after referral from CFPP and COPT or equivalent teams:
The CFPP 2007 database revealed that the average number of completed visits by CFPP was 67.3/month. On average, 42.9 (64%) were then referred to pharmacy (total 515 referrals over 2007). The CFPP 2008 database (Jan – July incl.) revealed that the average number of completed
visits was 89/month. Average number of referrals to pharmacy was 51.1/month (57%) (Total 358 referrals in 7 months). Figures from the Pharmacy service differ slightly but Table 7 shows the number of Pharmacist recommendations that followed medication review.

Important outcomes for patients and for evidence based practice include:

- A rise of % of patients being referred to Pharmacy review from 62 per month in 2007 to 87 per month in 2008
- A significant number of medications stopped (201 in 2007 and 192 in 2008) and medication doses reduced (70 in 2007 and 82 in 2008). In 2008, this equates to one medicine being discontinued for every 5 patients seen. Many of the medications stopped or doses reduced will have been fall-inducing medications. Indeed a recent audit showed that 171 fall-inducing medications were discontinued in 20% of patients referred (see App 5/Glasgow Pharmacy Falls Service_2007).
- Referrals onto DEXA scanning have increased (105 (16% of referrals) in 2007 and 130 (14%) in 2008) and regular audits suggest that the majority of patients are being correctly identified and bone treatments initiated after scans. In 2008, one scan was ordered per 14 patients and in the first 6 months osteoporosis was diagnosed in more than half of the scans ordered and treatment started on 64% of those referred for scans.
- Follow ups on adherence by pharmacists six months after prescription of bisphosphonates or Calcium/Vit. D medication in 2008 show that approximately half of all patients were not taking their medications as prescribed. 134 patients (38% of non-compliant patients) in 2008 were referred on to continued adherence support from their community pharmacist (79 osteoporosis and 55 generic support).
- Medication reviews have also ensured that other patient outcomes (apart from falls and bone health) have been considerably improved. For example, 38% of patients reviewed had Statins started. (see App 5/Glasgow Pharmacy Falls Service_2007).

Allocation of reviews by the Pharmacy Falls Centre shows that 75% of reviews are performed by the Specialist Falls/Osteoporosis Pharmacist, 16% by the General Practice based Pharmacist and 9% by a Community Pharmacist (see App 5/Glasgow Pharmacy Falls Service_2007). The allocation of reviews is based on the training attendance and experience of the Pharmacists in different areas (see Training section later).

Referrals from Pharmacy to CFPP:
Interrogation of the CFPP database revealed low numbers i.e. <1/month in both 2007 and 2008. Basically, the community pharmacy issue client with CFPP leaflet and promote self referral. Self referrals were 12.1/month in 2007 and 13.1/ month 2008 but no telling which of these was prompted by pharmacy. The numbers don’t present a true picture as many of the pharmacy referrals have been by informing patients of the service and giving them a leaflet to self-refer. If you look at the 2008, there is a marked increase in numbers referred in (although the numbers are still extremely low).

Medication reviews within Falls Clinics:
Based on 3 months in 2008 (May – July) an average of 63% of all clinic attendees also required pharmacy medication review from a total 235 fall clinic referrals i.e. a total estimate of 148 medication reviews were undertaken over these 3 months for fall clinic attendees across GGCNHS. In the original strategy, the Falls Pharmacist was also to ensure a link back to community pharmacy re outcomes of Falls Clinic medical assessment. This does not happen routinely- the only formal information from the clinic is the letter that goes to the GP. Instead, the majority of
pharmacy interventions are dealt with separately from the falls clinics with the clinics instead acting as follow-up / re-enforcement of information from the pharmacist. There seems to be limited flow back of information from the Clinics to the Pharmacist.

Table 7: Referrals to the Community Pharmacy Team and outcomes of intervention

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>TOTAL REFERRALS</td>
<td>2007</td>
</tr>
<tr>
<td>Referrals from CFPP</td>
<td>745</td>
</tr>
<tr>
<td>Referrals from COPT teams and equivalents</td>
<td>554</td>
</tr>
<tr>
<td>TOTAL average referrals per month</td>
<td>191</td>
</tr>
<tr>
<td>TOTAL average referrals per month</td>
<td>62</td>
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<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
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<tbody>
<tr>
<td>Sample for analysis:</td>
<td>658 pts</td>
<td>883 pts</td>
</tr>
<tr>
<td>Pharmacists recommendations agreed:</td>
<td>1283 (1.95 per patient reviewed)</td>
<td>1686 (1.9 per patient reviewed)</td>
</tr>
<tr>
<td>No. recommendations not agreed:</td>
<td>163 (0.25 per patient)</td>
<td>21 (0.02 per patient)</td>
</tr>
<tr>
<td>DEXA recommended</td>
<td>105</td>
<td>130</td>
</tr>
<tr>
<td>Calcium/vitamin D3 started</td>
<td>82</td>
<td>110</td>
</tr>
<tr>
<td>Calcium/vitamin D3 preparation changed</td>
<td>17</td>
<td>30</td>
</tr>
<tr>
<td>Calcium dose increased</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Bisphosphonate started</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Medicine dose decreased</td>
<td>70</td>
<td>82</td>
</tr>
<tr>
<td>Medicine dose increased</td>
<td>46</td>
<td>_</td>
</tr>
<tr>
<td>Number of drugs stopped</td>
<td>201</td>
<td>192</td>
</tr>
<tr>
<td>Number of drugs started</td>
<td>162</td>
<td>_</td>
</tr>
<tr>
<td>Medical issue for GP to review</td>
<td>88</td>
<td>_</td>
</tr>
<tr>
<td>Referral onto practice for monitoring e.g. blood test</td>
<td>174</td>
<td>_</td>
</tr>
<tr>
<td>Other recommendations</td>
<td>190</td>
<td>_</td>
</tr>
</tbody>
</table>

Pharmacist Training:
The learning needs of practice-based prescribing support pharmacists differ from the needs of Community Pharmacists who have not previously delivered falls medication reviews within a specified governance framework. Therefore, separate training events were delivered by the Team, according to need.

- **Specialist Falls / Osteoporosis Pharmacists**
  Training provided for newly appointed Specialist Pharmacists built upon existing skills/knowledge and included extensive background reading of clinical relevance to falls/osteoporosis. Learning methods included mentoring, peer review of clinical medication reviews by more experienced pharmacists and presentations on case studies. Consultants in Secondary Care clinics formed part of the induction training. Training and
development are ongoing and include a weekly meeting where a clinical case is discussed and used to trigger learning needs e.g. a recent case study led to the need for the specialists to improve their knowledge of the role of Vitamin D in fracture prevention/treatment.

- **Prescribing support pharmacist training**
  Acknowledging existing pre-course levels of skills and knowledge, one day of protected learning was provided in December 2005. Attendance improved understanding of why and how pharmacist medication reviews should be integrated with the multidisciplinary approach. The links to other services were discussed.

- **Community Pharmacist training**
  As community pharmacists were not expected to undertake falls reviews as a major part of their practice, a less intensive training programme was developed, with outreach support in the pharmacy. All Community Pharmacists in Glasgow were invited to attend one evening of training in January 2006. The event was repeated on 4 successive evenings to enable as many as possible to attend. At least one pharmacist from 160 of Glasgow’s 210 Community Pharmacies attended. Following attendance at the training evening, pharmacists names were added to a database of those trained and this was retained and updated at the Pharmacy Falls Centre. A training event was repeated in July 2009.

- **Fracture Liaison Nurses**
  The Pharmacy service are currently piloting training with the FLNs in the South.

**Service user evaluation:**
A small service user evaluation was performed in November 2007. 24 patients were contacted by telephone 3 months after the medication review and 17 were followed up (see App 5 /Pharmaceutical Care Award_2007). There appears to be a reduction in falls (though the recall may be biased), 12 people thought their falls had reduced as a result of their review, one thought their falls had increased and 4 had remained the same. 10 felt they were in better health since the medication review, 12 felt they understood their medications better and 17 would recommend the service.

**Information and data provided:**
Published article describing pharmacy service for GGCNHS – “Pharmacy Publ” (PDF)
Direct Access DEXA referral form (PDF)
Sent paper re grant application – Ultimate PPP
Pharmacy Outcomes 2008 document
XL spreadsheet from Pharmacy April 06-Feb 07 on referrals to DEXA.
Pharmacy Care Award Folder
Flowcharts of links with CFPP Appx3
Data on DEXA referrals April06 – Feb07;
Data on Dexa, Ca and Vit D and Bisph;.
Service user evaluation available in Pharm care Award Doc.

**Conclusions:**
This novel service, which has won awards, integrates well with the CFPP and Community Pharmacy. There is evidence of medications stopped, doses reduced and referrals onto appropriate DEXA scanning in significant numbers since the introduction of the service. The links with the Falls Clinics
(flow of information) and work in standardising and recording referrals from the Community Pharmacists to the CFPP needs some work.

**RECOMMENDATIONS:**

Medications associated with a high-risk of falls should be recorded in key indicators (this is already in place for audit in 2009).
Continued roll-out of the Falls Pharmacy work in Clyde.
Continued roll-out of timely provision of medication review report to Falls Clinics (currently only 5 out of 8) in Glasgow.
Improvements in the flowback of information on medication review from the Falls Clinics to the Pharmacy Falls Centre in Glasgow.
Improvements in the flowback of information on medication review to CFPP on individual patient outcomes.
Continue to provide ongoing support and training to community pharmacists and FLNs across GGCNHS and audit regularly the database of training held by the Pharmacy Falls Centre.
Would be useful to revisit those who DNA DEXA scanning following Pharmacy referral.
Audit of reasons why patients referred by the CFPP to Pharmacy review decline would be useful.
6.0 Preventing Falls in Individuals in Care Homes

What the strategy says:
In partnership with Care Homes, work will be undertaken to support the development of a falls risk management protocol to manage and reduce the risk of falls. Each resident with a recent history of falls will have a Falls Action Plan formulated in partnership with themselves and family/carers. All falls in a Care Home will be reviewed on at least a 3 monthly cycle. A protocol for provision and use of equipment e.g. alarms, bed rails will be developed.

Proposed options for consideration by the Health Support to Care Homes group were:
- Implementation of the consensus statement recommendations on the use of Calcium and Vitamin D supplementation.
- Referral pathways for further assessment of problems associated with falls risk
- Exercise for residents. Training could be offered to care home staff by a Physiotherapist (seconded).
- Introduce Falls Prevention Coordinators (FPCs) to support the Falls Risk Management protocol.
- Rolling training programme for care home staff.

Current service:
NB. This team only have input into clients in “nursing” beds not “residential or enhanced care” beds (approx. 80% of people in nursing beds have signed up for this service i.e. approx 3000 people)

In the initial stages of developing Falls Prevention within care homes many different approaches were discussed and attempted (see App 6/ Care Home Fall Coord annual report-2008.pdf). The original concept of the FPC role in Care Homes was to implement the GGC NHS Falls Policy. It is reported to have become evident that the Care Home managers were unlikely to accept the service if
- The main focus was on auditing falls paperwork within the Care Home
- FPC’s attempted to change paperwork or impose NHS Guidelines
- Care Home staff felt their ability in managing falls was under scrutiny

Feedback from the Managers indicated that NHS Falls Prevention Management would be accepted if it worked in partnership with care homes to provide support and advice that would promote resident safety.

The following flow chart depicts the pathway of FPC input into Care Homes. The FPCs have introduced the service to all care homes in the GG NHS area but Clyde has yet to follow suit.
Falls Risk Management Protocols: The Falls Management Guidelines and Procedures (see App 6 /Falls Management Policies and Guidelines), developed for hospitals, has also been adopted by the Health Support to Care Homes Team, specifically the Care Home Falls Prevention Coordinators (FPC). The Guidelines can only be recommended to the Care Homes for implementation and have been actively promoted and audited across the care homes which lie within the Greater Glasgow area of NHSGGC. Within the Clyde area of NHSGGC there are plans for a Nurse Specialist to start a “flag up falls” initiative aiming to target 1100 care home residents. Falls Action Plans (or Falls Care Plans as they are now known) have been implemented by most care homes, but not, it seems, in a systematic way as the Homes are not obliged to follow the recommendations. The same can be said for the reviewing of falls within Care Homes on a three monthly basis – some have embraced recommendations and some have not. The protocol for provision and use of equipment is included within the Falls Management Guidelines and Procedures. There has been a meeting between the Care Homes Services and the Care Commission to discuss the potential falls risk indicators that may come into play in the future recommendations by the Care Commission, which was attended by the FPCs.

Implementation of the consensus statement on use of Calcium and Vitamin D supplementation. The Pharmacy service no longer blanket prescribes supplementation in care homes, but prescribes on an individual basis (see App 6 /GG&C NHS Calcium and Vit D3 in LTC 2005). This was considered appropriate after an editorial suggested an increased risk for myocardial infarct and kidney stones (Jones 2008), despite a very large study suggesting there was no cardiovascular risk (Hsia 2007). There is still no consensus on blanket provision of Vitamin D and Calcium supplementation as a result of a multitude of different results in different trials, population groups and settings. Criteria for prescription of VitD and Ca are history of falls or history of fracture, no overt kidney disease indicated and with agreement to take the medications.

Referral pathways for further assessment of problems associated with falls risk. A nurse led assessment takes place on admission to the care home and is recommended again 6 months after. Monthly reports can therefore be generated if required.

Exercise for residents – it would appear that since the Care Homes training team was disbanded that this element of the strategy has not been attended to.
Falls Prevention Coordinators (FPCs). The FPC’s came into post in late 2007. To ensure consistency in approach and implementation across NHSGGC, the Falls Prevention Coordinators (FPC) received initial training from the Falls Lead for Acute and Community.

**The role and remit of Care Home Falls Co-ordinators** is to:
- Provide specialised falls prevention management input into Care Homes (CHs). Initially targeting Nursing Home beds and progressing to enhanced residential and residential homes as capacity allows
- Promote best practice and implement evidence based practice in the prevention of falls
- Support CH staff in the implementation of falls risk assessment tools and interventions
- Signpost CHs to other health & social services for clinical support
- Act as a resource for advice and support in Falls Management for CH managers and staff

**Rolling training programme for care home staff.** The first pilot of training for care home staff occurred in one care home in the East of Glasgow, with 6 training sessions. The package “Care Home Support Package: Promoting autonomy in Falls Management” was deemed successful in the Annual Report (see App 6/ Care Home Fall Coord annual report-2008.pdf) and in the period October-December 2008, 18 sessions to 10 care homes, with a total of 150 staff have been completed.

**Evaluation:**

**Implementation of Falls Risk Assessment and Falls Care Plans in Care Homes** NB. The Care Homes are not obliged to follow recommendations. In the Greater Glasgow areas each care home had its own falls risk assessment but not all residents had this risk assessment and many did not have the assessment within 24 hours of admission (see App 6/ Care Home Fall Coord annual report-2008). Care Home Falls risk assessment tools are generally a version of the Cannard Falls Risk Assessment. There was evidence that there is not always a **Falls Care Plan** (FCP) available despite a Falls Risk Assessment (FRA) being available for an individual (see table below from App 6/ Care Home Fall Coord annual report-2008) and even less evidence that a FCP was updated following another fall. Although the original strategy stated that the Falls Action Plan would be updated on at least a three monthly cycle, the FPCs did not audit this, instead they audited whether the FCP was updated monthly or after a fall. As can be seen in the table below, many care homes, despite recommendations by the FPCs are not implementing this as yet.

**Pharmacy:** Implementation of Consensus statement – no longer blanket prescription but individualised prescription instead. Data for all of GGNHS is available only from July 2007 when all GP practices merged databases for their nursing home residents. For July 07, Calcium and Vitamin D was being prescribed to 1003 nursing home residents rising to 1160 in Dec 07. In July 07, Bisphosphonates were being prescribed to 260 nursing residents, rising to 310 residents in Dec 07. Conversely, despite attention as to the detrimental effects of antipsychotic medication on falls risk, in
July 07, Antipsychotic medications were being prescribed to 609 residents, rising to 655 residents in Dec 07.

Information on Hip Protectors is further analysed in Section 8. There was no information received in order to evaluate the provision or use of equipment within the Care Homes.

**Exercise for residents:** There is no record of an increase or uptake of exercise activities within Care Homes.

**Falls Prevention Coordinators:** There has been much activity by the FPCs, including a lot of groundwork to engage care homes in the work as they have no obligation to follow recommendations. Since in post they have performed audits of the use of Falls Risk Assessment Tools and Falls Care Plans (see above). They have an increasing caseload in terms of individual visits for residents considered high risk which is encouraging as it suggests an increased engagement by the Care Homes (see table below from App 6/ Care Home Fall Coord annual report-2008).

The FPC have also presented their findings in terms of medications considered important in falls risk in Care Home Residents (App 6/ Care Home Fall Coord annual report-2008). Interestingly the most common medications prescribed to patients were the ones considered the highest “risk” medications in terms of falls – i.e. anti-depressants (14% of all medications taken); diuretics (13%); anti-psychotics (10%) and sedatives (10%).

The FPCs also did an audit of where the falls occurred and this clearly showed that many falls had occurred in the residents identified as at “high risk” for falls, therefore there is a need for the Care Homes to review Care Plans more regularly and especially after a fall (see App 6/ Care Home Fall Coord annual report-2008).

Requests for visits by the FPC to Care Homes come from a variety of sources (see App 6/ Care Home Fall Coord annual report-2008). The most common request was from the Care Homes themselves (67%), followed by the CHLN (11%), hospital falls coordinators (9.5%) and GPs (8.5%). Requests for visits were mainly following a fall or increase in falls, fractures due to falls or unsteady on mobilising (72%). Very few were pre-emptive – 16% (e.g. Increased confusion, BP problems, and new residents to assist with falls care planning). Reasons for visits which were equipment based were minimal – 11% (slide from wheelchair, chair alarms, transfer issues chair/wheelchair).

The most common recommendation by the FPC to Care Homes was to increase staff observation/supervision with residents at high risk of falls (see table below from App 6/ Care Home Fall Coord annual report-2008). This was followed by Falls Documentation advice and hip protectors (see Section 8). In some cases Care Homes stated that they have financial constraints (including staffing) which restrict their ability to implement the recommendations of the FPC.
Finally, in terms of onward referrals made by the FPC, physiotherapy was indicated in 21% of residents, occupational therapy for 8%, hip protectors for 24% and back to the GP for 7% (see App 6/ Care Home Fall Coord annual report-2008). However, there was a particular problem with Occupational Therapy (OT) input as Care Homes cannot access OT assessment/intervention easily. There are also issues with accessing podiatry and CPNs in the East of Glasgow and considerable delay in accessing physiotherapy.

A “needs” analysis to support the work of the FPC included regular CPD and mentoring to ensure evidence base was adhered to and that there was a support network; implementation of joint NHS and Social Work provision of equipment so that Care Homes could access equipment for their high risk patients; better liaison with Falls Lead.

Education Sessions to Care Homes: Over 150 staffs in care homes have undergone training from the FPCs in the period Oct-Dec 2008 (see App 6 / Care Homes Education Stats). This is an impressive number of sessions in a short time, but still only reaches 16% of care homes in Glasgow (1 pilot care home and 10 other care homes reached). The education sessions include the need for a FRA, a FCP and regular reviewing of the FCP to attempt to increase compliance in the Care Homes to these procedures.
Information and data received:

- Falls Prevention Coordinators Annual Report 2008
- Education in Care Homes Report 2008
- Hip protector database 2005-2008
- E-copy of ADTC guidance on VitD and Calcium 2005
- From GPASS:
  - Numbers prescribed any Ca and VitD prep as repeat for July'07 and Dec'07 (email)
  - Numbers prescribed bisphosphonates July 07 and Dec07 (email)
  - Numbers of hip protectors advised/supplied Jul07 and Dec07. (From Read Codes) (Email)
  - Antipsychotic data for these dates also.
  - Various papers on prescribing and risks.

Conclusions:
The FPCs are working hard to increase their presence in Care Homes but there are difficulties in certain areas of GG&C. Compared to the CFPP, falls prevention in Care Homes in Glasgow is not currently standardised over the GG&C region. Pharmacists from the Care Homes Team are actively involved in Care Homes in the Greater Glasgow area and there are plans to roll this out across all GG&C.

RECOMMENDATIONS

There has been a growing rapport with the FPCs and Care Homes after overcoming the initial resistance. However, more work is needed to engage Care Homes in the South and East, particularly in pre-emptive planning rather than reactive management. Areas of particular need are:

Education sessions to care homes staff: Continue working on engaging care homes to allow education sessions to be delivered to staff (especially within the South and East). Reference was made to calcium and vitamin D intake in continuing care beds for older people. Documentation on the provision of supplements or notes about food intake and sunlight exposure may show trends in improvements in this indicator but no such records were obtained for this audit. It is recommended within this evaluation that the education sessions for Care Home Staff include information on the need for adequate Vitamin D intake and the need for sunlight/daylight (not through glass) for residents. Perhaps this is one area where the extra input from the local CHCPs may have a positive influence?

Regular reviewing of Falls Care Plans by Care Homes, particularly after falls and certainly on a regular basis, as this is patchy at present.

Exercise sessions available for Care Home Residents. The evidence is clear, that exercise as part of a multifactorial care plan for high risk Care Home residents is important – perhaps these could be delivered by the CHCPs?

Medication Review has a vital part to play in management of falls in Care Homes. There is a need to ensure effective methods of working with the Pharmacy service to ensure medication reviews are timely and adherence is followed up.
7.0 Preventing Falls in Individuals in Hospital

**What the strategy says:**

Introduction of Hospital falls Co-ordinators across GGCNHS will make a significant contribution to falls prevention in hospitals by implementation of the new Falls Management Guidelines and Procedures.

Role to include:

- Ensure all wards carry out effective risk assessment and appropriate interventions
- Staff and patient education,
- Co-ordination of hip protector ordering,
- Overview of equipment and restraint protocol,
- Partake in clinical effectiveness studies.
- Liaison with CFPP, FLS, DADS, IRIS, DART and A&E.

Overall aim is to reduce falls rates, number of people who fall, recurrent falls all injuries resulting from falls and to alter reversible risk factors which might lead to falls.

**Current service:**

Hospital Falls Prevention Co-ordinators (FPCs) are now in post across the Greater Glasgow area of GG&CC NHS. There are currently no FPCs in the Clyde area. However, the Falls Management Guidelines and Procedures (Guidelines) (see App 6 / Falls Management Policies and Guidelines) have been promoted across Clyde by the Falls Lead for Community and Acute GGCNHS and are now in the implementation stage. Falls Coordinators were appointed late 2008 and training was co-ordinated by the Falls Lead in order to maintain standardisation of knowledge and skills and also quality and equity of service across all of GGCNHS.

The Hospital falls Coordinators have undertaken audits to measure implementation of the Guidelines in particular consistency and accuracy of falls reporting on incident report sheets, adherence to use of and completion of the Cannard Falls Risk Assessment tool and resultant patient Care Plan, as referenced on pages 6 and 7 of the Guidelines.

The implementation of the Mobility Risk Assessment Card (known also as “Traffic Light” system, see App 7 / Traffic Light Audit Draft Report 2008) referenced on page 6 and 7 of the Guidelines and detailed in Appendix 2 of the guidelines, was supported by a programme of training of the ward based nursing staff and physiotherapists. This was coordinated by the Physiotherapy Team Lead for the South Glasgow hospitals and an audit undertaken in collaboration with Clinical Effectiveness. The current guidance is that the Traffic Light card should be completed within 24 hours of admission. The patient’s mobility status should be reviewed at weekly intervals, or earlier if the patient’s mobility status changes, and the card updated accordingly. The cards are kept above the patient’s bed and can be wiped clean and reused. A permanent record of the Card should be kept in the patient’s notes.

There is still little consensus regarding effective strategies to reduce falls in Hospital settings. A review by Oliver et al in 2006 (See App 7/Ref_IntervHospital_Oliver_2006) stated that there is only “a modest reduction in the rate of falls with a multifaceted intervention in hospital settings (though we found no effect on risk of falling or fracture rates). A Cochrane Update on Falls Prevention in Hospital and Care Home Settings (Cameron et al.) is due in late 2009 that may inform this further.
A systematic review by Scott in 2007 (see App 7 / Ref System Rev FRTools Scott 2007) showed that no current tool is better than any other at predicting risk of falls in any setting (see also App 7 / Ref Falls Tools Hospitals Haines 2008). There is still major debate over whether the Cannard Tool is sensitive or specific to pick up high risk fallers (as opposed to false positives) on the ward setting. This debate is not only within Consultants in GG&C but within the British Geriatric Society, ProFaNE (http://www.profane.eu.org/newsletters/pdf/ProFaNE_NL_Volume01_Issue04.pdf) and others. Even one of the authors of the most “used” falls risk tool in UK settings, STRATIFY, has said we should not rely on falls risk tools, even his own, but instead “they are useful way of focusing the minds of staff on the problem – an important part of total quality improvement in fall prevention” (see App 7 / Ref Falls Risk Tools Oliver 2009 & App 7 / Ref Stratify Tool Hospital Milisen 2007). Therefore, rather than focus on the use of Cannard as a tool, this evaluation seeks to understand if the use of a tool initiates a Care Plan and focuses the mind of the ward professionals on patients who may potentially fall, with the understanding that no other tool can be recommended as “better” than Cannard. Referral forms from the trusts to engage the Falls Prevention Co-ordinators in a review are included in the Appendix (App 7 / Referral Forms A & B Falls Coord).

Current criteria for referral to a Hospital Falls Prevention Co-ordinator from staff in Hospital includes:

- Cannard Score of 18+
- Second or subsequent falls
- Significant injury caused by fall

Inpatients identified as having gait/balance problems are assessed by a physiotherapist and receive appropriate treatment. This may include referral into day hospital or community based (level 1) exercise programmes. Inpatients with recent history of falls should be referred to occupational therapy services and will be considered through clinical reasoning for a home environmental assessment. This protocol is to be rolled out across GG&C. Inpatients that fall whilst in hospital should be considered for referral to DADS for an osteoporosis risk assessment using agreed criteria. The Hospital Falls Coordinators screen all those in patients who have a history of falls and no fracture for referral to the Fracture Liaison Service using the Direct Access DXA Service (DADS) referral criteria.

**Evaluation:**

*Reporting style and consistency.*

Data was gained from the Health and Safety department on all falls registered on Incident Reporting Forms in Hospitals in Greater Glasgow and Clyde pre and post the introduction of the FPC. Being aware that the FPCs did not all come into post at the same time across GG&C. Data were used from April-Sept 2007 and from April-Sept 2008 to consider the effect of the FPCs (see App 7 / Pre-Post FPC Falls in GGC Hospitals and App 7 / GGC over 65 data Apr-Sep08). A more recent audit has also been included (up to Mar 2009) which shows a consistent trend towards reduced falls and injuries in GGC Hospitals.

Consideration also has to be made as to the content of the reporting forms. For example, in 2007, North, South and Clyde all used slightly different terms but essentially “fall on level ground” and “fall from height, bed or chair” but Clyde also used “Suspected Fall”. In 2008, reporting was slightly different. There is now the universal use of the term “Suspected Fall” across GG&C but the previously used term of “fall on the level” has been replaced with three terms; “Fall, Trip and Slip”. In terms of falls from height, there is now a breakdown of “fall from bed; falls from chair and falls from trolley”, whereas in 2007 there was just “Fall from height / chair / bed”. In 2007 there were 16 instances where the category “Injury type” was not complete yet there was an entry in “Body Part
Injured” so these have been given the generic “Bruises/Swelling” code in the data analysed. In 2008 there was only 1 instance where this happened. There were many incomplete entries in the information in 2007, but only 3 in the 2008 data. Therefore reporting is far better in 2008 than it was in 2007.

**Falls in Hospital 2007-2008:**
There has been a 30% increase in the number of falls reported across all Hospital sites within GG&C (Table 8 and Figure 24) pre- and post-introduction of FPCs. However, if this is examined more closely, there has not been an increase in major injury (fracture or multiple injuries). There were 47 reported fractures in Apr-Sept 2007 compared to 52 in the same period of 2008. There has been an increase in minor injuries (28%) and an increase in no injury falls (32%). Considering the improved reporting in terms of content seen pre- and post-FPCs, it is likely that the increase in reporting of minor and no injury falls is a function of more consistent reporting (with a no-blame culture). Major injuries would always have had to be reported as these would come to the attention of other health professionals, however minor or no injury falls were probably less well reported before the introduction of FPCs.

**Table 8: Major (Fracture and Multiple Injuries), Minor and No Injury falls across GG&C Hospital Sites pre/ post FPCs (2007-2008)**

<table>
<thead>
<tr>
<th></th>
<th>Pre-FPC</th>
<th>Post-FPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No injury</td>
<td>2101</td>
<td>2764</td>
</tr>
<tr>
<td>Minor Injury</td>
<td>911</td>
<td>1165</td>
</tr>
<tr>
<td>Major Injury</td>
<td>51</td>
<td>53</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>3063</td>
<td>3982</td>
</tr>
</tbody>
</table>

**Figure 24: Types of injury following a fall across GG&C Hospital Sites pre and post introduction of FPCs.**

![Falls by type of injury pre and post FPC](image)
The introduction of “Suspected Fall” as a code in 2008 across all sites (not just Clyde) means that this may have increased purely by the health professional finding it easier to code as suspected fall than spend the time with the individual trying to ascertain whether it was a fall on the level or from a height (see Figure 25). This change to the use of terms and coding’s has implications for the FPCs and their ability to look at trends.

**Figure 25: Fall by type across all GG&C Hospital sites pre / post FPCs (2007-2008)**

There was further analysis of the data by Hospital to try to ascertain which hospitals had had large increases in reported falls (Figure 26). The GRI, Western, Gartnaval and Lightburn all appear to have had a reduction in falls on their wards. Conversely, the Mansionhouse Unit, Victoria, SGH, Mearnskirk, RAH, Vale of Leven, Johnstone and Ravenscraig have all had increases in falls. It is worthy of note that the Clyde FPCs came into post later than the Greater Glasgow FPCs.

**Figure 26: Falls by Hospital Pre and Post-introduction of FPCs (2007-2008)**

**Falls in Hospitals 2008:**
A more recent audit of falls in Hospitals by the Health & Safety Department of NHSGGC shows that over the short period April 2008-December 2008, there has been a decrease in across all directorates.
but particularly in the RAD (25%) (Table 9) and over the period April 2008-March 2009, by 30% (Figure 27 and see App 7/RAD Falls 2008). As this is the directorate with the most falls, this is a significant improvement.

Table 9: Falls in Hospitals April-Dec 2008 post introduction of FPCs by Directorate

<table>
<thead>
<tr>
<th>Directorate</th>
<th>April 08</th>
<th>October 08</th>
<th>December 08</th>
<th>% decrease in falls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional Services</td>
<td>47</td>
<td>55</td>
<td>33</td>
<td>30%</td>
</tr>
<tr>
<td>RAD</td>
<td>493</td>
<td>540</td>
<td>372</td>
<td>25%</td>
</tr>
<tr>
<td>Emergency Carer and Medical Services</td>
<td>219</td>
<td>245</td>
<td>217</td>
<td>1%</td>
</tr>
<tr>
<td>Surgical and aesthetics</td>
<td>116</td>
<td>135</td>
<td>170</td>
<td>4%</td>
</tr>
</tbody>
</table>

(Figures H&S Department NHSGGC Feb 09)

Figure 27: Trips, Slips and Falls in the RAD 2008-2009

Perhaps more importantly, there has been a considerable decrease in in-patient fractures (Figure 28 and see App 7/In-hospital fractures 2006-2008_H&S) of 27%. This represents a considerable reduction in resources necessary following fractures in hospital.

Figure 28: In-hospital Fracture rates 2006-2008
**FPC activity 2008**

An audit of Hospital FPC activity was undertaken (Figure 29 and see App 7/RAD Conference Poster_Falls in Hospital_2008) and showed that multiple fallers were the most common reason for referral (21%) and a range of interventions were undertaken (equipment advice, bed/chair monitor, general safety advice etc).

**Figure 29: Hospital FPC Activity 2008**

![Hospital Falls Prevention Coordinator Activity 2008](chart)

**Training by FPCs within Hospital Settings**

From January 2008 till October 2008 the Hospital Falls Prevention Coordinators (HFPCs) undertook training and education programme for all staff in falls prevention procedures. The nursing staff were trained in the use of the Cannard Falls Risk assessment alongside the use of a core care plan, which offers a selection of falls prevention interventions for use in hospital environments. In total 3328 healthcare staff were trained across the city. (See Figure 30, and App 7_RAD Conference Poster_Falls in Hospital_2009).

**Figure 30: Staff trained by FPCs in Hospital Settings_2008**

![Staff trained in Cannard and Falls Management Guidelines](chart)
Use of falls risk tool to initiate care plans on the ward

Baseline audit (August 2007) of use of the Cannard tool, as per the Guidelines showed that only 68% of patients had a Cannard filed in their case note with only 91% of this group then having a resultant care plan in place (Equivalent to 53% of total population audited) - (See App 7/ Baseline RAD Audit). The launch of the Hospital Falls Coordinators then took place in Sept 2007 with further audits conducted between Feb and May of 2008 following a programme of training on implementation of the Guidelines to nursing staff across both the RAD and non RAD wards. The resulting action plan was to:

- Increase awareness of falls prevention and management with staff through a rolling programme of training and education.
- Promote the use of the Cannard Falls Risk Assessment tool for all inpatients at risk of falling and an individualised plan of care recording falls prevention interventions.

Following the training and awareness raising, in an audit period spanning Feb – May 2008, an average of 80% of patients on the elderly care RAD wards had a Cannard Score filed in case notes. On average, 80% had a care plan initiated. (See App 7 / Audit 08 of all Hospitals & Post training Audit SGH and West 0208) (see table below). However, it is worthy of note that only 40% of the care plans were updated suggesting that falls risk is still not high on ward agendas.

Audits of % use of falls risk assessment tool, care plan and update of care plans

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Number of wards audited</th>
<th>Falls Risk Assessment Initiated</th>
<th>Falls Risk Assessment Updated as policy</th>
<th>Care Plan initiated</th>
<th>Care Plan updated as the policy</th>
<th>Number of falls noted from patients audited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lightburn</td>
<td>2</td>
<td>80.0%</td>
<td>35.5%</td>
<td>53.5%</td>
<td>32.0%</td>
<td>10</td>
</tr>
<tr>
<td>GRI</td>
<td>9</td>
<td>77.8%</td>
<td>54.6%</td>
<td>73.4%</td>
<td>52.4%</td>
<td>0</td>
</tr>
<tr>
<td>SGH</td>
<td>12 (2 twice)</td>
<td>72.3%</td>
<td>43.9%</td>
<td>62.7%</td>
<td>35.9%</td>
<td>0</td>
</tr>
<tr>
<td>Stobhill</td>
<td>12 (1 twice)</td>
<td>62.1%</td>
<td>44.4%</td>
<td>83.5%</td>
<td>33.0%</td>
<td>23</td>
</tr>
<tr>
<td>WIG</td>
<td>3</td>
<td>69.8%</td>
<td>4.3%</td>
<td>89.3%</td>
<td>14.3%</td>
<td>2</td>
</tr>
<tr>
<td>Blawarthill</td>
<td>2</td>
<td>76.5%</td>
<td>55.0%</td>
<td>83.0%</td>
<td>41.5%</td>
<td>2</td>
</tr>
<tr>
<td>Drumchapel</td>
<td>4 wards (twice)</td>
<td>95.9%</td>
<td>62.5%</td>
<td>94.3%</td>
<td>53.4%</td>
<td>27</td>
</tr>
<tr>
<td>GGH</td>
<td>11 wards (3 twice)</td>
<td>86.9%</td>
<td>66.6%</td>
<td>85.8%</td>
<td>61.0%</td>
<td>28</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td><strong>77.7%</strong></td>
<td><strong>45.9%</strong></td>
<td><strong>78.2%</strong></td>
<td><strong>40.4%</strong></td>
<td></td>
<td><strong>93</strong></td>
</tr>
</tbody>
</table>

Traffic Light System to increase awareness of mobility issues in patients

Audit of use of Mobility Risk Assessment Card (“Traffic Light” system) was undertaken at the SGH and MHU in 2007. The Traffic Light Audit (App 7/Traffic Light Audit) highlights the inconsistencies in the displaying of the cards above the patients bed (56-95%), in the completeness and accuracy of the information on the cards which included mobility status of patient, guidance notes on how best to assist patient to mobilise and whether patient consent had been obtained (ranged between 5-100% completion). The time since the card was last updated ranged from less than a week to over 8 weeks. The audit also found inconsistencies in the recording of this data within the nursing records, which is the permanent record of mobility risk and need (Traffic light cards are designed to be “wiped clean” and reused). The recording of mobility status in the notes ranged from only a third in nursing notes...
to inaccurate recording in medical notes. Recording of mobility status in physiotherapy notes was generally good.

The Audit report generated following the 2007 audit of SGH and MHU recommends the following:

- An ongoing programme of training for Physiotherapy and ward based nursing staff in attending to the guidelines for use of these cards
- Introduction of mandatory recording of Mobility Risk in the patients nursing notes
- Cards are moved with the patient rather than being “permanently” fixed to a bed.
- Responsibility for training moves to the Hospital Falls Coordinators who can monitor and audit in their local areas.
- Traffic light system is linked to Cannard scores and not Tinetti tool, in an attempt to improve meaningfulness and therefore usage e.g. linking red, yellow and green lights with high, medium and low risk scores of the Cannard respectively.

**OT Home Visits**

During March and April 2008 an Audit of OT home visits and optimal OT treatment for patients admitted to the Geriatric Orthopaedic Rehabilitation Unit (GORU) was carried out as this is a key component of the Guidelines (see App 7 / OT Home Visit Audit).

The Objectives of the audit were:

1. To ensure all patients receive a Home Assessment, if not reasons why.
2. To identify the band of OT who made the decision to/not to visit and consider criteria in that decision (clinical judgement)
3. To identify how many patients discharged without an OT Home Assessment are followed up by DART/IRIS.
4. To identify how many patients admitted to GORU fell more than once within the last 12 months and what interventions were received.

To summarise the findings of this Occupational Therapy Audit:

- 19/63 (30%) Home Assessments were carried out before discharge. Staffing issues were given as the reason for the 25% of those not assessed by OT home visit before discharge. However some of these were followed up by DART.
- 22/44 (50%) Of patients who did not receive Home Assessment before discharge, were either discharged home with or followed up by DART.
- The majority making the decision of whether a Home Assessment is carried out or not was Band 5 staff 36/63 (57%). 40% of decisions were made by Band 6 and no decisions were made by Band 7 staff. 3% were not recorded.
- 41/63 (65%) Patients had a fall in the last 12 months. The majority had had between 1 and 4 admissions due to falls (95%) but the remaining 5% had been admitted up to 12 times. 58% (n=24) of the patients who had had a fall in the past 12 months had already been seen by an OT but only 29% (n=7) had had a home visit.

This audit suggests that staffing issue is the main blockage in the system in terms of ensuring a home visit is made prior to discharge. We must assume that the 50% discharged home without a home visit but with referral to DART will have had a home assessment after discharge but this should be audited.
Conclusions:
There is growing evidence of a sustained effect on reduction of falls and injuries in Hospitals within GGC. The first part of the FPCs role was to ensure accurate and consistent reporting. The FPCs have highlighted improvements needed in terms of falls awareness within patients (inconsistent Traffic Light Mobility and Cannard assessment and Care Plans and not updating Care Plans with both) which must be attended to. There has been no audit of medication reviews for patients who fall in hospital and this must be addressed. The role of the OT home assessment is highlighted in many guidelines and in the one audit within GORU it appears that 80% of patients had a home assessment either prior to discharge or immediately following discharge through DART. Staffing issues appear to be the main reason for the lack of home visit before discharge and this needs to be followed up. Finally there needs to be an audit of the number of patients screened by the FPCs and referred on to Fracture Liaison Service using the Direct Access DXA Service (DADS) referral criteria. However, there does appear to be a real effect on reduction of falls and injuries and the service needs to concentrate on an equitable service across the different Hospitals.

RECOMMENDATIONS

There is a need to review OT staffing to ensure OT assessment (and home visit) is performed pre-discharge on a more consistent basis as this still forms a large part of the evidence base behind falls prevention in the NICE guidelines and other literature.

Suggested yearly audit of use of Cannard Scores and Traffic Light Mobility Scores to inform Care Plans are used and regularly updated to ensure constant raised awareness of falls in older people in Hospital with the regular turnaround of nursing staff.

Medication Review has a vital part to play in management of falls in Hospitals. There is a need to ensure effective methods of working with the Pharmacy service to ensure medication reviews are timely and adherence is followed up. An audit of medication reviews following a fall in hospital is suggested.

An audit of the number of patients screened by the FPCs and referred on to Fracture Liaison Service using the Direct Access DXA Service (DADS) referral criteria is suggested.

Presentation of falls data to FPCs by H&S should be in the format of falls per 1000 bed days to allow comparison across wards and sites. The reports should be monthly to allow meaningful use of the data by the FPCs to target training and interventions.
8.0 Preventing further injury from falls using Hip Protectors

**What the strategy says:**

All hospitals and care homes across GGC should be using the Cannard to identify those individuals at highest risk of falling (score of at least 13) and ordering hip protectors where deemed appropriate.

Training and awareness-raising will be developed to ensure all staffs are taking appropriate action to assess and order hip protectors appropriately.

**Current service:**

The Cannard Falls Risk Score was rolled out across GGC including care homes in the partnership with local authorities as an integral component of the Falls Management Guidelines and Policies. There has been a change in policy in the criteria for hip protectors, which are now only allocated to those in hospital who are being discharged to a continuing care bed and those in care homes – both groups must meet the cut-off score of 13 on the Cannard Score. Therefore we would expect to see a reduction in both requests for hip protectors and a reduction in ordering of hip protectors. The new Hospital Falls Prevention Co-ordinators now have responsibility for ordering of all hip protectors.

**Evaluation:**

**Hip Protector Audit 2005 Care Home**

The audit in 2005 by Isobel Baxter revealed that roughly half of the nursing home residents supplied with hip protectors by GGNHS Board are actually wearing them during the day (see App 8 / Hip Protector Audit 2005). This compliance rate is in line with that published in the literature on this subject. While no quantitative data was gathered on use at night, interviews with nursing home staff indicate that overnight wear is the exception rather than the rule. It is unlikely that more than 10% of nursing home residents comply with the recommendation that hip protectors be worn 24 hours per day. There were significant problems in both compliance by care staff and lack of overnight wear, which are problems also seen in the published literature on use of hip protectors.

**Hip Protector Audit 2005 Hospital**

This audit in 2005, by Liz Burleigh, was undertaken to inform the Hospital Falls Subgroup as to whether adherence and eligibility for hip protector use had improved since an initial audit in 2003 (see App 8 / Hip Protector Audit05 Hospital). The 2005 audit follows a change in the eligibility criteria for hip protectors as detailed above under “current service”. Main findings show that the number of people deemed eligible for hip protectors has decrease suggesting greater selection of appropriate patients. However, the adherence rate of wearing hip protectors has decreased. Improved recording of the reasons for non-compliance allows for some analysis of why compliance may have decreased e.g. some reasons/problems recorded could have been screened for during the eligibility process and the patient would then not have qualified for hip protectors in the first instance. The audit makes a series of recommendations of which one suggests improving the screening and application of eligibility criteria via training and education in an attempt to reduce inappropriate requests.
Hip Protector Database 2005-2008

The database on hip protectors was interrogated (see App 8 / Hip Protector Data 2004-2008). Figure 31 shows that the requests and orders from all sources have dropped year on year since 2004. This trend is also seen in monthly requests and orders and if the rest of 2008 continued as January suggests there is likely to be a ongoing reduction in the cost to implement this part of the strategy. These figures also highlight the large number of inappropriate requests (over half). The database records these in appropriate requests as patient not meeting the cut-off score on Cannard, not agreeing to wear the protector, not medically stable, not mobile, not eligible or the checklist is not adequately completed.

Figure 31: Hip protector requests and orders Hospitals and Care Homes 2004-2008

This report provides further break down of the information on the database by whether requests came in from Hospitals or from Care Homes.

Hip protector requests and orders from Hospitals

Table 10 below shows the requests and orders from Hospital settings between 2004 and 2007 (see App 8 / Hospitals Hip Protectors 2004-2008). There are a number of trends to note in the data. Firstly the average number of falls in the 6 months of patients given hip protectors has been rising steadily (suggesting that hip protectors are being offered to those most in need). Secondly the number of hip protectors being ordered for men has increased to a reasonable level from 2005 – the numbers offered to men in 2004 were very small indeed. In 2004 the average Cannard Score was below the cut-off score! Even now the average Cannard Score is barely above the cut-off. Closer inspection of the database shows that many patients have below the cut-off score for Cannard but have a history of multiple falls. In 2007 there were more inappropriate requests than appropriate requests (see Fig 32).

Table 10: Requests for Hip Protectors from Hospitals 2004-2007

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number inappropriate requests</td>
<td>1175</td>
<td>1639</td>
<td>1041</td>
<td>1114</td>
</tr>
<tr>
<td>Total number HPs ordered</td>
<td>2038</td>
<td>1791</td>
<td>1389</td>
<td>923</td>
</tr>
<tr>
<td>Females</td>
<td>1902</td>
<td>1239</td>
<td>967</td>
<td>646</td>
</tr>
<tr>
<td>Males</td>
<td>136</td>
<td>552</td>
<td>422</td>
<td>278</td>
</tr>
<tr>
<td>Av. Number of falls in last 6 mths</td>
<td>1.10</td>
<td>1.12</td>
<td>1.18</td>
<td>1.18</td>
</tr>
</tbody>
</table>
Figure 32: Requests and orders of Hip Protectors from Hospitals 2004-2007

**Hip protector requests and orders from Care Homes**

Table 11 below shows the requests and orders for hip protectors from Care Homes (see App 8 / Care Home Hip Protectors 2002-2008). There are less hip protectors ordered for clients in Care Homes than are ordered for patients in hospital. As is to be expected, the residents of care homes have had more falls in the past 6 months and have a higher average Cannard Score than patients in Hospital. More importantly, there are very few inappropriate referrals made compared to appropriate referrals leading to an order (Fig 33).

**Table 11: Requests for Hip Protectors from Care Homes 2004-2007**

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number inappropriate requests</td>
<td>144</td>
<td>178</td>
<td>302</td>
<td>176</td>
</tr>
<tr>
<td>Total number HPs ordered</td>
<td>711</td>
<td>715</td>
<td>918</td>
<td>743</td>
</tr>
<tr>
<td>Females</td>
<td>*</td>
<td>534</td>
<td>661</td>
<td>503</td>
</tr>
<tr>
<td>Males</td>
<td>*</td>
<td>181</td>
<td>257</td>
<td>240</td>
</tr>
<tr>
<td>Av. Number of falls in 6 mths</td>
<td>1.58</td>
<td>1.70</td>
<td>1.63</td>
<td>1.8</td>
</tr>
<tr>
<td>Av. Cannard Score</td>
<td>17.38</td>
<td>17.60</td>
<td>17.67</td>
<td>17.19</td>
</tr>
</tbody>
</table>

* 515 gender not recorded, 155F and 41M
Clinical Effectiveness of Hip Protectors provided on the basis of Cannard Scores

It would be most useful to have been able to interrogate hospital admission data on fractures to see if those people given Hip Protectors in the past have since had a fracture (of any sort). However, to do this, the authors would have had to gain IRAS ethics permission as the data on the hip protector database would need to be un-anonymised. Also the hospital data on admissions / fractures is not in the author’s possession. Therefore it is recommended that this linking up of fractures against provision of hip protectors (and an idea of Cannard sensitivity to predict the chance of fracture) be performed as an audit by a group of SpRs (as ethics approval would not have to be gained).

Alternatively, Glasgow Caledonian has a cohort of MSc Rehabilitation students that could perform this work if ethics approval is sought. There is no evidence that any tool to assess risk has any strong level of predictability in terms of future injurious falls or fractures (Oliver 2009; Haines 2008), however, the Cannard tool has not been used in a trial to consider clinical effectiveness so this would be an extremely valuable piece of work.

Information and data provided:

- Copy of Hip protector Audit by Isobel Baxter 2005.
- Audit data on implementation/use of Cannard across all hospital wards. (Baseline audit 2007 and re-audit in 2008). Unfortunately Cannard Scores have not been recorded in either audit.

Conclusions:

There is considerable debate in the use of Hip Protectors. The NICE guidelines suggest the use of hip protectors in care home residents at high risk of falls. Recent reviews (see App 8 / Ref Cochrane Review Hip Protectors Parker 2005 and Ref Hip Prot Nursing Home Review Sawka 2007) suggest that they are still effective at reducing fractures in nursing home residents but the effect is not marked. Both these reviews were based mainly on hard hip protectors. A recent trial with energy absorbing (soft) hip protectors showed no effect on fractures in nursing home residents (App 8 / Ref Hip
Protectors Keil 2007). Both reviews comment on adherence and compliance being the major issue. The GGC Hip Fracture Audit in 2005 showed similar problems with compliance and adherence.

The Hip protector Audit 2005 recommends “That the Hip Protector Programme be closed to new admissions to care homes. Existing users should continue to be supported and it is recommended that sliding scale funding for this purpose be ring-fenced for a period of 10 years”. The authors of this evaluation agree with this until such time as further research helps us to understand how to increase compliance.

Cannard is a falls risk score, not a fracture risk score (although it is appreciated that the greatest risk of a fracture is following a fall). With the reduced use of hip protectors across the UK following the evidence in the last 5 years being less positive on their use, it may be more appropriate in the lifetime of the Hip Protector Programme to not only have a Cannard Score but maybe also a fracture risk score (such as FRAX or Black Score).

**RECOMMENDATIONS**

The provision of hip protectors should only be offered to those at risk of falls and fracture. Ideally a fracture risk score should be added to the criteria for provision of hip protectors.

FPCs in the Hospitals should attempt to address the large number of inappropriate referrals for hip protectors.

As evidence for the use of hip protectors is controversial (not just in terms of adherence but also effectiveness) the reduction in funding on a sliding scale is appropriate.

A retrospective analysis of Cannard Scores against 1 or 2 year follow up of fractures and mortality would be a valuable piece of research, requiring full IRAS ethics permission or a large scale internal audit with full interrogation of patient records by NHS number.
9.0 Preventing individuals sustaining further injury from falls using equipment including guidance on restraints.

**What the strategy says:**

A local (GGCNHS) protocol will be developed for the use of equipment restraints to reduce risk of frequent falls. Guidance will be based on the Mental Welfare Commission for Scotland good practice guidance “Rights, Risks and Limits to Freedom – Guidance for the use of restraint” The protocol should be subject to regular audit and review. Specialist equipment will be provided via the Greater Glasgow Independent Living Equipment Store (GGILES).

**Current service:**

The new *Falls Management Guidelines and Policies* (see App 6/ Falls Management Policies and Guidelines) contains guidance on the use of lap straps, bedrails etc which may be considered as restraints. There is discussion about the development of a protocol for the use of equipment and restraints to reduce the risk of frequent falls (p16). The use of restraints is generally documented in care plans, but often not electronically. If this information is documented in the database then there could be some analysis of the numbers of patients receiving restraints and whether there have been any subsequent injuries as a result of a fall. The difficulty arises as to how large this part of an evaluation could be if it included care homes as well as hospital based use. Apparently, no formal restraint policy has been introduced due to availability of guidance by mental welfare commission.

**RECOMMENDATIONS**

An audit of restraints use in Hospitals is necessary.
10.0 **Action to reduce the risk of fractures – targeting osteoporosis treatment.**

**What the strategy says:**
The service should identify people who have sustained new fractures or are at risk of fracture, and offer them a bone scan to assess for the presence of osteoporosis. The results should inform a treatment protocol involving specialist advice on management of their condition, importance of adherence to long-term treatment and referral onto the falls prevention service (CFPP) where appropriate.

1. **GPs** should be encouraged to identify patients with relevant medical histories and refer for bone scan (DADS) – ideally this should be via GMS QOF.
2. **Referrals from Radiologists.** Improved identification, clinical evaluation and reporting of vertebral fracture by Radiologists.
3. **DADS** Reconfiguration of the DADS should allow for every patient to receive an individual consultation with an Osteoporosis Nurse Specialist (ONS) following their bone scan. However existing service only allows for the ONS to formulate treatment recommendations and send a report to the GP (non expert in osteoporosis) to disseminate to the patient.
4. **FLS – radiology.** Additional ONS (specialist nurse) time will allow for direct links with radiology to identify those with vertebral collapse/fracture and who are currently unidentified as potentially having osteoporosis and requiring treatment.
5. **Secondary Care Dexa Service.** Currently, secondary care referrals from within the hospital system (from Mineral Metabolism Clinics, Rheumatologists, Endocrinologists) receive a bone scan with a report of diagnosis only being sent to the referring doctor. This report does not currently include patient specific treatment recommendations. Additional staff would allow the ONS to prescribe computer generated reports with patient specific treatment recommendations for the referring clinician to then implement and disseminate to the patient.
6. **Anti-osteoporosis therapies.** A compliance-adherence protocol to foster longer-term adherence to bisphosphonates (and other appropriate anti-osteoporosis therapies) is to be developed between ONS and Pharmacy services.
7. **The physiotherapy, exercise and education component** of the osteoporosis service is to be expanded to meet the demand of the additional patients being identified through the above changes to osteoporosis nurse specialist service and also to improve local access to classes and equity of service across GGCNHS.
8. **Increased availability of patient education meetings** to twice yearly within each of the fracture liaison service localities and run by the ONS.

**Current service:**
The Fracture Liaison Nurse sees all new fractures. New monies in 2005 allowed for targeting of old fractures and osteoporosis risk identification. Increase in staffing in 2005 and reconfiguration of service has allowed for service developments 3,4,5,7 and 8, referenced above, to be operational. GPs do refer and are encouraged to search via SHIRE software for at risk patients i.e. they fulfil specific referral criteria as per DEXA referral form (see App 5 /Direct Access Dexa ref form) Radiologists are actively referring vertebral fracture. The educational element is a continuous process and starts at the 1:1 consultation with the ONS. The National Osteoporosis Society literature is used as a framework for discussions and includes advice on drug treatments and exercise promotion. Patients are also invited approximately one year post diagnosis to attend educational days. Number 6 is in the planning stages in collaboration with Pharmacy services (see Section 5.6)
Evaluation

The service began operating in November 1999 in West Glasgow and in November 2000 in South Glasgow. The Fracture Liaison Service in Glasgow has been in existence for some years and is now considered to be one of the model services in the UK. The service itself has published many papers in Scientific Journals reporting both its service delivery and evaluation of its outcomes (see App 11 /Ref_FLS evaluation_McLellan 2003; App 11 /Ref_Refracture following FLS_Langridge 2007 and App 11 /Ref_Vertebral fracture_Howat 2009).

The first published paper on the FLS in Glasgow (Figure 34) showed that during the first 18 months of operation, more than 4,600 patients with fractures of the hip, wrist, humerus, ankle, foot, hand, and other sites were seen by the Fracture Liaison Service’s osteoporosis specialist nurses. Nearly three quarters of these patients were considered for BMD testing; treatment was recommended for approximately 20% of the patients without need for BMD testing. Overall, 82.3% of patients who had BMD testing were found to be osteopenic or osteoporotic at the hip or spine.

Figure 34: Flowchart describing the FLS model for targeting treatment for secondary prevention of osteoporotic fractures - Taken from McLellan et al. 2003.

Re-fracture following FLS assessment – published evaluation (App 11/ Ref_Refracture following FLS_Langridge 2007):
A proportion of patients who have attended the FLS and had treatment will still experience a further fracture. This work reviewed the characteristics of these patients. Data were collated for patients >65 years old presenting to the South Glasgow FLS between January 2001 and August 2004. There were 2,489 patients who presented (incident fracture group), and 129 (5.2%) sustained an additional fracture (refracture group). Median age of the incident fracture group was 77.8 years vs. 80.6 years for the refracture group (P = nonsignificant). The refracture group was determined according to whether their incident fracture was hip (n = 47) or nonhip (n = 82). When the incident fracture was hip, a refracture was more likely to be a further hip fracture (v² = 14.4, P = 0.002) and patients refractured sooner (median time to refracture 194 [range 10–1,134] days vs. 258 [range 6–1,081] days [nonhip]) (P = nonsignificant). In the refracture group, 76% of patients were already on osteoporosis treatment after their incident fracture. Patients over 65 years of age presenting...
to FLS who sustain an additional fracture are older; are likely to sustain another hip fracture after an incident hip fracture; often refracture early, particularly when the incident fracture is of the hip; and are often already on antosteoporosis treatment. The paper recommended that these high-risk patients be offered a combined approach of prompt drug treatment through a systematic and specialist osteoporosis management team along with reducing any reversible falls risk factors. This is the point at which full collaboration with the CFPP initiated. This paper also illustrated the large numbers of DNAs to appointments of those who went on to have further fractures.


Patients with fractures should be prioritized for assessment for osteoporosis so that they can benefit from treatment for the secondary prevention of osteoporotic fractures. Assessment is seldom offered to patients with vertebral fractures because these fractures are typically not diagnosed. Vertebral fractures can be identified by vertebral fracture assessment (VFA) using current dual-energy X-ray absorptiometry (DXA) scanners. This published study aimed to assess the prevalence of vertebral fractures, using VFA, in patients presenting with nonvertebral fractures and to assess whether this impacts on the management of these patients. A cohort of 577 patients aged 50+ including 455 women, who presented with nonvertebral fractures and who underwent routine post-fracture assessment by the Fracture Liaison Service (FLS).

Of the men and women with nonvertebral fractures, 19–20% had at least one vertebral fracture. The prevalence ranged from 6% in men with humeral fractures to 32% among women with hip fractures. The prevalence of vertebral fractures correlated most strongly with increasing age and with severity of reduction of BMD. Using local treatment protocols, VFA would result in only 3% more patients receiving treatment for fracture secondary prevention.

This study concluded that while patients with vertebral fractures seldom present acutely and are rarely identified, services such as our FLS are in fact dealing with much greater numbers of patients with vertebral fractures than was hitherto been recognized. While vertebral fractures do impact on patients’ risk of future fractures, until treatment algorithms redefine higher BMD thresholds that can be used in conjunction with the overall numbers of prevalent fractures (including vertebral and nonvertebral fractures), then VFA will not impact significantly on the need for treatment for fracture secondary prevention. However, at present, performance of VFA is not useful in the management of patients with nonvertebral fractures because the vast majority of patients who have at least one vertebral fracture currently merit treatment based on age, the occurrence of a fracture and BMD.

Growth of the DADS service 2007-2008:

There has been a steady growth of referrals into DADs, evidenced by the increased referrals seen in South Glasgow (Table 12 overleaf) from 586 patients in 2007 to 814 patients in 2008. There was also evidence that referrals of patients with previous fractures is increasing (from 32% in 2007 to 49% in 2008) suggesting that patients that have previously been missed are now being appropriately referred. Over 40% of patients seen by this service are commenced on Bisphosphonates and Calcium/Vitamin D preparations. However, as evidenced by the Pharmacy evaluation in section 5.6, many patients have poor adherence to taking these medications so the links with the Pharmacy Service to ensure compliance is important.

Table 12: Direct Access Dexa Scan (DADS) service activity for the South Greater Glasgow area (DADS not yet rolled out to Clyde area). A comparison of the years 2007 and 2008
NB. Referrals to DADS are from GPs, Pharmacists and Physiotherapists.

<table>
<thead>
<tr>
<th></th>
<th>DADS referrals 2007</th>
<th>DADS referrals 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number appropriates referred</td>
<td>586</td>
<td>814</td>
</tr>
<tr>
<td>History of fracture(s)</td>
<td>185 (32%)</td>
<td>395 (49%)</td>
</tr>
<tr>
<td>Commenced on Bisphos., Ca &amp; VitD</td>
<td>253 (43%)</td>
<td>331 (41%)</td>
</tr>
<tr>
<td>Ca/VitD only</td>
<td>45 (8%)</td>
<td>89 (11%)</td>
</tr>
<tr>
<td>Referred to Physio</td>
<td>147 (25%)</td>
<td>241 (30%)</td>
</tr>
<tr>
<td>Referred to CFPP</td>
<td>5 (1%)</td>
<td>7 (1%)</td>
</tr>
<tr>
<td>No treatment required</td>
<td>285 (49%)</td>
<td>375 (46%)</td>
</tr>
</tbody>
</table>

**referral to CFPP from FLS:**
Tables 12 and 13 shows the small number of referrals to the CFPP from the FLS. In discussion with the service, patients aged 65+ are asked if they have a history of falls and offered a referral to the service or a leaflet about the service and most accept the leaflet. However, many do not self-refer into the CFPP service. Considering the importance of preventing falls in patients with known Osteoporosis it is evident that patients over 65 with Osteoporosis should automatically be referred to CFPP.

**FLS Nurse Activity 2005-2008:**
The FLS nurse activity has been documented and compared over two time periods (Oct 2005-April 2007 and May 2007 to Sept 2008). These periods are slightly different in time lines (2 months) but give an indication. A huge number of patients are seen by the service so there is a good reach, however, the linkage onto the CFPP must be enhanced to ensure that there is proper linkage between bone health and reducing the risk of future falls and fractures through the wider implementation of falls prevention strategies.

**Poor patient attendance following referral:**
There is some evidence of poor attendance (DNAs) at the DEXA clinics (see App 10/ Fractured hips-why didn’t we prevent them-abstract BGS2009) from an audit of 12 hip fracture patients attending Stobhill Hospital by Claire Langridge. In this small sample, 4 out of 5 of the patients who had been referred to the FLS had not attended their appointment. Up to 20% of patients who had had an incident fracture did not attend the FLS following discharge from hospital (App 10 / Ref_Refracture following FLS_Langridge 2007). Work on increasing the uptake of referrals is necessary.
Table 13: Osteoporosis Specialist Nurse Service activity 2005 – 2008

NB. “CRIS” denotes those fractures found by the ONS when case trawling of radiology information systems data. This is broken down into vertebral and “other” fractures. Data not comparable across sites due to differing staffing over these time periods

<table>
<thead>
<tr>
<th></th>
<th>WIG</th>
<th>Stobhill</th>
<th>GRI</th>
<th>SGH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total numbers seen by FLS service begin Oct 05 – end of April07 (19 months)</td>
<td>2294 120/month</td>
<td>0</td>
<td>3075 162/month</td>
<td>3750 197/month</td>
</tr>
<tr>
<td></td>
<td>Includes FLS-radiology from Feb07</td>
<td>As FLS – radiology started April07</td>
<td>Includes FLS-radiology from Nov06</td>
<td>251 VERT #</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1157 “others” via CRIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2162 FLNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Includes FLS-radiology</td>
</tr>
<tr>
<td>Total number referred to Community Falls Prevention Programme In the above time period.</td>
<td>Code = WIG764 75</td>
<td>Code = GRI758 17</td>
<td>Code = SGH746 39</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total numbers seen by FLS service begin May 07 – end Sept 08 (17 months)</td>
<td>2288 134/month 64</td>
<td>2902 171/month</td>
<td>3191 188/month</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NB. Does not include vert # or “others” for july, aug sept.</td>
<td></td>
<td>290 VERT # 1143 “others” via CRIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1758 FLNS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number referred to Community Falls Prevention Programme In the above time period.</td>
<td>11 20 11 41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of vertebral fractures seen /month</td>
<td>10 - 20 2 18 15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>541 OVER 36 MONTHS VERT FRACTURES</td>
</tr>
</tbody>
</table>
**Osteoporosis specialist Physiotherapy services:**
An osteoporosis specialist physiotherapist co-located alongside the CFPP enables shared planning, resources and provision of classes. The Ozone Service (exercise sessions for patients referred from the FLS) links closely with the falls exercise sessions allowing cross referral. The Ozone classes have a strong focus on balance improvements to prevent falls as well as resistance work and impact work to improve bone health. There has been a steady growth in referrals to the Ozone classes (Figure 35) and from Jan 2007 to Dec 2008 the service received on average 68 referrals a month. On average 32 referrals a month come from the DADs services, 23 referrals from the FLS and the rest from Physiotherapists, GPs, Rheumatology and a small number from the CFPP). There are 12 classes running every week for patients to attend. There was no outcome analysis on any patients who have taken part in these classes.

**Figure 35: Referrals to Ozone Classes 2005-2008**

**Patient Education sessions:**
These are run once year and target those patients who are 6 – 12 months post diagnosis (of Osteoporosis or Osteopenia) and whose names are held on the fracture liaison service database (GISMO). To maximise chances of attendance patients are encouraged to bring a relative/friend/carer and refreshments are provided. The range of topics covered are Osteoporosis, treatment options, the role of exercise, fall prevention, pain management and the National Osteoporosis Society. These topics are delivered by the relevant agencies which includes the CFPP staff. Feedback is sought via questionnaire and knowledge quiz. A sample of information provided by these feedback methods indicates that the majority (almost 50%) of attendees find the sessions “very worthwhile” with 35% finding them “extremely worthwhile”. Evaluation of the educational effect: 86% report to be more aware of what Osteoporosis is; 70% report commitment to improve medication compliance; 69% more aware of how to reduce risk of falls and 58% plan to increase their exercise activity.
Information and data provided:
- GISMO drop down list.xls
- Gismo templates or query builders
- FLN completed stats table shows numbers being seen/month and numbers referred to CFPP (evidence of linkage)
- Specific request made to FLN for data from GISMO: referred to service Oct05 – April 07 and also May 07 – Sept 08; numbers referred to CFPP for both these periods (evidence of linkage of the two services) and numbers of vertebral fractures seen /month. **NB This period (Oct05 – April07) chosen to compare other sites with a Western Hospital FLN Audit.**
- 1 Research/Audit Paper published in peer reviewed journals – 2 more found by searching Medline
- DADs referrals into South Glasgow service 2007-2008
- Patient Education Sessions - hard copies given no indication of timeframe and original data not available.
- Abstract BGS 2009 Dr C Langridge (see App 10 / Fractured Hips- why didn’t we prevent them)
- Information from Ozone referrals 2005-2008

**Conclusion:**
Ideally, comprehensive secondary prevention following hip fracture would be readily accessible and patient-focused, with bone protection and falls assessment provided within a single service. The Fracture Liaison Service model achieves these goals far more effectively than other relevant UK Initiatives (App 2/ DoH_Effective Interventions falls and fractures_2009, McLellan et a. 2007). The NHSGGC FLS is a model of good practice that many services aspire to. In order to ensure this service meets the needs of all patients, there are a number of recommendations.

**RECOMMENDATIONS**

**Evaluation of the training programme** being piloted by the falls pharmacists with ONS which aims to foster longer-term adherence to Bisphosphonates by use of a compliance-adherence protocol.

**Reduce DNAs** following referral onto FLS – both of patients who have had incident fractures and been discharged home and those referred through Pharmacy for DEXA scans. A follow up of DNAs is recommended, first by repeat appointment. A small selection of DNAs could be followed up by phone to ascertain reasons for non-attendance.

Better **onward referral** of those with a history of falls to the CFPP from the FLS. Rather than relying on a leaflet and self-referral.

An **audit** on outcomes of patients undergoing Ozone classes, effect on performance and quality of life, patient satisfaction questionnaires.
11.0 Action to reduce the psychological consequences of falls such as avoidance behaviours, reduced activities and social withdrawal

**What the strategy says:**
Improvements in the identification and appropriate treatment of those most at risk of experiencing deterioration in both psychological and physical functioning due to the fear of falling. E.g. The introduction of screening trigger questions and a mental health screening tool to be used by all professionals involved in the CFPP service; competency training for the use of the tool and referral to relevant services i.e. Primary Care Mental Health Teams (direct referral) and secondary care based Community Mental Health Teams (Non direct and via GP); introduction of a psychological component to the falls prevention classes where group sessions may be offered in tandem with exercise and education; one-to-one session for the more complex cases in tandem with falls outpatient clinics.

**Current service:**

*Screening Trigger Questions and Mental Health Screening Scale*

On referral to the CFPP, the telephone triage questions include a screening question “Since falling do you generally feel more anxious about falling again and the consequences?” If the answer is “very” or “quite” then the client is offered a home appointment with the CFPP occupational therapist. This question does not differentiate between those who have developed a “fear of falling” and those who may be overly anxious or depressed.

The Falls Screening and Collection Tool (FSCT), completed by the OT support worker, have a number of questions to identify if a further assessment of the psychological consequences of the fall is necessary:

Firstly there are generic questions that allow general discussion and, if necessary, trigger a home visit by the OT to explore issues further:

- How did you cope after these other falls?
- Since falling do you generally feel more anxious about falling again and the consequences?
- Is there anything you have stopped doing, or struggle to do because of the fall?
- A “yes” to the following two questions on the FSCT triggers screening using the Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983):
  - Apart from the fall, do you generally feel anxious about things?
  - Apart from the fall do you generally feel depressed?

This is designed to detect general symptoms of psychological distress such as anxiety or depression which requires onward referral to either a Primary Care Mental Health Team (PCMHT) for mild scores in the range 8-10; or via the GP to the Community Mental Health Team for Older People (CMHT (OP)) where scores are of 11 or above. The above screening does not formally assess fear of falling or avoidance of activity. At present, with the current constraints of the generalized questions asked, positive responses to these questions are brought to the attention of the physiotherapist only if the client is attending Falls Prevention Classes. Interventions to reduce this fear/anxiety would then be targeted and integrated into any rehabilitation programme for that client. There is however no formal assessment or measurement of outcomes at present, though fear of falling (assessed formally)
is significantly reduced following attendance at classes (see Section 5.4). Those clients not referred to exercise sessions have no formal interventions for fear of falling.

**Competency Training**

Training on the trigger questions and the use of HADS, by a *Clinical Psychologist* working within one of the Community Mental Health Teams for Older People. Internal training with new OT support workers is currently undertaken by the OT within the CFPP.

**Referral onto Mental Health Teams**

If an individual scores within the “mild” range (8-10) on the HADS, they are offered onward referral to the Primary Care Mental Health Team, unless they are being referred on to the Community Older People’s Teams in Glasgow. There is no referral route for those identified as having “fear of falling” as there is no dedicated CFPP Clinical Psychology time.

**Introduction of a psychological component to the exercise classes**

The instructors that run the CFPP classes are trained in delivery of the FaME exercises. The instructors (during training) are made aware of the potential issues of fear of falling and avoidance of activities and offer advice, group discussion and have the ability to refer onto mental health teams if necessary.

**One to one sessions in tandem with falls clinics**

This “arm” of the service is not currently in place as there is no dedicated CFPP Clinical Psychologist time.

*NOTE: Because of under-resourcing in the Older People Clinical Psychology services, a decision has been made to concentrate on improving community mental health services for general older people rather than focussing on specialist services such as the CFPP. This will be revisited but currently Clinical Psychology does not feature strongly in the CFPP service.*

**Evaluation:**

Using data from the CFPP database (Jan 07-Jun 08), out of a total of 1351 home visits in this period, only 2.6% of clients seemed to trigger a HADS assessment, whether they actually had one or not (Figure 36). The CFPP completed a HADS assessment on a total of 16 clients, 11 clients had HAD scores already known and 8 declined to do the HADS assessment. The percentage of clients triggering a HADS assessment has declined slightly (from 3.6%) since the internal audit of July 2006 to October 2007 (see App 11 / Psych and CFPP Proposal_Conaghan2008). Since community prevalence statistics suggest that as many as 20% of older adults and as many as 46% of day hospital patients have mild to severe anxiety or depression, it is clear that the “trigger questions” are not specific enough to identify those in need of services.

An audit within the Mansionhouse Unit by Susan Conaghan (personal communication) evaluated the use of trigger questions rather than blanket HADS screening showed that the trigger questions only failed to detect 8% of those who went on to score within the clinical ranges on the HADS, so it appears the trigger questions are valid. Within this audit, 18% of patients attending the unit had moderate or severe levels of anxiety and/or depression, suggesting the CFPP is currently only identifying a fraction of those in greatest need of mental health care teams.
Training: There is a need to ensure regular update training on the use of more specific trigger questions and in strategies for increasing the uptake of HADS assessment (try to reduce the number of people declining). It is possible that staff feel they do not have the skills to cope with a “yes” reply or how to ensure onward referral for those identified as being anxious or depressed? Further training to promote approaches which enhance the psychological care offered by CFPP staff will require dedicated time from a Clinical Psychologist, preferably as part of the CFPP team.

Onward referral of those scoring mild to severe on HADS: In relation to those individuals scoring within the mild, moderate or severe range on the HADS, there are also issues regarding onward referral. Currently, if an individual scores within the “mild” range (8-10 on the HADS), they are offered onward referral to the Primary Care Mental Health Team (PCMHT), unless they are being referred on to the Community Older People’s Teams in Glasgow. Unfortunately, we know from a recent audit that the PCMHTs in Glasgow are not meeting the needs of older people with mild/moderate mental health problems. An audit (2004-2006) of three Primary Care Mental Health Teams (PCMHTs) in Glasgow South (see App 11 / PCMHT Audit South Glasgow) only 4.69 % of referrals overall were for older people, despite a local elderly population of nearly 16%. Given that epidemiology surveys indicate higher rates of ‘sub clinical’ relative to major depression amongst older people an even higher rate might have been anticipated. A slightly more recent audit of one PCMHT suggests rates of referral for >65s closer to 12% (see App 11 / PCMHT Audit South Glasgow). However, there is a need to ensure that this population’s needs are addressed, both in general community services and within the CFPP. Where an individual is referred on to a COPT type service (by CFPP) and have been identified as requiring onward referral to mental health services, it is assumed that the COPT or equivalent will then coordinate and action the referral on as are no Clinical Psychologists or appropriately trained and supervised psychological therapists working with the COPT type teams in Glasgow.

Susan Conaghan has suggested a model of working that could address this gap in service provision of the COPT type of teams. (see App 11 / Psych and CFPP Proposal_Conaghan2008).
Information and data provided:

- Proposal to the RAD to improve services to address the psychological consequences of falling – dated Mar 2008, Susan Conaghan.
- Internal audit of PCMHTs in South Glasgow – Niall Broomfield.

**Conclusion:**
There is little evidence that fear of falling is being adequately assessed in the falls pathway. There has been much research recently on the efficacy and effectiveness of different interventions aimed at reducing fear of falls and avoidance of activity (App 11 / Ref FoF Interventions Zijlstra . 2007). There are now known psychological strategies (including motivation techniques and retraining of floor skills during exercise) that can help improve fear of falling and falls self efficacy. Although clinical psychology is mentioned in the NICE guidelines there is no recommendation for either assessment or management of an individual with known fear of falling. However, the NICE guidance is now over 4 years old and research has been extensive in this area. Therefore, the role of psychological assessment and intervention within the strategy should be re-addressed.

**RECOMMENDATIONS**

CFPP - Onward referral options for the relatively small number of clients identified by the CFPP as needing a referral following HADS assessment need to be clarified. **Regular brief training** to the CFPP team on the use of the trigger questions and the completion of the HADS assessment is important.

CFPP - **Consider trigger question** for screening tool to be “In the last 12 months have you limited your activity due to fear of falling?” - If YES, perform short Falls Efficacy Scale –International (FES-I) assessment Training on onward referral or brief interventions regarding answers on Short FES-I.

COPT or equivalents - There are currently no Clinical Psychologists or appropriately trained and supervised psychological therapists working with the COPT or equivalent teams but the referral options are the same for that of the CFPP i.e. PCMHT or CMHT (OP). However, for those clients not first seen by CFPP, there is also no current use of HADS in the COPT type teams. The COPT and equivalents currently uses a combination of memory and cognition tests and the Geriatric Depression Scale led by their professional judgement. **Introduction of trigger questions and HADS assessment, with appropriate onward referral teams is recommended.** For mild HADS scores (8-10) referral to PCMHTs; for scores of 11 or more on HADS, referral via the GP to CMHT(OP) is appropriate.

**Dedicated Clinical Psychology time** for direct referral from Falls Clinics and from the CFPP in those with severe anxiety or depression or a score of 18 or more on the Short FES-I.

CHCPs - Education and training of general health workers in identification of fear of falling, anxiety and depression to support prevention of falls on a population basis – through knowledge about avoidance of activity and increased social isolation.
12.0 Awards

The following awards have been presented to parts of the NHS GGC Falls Service.

In 2008 the CFPP won an award for **clinical effectiveness from Quality Improvement Scotland**. A general introduction to the Community Falls Prevention Programme in Glasgow, presented by Dr Lynsey Simpson to NHS Quality Improvement Scotland in 2007 gives a general overview of the services available to a faller (see App 12/ AWARDS CFPP Presentation to QIS 2007).

Acute Falls won a poster competition at the RAD Clinical Governance Symposium in March 2009 - Hospital Fall coordinators influencing a dramatic decline in hospital falls! The award title: **RAD Clinical Governance Symposium in March 2009 Poster Presentation** (see App 12/ AWARDS Hospital Falls Clinical Governance Symposium poster)

CFPP representatives made the **finals of the AHP & HS 2009 Awards in the category of “Promoting health and well being in hard-to-reach-communities”**

The Pharmacy service submitted their novel service and won the **Pharmaceutical Care Awards** in 2007 (see App 12/ AWARDS Pharmaceutical care award 2007)
13.0 Recommendations
This section gathers together the recommendations within each section of this report and separates them into recommendations for further evaluation (section 13.1) or recommendations for the RAD to consider that aim to improve patient outcomes, equity of service or changes that will align the service more closely to published guidelines for best practice in falls prevention and bone health.

13.1 For further evaluation

CFPP - Links with NHS24 and the Ambulance Services
The CFPP is currently developing links with NHS24 and the Ambulance Services so that there can be direct referrals from these sources. The numbers triaged by the Falls Administration Centre and the number referred directly to COPT teams or equivalent (immediate needs) should be evaluated.

Falls Clinics
There is a need for a robust cross-GGC audit of falls clinics referrals, appropriateness of referrals, DNAs, workload and onward referrals. This should include where referrals come direct from the GP or other services. Ideally all referrals should come through the CFPP to minimise inappropriate referrals to the Falls Clinics. Ideally all Falls Clinics should have equitable referral-on options available to them and a standardised database to allow auditing of patient outcomes. An audit of Pharmacy referrals from Falls Clinics would inform practice.

Direct Access DEXA
An audit of the percentage of referrals into DADS that do not result in a DEXA scan and the average length of time between referral and scan and DNAs
Regular yearly audits of referrals, particularly in light of the increase in recent years and the possibility of the GP Directly Enhanced Service increasing number of patients referred to DADS.

Community Pharmacy
Audit of reasons why patients referred by the CFPP to Pharmacy review decline would be useful.

In Hospital
An audit of the number of patients screened by the FPCs and referred on to Fracture Liaison Service using the Direct Access DXA Service (DADS) referral criteria is suggested. Suggested yearly audit of use of Cannard Scores and Traffic Light Mobility Scores to inform Care Plans are used and regularly updated to ensure constant raised awareness of falls in older people in Hospital with the regular turnaround of nursing staff.

Hip Protectors
A retrospective analysis of Cannard Scores against 1 or 2 year follow up of fractures and mortality would be a valuable piece of research, requiring full IRAS ethics permission or a large scale internal audit with full interrogation of patient records by NHS number.

Restraints
An audit of restraints use in Hospitals is necessary.
**Osteoporosis Treatment**
Evaluation of the training programme being piloted by the falls pharmacists with ONS which aims to foster longer-term adherence to Bisphosphonates by use of a compliance-adherence protocol. An audit on outcomes of patients undergoing Ozone classes, effect on performance and quality of life, patient satisfaction questionnaires.

13.2 For consideration to improve patient outcomes

**Across the Service - Patient Engagement / Satisfaction Questionnaires**
At present there is little consistent recording of patient satisfaction, merely a few one off audits (by Pharmacy and by the Tiered Exercise Service). There is a need to ensure that patients can have their voice heard and their inclusion into design of literature (for example with the CFPP Invite Letter) can prove very useful to ensure engagement. It is recommended that ALL services develop a patient satisfaction questionnaire (brief) that can be handed to all patients/clients at the point of entry into the system and be collected in at any point in the system. If the Questionnaires are coded (so as to identify the service) they can remain anonymous (patient confidentiality) and be centrally collated at the CFPP or RAD for evaluation. There is a cohort of over 40 MSc Rehabilitation Science and MSc Occupational Therapy students at Glasgow Caledonian University who would be able to analyse these datasets as part of their research dissertations.

In 2008 the Royal College of Physicians Clinical Effectiveness and Evaluation Unit (CEEU) undertook a patient and public involvement project called “Older People’s Experiences of Falls and Bone Health Services” to gather patient’s views and experiences and produce recommendations so that falls service providers could develop their services based on these views. The report can be accessed via http://www.rcplondon.ac.uk/clinical-standards/ceeu/Current-work/Falls/Pages/Other-projects.aspx. As well as the report the outputs from the project were this focus group pack, a patient leaflet and a patient experience tool (questionnaire). We recommend that two to four focus groups are convened locally, following advice in the Focus Group Pack (attach as appendix) so that services can be informed locally by individuals who use the services.

**CFPP: Telephone Triage**
As the number of people not returning first call from CFPP is so high and the numbers replying to the Invitation Letter are so low, suggest a second call a few days after the Invitation Letter is sent out.

**CFPP - Screening and Data Collection Tool**
Q21 – Suggest adding a question such as “Having had your fall, are there any activities which you feel you may not resume?” OR “Do you think you may stop doing certain things (curtail any activities) as a result of your falls?” (Links with strategy section 9 on psychological consequences). Q28 – Suggest adding a question on urinary incontinence and other lower urinary tract symptoms (frequency/urgency) as new evidence suggests an important role in falls risk.

**CFPP - Follow-up / “Tie-up” on discharge**
Suggest the need for a “TIE UP” for client after they may have attended all the services agreed in their fall prevention action plan – this could be in the form of a “Passport” they get on first home visit and actions completed could be stamped. Potential people to finalise the document could be Hospital Falls Co-ordinators (at clinic review if available), CHCP Falls Co-ordinators, PTs (at end of group exercise sessions), OTs (at end of home support visits)? The CFPP would have to identify who was appropriate for each client? One suggestion was a SAE postcard (detachable from Action Plan) to
be sent back to service by client/carer when Action Plan complete? At CHCP level, perhaps volunteers/mentors (ex service users) or CHCP Falls Co-ordinators could follow up and gather clients perspectives, number of falls, or “mentor” continuing exercise at home? It is however acknowledged that at present, there is no agreed board wide remit for the CHCP Falls Co-ordinators with some acting purely as advisor and others heavily involved in training etc.

**CFPP - Primary Falls Prevention**
Strong links should be formed with CHCPs to ensure that prevention of the first fall is addressed and home exercise programmes can be supported.

**CFPP - Links with A & E**
At present referrals from A & E are small and yet this is an area where CFPP has a chance to ensure prevention of future admissions. Working closely with each A & E clinic (through Hospital Falls Co-ordinators) is recommended. Work on identifying fallers in SGH through A & E is being piloted and should be rolled out across all Hospital sites.

**CFPP - Admin Centre**
Electronic access to and input into the CFPP database by the outpatient falls clinics and other relevant clinicians/therapists would aid communication and allow “tie-up” of action plans.

**Falls Clinics**
The Physiotherapy (PT) assessment at the MDT clinics in the Clyde area is provided solely by the CFPP. In all other areas of Glasgow, the PT service is jointly resourced by the Hospital and by the CFPP. This model appears to work well in terms of workload and should be encouraged. The Pharmacy Service needs to roll out to the Clyde area so that the MDT Falls Clinics at Inverclyde, the RAH and Vale of Leven have a report from Pharmacy on patients referred to them by the CFPP and attending the Falls Clinics/Older Person General Medical Clinics. The Syncope Service would ideally be referable into by all Falls Clinics across GG&C to allow equity of service. The NICE guidance suggests that cardiovascular assessment (including TILT) is available to all Falls Clinic patients if they have syncope or pre-syncope presentations.

**Tiered Exercise Programme**
The only downside to the tiered programme is the lack of the choice of a home exercise programme only for those who do not wish to attend a group class or who do not have the baseline functional ability in order to safely take part in group exercise. At present these people are either referred on to DART/IRIS/COPT/ equivalents or are given a home exercise programme booklet. These rehabilitation teams, combined, are currently able to offer approx 16 weeks of home based exercise interventions and support. Issue of the home exercise booklet is currently not combined with any follow up support either by a visit or telephone. None of these services are therefore able to deliver the length of intervention (6 months) evidenced to ensure uptake or adherence to such a programme. These, the frailest of the population generally, are a group who would very much benefit from support to complete home based exercise and are the group most likely to have hospital admissions due to falls so our recommendation would be that the CFFP be given resources to implement some support mechanisms for those being offered home exercise booklets or work closely with local CHCPs to ensure that there are support mechanisms in place.

**Direct Access DEXA**
Continued roll out of service across Clyde
**Community Pharmacy**

Medications associated with a high-risk of falls should be recorded in key indicators (this is already in place for audit in 2009).
Continued roll-out of the Falls Pharmacy work in Clyde.
Continued roll-out of timely provision of medication review report to Falls Clinics (currently only 5 out of 8) in Glasgow.
Improvements in the flowback of information on medication review from the Falls Clinics to the Pharmacy Falls Centre in Glasgow.
Improvements in the flowback of information on medication review to CFPP on individual patient outcomes.
Continue to provide ongoing support and training to community pharmacists and FLNs across GGCNHS and audit regularly the database of training held by the Pharmacy Falls Centre.
Would be useful to revisit those who DNA DEXA scanning following Pharmacy referral.

**Care Homes**

There has been a growing rapport with the FPCs and Care Homes after overcoming the initial resistance. However, more work is needed to engage Care Homes in the South and East, particularly in pre-emptive planning rather than reactive management. Areas of particular need are:
Education sessions to care homes staff: Continue working on engaging care homes to allow education sessions to be delivered to staff (especially within the South and East). Reference was made to calcium and vitamin D intake in continuing care beds for older people. Documentation on the provision of supplements or notes about food intake and sunlight exposure may show trends in improvements in this indicator but no such records were obtained for this audit. It is recommended within this evaluation that the education sessions for Care Home Staff include information on the need for adequate Vitamin D intake and the need for sunlight/daylight (not through glass) for residents. Perhaps this is one area where the extra input from the local CHCPs may have a positive influence?

Regular reviewing of Falls Care Plans by Care Homes, particularly after falls and certainly on a regular basis, as this is patchy at present.

Exercise sessions available for Care Home Residents. The evidence is clear, that exercise as part of a multifactorial care plan for high risk Care Home residents is important – perhaps these could be delivered by the CHCPs?

Medication Review has a vital part to play in management of falls in Care Homes. There is a need to ensure effective methods of working with the Pharmacy service to ensure medication reviews are timely and adherence is followed up.

**In Hospital**

There is a need to review OT staffing to ensure OT assessment (and home visit) is performed pre-discharge on a more consistent basis as this still forms a large part of the evidence base behind falls prevention in the NICE guidelines and other literature.

Medication Review has a vital part to play in management of falls in Hospitals. There is a need to ensure effective methods of working with the Pharmacy service to ensure medication reviews are timely and adherence is followed up. An audit of medication reviews following a fall in hospital is suggested.

Presentation of falls data to FPCs by H&S should be in the format of falls per 1000 bed days to allow comparison across wards and sites. The reports should be monthly to allow meaningful use of the data by the FPCs to target training and interventions.
**Hip Protectors**
The provision of hip protectors should only be offered to those at risk of falls and fracture. Ideally a fracture risk score should be added to the criteria for provision of hip protectors. FPCs in the Hospitals should attempt to address the large number of inappropriate referrals for hip protectors. As evidence for the use of hip protectors is controversial (not just in terms of adherence but also effectiveness) the reduction in funding on a sliding scale is appropriate.

**Osteoporosis Treatment**
Reduce DNAs following referral onto FLS – both of patients who have had incident fractures and been discharged home and those referred through Pharmacy for DEXA scans. A follow up of DNAs is recommended, first by repeat appointment. A small selection of DNAs could be followed up by phone to ascertain reasons for non-attendance. Better onward referral of those with a history of falls to the CFPP from the FLS. Rather than relying on a leaflet and self-referral.

**Psychological Outcomes of Falls**
CFPP - Onward referral options for the relatively small number of clients identified by the CFPP as needing a referral following HADS assessment need to be clarified. Regular brief training to the CFPP team on the use of the trigger questions and the completion of the HADS assessment is important. CFPP - Consider trigger question for screening tool to be “In the last 12 months have you limited your activity due to fear of falling?” - If YES, perform short Falls Efficacy Scale –International (FES-I) assessment Training on onward referral or brief interventions regarding answers on Short FES-I. COPT or equivalents - There are currently no Clinical Psychologists or appropriately trained and supervised psychological therapists working with the COPT or equivalent teams but the referral options are the same for that of the CFPP i.e. PCMHT or CMHT (OP). However, for those clients not first seen by CFPP, there is also no current use of HADS in the COPT type teams. The COPT and equivalents currently uses a combination of memory and cognition tests and the Geriatric Depression Scale led by their professional judgement. Introduction of trigger questions and HADS assessment, with appropriate onward referral teams is recommended. For mild HADS scores (8-10) referral to PCMHTs; for scores of 11 or more on HADS, referral via the GP to CMHT(OP) is appropriate. Dedicated Clinical Psychology time for direct referral from Falls Clinics and from the CFPP in those with severe anxiety or depression or a score of 18 or more on the Short FES-I. CHCPs - Education and training of general health workers in identification of fear of falling, anxiety and depression to support prevention of falls on a population basis – through knowledge about avoidance of activity and increased social isolation.
14.0 Definitions and Abbreviations

AGS  American Geriatric Society
AHP  Allied Health Professional
BGS  British Geriatric Society
CFPP  Community Falls Prevention Programme
CHCP  Community Health Care Partnership
CHLN  Community Health Liaison Nurse
Client  An individual who is referred to the Community Falls Prevention Programme or the Home Pharmacy Team (see Patient)
CNS  Central Nervous System
COPT  Community Older Persons Team. NB. There are equivalent teams using different titles
CMHT (OP)  Community Mental Health Team (Older People)
CPD  Continuing Professional Development
CPN  Community Psychiatric Nurse
CTG  Community Transport Glasgow
DART  Discharge Assessment and Rehabilitation Team. NB. There equivalent teams using different names.
DoH NSF OP  Department of Health National Service Framework for Older People
DNA  People who Do Not Attend (appointments)
EMS  Elderly Mobility Score
Fall  "an unexpected event in which the participants come to rest on the ground, floor, or lower level" ProFaNE (JAGS 2005:53:1618-23).
Faller  An individual who has had a fall (see Fall)
FSCT  Falls Screening and Collection Tool
FES-I  Falls Efficacy Scale – International – validated questionnaire for psychological consequences of falls and falls self efficacy
FLS  Fracture Liaison Service
FPC  Falls Prevention Co-ordinator
GG&C(GGC)  Greater Glasgow and Clyde
GGC&S  Greater Glasgow Culture and Sport
GORU  Geriatric Orthopaedic Rehabilitation Unit
GP  General Practitioner
HADS  Hospital Anxiety and Depression Tool
IRIS  Immediate Response and Intervention Service
ISD  Information Services Division (NHS Services Scotland)
MDT  Multi-Disciplinary Team
MHU  Mansionhouse Unit
NICE  National Institute of Clinical Excellence
OT  Occupational Therapist
Patient  An individual seen in the hospital or outpatient Falls Clinic (see Client)
PT  Physiotherapist
QIS  Quality Improvement Scotland
RAD  Rehabilitation and Assessment Directorate
RAH  Royal Alexandra Hospital
PCMHT  Primary Care Mental Health Team
SIMD  Scottish Index of Multiple Deprivation
SDO  Service Development Office
SGH  Southern General Hospital
15.0 References

**References** in full bold are provided in Appendices as they are referred to throughout the evaluation or are recommended reading


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Doh_Exercise Training to Prevent Falls_2009
DoH_Secondary falls prevention and fragility fracture pathway_2009
NICE_21_2004 Summary

Appendix 3:
Cochrane Review Update Falls Prevention 2009
Department of Health National Service Framework for Older People DoH NSFOP 2001
E Renfrewshire single shared assessment and falls
Ref_ABS/BGS Guidelines on Preventing Falls 2008 DRAFT
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ISD_Admissions due to falls GGC 1998-2006_Age
ISD_Admissions due to falls GGC 1998-2006_BedDays
ISD_Admissions due to falls GGC 1998-2006_BedDays-Diagnosis
ISD_Admissions due to falls GGC 1998-2006_Deaths_Deprivation
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ISD_Admissions due to falls GGC 1998-2006_MultipleFalls_Conditions
ISD_Admissions due to falls GGC 1998-2006_Place
ISD_Admissions due to falls GGC 1998-2006_Previous Falls
ISD_Admissions due to falls GGC 1998-2006_SIMD
ISD_Admissions due to falls GGC 1998-2008_Place
ISD_Death due to fall 02-08
ISD_Hip fractures GGC 98-08
ISD_NHS GG&C catch pop_2005
ISD_NHS GG&C catch pop_2006
ISD_NHS GG&C catch pop_2007
ISD_NHS GG&C CHCP SAPE_2005
ISD_NHS GG&C CHCP SAPE_2006
ISD_NHS GG&C CHCP SAPE_2007

Appendix 5: Falls at Home.
CFFP PPT Presentation to QIS 2007 – Lynsey Simpson
CFFP Falls Screening and Collection Tool
CFFP Figures - containing
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4. CFFP Source of Referrals - average and percentage per month Jan 07 - Jun 08 3
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15. CFPP Outcome of telephone triage – reasons for non-appointment – average and percentage per month Jan 08 – Jun 08
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CFPP Flowchart of Pathway
CFPP New Invite Letter
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CFPP OT Audit_FaB_Ex_Educ
CFPP OT Tool_FaB Scale
CFPP Outcomes of Exercise Sessions
CFPP Patient Satisfaction Questionnaire Outcomes
CFPP Physiotherapy Ax
CFPP Service Leaflet
CFPP Triage call information sheet
CFPP Trigger List
DADS Jan-Dec 2007 & 2008 data
DART/IRIS/MATCH Falls StatsDART/IRIS Falls Risk Checklist
DART /IRIS ICR Tool
Direct Access Dexa Referral Form
Education Class Presentation
Exercise Classes –Community Based
Exercise Classes-Hospital Based
Exercise Classes-Transport Audit-Coach Led Exercise
Exercise Classes-PT referral from Falls Clinic
Exercise Classes-PT referral from Tech 1/COPT/DART/IRIS
Falls Clinic & Syncope Report SGH
Falls Clinic & Vision Report SGH
Falls Clinic & Vit D abstract SGH_BGS Nov 2007
Falls Clinic Physio Intervention Audit 2006
Falls Clinic SGH Attenders_Diagnosis 2005-2006
Falls Clinic SGH Attenders_Poster
Falls Clinic DNAs Mansionhouse 2007
Falls Clinic DNAs Mansionhouse 2007-by consultant
Falls Clinic DNAs Mansionhouse 2007-by month
Falls Clinic Models&Attendance_2008
GC&S Exercise Class Report
Glasgow Pharmacy Falls Service_2007
Pharmaceutical Care Award 2007
Pharmacy Outcomes 2008
Pharmacy process
RAH Referrals to CFPP-June 2008
Reference_FES-I validation_Yardley 2008
Reference_NHFD England 2009
Reference_Short FES-I Kempen 2005
Reference_Westmead_OT Tool_Clemson 2006
Service Specifications (CFPP/DART/IRIS/COPT/MATCH)
Sycope GP May 2009
Unmet need at A&E of elderly fallers_SGH_Audit 2002
Appendix 6: Care Homes
Care Homes Falls Coord Annual Report 2008
Care Home Education Stats Oct-Dec 2008
Falls management Policies and Guidelines Sept07
GG&C NHS Statement Calcium & Vit D in LTC_2005

Appendix 7: Falls in Hospital
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Baseline RAD audit Cannard & Care Plans 2007
Falls Management Policies and Guidelines 2007
GGC over 65 data Apr-Sept 2008
In-hospital fractures 2006-2008_H&S
Non-RAD Wards Audit RACP
OT Home Visit Audit Oct 2008
Post training Audit Cannard & Care Plans 2008
Post training Audit SGH and West 0208
Pre-Post FPC falls in GGC Hospitals
RAD Conference Poster_Falls in Hospital_2009
RAD Falls 2008
Ref_FallsRiskTools_Oliver 2009
Ref_FallsTools_Hospitals_Haines 2008
Ref_IntervHospital_Oliver_2006
Ref_Stratify Tool Hospital_Milisen 2007
Ref_SystemRev FRTools_Scott 2007
Referral Form A Falls Coord
Referral Form B Falls Coord
Traffic Light Audit_Aug 2008_Draft

Appendix 8: Falls in Care Homes
Care Home Hip Protectors 2002-2008
Hip Protector Audit 2005
Hip Protector Data 2004-2008
Hospitals Hip Protectors 2004-2008
Ref_CochraneReview_Hip Protectors_Parker_2005
Ref_Hip Protectors_Keil_2007
Ref_HipProt Nursing Home Review_Sawka_2007

Appendix 9:
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Appendix 10: Osteoporosis
Fractured Hips, why didn’t we prevent them? Abstract Langridge 2009
Reference_FLS evaluation_McLellan 2003
Reference_RefRACTure following FLS.Langridge 2007
Reference_Vertebral fracture_Howat 2007

Appendix 11: Psychology
Reference_FoF Interventions_Zijlstra 2007
PCMHT Audit South Glasgow
Psych and CFPP Proposal_Conaghan 2008