

Annual Public Health Report 2013

Guidance on what delivers productivity in Integrated Care

Foreword

Dear Colleague

It is with pleasure that I introduce you to the first Public Health Report from the Director of Public Health following the move of the function to Essex County Council.

We as a public sector organisation along with our health and district and borough colleagues are facing a time of unprecedented austerity and we need to seek new ways of working together to ensure the best use of the limited resources that are entrusted to us. It is clear we need to do things differently but what we do needs where possible to be based on strong evidence of effectiveness and cost effectiveness.

There are opportunities for social care and health partners to work together to better secure improvements in the health and wellbeing of the population we both serve. There are opportunities for us to invest scarce resources together in new ways that will be both more productive and will help people remain independent and free from the need for hospital or residential care.

This year's report then focusses on what evidence exists around effective interventions that will help keep people out of hospital and residential care and will also yield savings somewhere in the system. Partners will then be able to agree together how jointly they can ensure that the total resource entrusted to us to help people is best used across Essex for the good of all we serve.

I hope you find it a useful document



Cllr Ann Naylor
Cabinet Member

Introduction

There is strong consensus that we as health and social care commissioners need to work together to achieve agreed common aims around improving outcomes for those we serve while managing an increasingly challenging financial environment. This has been embodied nationally in the call for “pioneer” pilots around integration and the plans to identify clear resources going forward to support this agenda.

The key areas of spend we need to address include social care costs arising from residential and nursing home admissions and unscheduled admissions to hospital. There is an increasing body of published literature (of variable standard) that might inform our investment and disinvestment decisions in this area but it is not well understood. The purpose of this report then is to summarise this growing body of work to help commissioners reach a common understanding of interventions likely to secure both outcome and productivity gains locally. Best evidence is from peer reviewed comparative trials with weaker evidence from other reports and studies including some local work.

Review of published literature suggests that there is generally more published and at a higher standard (using Randomised Control Trials [RCT's] methodologies and meta-analysis) of interventions to prevent hospital admissions. There is more limited evidence on what prevents social care admissions as this is not often a measured outcome in studies based around health interventions and a number of evaluations of social care interventions do not use RCT methodologies (some do).

There are however in all areas considerable gaps in knowledge but commissioners will want to be aware of and consider carefully what evidence there is before investing, or continuing to invest in a given service or intervention.

It is recognised that some of the interventions may already be in place but what commissioners will wish to consider is whether they are comprehensively, optimally and systematically available.

Financial Outcomes of Interventions

For now focusing exclusively on the financial implications (there will be additional quality considerations), it is perhaps worth outlining possible impacts. Investment in an intervention by EITHER health or social care might result in:-

- Net saving to health care, net saving to social care
- Net saving to health care, no impact on social care
- Net saving to social care, no impact on health care
- Net saving to health, net cost to social care, net system saving
- Net saving to social care, net cost to health, net system saving

- Net saving to health, net cost to social care, net cost to system
- Net saving to social care, net cost to health, net cost to system
- Net cost to health, no impact to social care

- Net cost to social care, no impact health
- Net cost to health, net cost to social care
- Net cost to social care, net cost to health

We need to consider where any intervention sits within this grouping. Clearly those in the first three lines should be pursued. The last four should not be pursued and where identified active disinvestment should be considered. The remaining middle four need much more consideration and a potential shift from historic thinking. Those delivering net system savings should be pursued and those net system cost abandoned if we are to develop an integrated approach to commissioning.

Linked to this, there will be the need to agree together how we can ensure system “win-wins” where potentially all gains from an approach would accrue to one part with a cost to the other. This could include ensuring a fair balance of such initiatives in favour of both health and social care partners or agreements around sharing the savings accruing to one party with the other.

It should be emphasised that the above does not consider the merit of interventions in terms of health and wellbeing gains. There are many interventions that produce gains in these areas that have a net cost but remain laudable. A full discussion of these interventions is outside the scope of this report although the likely health gains or indeed evidence against health gain is included in some sections.

It is also beyond the scope of this report to look in detail at the relative cost effectiveness of different interventions i.e. which of two possible interventions deliver the outcome for the least cost.

Dr Mike Gogarty
Director of Public Health

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Overview of what works and what does not in key areas.

This report attempts to outline areas for consideration to help deliver efficiencies based on evidence. It does not look at current service costs, shape and quality where there may be further opportunities around procurement.

Key areas where efficiencies may be possible for ECC are:-

Reablement: Evidence base is fairly poor but what there is universally suggests savings are possible and level might be considerable

Multi-disciplinary Teams (MDT): Limited evidence is available but one study suggests potential reductions in residential care admissions from the approach but there is a need to consider cost and net gain.

Depression: There is reasonably strong evidence that depression is associated with residential care admission and that it is poorly recognised and undertreated in older people. There is also evidence that it can be well treated in older people. If this treatment can reduce the risk of residential home admission, managing depression would be a very cost effective intervention across the system.

Nurse Led Units: Metanalysis suggest a benefit in preventing residential care but this is less apparent when only stronger studies are considered.

Geriatricians: There is some evidence suggesting geriatrician led teams in the community can reduce residential home admissions.

Carers: Evidence suggests that day care, home care and (often) residential respite care are cost effective in reducing residential care needs.

Mental Health: School based social and emotional learning: is cost saving to social care and particularly to educational services from the first year onwards.

Assistive Technology: There is evidence telehealth initiatives might lead to social care savings.

Falls, Continence, Stroke and Alcohol: These all produce potential savings and have already been subject to a business case

Key areas where efficiencies may be possible for CCGs are:-

Ambulance Cars: There is a limited reviewed evidence and interventions were heterogeneous but what is available appear promising.

End of Life Care: There is evidence Marie Curie nurses are very effective at preventing hospital deaths and admissions.

Mental Health: Early intervention for psychosis: optimal implementation of early intervention in psychosis with multi-disciplinary teams adopting an assertive approach produces saving to health care.

Specialist/Targeted clinics: There is evidence around heart failure and secondary prevention of CHD (coronary heart disease) that systematic evidence based practice can reduce admissions.

Support for care homes: There is evidence that investment in care home support will prevent non elective admissions.

Geriatricians: The balance of evidence suggests geriatrician led teams in hospital at the interface and in the community can reduce hospital admissions.

SOS Buses: While based on local evidence and a relatively small cost/saving, SOS buses can impact on A&E costs and yield savings.

Assistive Technology: Telecare around falls prevention may save health costs but overall cost benefit needs to be considered.

Education and Self-Management: There is some evidence around the effectiveness of this in adults with asthma including education at A&E, and in people with COPD.

GP's in A&E: This may yield a fairly modest saving.

Alcohol, Continence and Falls: These all produce potential savings and have already been subject to a business case.

The notes below consider only potential savings and not the potential quality gains for the population that may derive from the interventions.

Key high profile areas that evidence suggests are unlikely to deliver efficiencies are:

MDTs in health: There is a large body of reviews and papers looking at the impact of a variety of MDT models (including virtual wards) on non-elective admission. In every case and model there is no reduction in non-elective admissions. Some may have a small positive effect on elective activity.

Social Isolation and Social care: There is no evidence addressing social isolation impacts on social care costs and very little that it would produce savings to CCGs.

Excess Winter Mortality: There is no evidence tackling this issue impacts on need for hospital services.

Assistive Technology - Telehealth: (e.g. remote monitoring of vital signs) has been shown in a number of high quality studies to reduce mortality among

users, however similarly strong evidence suggests it is unlikely to produce savings.

Walk in centres and NHS Direct: There are no evidence that either impact on A&E attendances

Key areas where good evidence is lacking either way:-

Ambulance Cars: There is little strong evidence around cost effectiveness for these.

Depression in Health: There is limited evidence that depression is linked (independently of morbidities) to acute admissions, suggesting the possibility of reducing admission through managing depression.

Carers: No evidence was found that carer interventions impact on hospital admissions or health costs.

Reablement: There is very little evidence reablement reduces hospital admissions.

Domestic Violence: There is a lack of robust evidence but what is available appears promising although outcomes are stronger for changes in attitude etc rather than recidivism.

Management of Dementia: Neither early diagnosis of dementia nor any intervention have an evidence base that would suggest savings to the health or social care budgets.

Rapid Response teams: There is a surprising lack of good quality information but some positive case studies.

Assistive Technology - Telecare: Robust evidence of the impact of Telecare (e.g. assisted living technologies) is lacking and the impact on costs and savings is thus difficult to assess.

Step Up Beds: There is no published evidence around the effectiveness of step up beds.

1. Alcohol Misuse

Alcohol misuse is one of the major population wide public health issues facing the UK and is the third most common cause of disability in the developed world after smoking and hypertension. Approximately 15,000 deaths in England are caused by alcohol per annum.⁽¹⁾

The physical harm related to alcohol has been increasing in the UK in the past three decades. Deaths from alcoholic liver disease have doubled since 1980 compared with a decrease in many other European countries.⁽²⁾ Alcohol related hospital admissions increased by 85% over the past decade.

1.1 Interventions that reduce health service demand

Harmful and dependent drinkers are much more likely to be frequent accident and emergency department attendees, attending on average five times per annum. Between 20 and 30% of medical admissions, and one third of primary care attendances, are alcohol related.⁽³⁾⁽⁴⁾⁽⁵⁾ The following interventions have strong evidence of both effectiveness and cost saving:

Improving the effectiveness and capacity of specialist treatment: Each dependent drinker costs the health and social care system on average twice as much as other drinkers. The largest and most immediate reduction in alcohol-related admissions can be delivered by intervening with this group through the provision of specialist treatment. Models of care for alcohol misusers (MocaM)⁽⁶⁾ describes a four tier system of stepped care for alcohol misusers. The Review of the effectiveness of treatment for alcohol problems provides the evidence base for effective treatments.⁽⁷⁾ The UK Alcohol Treatment Trial (UKATT) shows that, over a 6-month period, specialist treatment delivered savings of nearly £1138 per dependent drinker treated with nearly 40% of drinkers showing a 'much improved' outcome (reduction in problem by 2/3 or more). The DH recommends a minimum of 15% of dependent drinkers are treated.

Alcohol Nurse Liaison Services in District General Hospitals: Evaluation studies in both Nottingham Universities Hospital Trust⁽⁸⁾ and The Royal Liverpool Hospital⁽⁹⁾ demonstrated that nurse led services that identify and target dependent drinkers accessing acute hospitals and facilitate their entry into specialist treatment services, reduce hospital admissions/readmissions and are cost effective. The Department of Health recommends adequate provision of Alcohol Liaison Nurse Services across all acute hospitals.⁽¹⁰⁾

Intervention and Brief Advice Services (IBA) in Primary Care, Accident and Emergency Departments and Specialist Outpatient Units (e.g. fracture clinics, sexual health services): There is a very large body of research evidence supporting IBA in primary care including at least 56 controlled trials.⁽¹¹⁾ A Cochrane collaboration review⁽¹²⁾ provides substantial evidence for the effectiveness of IBA. The Department of Health commissioned research⁽¹³⁾ describes how intervening with men aged over 35 who regularly drink over 50 units could reduce alcohol-related admissions nationally by 13,000 over three years; this group of drinkers is shown to contribute greatly towards alcohol-related hospital admissions. The Alcohol Learning Centre Ready Reckoner identifies the Intervention and Brief Advice approach with patients drinking at hazardous or harmful levels to be highly cost effective and to return savings within a year.⁽¹⁴⁾

1.2 Interventions that reduce social care demand

Alcohol misuse is associated with increased social care demand. Alcohol is implicated in relationship breakdown, domestic violence and poor parenting, including child neglect and abuse. It is estimated that over 1 million children are affected by parental alcohol misuse and up to 60% of child protection cases involve alcohol.⁽¹⁵⁾ Alcohol also contributes to unsafe sex and unplanned pregnancy, financial problems and homelessness. Up to half of homeless people are alcohol dependent.⁽¹⁶⁾ According to the Laming Review of Child Protection, *“The issues of alcohol, domestic abuse, drugs and mental health come up again and again in serious case reviews”*. Alcohol misuse is also a key causal factor in dementia. Various studies have suggested the prevalence of alcohol-related dementia to be between 10 and 24% of all cases of dementia.⁽¹⁷⁾ ‘Heavy alcohol use’ was seen as a possible contributing factor in 21–24% of cases of dementia in a review of epidemiological, neurological, cognitive and imaging data.⁽¹⁸⁾

Improving the effectiveness and capacity of specialist treatment and Alcohol Nurse

Liaison Services: (as described in the previous section) will all have a positive impact on reducing demand for social care. It has been estimated that a £1 investment in alcohol treatment and care delivers a £5 saving to criminal justice, social care and health budgets.⁽¹⁹⁾

1.3 Impact on patient / client care satisfaction

There is no evidence of a difference in patient satisfaction between home and hospital outpatients as a setting for alcohol withdrawal when treating dependent drinkers, but patients are generally more fearful of inpatient facilities because of their stigmatisation.⁽²⁰⁾ A 1990 study found 40% of patients were unwilling to undergo alcohol withdrawal in a psychiatric setting and 20% were unwilling to undergo withdrawal as a district general hospital inpatient.⁽²¹⁾

Patient satisfaction with outpatient assisted withdrawal services has been found to be high when administered as an intensive day programme.⁽²²⁾

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2. Continence Care

Incontinence can have a significant effect upon the quality of life of the individual concerned, causing an increased risk of urinary tract infections (UTIs), depression and social isolation. Incontinence may cause deterioration in the relationship between the individual and their family and/or carer as well as being a major contributory factor to falls and fractures.⁽¹⁾ It is also cited as the second highest cause of admission to residential care.⁽²⁾ Therefore, the resource implications for Health and Social Care services are great.

The National Institute for Health and Clinical Effectiveness has published numerous guidelines relating to adult continence care - CG40,⁽³⁾ CG49,⁽⁴⁾ CG97⁽⁵⁾ - and paediatric incontinence.⁽⁶⁾ There is plenty of guidance about, but there are clear deficits in implementation.⁽⁷⁾ Previous studies bemoan the lack of integration across acute, primary care, care homes and community settings, resulting in disjointed care for patients and their carers.⁽⁸⁾

The National Audit of Continence Care (2010)⁽⁹⁾ audit found that “although the amount of authoritative guidance is increasing, the quality of continence care remains variable and in some respects remains poor”. Subsequently an All-Party Parliamentary Group produced guidance to support the cost-effective commissioning of continence care.⁽¹⁰⁾

2.1 Integrated Continence Service ICS

Case studies from Nottingham and Oxford, were recently mentioned by the Department of Health.⁽¹¹⁾ Oxfordshire County Council worked in partnership with the Institute of Public Care on a study of the pathways of older people who had entered a care home. The aim of the research was to identify the critical characteristics, circumstances and events which led to a care home admission in order to provide appropriate services to prevent or delay such an admission.⁽¹²⁾ An analysis of 115 admissions of people in 2008-9 was carried out to identify common characteristics. This was followed up with interviews of people who had entered a care home, their carers and care managers, to explore more fully the circumstances and experiences prior to entering a home. The study found that certain conditions and experiences were particularly prevalent - these included incontinence, dementia, falls and depression. Most people had been receiving social care support prior to entering the care home as well as informal care. However, despite common features, individual situations were both varied and complex.

In response, Oxfordshire County Council worked with the NHS to develop a co-ordinated integrated continence service. This led to the development of a holistic, targeted, outcomes-based service which aims to support people to become more independent and reverse a potentially inevitable course towards more costly and intensive care.

This development in Oxford was influenced by the Gwent NHS Trust's undertaking to transform its fragmented continence services into a fully integrated interdisciplinary service across primary and secondary care.⁽¹³⁾ The service provides nurse-led first-line continence care to patients across a range of settings, avoiding inappropriate referrals and reducing waiting times for medical appointments.

This was achieved by capitalising on organisational changes and adopting a process of systematic change.

2.2 Impact of Adult Social Care Services

Incontinence is a major reason for the breakdown of the relationship between the carer and the person they are caring for. This can lead to admissions into residential or nursing home care.⁽¹⁴⁾⁽¹⁵⁾

Studies in the US have shown that urinary infection increased the likelihood of care home referrals two-fold and faecal incontinence almost five-fold and 50% of care home residents with faecal incontinence have overflow from constipation which is a treatable condition.

Further studies have shown that use of pads in care homes increases the risk of UTIs significantly. In a recent study of 153 residents, 118 (77%) used absorbent pads.

Residents who used absorbent pads were at significantly increased risk of developing UTIs compared to residents who did not use pads (41% vs. 11%; $P = 0.001$) (Omli 2010). The advice is that care staff should be educated in encouraging residents to drink fluids as well as regularly reminding them of the need to use the toilet.

2.3 Incontinence in Residential Care Setting - Dementia

A large Italian study in a cohort of nursing and home residents identified that of those persons who were immobile, more than 82% were also incontinent of urine.⁽¹⁶⁾ Further studies have highlighted the challenges of managing incontinence in people with dementia in residential care, as the general perception is that incontinence is managed by the use of pads and treatment is not discussed, which can have detrimental effects on the patient.

Management techniques for incontinence need to be developed to ensure that people with dementia receive the best care, as current methods such as behavioural techniques may not be appropriate for people with limited cognitive function.⁽¹⁷⁾⁽¹⁸⁾

Nurses have an important role in incontinence treatment and can change this misuse of incontinence pads and ensure a holistic approach to care that will help when treating a patient with dementia.⁽¹⁹⁾

2.4 Incontinence and Risk of Falling

Falling and urinary incontinence were found to be associated with physical limitations and had an impact on quality of life. A cross-sectional postal questionnaire (5,474 people aged 70 years or more living in the community randomly selected) undertaken in the Leicestershire Medical Research Council Incontinence Study found this link to be statistically significant ($P < 0.0001$).⁽¹⁾

A systematic review and meta-analysis of observational studies (Odds ratio from 9 studies were included) investigating falls and urinary incontinence found that urge urinary incontinence, but not stress urinary incontinence, is associated with a modest increase in falls and should be an integral part of the local falls prevention program.⁽²⁰⁾

2.5 Staff Training and Self-care

Education, or the lack of it, is highlighted as being inadequate.⁽⁷⁾⁽⁸⁾⁽⁹⁾⁽¹⁰⁾ Studies report that structured training in continence care occurs in less than 50% of acute hospitals and mental health care sites, with staff suggesting that there is no dedicated time to attend study days and access to fewer validated courses. A good session should include an introduction to understanding the different types of urinary incontinence, the

causes of incontinence and the strategies and good practice to enable service users to manage the condition, including elements of catheter and stoma care.

Translation of knowledge is key to change. Patient empowerment and self-reported outcomes should be the centre of building continence services as it has been shown that involvement in goal-setting, self-management and decision making will improve outcomes.

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3 Falls prevention

Falls are a major cause of disability and the leading cause of mortality due to injury in older people aged over 75 in the UK.⁽¹⁾ Each year, a third of the population aged over 65 has a fall, and half of these people fall at least twice.⁽²⁾ Annually, over 500,000 older people attend UK Accident & Emergency departments following a fall.⁽³⁾ The financial impact of falls and fractures on the NHS & Social Care is significant, incurring the use of a range of health and social care resources and interventions

3.1 Interventions that reduce health service demand

Evidence for the following statements is taken from NICE Clinical Guidance CG161.⁽⁴⁾

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/s and considered for their ability to benefit from interventions to improve strength and balance.

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 a healthcare professional with appropriate skills and experience, normally in the setting of a specialist falls service.

All older people with recurrent falls or assessed as being at increased risk of falling should be considered for an individualised multifactorial intervention.

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

3.2 Additional recommendations for older people who are admitted to hospital

The following groups of inpatients are regarded as being at risk of falling in hospital

- all patients aged 65 years or older
- patients aged 50 to 64 years who are judged by a clinician to be at higher risk of falling because of an underlying condition

Ensure that aspects of the inpatient environment (including flooring, lighting, furniture and fittings such as hand holds) that could affect patients' risk of falling are systematically identified and addressed. Ensure that any multifactorial assessment identifies the patient's individual risk factors for falling in hospital that can be treated, improved or managed during their expected stay.

3.3 Interventions that cannot be recommended

There is no evidence that brisk walking reduces the risk of falling. 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. 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 older people living in the community are effective in falls prevention.

There is no evidence that cognitive/behavioural interventions alone reduce the incidence of falls in older people living in the community who are of unknown risk status. Such interventions included risk assessment with feedback and counselling and individual education discussions. There is no evidence that referral for correction of vision as a single intervention for older people living in the community is effective in reducing the number of people falling. Home hazard assessment is shown to be effective only in conjunction with follow-up and intervention, not in isolation. There is some evidence that hip protectors are effective in older people living in extended care settings who are considered at high risk but not those living in their home or low risk in extended care settings.

3.4 Interventions that reduce social care demand

The emotional toll of falling can be as bad as the physical as it can destroy confidence and trigger a vicious circle of nervousness that stops people going out, this increases isolation and reduces independence – making both physical and mental conditions worsen. Falls can result in prematurely entering long term care. In an Essex County Council , Adult Social Care Client file audit, it was found that a ‘history of falls’ was given as a reason for admission into residential care by 66% of older people.⁽⁵⁾ All of the interventions above stated to reduce health service demand will also reduce social care demand.

There is evidence that an increased prevalence of falls is related to hazards within the home with accidents happening on stairs and steps,⁽⁶⁾ and measures to reduce accidents by reducing environmental hazards are part the Department of Health systematic approach to falls and fracture care.⁽⁷⁾ A recent review⁽⁸⁾ concluded that home modification in the absence of other intervention approaches may be effective for persons with a history of falling but is likely to be most effective when integrated into a multi-faceted intervention programme focussing on education, exercise and nutritional status.

There is not conclusive evidence that addressing home hazards alone eg poorly maintained stairways, poor lighting, trip hazards and the lack of safety devises such as grab rails, will reduce falls and fractures. However, these hazards should be addressed using professionally prescribed environmental assessment and modification.⁽²⁾

3.5 Impact on patient / client care satisfaction

Healthcare professionals involved in the assessment and prevention of falls should discuss what changes a person is willing to make to prevent falls. Information should be relevant and available in languages other than English. Falls prevention programmes should also address potential barriers such as low self-efficacy and fear of falling, and encourage activity change as negotiated with the participant. Further barriers and facilitators are listed in the NICE guidance.⁽⁹⁾

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4. Dementia

Dementia is the loss of cognitive function which can include memory loss, language difficulties and psychiatric changes. The commonest cause of dementia is Alzheimer's disease (about 50% of cases) followed by vascular dementia (about 25%), mixed dementia, Lewy body dementia (15%) and all other types (about 5%).

Prevalence increases sharply with age but recent work has shown that the risk of developing dementia has decreased in the last 20 years.⁽¹⁾ The increase in people living with dementia that would have been expected as a result of the aging population will be offset to a significant degree by this reduction in risk.

4.1 Interventions that reduce health service demand

There is no good evidence that any intervention for the prevention or treatment of dementia reduces the risk of admission to hospital or residential care.

With regard to prevention there is as yet no good evidence that dietary supplements such as B6, B12,⁽²⁾ folate,⁽³⁾ thiamine,⁽⁴⁾ vitamin E,⁽⁵⁾ omega 3⁽⁶⁾ or ginkgo biloba⁽⁷⁾ are of any benefit. There is no good evidence as yet that aspirin,⁽⁸⁾⁽⁹⁾ blood pressure reduction,⁽¹⁰⁾ Statins⁽¹¹⁾⁽¹²⁾ or hormone replacement therapy⁽¹³⁾ are useful in the prevention or slow the progression of dementia.

There is some evidence that anti-cholinesterase inhibitors and memantine may delay the time to institutionalisation for patients with Alzheimer's disease.⁽¹⁴⁾ This evidence has not been synthesised in a good quality systematic review. The degree of any delay in institutionalisation remains speculative.

Of the non-pharmacological interventions functional analysis,⁽¹⁵⁾ cognitive stimulation,⁽¹⁶⁾ reminiscence therapy⁽¹⁷⁾ show promise but their effectiveness is still to be confirmed by research studies of adequate size and quality. Cognitive reframing, a cognitive approach focused on changing the carer's view of the condition, has been shown to decrease carers psychological morbidity and stress but does not improve coping or reduce the subjective burden of caring.⁽¹⁸⁾ Respite care for carers has not been adequately researched to know if it improves burden of care or delays in institutionalisation⁽¹⁹⁾ even though both would seem probable.

There is no strong evidence to show that special care units improve the outcomes for patients with dementia and behaviour symptoms.⁽²⁰⁾ Similarly there is insufficient evidence to recommend physical activity,⁽²¹⁾ music therapy,⁽²²⁾ aromatherapy,⁽²³⁾ homeopathy,⁽²⁴⁾ massage⁽²⁵⁾ or acupuncture.⁽²⁶⁾

There is insufficient evidence that early diagnosis of dementia leads to improved outcomes for either the person with dementia or their carers.⁽²⁷⁾⁽²⁸⁾ In the light of this the national and local policy of encouraging early detection is not supported by evidence of effectiveness. It may be more sensible to focus on the quality of care of those diagnosed with dementia rather than early detection.

4.2 Interventions that reduce social care demand

A systematic review of case management of dementia patients found that three out of six good quality trials found a delay/reduced institutionalisation and one additional that found a significant delay in a subgroup (in one country of the three studied).⁽²⁹⁾

4.3 Impact on patient /client care satisfaction

There is limited good quality data on which interventions provide the best outcomes for patients with dementia and their carers. The use of anti-psychotic medication in patients with dementia has been shown to result in increased mortality.⁽³⁰⁾ The avoidance of this class of medication and the use of non-pharmaceutical means of controlling distressing or potentially harmful behaviour has been advocated.⁽¹⁴⁾⁽³¹⁾

In the absence of an adequate research evidence base it is pragmatic to follow expert opinion. This is set out in the NICE guidance. This gives guidance on:

- the care of patients with dementia (non-discrimination and valid consent)
- carers (assessment and support)
- coordination and integration of services (health and social care)
- memory services
- structural imaging services
- behavioural management
- training (of those in health, social care and voluntary sectors)
- acute hospital care

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5. Excess Seasonal Mortality

There is no doubt England suffers large numbers of seasonal excess deaths each year largely amongst older people. These levels are not seen in a number of other Northern European countries and cold indoor temperatures are strongly implicated. The Health Inequalities National Support Team (HINST)⁽¹⁾ developed a guideline “How to reduce the risk of seasonal excess deaths systematically in vulnerable older people to impact at population level”.in 2010.While the approach is laudable, the evidence base underlying the proposals is uncertain.

There is increasing recognition that in addition to mortality there are impacts of cold temperature on a wide range of physical and indeed mental health outcomes.

The two key focused interventions directed at reducing health impacts:-

5.1 Housing Interventions to address cold

Interventions include the evaluation of “Warm Front” and similar initiatives internationally. A review by Liddell and Morris⁽²⁾ looks at the recent evidence.

They concluded based on the most robust studies, effects on the physical health of adults are modest, while caregivers and children perceive positive impacts on children’s respiratory health. There was a positive effect on levels of anxiety and depression in adults and the studies were not powered to look at impact on mortality. It is unlikely based on these studies that implementing “Warm Front” and similar initiatives, while entirely laudable and appropriate will have an impact on hospital admissions.

5.2 Seasonal Immunisation

Jefferson (2010)⁽³⁾ reviewed evidence around the impact of seasonal influenza vaccination in people over 65 and looked at nine RCTs. He concluded that available evidence was of poor quality and provided little guidance on outcomes including unplanned hospital admissions.

A Cochrane review⁽⁴⁾ looked at influenza vaccination in children and adults with asthma and found vaccination had no effect on hospital admissions. The same was true of studies looking at vaccination of people with COPD with no apparent impact on hospital admissions.

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6. Carers

This section draws very heavily from “The effectiveness and cost effectiveness of support and services to informal carers of older people”, A review of the literature prepared for the Audit Commission by Linda Pickard at the PSSRU and published in 2003.

This literature review has looked at the evidence for the effectiveness and cost effectiveness of the following types of support and services of potential benefit to informal carers: day care, in-home respite care, institutional respite care, carer support groups, social work and counselling, the home help/care service and multidimensional approaches. Other services of potential value to carers, including meals on-wheels and community nursing, were not included.

6.1 Effectiveness of services: Outcomes for carers

There is evidence to suggest that the following forms of support and services can be effective in reducing the negative psychological effects of caring for carers and therefore have some positive outcomes for carers:

- day care;
- home help/care;
- institutional respite care; and
- social work/counselling.

6.2 Effectiveness of services: Effects on user's admission to institutional care.

There is evidence to suggest that the following forms of support and services can be effective in delaying admissions to institutional care:

- daycare;
- home help/care; and
- institutional respite care (though see conditions below).

Conditions: Institutional respite care can increase the probability of admissions to institutional care for some carers. This well-established relationship was also found in a community care study of England and Wales in the mid-1990s.

The ECCEP study (Davies and Fernandez 2000) found that provision of institutional respite care increased the length of time spent by the older person in the community in some cases (for example, carers of older people with behavioural problems), but decreased it in others (in particular, those with ‘bad user-carer relationships’ and more reliant older people).

6.3 Effectiveness of services: Impact on older people

There is evidence to suggest that older people may feel *ambivalent* about using the following forms of support and services:

- daycare (see conditions below); and
- institutional respite care.

Conditions: Large amounts of daycare (beyond about 2 days a week) are associated with reductions in user satisfaction with services.

Many older people do not want institutional respite care, because they do not want to go into an institution, however temporarily.

6.4 Insufficient evidence to evaluate effectiveness

There was one service, in-home respite care, about which there was insufficient evidence to evaluate effectiveness. The lack of evidence about in-home respite care was unfortunate because this is a form of service that older people and carers particularly value and for which there are expressed unmet needs.

6.5 No evidence of effectiveness

There was also one service, carer support groups, about which no evidence of effectiveness could be found. However, the literature suggests that support groups are valued by those who attend.

6.6 Cost-effectiveness

Cost- effectiveness of services -Outcomes for carers: There is evidence to suggest that the following forms of support and services can be cost-effective in reducing the negative psychological effects of caring for carers:-

- day care;
- institutional respite care; and
- social work/counselling.

Cost- effectiveness of services:- Effects on user's admission to institutional care: There is evidence to suggest that the following forms of support and services can be cost-effective in delaying admissions to institutional care:

- day care;
- home care; and
- institutional respite care.

Cost effectiveness of services – savings to health care systems: While Carers are a high risk group themselves for a range of adverse health conditions and their support is important, there was no evidence found around the impact on carer interventions on the use of hospital services for either the carer or the person they were caring for.

7. Depression

7.1 Impact on Residential Care

The audit of prevalent conditions in people in Essex residential homes in 2012 showed 25% suffered from depression. We would expect the prevalence in the general population aged over 65 to be around 9%.

Onder et al⁽¹⁾ in 2007 published a study assessing the effect of depression on the risk of nursing home admission in a group of older adults receiving home care across eleven European countries. They studied over 2,700 people with an average age of 82. Groups were matched for comorbidities. They found 12% of the group were depressed. They found that after a year, 14.8% of those with depression and 10.6% of those without had been admitted to residential care suggesting a 42% increased risk. The risk of nursing home admission progressively and significantly increased as the MDS Depression Rating Scale score increased (signifying more severe depression).

Similarly Ahmed et al⁽²⁾ looked at people who had suffered a cardiac event in the United States and followed them to see whether their having additional depression impacted on their needing nursing home admission. These patients had a mean age of 77 years and 61% were women. Groups were matched for comorbidities. Compared with 9% non-depressed patients, 13% of depressed patients were admitted to nursing homes, again a 42% increased risk.

This suggests depression is a predisposing factor to residential care admission and opens the possibility, if appropriately managed, admissions could be avoided. A clinical review in the BMJ in 2011 by Rodda et al⁽³⁾ details issues around diagnosis and management in older people. They state most depressive episodes in late life will be a recurrence rather than a first ever episode and the increased female to male ratio is in line with that in younger adults. Prevalence rates of depression are increased in brain disorders including dementia, Parkinson's disease, and stroke, and also in systemic disease, for example diabetes mellitus and cardiovascular disease. Prevalence estimates for depression in Alzheimer's disease cluster around 30% but range from 0% to 86%, reflecting the difficulty associated with definition and diagnosis of depression in dementia. Rates are also increased by a variety of social factors including isolation, being a carer, loss of social role, financial pressures and bereavement.

Mild depression will often respond to supportive treatments including exercise and 50% may improve. More severe cases respond to drug treatments. Evidence suggests a number needed to treat (NNT) of around 4 for selective serotonin reuptake inhibitors (SSRIs) and the British National Formulary (BNF) suggests average drug costs per year for older people of around £40. Clearly there will be other costs including opportunity costs in primary care and side effects from treatments but best practice in terms of identifying and managing depression in older people is likely to both improve the health of

those we serve and deliver reduced demand for social care.

If we assume as in studies above an absolute difference in admission rates between those with and without depression of 4% (14-10%) and a NNT to manage depression of

4, the NNT to prevent a residential care admission is 100. This would mean an increased drug cost of £4000 to prevent an admission (over a year). Savings to social care would be around £20,000 for the first year rising to over £40,000 at steady state.

7.2 Impact on Hospital Admissions

Miu and Chan ⁴ looked at people attending a geriatric outpatients in Hong Kong and looked at previously unrecognised depression along with comorbidities. They found depressed subjects had an increased risk of hospital admission (odds ratio =2.67, 95% confidence interval = 1.1, 2.12). They did not consider the benefit of intervention. Of note this smaller study found no difference in levels of residential home admission at a year.

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8. Social Isolation

Cattan et al⁽¹⁾ undertook a robust review of interventions to prevent loneliness in 2005. The results are well summarised by the DARE group in York:-

Thirty studies, with over 6,556 participants, were included in the review. Of these, 16 were randomised controlled trials (RCTs) and 10 were non-randomised controlled trials.

8.1 Effective Interventions

Group activities with an educational input: five of the nine group interventions with an educational input demonstrated a significant reduction in loneliness. Two studies demonstrated that a structured approach to physical activity decreased loneliness.

Group interventions providing social support: a social activation programme in a senior citizens' apartment building, bereavement support for recently widowed older people, therapy-type discussion groups for older people with mental health problems, and peer- and professionally-led counselling or discussion groups for adult daughters and daughters-in-law who were primary carers, all reported a significant reduction in loneliness or social isolation.

One-to-one interventions: the majority of one-to-one interventions did not show a significant effect in reducing social isolation and/or loneliness.

Home visits to provide assessment, information or provision of services: the only study in this category to demonstrate a significant reduction in social isolation and loneliness was a one-off home visit by a nurse to patients aged 75 years or more, which included a health assessment, advice, written health information and referrals if required.

Effective interventions shared several characteristics: they were group interventions with a focused educational input, or they provided targeted support activities; they targeted specific groups; they stated that the experimental sample was representative of the intended target group; they enabled some level of participant and/or facilitator control or consulted with the intended target group before the intervention; they evaluated an existing service or activity or were developed and conducted within an existing service; the participants were identified from agency lists, obituaries or mass-media solicitation; they included some form of process evaluation and their quality was judged to be high. Physical activity interventions were also effective.

8.2 In-effective Interventions

Home visits to provide assessment, information or provision of services: Three other RCTs did not show a significant effect in reducing social isolation and/or loneliness.

Home visits or telephone contact to provide directed support or problem-solving: the four studies that investigated the effectiveness of directed support and problem-solving did not show a significant effect in reducing social isolation and/or loneliness.

Social support in one-to-one interventions: the two studies that investigated one-to-one social support did not show a significant effect in reducing social isolation and/or loneliness.

Ineffective interventions shared one characteristic, they were one-to-one activities conducted in people's own homes.

8.3 Discussion

The work at first does not seem entirely in line with the SCIE report by Windle et al⁽²⁾ published in 2011. They suggest more merit in one to one approaches in addressing both loneliness and health measures including depression. Review of some of their key references suggests that the studies referenced were not exclusively looking at older people and social isolation eg Mead et al⁽³⁾ paper "Effects of befriending on depressive symptoms and distress: systematic review and meta-analysis" looks at intervention in a range of age groups and in fact the interventions were in general less successful in older people.

8.4 Cost Effectiveness

There is little evidence that there are cost savings to healthcare through these interventions and no evidence around savings to social care. Knapp et al⁽⁴⁾ work on modelling costs "Building community capacity: making an economic case" is cited in the SCIE work and looks at time banks, befriending schemes and Community Navigator schemes. The savings proposed in the modelled approach do not in the main however apply to older people and would not accrue to the local authority (much are around impact on employment) Cohen et al⁽⁵⁾ suggested fewer GP visits following a group based programme and Pitkala et al,⁽⁶⁾ a marked reduction in "days in primary hospital" following a group based programme in Finland with lesser reductions in " days in secondary hospital, and physician visits" and a slight increase in "ambulatory visits to secondary hospitals". The savings to health at average 943 euros exceeded average costs of 881 euros but it is unlikely the saving could be translated into real savings (or demand reduction) in the CCGs.

The Pitkala study of note suggested a positive impact on mortality with 97% of the intervention versus a statistically significantly lower 90% of the control group alive at follow up.

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9. Mental Health

Mental health conditions cover a range of disorders including depression, anxiety, schizophrenia and eating disorders. Dementia and substance misuse which are managed as mental health disorders are considered separately.

Approximately 11% of the NHS secondary care budget is spent on mental health (Department of Health data).

9.1 Interventions that reduce health service demand

In two related reviews of mental health services the King's Fund identified a number of interventions that would be expected to reduce demand of health services.⁽¹⁾⁽²⁾ Together these reviews looked at efficiencies that could be made within the mental health services and from the integration of mental health care within chronic disease management.

9.2 Interventions recommended for integrating mental health provision with chronic disease management

Patients with mental health conditions are at increased risk of chronic physical illness and those having a chronic physical illness are at increased risk of mental health disorders. An estimated 30% of those with long term physical health conditions have mental health problems.⁽³⁾

There is evidence but it is currently too weak, to recommend improved and integrated access to psychological therapies as a way of reducing health costs and improve patient outcomes in chronic disease management.⁽⁴⁾⁽⁵⁾⁽⁶⁾

9.3 Interventions recommended for mental health services

An economic evaluation of preventive mental health initiatives and mental health promotion found that early intervention in psychosis saves over £5 within one year to the NHS for every £1 spent on the intervention.⁽⁷⁾ This requires a multidisciplinary team that maintains contact through an assertive approach and encourages a return to normal vocational pursuits. The same evaluation found that over 2 to 5 years prevention of conduct disorder through social and emotional learning programmes delivered in schools could save the NHS over £5 and other public sector organisations over £9 for every £1 expended.

Strengthening of Crisis Resolution and Home Treatment (CRHT): These services, set up nationwide as part of the national service framework for mental health, have been shown to decrease unplanned admissions. A report from the National Audit Office in 2007 found that the quality of CRHT is variable.

Integrating acute care teams: Arranging for CRHT and other community teams to work together with inpatient staff under a common management structure has been found to reduce service costs. Where this was done in Norfolk and Waveney Mental Health Trust annual savings of approximately £1 million were achieved with increase staff motivation.⁽²⁾

Alternatives to admission: Innovative therapeutic models are being developed as an alternative to stand inpatient psychiatric hospital admissions. These include crisis homes run by health care professionals, third sector or service users themselves. These offer a reduced cost alternative but there is currently insufficient evidence of the outcomes of these models to be certain that they offer a cost-effective alternative to standard treatment.

Though more research into cost-effectiveness is needed, there is research which indicates that peer support can reduce costs and improve quality.⁽²⁾ In peer support the experiences of mental health services users is shared to support recovery. This can be through mutual support groups or employing people with direct experience of mental ill health to provide services to others.

9.4 Interventions that reduce social care demand

Prevention of conduct disorder through social and emotional learning programmes delivered in schools, mentioned above is cost saving at five years to the County Council.⁽⁷⁾

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10 Multi-disciplinary Case Management

A small proportion of patients typically account for a very large proportion of emergency hospital admissions. If these patients can be identified and offered preventive care, savings could result. In Essex, for example, 10.5% of all patients aged 16 and over who were discharged from hospital in 2010/11 were readmitted within 28 days (for patients aged 75 and over 15.0% were readmitted).

Multi-disciplinary Care Teams (MDTs) work to identify people who are at high risk of emergency hospital admission, and develop and implement an action plan to keep these patients out of hospital. This review focuses on MDT reviews of older people, although the approach has also been applied to drug and alcohol users and mental health patients.

One way that MDTs work with older people is through 'virtual wards' which use the same multidisciplinary systems and routine of a hospital ward to care for patients in their own home and prevent them from requiring hospital admissions. Croydon was the first area to establish virtual wards in England in 2004 and since then the approach has been adopted more widely, including locally in NE and SW Essex.

MDTs also work with older people through other 'case management' approaches. A clear shared definition of 'case management' is lacking but it is generally used to mean targeted, proactive and individualised care aimed at keeping people well. In the UK it is used to refer to time-limited interventions as well as ongoing care.

All case management approaches need to identify those people who are most at risk or most suitable for intervention. There are several methods of doing this:

- Clinical knowledge used to identify patients who are at high risk at present and in future. Health and social care professionals identify patients for referral to interventions based on 'clinical hunch' that these individuals would benefit. However, this approach has poor predictive accuracy; while clinicians may be able to identify patients who are currently high risk, they are less good at identifying those who will become high risk.
- Threshold modelling uses a set of criteria to identify those at high risk, for example 'over 65 with 5 or more admissions in the last 12 months'. The problems with this are selection bias (the individuals selected are outliers) and because those selected are outliers they are likely to improve over the next 12 month period without intervention (regression to the mean). Selecting these patients for case management can be inefficient.
- Predictive modelling uses a wide range of data in statistical models to calculate the risk of future admissions. Generally these models are developed through pseudonymising patient information in order to link individuals' records. Several predictive models are in use for case finding:
 - PARR (Patients at Risk of Re-hospitalisation) uses inpatient data to assign risk scores to individuals estimating their risk of readmission in the next 12 months. The 'Combined Predictive Model' or CPM combines data from GP

records with hospital data to predict emergency admissions. These models are less useful now than when first developed as they have not been updated, although a number of other bespoke tools are now available.

- PEONY (Predicting Emergency Admissions Over the Next Year).
- A recent (un-named) model to predict hospital admission and readmission developed by the Nuffield Trust which used a variety of GP, inpatient, outpatient, and A&E data. The Nuffield Trust have also developed a model that combines GP, hospital and social care data to predict social care use (see below).
- PRISM (Predictive Risk Stratification Model) uses GP and hospital record data to predict risk in Welsh patients, and SPARRA (Scottish Patients At Risk of Readmission and Admission) is a system similar to PARR for Scottish patients.

While complex, identifying patients who are at increased risk of high future use of health or social care resources is just the first step. Reducing their use of services is key to financial savings for health and social care.

10.1 Interventions that reduce health service demand

Community case management: A recent King's Fund evidence review found evidence for a positive effect of 'assertive case management' in mental health, and some evidence that case management can reduce admissions in patients with heart failure. Other than this though the review found that 'case management in the community and in hospital is not effective in reducing generic admissions. A subsequent evidence review from the King's Fund (Ross et al, 2011) also found mixed evidence for case management reducing hospital use, and noted that although there is some robust evidence for the success of case management approaches from the US, differences in the systems make it difficult to transfer the successes to the UK.

A systematic review of case management post-hospital discharge looked at the risk of readmission in 15 RCTs across a number of countries, and also found mixed results. Of the 15, 6 studies found significant decreases in readmission rates, 4 found non-significant decreases and 4 found non-significant increases. However a number of these focussed on people with specific conditions such as heart failure. 9 considered the length of readmission stay, and in 7 significant reductions in length of stay were found.

Ross et al (2011) did find that various factors were associated with programs achieving successful outcomes (reduction in admissions or costs, improved care, or patient satisfaction). These factors included:

- Accurate case-finding techniques
- A single point of access and a single assessment process
- Monitored caseloads to ensure case managers can perform tasks adequately
- Continuity of care to ensure patients feel supported and reduce unplanned admissions

- Self-care to encourage and empower patients to manage their own condition rather than dependency on the case manager
- Accountability for individual patients clearly assigned to individuals or teams
- Access to diagnostic and specialist expertise in the community

Virtual ward programs use predictive models to identify the highest risk patients for intervention in a small local area, associated with one or a small number of GP practices. These patients tend to have multiple and complex problems which may include mental illness or substance abuse

In 2009 the Department of Health approved 16 pilots offering better integrated care for older people. Six pilots which took a virtual ward approach were evaluated by Roland et al (2012) through a difference-in-difference analysis comparing the HES records of patients and matched controls, and concluded that it was 'very unlikely that the sites achieved their goal of reducing emergency admissions'. In fact the patients enrolled in a virtual ward were 9% *more* likely to be admitted as emergencies than the case-matched controls (CIs 1%-16%, $p < 0.05$). However, elective and outpatient admissions were each reduced by around a fifth in the six months following intervention. Overall, combined outpatient and inpatient costs were reduced by a mean of 9% (£223 per patient - CIs £54–£391, $p = 0.01$) however there are additional costs of the virtual ward.

A Nuffield Trust evaluation of three virtual ward schemes across England is underway and should be reported this year, but unfortunately is not available at this time.

Locally, North East Essex ran a Virtual Ward pilot in Tendring in 2011. Patients should have been identified for the intervention using risk prediction modelling, but practical problems locally meant that most patients were referred through GPs. Patients' health care use was compared before and after their inclusion on the programme. The results showed a 19% drop in admissions for Ambulatory Care Sensitive (ACS) conditions (defined as conditions for which hospital admission should not be required where community care is adequate) and a related decrease of 40% in avoidable ACS admission bed days. However it is not clear how much of this can be ascribed to the effect of regression to the mean. GP Practices supported by Virtual Wards showed a lower rate of increase in ACS admissions among all over 65s than other Practices. There was an *increase* of 63% in A&E attendance, 30 day readmission (107%), and overall bed days (64%).

A Cochrane review of 'hospital at home' found no evidence that the service reduced admissions.

Disease management programs seek to provide better integration of care for people with certain diseases, which generally include a strong element of patient education and self-care and often include multidisciplinary team care. Evidence on their impact in terms of cost and hospital use compared to normal care is inconclusive, due partly to the variety of components included within different programs.

The Nuffield Trust evaluated (using matched controls) four MDT projects that were established as part of the POPP initiative (Partnership for Older People Project). The projects which were selected for evaluation included elements which may have had an impact on admissions;

- Support staff working alongside community matrons with people with long-term conditions
- Intermediate care supporting people discharged from hospital
- MDTs integrating health and social care staff
- Out of hours response staff as well as office hours response

However, the interventions were not associated with a reduction in acute hospital use, and similar to the evaluation of virtual wards described above, in some cases the intervention group patients had *more* admissions than the controls.

A recent Cochrane review of case management and MDT interventions for heart failure patients found that ‘there is now good evidence that case management type interventions [intense monitoring of patients following hospital discharge often involving telephone follow up and home visits] led by a heart failure specialist nurse reduces CHF related readmissions after 12 months follow up, all cause readmissions and all cause mortality.’ There were fewer reviewed papers looking at MDT interventions and the authors concluded “multidisciplinary interventions may be effective in reducing both CHF and all cause readmissions.” While interesting, this work focused on just one condition and did not use case finding to identify high risk patients; instead research participants were those who had previously been admitted with heart failure.

Torbay Care Trust is often cited as a good example of MDT working which has effectively reduced admissions, however information on how this was reflected in cost savings was not found. The CPM is used to identify the patients at highest risk of admission and these patients are managed in a virtual ward. Torbay now has the lowest rate of emergency bed use for older people with two or more admissions. A full cost benefit analysis is being conducted at present by the Nuffield Trust.

In summary, the evidence supporting virtual wards and case management in the UK does not strongly support their use to reduce emergency admissions or to significantly reduce costs.

Interventions that focus on one particular condition may be more effective, but the highest-risk patients are likely to have multiple co-morbidities..

10.2 Interventions that reduce social care demand

Less evidence is available on the role of multidisciplinary teams / virtual wards in reducing social care demand. On balance, the evidence broadly supports a case management approach in reducing use of nursing homes but evidence is sparse

- Ross et al’s (2011) review for the King’s Fund found that case management has been associated with reduced admissions to long-term or nursing home care.
- A systematic review of case management of dementia patients found that three out of six good quality trials found a delay/reduced institutionalisation and one additional that found a significant delay in a subgroup (in one country of the three studied).
- A large European retrospective cohort study (including some UK areas) found that case management of frail older people almost halved the risk of nursing home admission compared to patients in the ‘traditional care’ group (Case

managed patient admission rate 6.8% vs control admission rate 13%; adjusted OR=0.56; 95% CI=0.43-0.63). The risk of admission increased progressively and significantly with the severity of depression (measured by MDS Depression Rating Scale; P=0.001). The hazard ratio for a 0 score was 1.43 (95% CI=1.11-1.90) and for a score of 5 was 2.23 (95% CI=1.24-3.99).

Elkan et al undertook a systematic review and meta-analysis into the effectiveness of home based support for older people. The interventions included.

10.3 Impact on patient / client care satisfaction

Roland et al's (2012) national evaluation of virtual ward schemes found that patients gave mixed responses about their care; while they were more likely to know who to contact, they felt less involved in decisions about their care.

Ross et al's review of the literature for the King's Fund (2011) found that studies with people on case management programmes found high levels of satisfaction. They note that it is important that the case manager encourages patients to be independent so that the prospect of discharge from the service does not make patients anxious. The review also found evidence that case management improves patients' perceptions of their ability to cope, and their self-reported quality of life.

The Virtual Ward pilot in NE Essex sought user feedback. 64% of patients felt confident that the scheme had reduced the chance of an admission to hospital, and 70% agreed that the scheme was joined up and working well for them.

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11 Geriatricians and Frail Elderly Patients

A geriatrician is a general physician who specialises in the medical needs of older people. In many aspects, these may differ from those of midlife adults. Older people often have multiple medical problems. The geriatrician is trained to look at the problems as a whole and determine how they interact. The geriatrician knows about the syndromes of ageing that are not in any particular speciality, like mental confusion, urinary incontinence, instability and gait disorders, failure to thrive, depression. As such Geriatricians coordinate care that an older person may require from a number of different specialties. The job of the geriatrician is also to improve the quality of life, to keep older people functional and independent as long as possible. Sometimes with very simple advice, such as exercise, a patient can be made more functional and independent. This section considers the impact that Geriatricians can have on reducing demands on health and social care services and improving patient outcomes.

11.1 Inpatients

There is good evidence that older people who receive treatment from a geriatrician including a Comprehensive Geriatric Assessment (CGA) are less likely to be discharged to residential or nursing care and more likely to be discharged home.⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾ A systematic review found that patients receiving CGA in an in-patient setting were more likely to be living at home during the follow up period after discharge (OR 1.25, 95% CI 1.11–1.42, $p=0.0002$), at six months post-discharge (OR 1.16, 95% CI 1.05–1.28, $p=0.003$) and at the end of follow-up (median one year). They were also less likely to be institutionalized (OR 0.79, 95% CI 0.69–0.88, $p<0.00001$), less likely to have deteriorated in their level of function (OR 0.76, 95% CI 0.64–0.90, $p=0.001$) and more likely to have improved cognitive function (OR 1.11, 95% CI 0.02–2.01, $p=0.002$) for up to 12 months compared to usual care.⁽¹⁾

There is good evidence for integrated CGA services for orthogeriatric patients which cover acute care and supported discharge, and for the CGA approach in the management of stroke and delirium.⁽⁵⁾

The evidence relating to the impact of Geriatricians on readmission rates, patient length of stay, future unplanned care demand and rate of future outpatient demand is equivocal.⁽¹⁾ More research needed about what are the components of specific types of interventions that improve patient outcomes. However one pre-post cohort study looked at the impact of embedding CGA in A&E in an East Midlands Hospital on conversion rates of A&E attenders to hospital admissions for those aged 85+. It examined the records of 4,034 A&E attenders aged 85+ in the study period and 6,895 A&E attenders aged 85+ in the control period and found that the conversion rate of A&E attendance to hospital admission fell from 69.6 to 61.2% during the study period, and readmission rates at 90 days fell from 26% to 19.9%. These reductions were statistically significant at $p<0.001$. The risk ratio at 95% confidence interval for initial admission comparing the intervention to control periods for those aged 85+ was 0.88 (CI 0.81 - 0.95) and for re-admission at 90 days was 0.77 (0.63–0.93) at 90 days.⁽⁶⁾

There is no evidence that in-patient care from a Geriatrician results in lower mortality compared to normal care or that Geriatricians in inpatient specialised teams that

conduct Comprehensive Geriatric Assessments and advice on patient care across improve long term patient outcomes.⁽¹⁾⁽⁷⁾

An RCT based in Nottingham of 220 older patients found that those who were discharged from acute to community hospitals had a greater level of independence at six months and lower depression scores compared to those whose care was delivered entirely on a ward of the District General Hospital.⁽⁸⁾ Independence at six months was greater in the community hospital group (adjusted mean difference 5.30 on the Nottingham extended activities of daily living scale, 95% confidence interval 0.64 to 9.96).⁽⁹⁾

11.2 Out-patient units.

Geriatricians in teams and as consultants had mixed results in terms of impact on function, living at home and health services use. Interventions in which geriatricians have direct patient contact are more likely to result in better outcomes than interventions where the interaction is limited to supporting other clinicians. Geriatricians as primary care providers provide more effective medication management than other clinicians.⁽¹⁾⁽²⁾

There is no evidence that Geriatricians impact on mortality rates over and above usual care⁽¹⁾ or that that CGA in outpatients or day hospitals alone is effective.

11.3 Community

There is evidence that Community Geriatricians can improve patient outcomes although this evidence is not as robust as that for in-patient settings. Evidence regarding impact of community geriatricians on urgent care demand is equivocal. and A large scale American retrospective cohort study found that for 287,000 patients with a history of cardio-vascular disease living in the community, one or more community geriatrician visits in a 6-month period were associated with 11.3% lower Emergency Department use the following month (95% confidence interval (CI) = 7.5–15.0, N = 287,259). Participants who received primary care from geriatricians were less likely to visit the Emergency Department (ED) than those who had traditional primary care. Community Geriatric care was associated with an estimated 108 fewer ED visits per 1,000 patients. Similar results were found when >66,000 notes of patients living in nursing homes were analysed. Patients who had received Community Geriatric Care in the previous six month period had 133 fewer ED visits per 1,000 nursing home residents per year. Geriatric consultative care in collaboration with primary care providers may be as effective in reducing ED use as geriatric primary care. Increased provision of collaborative care could allow the existing supply of geriatricians to reach a larger number of individuals.⁽¹⁰⁾

An Australian randomised control trial that looked at 739 patients aged >75 that had visited ED found that those that underwent a Comprehensive Geriatric Assessment by a multi-disciplinary outreach team within 28 days had a lower rate of all admissions to the hospital during the first 30 days after the initial ED visit (16.5% vs 22.2%; $P=.048$), a lower rate of emergency admissions during the 18-month follow-up (44.4% vs 54.3%; $P=.007$), and longer time to first emergency admission (382 vs 348 days; $P=.011$).⁽¹¹⁾

A further RCT study with a cohort of 414 found that community based Comprehensive Geriatric Assessment and subsequent interventions including medication

review/adjustment, exercise instruction, nutrition support, physical rehabilitation, social worker consultation, and speciality referral resulted in better clinical outcomes and less deterioration at six month follow up compared to controls. The study also found that the odds of being dependent on assistance in the basic activities of daily living at three years were significantly lower in the intervention group than in the control group (adjusted odds ratio, 0.4; 95% interval, 0.2 to 0.8; $P = 0.02$; $P = 0.03$ for the unadjusted odds ratio).⁽¹²⁾ However the intervention had no significant impact on rate of admission to hospital.

A series of further studies also questioned the impact of community based geriatrics on urgent care demand. One randomised control trial actively screened community dwelling older people (irrespective of their contact with primary or secondary care) for conditions such as depression, falls, urinary incontinence, and cognitive and functional impairment (the so called geriatric giants). The researchers then intervened intensively using specialist services that included geriatric medicine and psychiatry, urology, audiology, rehabilitation, psychology, and social services. However, they found no reduction in admissions compared with the usual care group over a three year follow-up.⁽¹³⁾

Another trial investigated a hospital based team consisting of a geriatrician, trained nurses, and social workers that offered outreach in the community. Despite active intervention, extensive assessments, and round the clock support during follow-up, admissions were not reduced compared with usual primary care.⁽¹⁴⁾

In addition community based interventions can reduce demand on long term residential and nursing care. Two systematic reviews of home based interventions, despite being complicated by methodological variations and a lack of standardisation of interventions, show that community based patient centred care delivered comprehensively in a sustained fashion with multiple visits reduces long term institutional care.⁽¹⁵⁾⁽¹⁶⁾

11.4 Interface Geriatricians

'Interface Geriatricians' work across both community and secondary health care settings to provide an interface of care between both settings. This includes Comprehensive Geriatric Assessment (CGA) on AMU after assessment by a general physician, and then following discharge a

comprehensive medical assessment, general medical review including psychiatric assessment, investigation into geriatric syndromes and medication review. Interface Geriatricians are also responsible for liaison with the GPs post discharge and follow-up home assessment where appropriate. There is strong evidence from systematic review and meta-analysis of 28 control trials considering 9961 subjects that this model of care results in a greater likelihood that patients will remain living at home. Combined odds ratio (95% confidence interval) of living at home at follow-up was 1.68 (1.17-2.41) for geriatric evaluation and management units, 1.49 (1.12-1.98) for hospital-home assessment services.⁽¹⁷⁾⁽¹⁸⁾

A Geriatric care pathway of 'front door' hospital geriatric assessment and where appropriate, crisis intervention and acute geriatric admission, integrated community care with geriatrician input and outpatient and other speciality referral has been shown to

avoid unnecessary hospital admission, reducing length of inpatient stay, deliver comprehensive discharge care plans, reducing delayed discharge and reducing the risk of re-admission.⁽¹⁹⁾

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12. Community Beds

This section looks at published evidence around the use of intermediate care beds and then at the Essex residential reablement pilot.

12.1 Published evidence

A randomised controlled trial by *Green et al.* (2005)⁽¹⁾⁽²⁾ addressed the question of providing community hospital care following a hospital admission to medically stable patients (n=220). The intervention consisted of patients being randomly allocated to a locality based community hospital or to remain within a District General Hospital. Patients allocated to community hospital care were assessed by a multidisciplinary team and received an individual care plan designed to maximise recovery and promote independence. The consultant visited the hospital at least twice a week and the hospital practitioner visited the hospital each weekday. Local general practitioners provided out of hours cover. The median length of stay of 15 days was the same for both the community hospital and the District General Hospital groups however independence at six months was greater in the community hospital group (the adjusted mean difference changes in scores on the Nottingham extended activities of daily living scale was 5.30, 95% confidence interval 0.64 to 9.96). No information was given by the authors relating to the clinical details of the initial hospital admission, however, the study population was described as average age 85, predominantly female, community dwelling, reduced independence before admission, and in receipt of care from social services.

This study suggests that providing an individually tailored package of care in a community hospital in older adults once they are deemed medically stable may be beneficial in promoting independence several months after the admission.

A secondary analysis of this study by *Young et al.* (2007)⁽³⁾ into the effects of timing of post-acute transfer to intermediate care suggest that transfer for post-acute rehabilitation should be as soon as possible after medical stability has been achieved.

A systematic review (n=1896) by *Griffiths et al.*⁽⁴⁾ of ten random or quasi-random controlled trials (high quality evidence) published in 2009 reviewed the effectiveness of intermediate care in nursing-led in-patient units (NLU) following an acute hospital admission for a physical health condition. The review aimed to determine whether NLUs are effective in preparing patients for discharge from hospital. Effectiveness of the NLU was compared to 'usual care' (inpatient care in general acute hospital wards).

Discharge to institutional care was reduced for the NLU (OR 0.44 95% CI 0.22 to 0.89), however this finding was less clear when only the strongest studies were included and may in part have related to higher death rates in the NLU group. Functional status at discharge increased (0.37 (points measured on the Barthel Index), 95%CI 0.20 to 0.54) but there was a near significant increase in inpatient stay (5.13 days 95%CI -0.5 days to 10.76 days). Early readmissions were reduced (OR 0.52 95% CI 0.34 to 0.80).

The components of the care provided at the nurse led unit were not specified further in the systematic review and therefore it is not possible to determine why this model of care was successful.

In summary, published evidence specifically addressing whether clinical models of step down provision in community hospitals reduce length of stay or prevent further hospital admissions is lacking. However, the limited evidence from the UK suggests that step down beds may be beneficial for promoting independence, although may have no impact or may increase average length of inpatient stay. Whilst discharge to institutional care may be reduced, long term outcomes were not established. The evidence suggests that individually tailored care in a community hospital or a nurse led model of care is to be effective in achieving improved functional outcomes.

12.2 Review of local residential reablement pilot

There is no published evidence around the impact of residential reablement on social or health care costs.

Prior to the residential reablement pilot at Drake House in Chelmsford, provision of intermediate care in Essex was largely restricted to purchasing of beds within residential care homes. Essex County Council reported that 86% of individuals using these beds went on to permanent residential placements. Based on data from the 15 month pilot study, only 11% of recipients of residential reablement were discharged to a care home and 76% of recipients were discharged home. This is not a direct comparison in that not all individuals who were admitted to the intermediate care beds would have been appropriate to consider returning home.

In addition 75 individuals (36% of pilot participants) who received residential reablement services at Drake House were followed up at 91 days post discharge to give an indication of longer term outcome. 68% (51) individuals remained at home at 91 days of which 13 were fully self-caring.

The Essex County Council evaluation of the Drake House pilot over 15 months found that 93% of all service users demonstrated an improvement in their skills relating to activities of daily living during this time.

Post-pilot: Since the pilot has been completed, Mid Essex CCG has commissioned 10 residential reablement beds at Drake House. 145 individuals have received residential reablement at Drake House during 2012/13. The outcomes for people at the end of the six week reablement course have shown that 79% were deemed to be successfully reabled, either being self-caring (60%) or receiving domiciliary ('agency') care (19%). This outcome compares to 81% of those receiving domiciliary reablement being successfully reabled, showing the residential reablement service is able to deliver similar results.

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13 Step Up Beds

The evidence base for Intermediate Care (IC) remains insufficiently robust to allow dogmatic conclusions but there is sufficient research evidence (systematic reviews of RCTs) to describe IC service models that are more likely to be effective or cost-effective.⁽¹⁾⁽²⁾⁽³⁾ It is anticipated that more published evidence of local schemes will become accessible in the near future.

This intervention should be an integral part of the Unscheduled/Unplanned Care programme. These are patients with complex health care needs likely to have a high level of physical dependency care and therefore they are beyond the capacity of the usual primary care team.⁽⁴⁾

Hospital-at-home (HaH) schemes are currently the best RCT supported IC model (22 trials reported up to 2009). A HaH service is a service that provides active treatment in the patient's home, of a condition that would otherwise require acute hospital in patient care, and is condition and function (admission avoidance, early discharge, palliative care) flexible. It is regarded as an excellent foundation service for a more comprehensive IC service such as HaH plus social service care or HaH plus community rehabilitation.⁽⁵⁾

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14. Care Pathways

Care pathways are defined by the European Pathway Association as:” a methodology for the mutual decision making and organization of care for a well-defined group of patients during a well-defined period” Their aim is to promote effectiveness and thereby improve quality, reduce the unintended variations in care, reduce resource utilization, improve patient education and improve quality of care.

Purdy et al⁽¹⁾ review the evidence in this area as well as revisiting earlier reviews. They conclude “there is no convincing evidence to make any conclusions on the effect of pathways and guidelines on hospital admissions although it is important to point out that data are limited for most conditions”.

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15 Domestic Abuse

The term 'domestic abuse' is used to mean: any incident or pattern of incidents of controlling, coercive or threatening behaviour, violence or abuse between those aged 16 or over who are, or have been, intimate partners or are family member regardless of gender or sexuality. This can encompass but is not limited to the following types of abuse: psychological; physical; sexual; financial; or emotional.

15.1 Interventions that reduce health and social care service demand

Although there is widespread agreement that interventions targeted at reducing and preventing domestic abuse should be funded there is limited guidance on which specific interventions provide good value for money. The National Institute of Health and Clinical Excellence (NICE) is currently consulting on its draft guidance on “Domestic violence: identification and prevention”.⁽¹⁾ The review considered evidence for prevention, identification, intervention (survivors and perpetrators) and children exposed to DV.

Prevention: the review did not find sufficient evidence to make recommendations on primary prevention programmes via media or in health or community settings; there was modest evidence that prevention programmes targeting young people at risk of domestic abuse may improve knowledge, attitudes and interpersonal outcomes although perhaps limited generalisability to the UK population.

Screening: overall, there is insufficient evidence to reach a view on the effectiveness of screening programmes for intimate partner violence (IPV). Reviews conducted for the UK National Screening Committee (UKNSC) revealed that screening results in increased identification of violence on women and is acceptable to most women, yet they did not find sufficient evidence that screening resulted in improved health outcomes or a decrease in recurrence of violence, and found mixed reports from health care providers regarding acceptability. The evidence on the effectiveness of provider education interventions for improving screening practices or clinical enquiry is inconsistent. There is moderate evidence for universal screening or routine enquiry for DV in pregnancy, when supported by staff training and organizational support.

Survivor interventions: overall, evidence of effectiveness - from 3 systematic reviews of IPV interventions (advocacy, skill building, counselling) for victims - is inconclusive, although both intensive advocacy interventions and system centred interventions with ongoing staff training appear promising. Further analyse by NICE reports that there is moderate evidence for advocacy, skill development, counselling and therapeutic approaches. The NICE economic evaluation suggested that independent domestic violence advisors (IDVAs) and cognitive trauma therapy for battered women (CTT – BW) are both cost effective interventions. The NICE economic evaluation took a societal approach to its analysis taking into account costs and savings beyond that attributable to health. The savings accruing to IDVA are predominantly human & emotional costs and to the criminal justice sector with savings to health particularly reduced use of primary care. For CTT the savings (from averted consequences of post-traumatic stress disorder) predominantly related to reduced absenteeism.

Perpetrator interventions: overall the evidence of effectiveness of these intervention programmes is inconclusive – moderate evidence for individual interventions and

inconsistent evidence for group interventions. The types of individual interventions employed varied, including: case management, an individual level intervention combined with community outreach services, solution focused therapy, educational interventions, and motivational interviewing. Overall, interventions appeared to have a greater effect on attitudinal outcomes than recidivism/ violence outcomes (which, when measured improved in some but not all studies).

Identification schemes appear to be cost effective. No economic evaluations were identified for prevention or children witnessing DV. NICE did not review any interventions relating to enforcement, nor use of refuges or other housing options.

15.2 Impact on patient / client care satisfaction

The primary impact of IDVA is on human and emotional benefits.

References

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16. Reablement

Reablement can be defined as providing “Services for people with poor physical or mental health to help them accommodate their illness by learning or re-learning the skills necessary for daily living” (Kent et al., 2000).⁽¹⁾

There are few good trials in this area over the last decade. There are even fewer that enable a sense of what savings are possible. The Social Policy Research Unit, University of York published Home Care Re-ablement Services: Investigating the longer-term impacts (prospective longitudinal study) by Glendinning et al⁽²⁾ in late 2010. This report forms much of the evidence within the 2011 SCIE research briefing as the report includes one year follow up data and attempts at health and social care costings. The report concludes that in the first year, in the group receiving reablement the mean combined cost of reablement and ongoing social care (for those in that group who needed it) was £1,640 for reablement plus £790 for the rest of the year social care costs. The cost in the control group was £570 for the first two months, then £2,240 for the next ten months. The difference in the first year in total social care costs between the two groups (ie sum reablement plus other social care) was a non-significant £380. The difference in social costs excluding reablement costs and after accounting for baseline differences between the two groups was a 60% reduction in costs in the reablement group.

There was a higher cost to health services in the reablement group in the first two months and then no difference over the rest of the year.

There are however many potential problems with the study. Drop out in both groups was high with one year data only in about a third of those starting the trial. The trial is NOT randomised and the reablement group and control group appear very different. 75% of the reablement group were referred from hospital and 55% of control. 15% reablement were first time community referrals versus 29% in the controls. 37% of the reablement group were felt to have “critical or substantial need” at recruitment against 77% of controls. One could conclude that the control group were more likely than the reablement group to have been referred due to social care issues per se and the reablement group due to needs precipitated through health reasons (evidenced by higher rate hospital discharge and initial higher ongoing healthcare cost). While the authors attempt to account for this in analysis, it does raise problems with interpretation. The study by McLeod and Mair⁽³⁾ “Evaluation of City of Edinburgh Council Homecare Reablement service” published in 2009 has no such problems with its intervention group but only follows up for three months.

The results show that up to 62 per cent of reablement users no longer need a service after 6–12 weeks (compared with 5 per cent of the control group), and that 26 per cent had a reduced requirement for home care hours (compared with 13 per cent of the control group). Of interest is the fact that following initial assessment the control group had an INCREASING spend on social care in those referred from the community (but a reduction in those referred from hospital). While there are reductions in need for social support in all who access reablement, gains were highest (60% reduction in care requirements) in those whose dependency required them receiving 5 -10 hours per week. The least benefit (but still 19% reduction) was in those requiring more than 15 hours per week. In this study the

cost of frontline support for the first six weeks was no different between the reablement and control group but there were some added costs from OT and management. The average cost for 6 weeks reablement in Mair study was £1050 against £850 control costs. This suggests that much can be achieved for frankly little extra investment. In this study the vast majority of referrals were seen as appropriate for reablement. Similarly benefit was considerable regardless as to whether admission was from community or hospital although in this study, gains were somewhat higher in those referred from the community.

Lewin⁽⁴⁾ reported in 2010 initial findings from her study in Western Australia but a full peer review version was not available. Of note she used an RCT methodology looking at 750 clients and there is some information on two year follow up.. In the intention to treat analysis at 3 months and 1 year follow ups, 63.5% and 40.3% respectively for normal care and 27.5% and 17.9% for reablement were receiving an on-going personal care service In the actual services analysis, the respective figures were 68.9% and 43% for normal care and 21.3% and 14.2% for reablement. There were significant differences between the groups in terms of the total amount of personal care service used in the study year, the subsequent year and in the two years combined, with the reablement group using significantly fewer hours of care. The cost of the reablement group was less. While analysis was on-going, at the time of the report there was no impact on health admissions but the reablement group had fewer “Emergency Department” attendances.

Tinetti et al⁽⁵⁾ compared readmissions of Medicare recipients of usual home care and a matched group of recipients of a restorative (reablement) model of home care. Among the matched pairs, 13.2% of participants who received restorative care were readmitted to an acute hospital during the episode of home care, versus 17.6% of those who received usual care. Individuals receiving the restorative model of home care were 32% less likely to be readmitted than those receiving usual care (conditional odds ratio = 0.68, 95% confidence interval= 0.43–1.08). The reader will note however that caution is called for as the results do not reach conventional levels of significance. The matching was also not ideal given the marginal result with more in the control group living alone, having depression, diabetes and heart problems and more in the intervention group having respiratory problems.

In summary, the evidence around the benefits of reablement is growing but is not of the most robust nature. There is however increasing evidence that reablement focusing on all who might benefit can be delivered at moderate cost and can markedly reduce on-going home care costs to social care for at least two years. It is less clear how it impacts on health costs but Tinetti et al suggests some promise As Lewin suggests (2011), it should be the “gateway”

to services for the majority who might benefit.

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17. Specialist Clinics

17.1 Impact on Health services

Purdy et al⁽¹⁾ in “Interventions to reduce unplanned hospital admission: a series of systematic reviews” produced in 2012 is a useful and relevant description of the evidence in this area. In this report a specialist clinic “provides advanced diagnostic or treatment services for diseases/conditions. Specialist clinics have been set up in both primary and secondary care settings, which may utilise nurses to provide specialist nurse led clinics or multidisciplinary care teams to help manage long term conditions”.

The report looks at Randomised Controlled Trials (RCTs) and specifically at heart failure, older people, and asthma where most of the evidence exists with single studies in other areas.

17.2 Heart Failure

There is evidence that a system of decreasing intensity of support (from weekly or fortnightly down to 3 monthly) for people with heart failure following hospital discharge reduces unplanned hospital admissions by a statistically significant 58% at one year. There is less evidence around other follow up regimes. In the Bruggink⁽²⁾ study for example looking at patients with New York Heart Association Classification System (NYHA) 3 and 4, the patients were so ill that the NNT to prevent an admission at 12 months was 5

17.3 Older people

Of seven published studies looking at both outpatient and primary care based services only two showed a reduction in hospital admissions. Scott 2004⁽³⁾ in USA used a “Co-operative health care model” that involved monthly group sessions led by the primary care clinician that were quite intensive and supported by one to one sessions as required. Follow up was for 2 years and the intervention group had 41% less admissions. There is no cost data around the intervention.

Fletcher et al (2004)⁽⁴⁾ in the UK used a questionnaire to identify at risk patients who had a subsequent detailed assessment and specialist clinic follow up. At three years there was around 8% less admissions in the intervention group but again costing was not clear. A range of other studies with fairly similar intervention and clinic follow up did not show a benefit.

17.4 Asthma

The conclusion is that studies are of poor quality and asthma clinics seem to have no effect on unplanned admissions.

17.5 COPD

Soler 2006⁽⁵⁾ undertook a small study in Spain of monthly visits to a specialised clinic and a short educational program versus normal care and found a very significant 73% reduction in admissions in the intervention group. Though a small study the approach shows promise.

17.6 Mental Health

Herz⁽⁶⁾ in the US in 2000 looked at the impact of “relapse prevention” on mental health admissions in people with schizophrenia. The work showed that complex on-going community support to patient and family including helping in recognition of early signs of relapse impacted on admissions. At 18 months follow up 39% of the control and 22% of the intervention group had been admitted. In this high risk group then, the NNT for 18 months to prevent an admission is only 6. While the approach may have application locally, the intervention is quite complex and potentially costly.

17.7 CHD

Campbell 1998⁽⁷⁾ and Murphy 2009⁽⁸⁾ both in the UK showed the benefit of focused primary care follow up in CHD patients including addressing lifestyle factors. The studies showed an absolute reduction of between 6 and 9% in admissions.

17.8 Impact on Social Care Services

There is no strong published evidence around the impact of these interventions on social care need.

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18.1 Assistive Technology

Assistive technology (AT) describes any technology-enabled product or service designed to facilitate independence for people with health and social care needs, such as Long Term Conditions (LTCs) or the frail elderly. It is increasingly seen by policy-makers as a key building block of service redevelopment in order to address rising service demand,⁽¹⁾ however there has been a lack of empirical evidence on the effectiveness of AT in addressing health and social care needs.⁽²⁾ AT includes:

- **Telehealth:** the remote exchange of physiological and wellbeing data between a patient at home and medical staff to assist in diagnosis and monitoring (this could include support for people with lung function problems, diabetes, heart failure etc).
- **Telecare:** a combination of remotely monitored passive alarms, sensors, other equipment and services to help people live independently in their own homes.
- **Telemedicine:** the provision of consultation and other services by off-site health care professionals to those on the scene; diagnosis and treatment advice can be given at a distance through methods such as videoconferencing and/or rapid transmission of digital files and images. (Telemedicine is not covered in this review, however in general the evidence is mixed - whilst some uses have been well-studied, there are a number of applications for which high quality evidence is lacking.)⁽³⁾

Section 22 of the Chronically Sick and Disabled Persons Act 1970 requires a report to be laid before Parliament each year describing the research activity the government has funded to improve equipment for disabled and older people, known as Assistive Technology (AT). This provides a comprehensive summary of the various types of AT currently in development.⁽⁴⁾

18.1 Impact on Health Services

Telehealth: The literature on the impact of telehealth on health service usage is inconclusive overall. For example, a 2010 review of systematic reviews concluded that “the issue of whether [telehealth] is economically viable has not yet been adequately addressed”.⁽⁵⁾ This is due in part to the differing technologies studied, the different ways in which the technologies are used, and the generally poor quality of the research.⁽⁶⁾ It should also be noted that much of the literature on telehealth comes from the US (and specifically the Veterans Health Association, which uses telehealth to support over 50,000 military veterans in the US),⁽⁷⁾ and its impact in the UK health system is likely to differ.⁽⁸⁾

Studies of telehealth support for certain chronic health conditions have shown an impact on health services. A meta-analysis of 11 Randomised Controlled Trials (RCTs) (2,710 participants) for patients with chronic heart failure (CHF) found that telehealth reduced CHF hospital admissions by 21% (Relative Risk [RR] 0.79; 95% Confidence Interval [CI] 0.67 to 0.94; $P=0.008$).⁽⁹⁾ A

systematic review of telehealth for asthma found a weaker but significant 5% reduction in hospitalisations over a 12-month period (Odds Ratio [OR] 0.21; 95% CI 0.07 to 0.61; $=0.04$; NB number of events was low overall), however there was also a non-significant 4% increase in emergency department visits (OR 1.16; 95% CI 0.52 to 2.58; $P=0.72$).⁽¹⁰⁾ A systematic review by the same authors of 10 RCTs of telehealth in Chronic

Obstructive Pulmonary Disease (COPD; 1,004 participants) found a reduction in emergency department visits by telehealth users (OR 0.27; 95% CI 0.11 to 0.66; P=0.005) as well as a reduction in hospital admissions (OR 0.46; 95% CI 0.33 to 0.65; P < 0.00001).⁽¹¹⁾

However, evidence is simply lacking for many interventions in other conditions, such as rheumatoid arthritis⁽¹²⁾ and schizophrenia.⁽¹³⁾ There is also some limited evidence that some interventions have no impact, such as hip protectors in care homes.⁽¹⁴⁾

The recent Whole System Demonstrator (WSD) cluster RCT of telehealth provides the most robust UK evidence on the impact of telehealth. It included 3230 UK people with a LTC (CHF, chronic obstructive pulmonary disease, or diabetes),⁽¹⁵⁾ and found that 5% fewer people receiving telehealth were admitted to hospital in 12 months than in the control group (OR=0.82; 95% CI 0.70 - 0.97; P=0.017).⁽¹⁶⁾ The mean number of emergency admissions per head also differed between groups (crude rates, intervention 0.54 v control 0.68), however this difference was not significant after adjusting for baseline characteristics. Length of hospital stay was significantly shorter by 0.64 days (mean bed days per head 4.87 v 5.68; P=0.023) for intervention patients than for controls. These differences did not translate into differences in notional costs of hospital treatment however.

The additional annual costs of telehealth per person in the WSD trial ranged from £1,500-£2,000, the QALY gain by patients using telehealth in addition to usual care was similar to that by patients receiving usual care only, and the incremental cost per QALY of telehealth when added to usual care was £92,000.⁽¹⁷⁾ Despite the moderate impact on service usage, as delivered in the WSD, telehealth is thus unlikely to be cost effective (based on health and social care costs, outcomes after 12 months and the willingness to pay threshold of £30,000 per QALY recommended by NICE), with only an 11% chance of being cost effective. If equipment costs reduced by 80% and service was delivered at optimal capacity to minimise costs, the likelihood of telehealth being cost effective increases to 61%.⁽¹⁸⁾

Telecare: The number of telecare interventions and devices is vast, but many have not been well-evaluated,⁽¹⁹⁾ and many studies are case reports only.⁽²⁰⁾ There is however some evidence that specific telecare interventions can have an impact on health services:

Tchalla et al. (2012) undertook a longitudinal prospective cohort study of a light path coupled with tele-assistance service for preventing unintentional falls. The study included 194 people aged 65 and over and found that after one year, 20% fewer people in the intervention group had falls, compared to the control group. There was also a greater reduction in post-fall hospitalisation among the intervention group (OR=0.30; 95% CI 0.12-0.74; p value=0.0091).⁽²¹⁾ One before / after cohort study also found that installing call systems in care homes can reduce falls and their associated health care costs by up to 50%.⁽²²⁾

18.2 Impact on Social Care Services

Telehealth: Few studies that were identified considered the impact of telehealth on social care demand per se, however the WSD RCT reported a non-significant 27% lower cost of social care in the telehealth group compared to the control group.⁽²³⁾

Telecare: Limited robust evidence on the impact of telecare on social care demand was identified. A 2007 systematic review found a lack of robust evidence on the efficacy of telecare interventions such as home safety and security alert systems.⁽²⁴⁾ The British Psychological Society's 2007 guideline on Dementia⁽²⁵⁾ stated that initial findings support the use of AT in aiding people with dementia to stay in the community longer, thereby delaying moves to higher dependency care, but also found that further research is needed before any firm conclusions can be drawn.

An evaluation of telecare provision in Essex in 2009-10 reported that, across 240 randomly selected telecare users, for every £1 spent on telecare £3.82 was saved in traditional care, based on social worker report of the next best care scenario. For those users where telecare was a direct replacement for traditional care, every £1 spent on telecare saved £12.60 in traditional care.⁽²⁶⁾

18.3 Impact on Patients, Clients and Families

The efficacy of AT interventions depends on people's willingness to use them. The WSD RCT considered why some people did not wish to use AT equipment, and found the main barriers to be: requirements for technical competence and operation of equipment; threats to identity, independence and self-care; and expectations and experiences of disruption to current services.⁽²⁷⁾ Greenhalgh *et al.* (2013) conducted an ethnographic study to look at this in more detail. A detailed picture of 40 participants' (aged 60-98) lives, illness experiences and use (or non-use) of technologies was built up. Data were analysed phenomenologically, and the authors concluded that the AT devices met few participants' needs and generally did not assist them to live with illness, except in a few cases where customised to an individual's particular needs.⁽²⁸⁾ The design and flexibility of AT devices to support autonomy and individuality are therefore crucial to their uptake and thus their effectiveness.

Telehealth: In the UK WSD RCT, telehealth did not improve quality of life or psychological outcomes for patients with LTCs over 12 months, compared to normal care.⁽²⁹⁾ Meaningful quality of life improvements were not found in a systematic review of asthma trials either (mean difference 0.08; 95% CI 0.001

to 0.16; P=0.02),⁽³⁰⁾ although a COPD systematic review did report a small but clinically significant increase in quality of life in two trials with 253 participants (mean difference - 6.57 (95% CI = 13.62 to 0.48)⁽³¹⁾

The mortality rate in the WSD RCT was 45% lower in the telehealth group than in the control group (4.6% v 8.3%; unadjusted OR 0.54; 95% CI 0.39 to 0.75; P<0.001).⁽³²⁾ Mortality was reduced by a similar proportion in a US RCT of 781 people, which tested the efficacy of a telephonic health and social care management approach and 12 month review. The intervention group had significantly lower odds of mortality throughout the study (OR = 0.55; p = 0.005).⁽³³⁾ A meta-analysis of 11 RCTs for patients with chronic heart failure (CHF) also found all-cause mortality was reduced by 34% (RR 0.66; 95%CI 0.54 to 0.81; P < 0.0001)⁽³⁴⁾ but a similar review of mortality in COPD telehealth trials found no impact on mortality.⁽³⁵⁾

Van den Berg and colleagues (2012) undertook a systematic review which included 68 papers on the outcomes for users of telehealth.⁽³⁶⁾ They found predominantly positive

results but with a clear trend towards better results for "behavioural" endpoints, e.g. adherence to medication or diet, and self-efficacy compared to results more clinical outcomes (e.g. blood pressure, or mortality), quality of life, and economic outcomes (e.g. costs or hospitalisation).

Telecare: Numerous case reports have looked at the impact of different telecare technologies on small numbers of patients, but there have been few large-scale randomised controlled trials, and insufficient high quality studies to robustly assess the impact of telecare overall on its users. For example, Lindqvist and Borrell (2012) described how a computer-based AT intervention helped four stroke survivors regain control of their everyday lives and of social contacts,⁽³⁷⁾ however the additional benefit over usual care and systemic implications of the intervention are unclear.

The British Psychological Society (2007)⁽³⁸⁾ recommends that Dementia Care Plans should include environmental modifications to aid independent functioning, including assistive technology, with advice from an occupational therapist and/or clinical psychologist. It suggests that the provision of an adaptive aid, low-level technology (such as visual prompts and signs, or structural changes to the home, such as shower installations), or memory aid should consider the person with dementia and any carer in their own environment and be chosen in collaboration with them. It also notes that combining adaptive aids with patient/carers education and environmental modifications contributed to improved outcomes in independence for people with dementia and reduced stress for their carers.

A number of publications have concluded that, in order to be used effectively, introduction of AT should be

- i) supported by comprehensive staff training,
- ii) ii) done as part of fundamental service redesign e.g. to increase caseloads and allow the benefits of AT to be realised, and
- iii) iii) for individuals, part of a wider holistic package of care and/or include some sort of wider support or education for individual patients and carers.⁽³⁹⁾

A systematic review considering the impact of telecare on informal carers identified only 7 studies for inclusion. The authors concluded tentatively that telecare may exert a positive effect on carer stress and strain, but that there is no evidence to indicate benefits on carer burden or quality of life. The evidence is conflicting about the effect of telecare on the amount of time carers spend on their caring duties, and on relationships between the carer, cared-for person and other family members.⁽⁴⁰⁾

In conclusion, the evidence around AT is conflicting. There is evidence that telehealth is effective in reducing avoidable mortality (by around 35-45%) among patients with some but by no means all LTCs, and in making moderate reductions in acute hospital usage among similar patients cohorts, however the latter is offset by the high additional cost of the intervention itself, rendering telehealth a non-cost-effective intervention overall. There is less robust evidence for a beneficial impact of telecare on individuals, families and the wider health and social care system. More high quality research in this area is indicated.

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19. Ambulance Cars

There have been a range of initiatives looking at the role of emergency response vehicles to manage people in their homes and reduce conveyances or admissions to hospital. These initiatives typically use highly qualified paramedics and/or additional care personnel eg nurse, A&E SpR, GP, social worker, to manage a range of minor acute conditions eg falls and arrange for further interventions in the patient's home setting. The aim may be to see and treat on the scene and/ or to make arrangements for further care input rather than convey to hospital.

19.1 Interventions that reduce health and social care demand

There is limited peer reviewed evidence on the effectiveness of ambulance cars/emergency response vehicles. One study of emergency medicine registrars and paramedics reported 31% discharge at scene; whilst the study claimed this was an improvement on usual practice no comparative figures were presented].⁽¹⁾ Another study of emergency care practitioners found an increase in see and treat (falls and breathing difficulties) at the scene (64% compared to 24% usual practice); there was subsequent attendances and admission to hospital within 72 hours or 28 days but little comparative data was presented.⁽²⁾ Gray noted that there are significant upfront costs in training staff and a return on investment may take up to 4 years. Gray also noted that many of the see and treat contacts were in the minor category and that A&E attendances rather than more costly admissions may be avoided. A study of paramedic practitioners also found a reduction in A&E attendance (62.6% compared with 87.5%) although they did find a higher rate of subsequent unplanned contact with services (21.3% compared with 17.6%)⁽³⁾

There are a number of initiatives being carried out nationally on variations of pre hospital emergency response but little detail on rigorous evaluation.⁽⁴⁾

Impact on patient / client care satisfaction

The study by Mason et al (2007) assessed patient satisfaction and found that 85.5% (compared with 73.8% typical practice) were very satisfied with their care.

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20. Urgent Interventions at time of Crisis

This section considers interventions by health and social care when unscheduled need arises that will potentially precipitate hospital admission. It does not include mental health crises. These are addressed elsewhere.

20.1 Rapid Response Teams

Purdy in her Kings Fund⁽¹⁾ report stated that there is no evidence identified in relation to Rapid Response teams and their effectiveness in preventing admissions. In brief, Rapid Response teams aim to offer social support in a time of crisis in order to avoid emergency hospital admission.

Unfortunately, there have been few UK studies of Rapid Response teams. The role of rapid response teams in preventing hospital admission hence remains unclear.

Recently, Wright et al⁽²⁾ reported the evaluation of “TREAT”, a system of care combining early Accident and Emergency (A&E) based senior doctor review, Comprehensive Geriatric Assessment (CGA), therapist assessment and supported discharge; post-discharge supported recovery; and a rapid access geriatric ‘hot-clinic’. TREAT was supported by a post-acute care enablement (PACE) team, providing short-term nursing support immediately following discharge.

The team reduced mean length of stay (LOS) by 18.16% (1.78 days, $P < 0.001$) for TREAT-matching admissions; by 11.65% (1.13 days, $P < 0.001$) for all emergency geriatric admissions; and by 1.08% (0.11 days, $P = 0.065$) for the residual population. Over the same period, the percentage of admissions resulting in same-day discharges increased from 12.26 to 16.23% (OR: 1.386, 95% CI: 1.203–1.597, $P < 0.001$) for TREAT-matching admissions, but for the residual population fell from 15.01 to 9.77% (OR: 0.613, $P < 0.001$, 95% CI: 0.737–0.509).

This scheme appears to have reduced avoidable emergency geriatric admissions, and to have shortened LOS for all emergency geriatric admissions.

Similarly the NHS QIPP (Quality, Innovation, Productivity and Prevention) Evidence⁽³⁾ describes evaluation of the Bristol multi-disciplinary health and social care service to respond rapidly to a health or social care crisis. The total cost of the crisis response element of the service is £2.8m to which both the PCT and local authority contribute (approximately 70/30 ratio). The costs are made up of staff cost, accommodation, treatment and step-up, bed-based services where they are required.

The net savings to the PCT by treating people in the community are £3.6M and £0.7m for the local authority (see above and case study for further detail). These are the savings achieved in 08/09, the period that the case study refers to, but are typical of what the service has achieved since its creation. The population served is around 450k. Unfortunately this evidence is not of the

most robust kind but suggests consideration.

20.2 Social care in A&E

A Canadian study demonstrated that 5 per cent of admissions could have been avoided if seen by a social worker in A&E (Boyack and Bucknam 1991).⁽⁴⁾ A French study found that a similar proportion of admissions was potentially preventable by a social work intervention (Monsuez *et al* 1993).⁽⁵⁾ A study of a US emergency department demonstrated that having social workers available 24 hours a day can be economically beneficial (Gordon 2001).⁽⁶⁾ There were greater advantages in larger departments in terms of fewer return visits, prevention of admissions for social reasons only, and savings in terms of other staff time. The applicability of this study to the UK is limited by the differences in costing health care in the two systems. Overall, there seems to be uncertainty about the effectiveness of social workers based in the emergency department in terms of reducing inappropriate admissions among older people although this may be because of a lack of supporting community resource (McLeod *et al* 2003).⁽⁷⁾

In conclusion, there is very limited evidence around the benefits of rapid response and crisis intervention either way although there are some examples of potential benefit. Partners may wish to consider developments in this area but to exercise caution and evaluate robustly with clear exit strategies.

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21. Support to Care Homes

Over the past few decades there has been a large transition of older individuals moving from living alone to living in care-homes, with a majority of these individuals having multi-faceted complex medical issues.⁽¹⁾ Currently there are 4,541 individuals supported in registered care, with 572 individuals supported in residential care and 3,969 older individuals supported in nursing care across Essex.⁽²⁾ Individuals from care homes have been found to have a higher rate of admission and re-admission to hospitals compared to other individuals of the same age and due to this, usually have a longer length of hospital stay. Several studies have identified that many of these admissions are avoidable and that care home residents would prefer to remain in the care home as opposed to being admitted to a hospital.⁽³⁾

21.1 Issues

Over-arching themes noticed among several studies indicate that these hospital admissions could be avoided with improved primary care participation and input, improved general access and support from out of hour's physicians and specialist nurses, improved access to clinical tests (blood results/ECGs) and furthermore improved communication between all care staff and improved knowledge and training surrounding end-of-life care.

21.2 Interventions

Despite the limited number of interventions currently in practice, there are promising interventions available that could help tackle these prominent issues, improving clinical and financial outcomes.

21.3 Community Management Team and Improved partnership between Geriatricians and GP's.

There is strong evidence to suggest that an integrated clinical and social care plan can improve patient outcomes, reduce hospital admissions, and reduce financial costs associated with avoidable hospital admissions.⁽⁴⁾ The clinical and social care plan would involve a combination of individual case management and future care planning as administered by a combination of a geriatric community team working in conjunction with general practitioners. One study estimated there to be a 31% reduction in hospital admission in individuals who have an integrated clinical and social care plan in place.⁽⁴⁾ A similar study carried out in the UK, which initially targeted three nursing homes with the highest amount of multiple admissions, reduced hospital admissions by 52%. The three initial homes combined had a total bed capacity of 165 beds, and resulted in a reduction of 57 bed days over a 3 month period. When an additional three care homes were included, not dependent on the number of previous multiple admissions, a significant reduction of 43% was seen. This study estimated that each emergency admission cost the trust £523 and that there would be cost savings if this intervention was implemented. The service provided in this study included; monthly medical advisory meetings with GP's and geriatricians, telephone advice available daily, supported end of life care plans and support from a tertiary company to provide IV fluids and antibiotics in care homes.⁽⁵⁾ Over the initial six months there was a reduction of 250 bed days estimated at £260 per day.⁽⁵⁾ This service has since been implemented by the North West Surrey CCG enrolling 15 care homes in total.

21.4 Local Enhanced Service (LES) from GP's.

LES's targeting residential and nursing homes have already been implemented in parts of England and have shown qualitative and quantitative improvements to clinical outcomes and financial outcomes.⁽¹⁾ Although the services provided vary slightly from region to region, they generally encompass new patient review and annual review for clinical status, annual medication review, and monthly MDT reviews or routine ward rounds. This approach is similar to that of a community management team however with a stronger prime emphasis on continuity of care provided by GP's. There have also been recommendations to implement a similar pharmacist-led service to ensure prompt delivery of medication.

21.5 Care Home Training and Support.

There has been promising evidence in interventions that target improving services provided by care homes. A trial intervention carried out in the United States has implemented a quality improvement set of tools and strategies targeted at care home staff to improve early identification, assessment, communication, and documentation about changes in resident status.⁽⁶⁾ The service provided on-site education, tools to reduce acute care transfers and fortnightly teleconferences between care home staff and a geriatric nurse practitioner. It is estimated that hospital admissions would be reduced by 17%.

A study in the UK, which implemented a dedicated nursing and physiotherapy team to support 131 residents and 15 virtual beds from four residential care homes in Bath and North East Somerset, prevented hospital admission by allowing early detection of illness and subsequent early intervention.⁽⁷⁾ 733 referrals were made during a 2 year period of time, and after full assessment, 197 hospital admissions were averted. This study estimated that the costs and savings of this intervention can vary, with a worst case scenario costing the NHS £2.70 more per resident per week. However if the intervention is implemented with the proper support, the maximum potential overall saving of £36.90 per resident per week would equate to nearly £250,000 saved per annum in a population of 131 residents.⁽⁷⁾

21.6 Impact on patient / client care satisfaction

All of the interventions detailed above improve patient /client care satisfaction. Patients will feel supported and will have a point of contact to answer any questions as developed, by a stronger continuity of care. This in turn will allow residents to retain a greater sense of independence as they will have input into their health care planning. Relatives will also be re-assured that everything has been done in the community prior to a hospital admission. There will also be a higher level of service efficiency in care home staff if a clear and coherent plan is in place and a stronger working relationship will be developed between the GP 's and the nursing home staff.

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22. End of Life Care

The final year of life is strongly associated with hospital admissions – around 90% of people spend some of this time in hospital, and the total cost of non-elective episodes ending in death is around £750m per year.⁽¹⁾ However, understanding how many admissions near the end of life are avoidable is not straightforward and a review of the literature has not found clear agreement.

A retrospective study of inpatient deaths in an English hospital concluded that 20% of admissions were ‘clearly avoidable’ and 13% were ‘probably avoidable’ (assuming suitable services for care at home).⁽²⁾ Work for the National Audit Office’s End of Life Care report found that 40% of deaths in one month in a Sheffield hospital could have occurred at home or in another setting.⁽³⁾ Gott et al (2013)⁽⁴⁾ looked at the extent of potentially avoidable admissions of patients with palliative care needs, and found that just 7% of admissions of patients meeting criteria for palliative care were identified as avoidable. Given the lack of clarity around how many end of life admissions are avoidable, it may be difficult to significantly reduce the hospital use of patients at the end of life.

This review of the literature has looked at the evidence for reducing health and social care use at the end of life. The recent review of funding for palliative care⁽⁵⁾ concluded that ‘there is a stunning lack of good data surrounding costs for palliative care in England’; unfortunately it seems that there is also a lack of good data around many other aspects of end of life care.

Death at home is the preferred option of most people, with hospice-style care a clear second preference. Actual place of death for Essex CC residents is quite different (although similar to national place of death data); 58% die in hospital (or in a hospice unit or specialist palliative care unit within a hospital), and just 36% die at home or in a care home. Of those deaths in hospital, a very high proportion were admitted as emergencies (93%, significantly higher than the England average of 90%).⁽⁶⁾ The estimated number of deaths per year where palliative care is needed was 12,067 across Essex (including Southend and Thurrock).⁽⁷⁾

22.1 Impact on Health Service

‘**Hospice at home services**’: A Cochrane review (Gomes et al, 2013)⁽⁸⁾ looked at studies which compared the effect of home palliative care versus ‘usual care’ on emergency department care and intensive care use. These studies were all conducted in the United States. The reviewers found ‘moderate evidence of no statistically significant effect’ on these measures, and also found that the evidence was inconclusive around the cost-effectiveness of home palliative care compared to usual care. The review did find that there was clear and reliable evidence that home palliative care increased the chance of dying at home and reduced the symptom burden. The review also found that the evidence on home palliative care’s impact on use of social services was inconclusive. A similar meta-analysis of ‘community specialist palliative care services’ (services to enable people to be cared for and to die at home) found inconclusive evidence that these services increased the rate of home death without increasing costs.⁽⁹⁾

A recent retrospective cross-sectional study in Western Australia (published after the Cochrane review’s literature search) found that early access to community-based

palliative care reduced the chance of visiting the emergency department (OR=2.86, 95% CIs 1.91-4.30) but the report did not define 'community based palliative care'.⁽¹⁰⁾

However Chitnis et al (2012)⁽¹¹⁾ published (after the Cochrane review literature search) a UK case-control study which compared nearly 30,000 people who received Marie Curie Nursing Service care (home-based palliative care) with matched controls. Marie Curie patients were significantly more likely to die at home (77% died at home compared with 35% of the control group – adjusted OR 6.97, 95% CIs 5.94-6.38). Just 8% of Marie Curie patients died in hospital compared with 42% of controls (OR not given). Compared to controls, Marie Curie patients had around a third of the number of A&E attendances and emergency admissions (adjusted OR 0.19, 95% CIs 0.18 – 0.20), and less than half the number of elective admissions (adjusted OR 0.41, 95% CIs 0.41-0.41). The reduced likelihood of hospital admission and A&E attendance was reflected in hospital care cost savings, with an estimated average reduction of over £1,100 per Marie Curie patient compared with controls (this excludes the cost of providing Marie Curie care however). Interestingly, the cost savings for patients with cancer were smaller than for patients with other conditions (around £1,000 per cancer patient and around £1,500 for other patients).

If 75% of all deaths from cancer in Essex used health services in the same way as the Marie Curie cohort in this study, the savings to hospital care costs could be around £2.7m (excluding the costs of providing the Marie Curie care, and assuming similar services are not in place at present). The proportion of deaths from cancer at home could increase from 27% to 58% (the proportion of all deaths at home would increase from 20% to 32%).⁽¹²⁾

Overall, the evidence base lends some support for investment in home palliative care to reduce emergency hospital admissions but this is based on one large UK study only.

Advance care planning : Abel et al (2013) conducted a retrospective cohort study of hospice patient deaths in the South West of England, looking at the effect of advance care planning (ACP; indicated by notes on preferred place of death) on place of death and use of health services. 11% of patients whose notes indicated ACP died in hospital, compared to 26% of controls (who received hospice care but whose notes did not indicate ACP). The mean number of hospital bed days for the ACP patients was significantly lower than for controls (18.1 days vs 26.5 days, $p<0.001$) although the number of admissions, number of emergency admissions, and cost of emergency admissions were not significantly different. The limited effect of ACP should be seen as additional to the other benefits that hospice care may have in reducing hospital use by patients at the end of life (see next section).

Similar work in the US by Fonk et al (2012)⁽¹³⁾ found that the use of 'Advance Directives' for Medicaid patients did not reduce end of life costs when controlled for patient health.

However, there is some evidence for the use of advance care planning for residents in nursing or care homes. A lack of advance care plans was one reason given for a high admission rate of end of life patients from care homes in Norfolk, and Ahearn et al (2010) also suggest that advance care planning can reduce hospital admissions in end of life patients resident in nursing homes.⁽¹⁴⁾⁽¹⁵⁾

Hockely et al (2010)⁽¹⁶⁾ found that the introduction of the Gold Standards Framework for Care Homes was associated with a reduction in 'clinically inappropriate' hospital bed days, hospital admissions in the last eight weeks of life, and a reduction of deaths in hospital, but this does not appear to have been tested for statistical significance.

Hospice and community hospital care for end of life patients: There is very little published work looking at the effects that inpatient hospice or community hospital care for end of life patients have on emergency admissions or other acute hospital use.

It seems intuitive to expect hospice or community hospital care to reduce the need for acute care for end of life patients, but there is not a solid evidence base to support (or refute) this assumption. However, in Essex, 559 people die in hospice each year⁽¹⁷⁾ and without the availability of the hospice care it seems reasonable to assume that a large majority of these people would have died in hospital, incurring cost pressure on the acute trusts in the county.

DeVader et al (2012)⁽¹⁸⁾ evaluated a hospice unit within a hospital in the USA and found that transferring end of life patients directly from the emergency department to the hospice unit reduced hospital costs, compared with transferring patients from elsewhere in the hospital (intensive care or other wards).

22.2 Impact on Social Care

The literature search did not identify any work on interventions to reduce social care use at the end of life.

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23. SOS Bus

This section focuses on the local evaluation of the Colchester SOS bus.

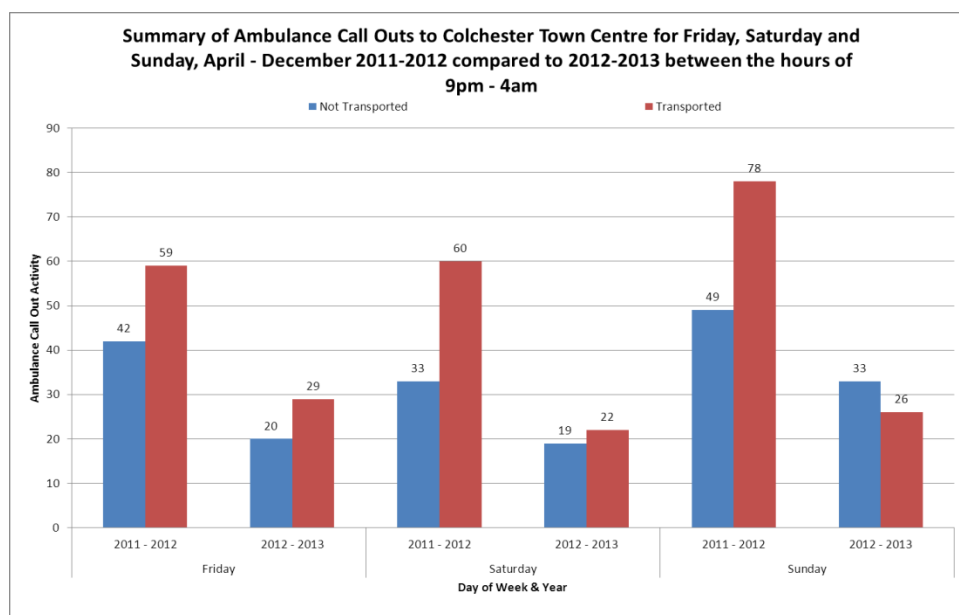
The original purpose of the bus was to support and improve the night-time economy and environment of Colchester town centre by providing a place of safety for anyone alone, ill, injured or otherwise vulnerable and to support other agencies, such as the police, working in the town at night. Run by Open Road and staffed mainly by volunteers, it operates on Friday and Saturday nights, from 9pm until 4am, and other peak nights for alcohol consumption such as New Year's Eve. Current funding comes mainly from Colchester Borough Council with a contribution from ECC Public Health and, more recently, from North Essex Clinical Commissioning Group (CCG).

23.1 Service and savings

Clinical cover, provided by a doctor or paramedic, was introduced for an initial one year pilot project from April 2012. A wider range, and more serious, injuries and illnesses could then be treated, reducing demand on other services, as demonstrated by ambulance, SOS Bus and A&E data.

23.2 Ambulance service data

Ambulance service data (see below), comparing the first nine months of the service in 2012 with the same period in 2011, shows a reduction of over 50% (from 321 to 149) in call-outs to Colchester town centre during the hours when the Bus was operational and a 60% reduction (197 to 77) in transported cases.

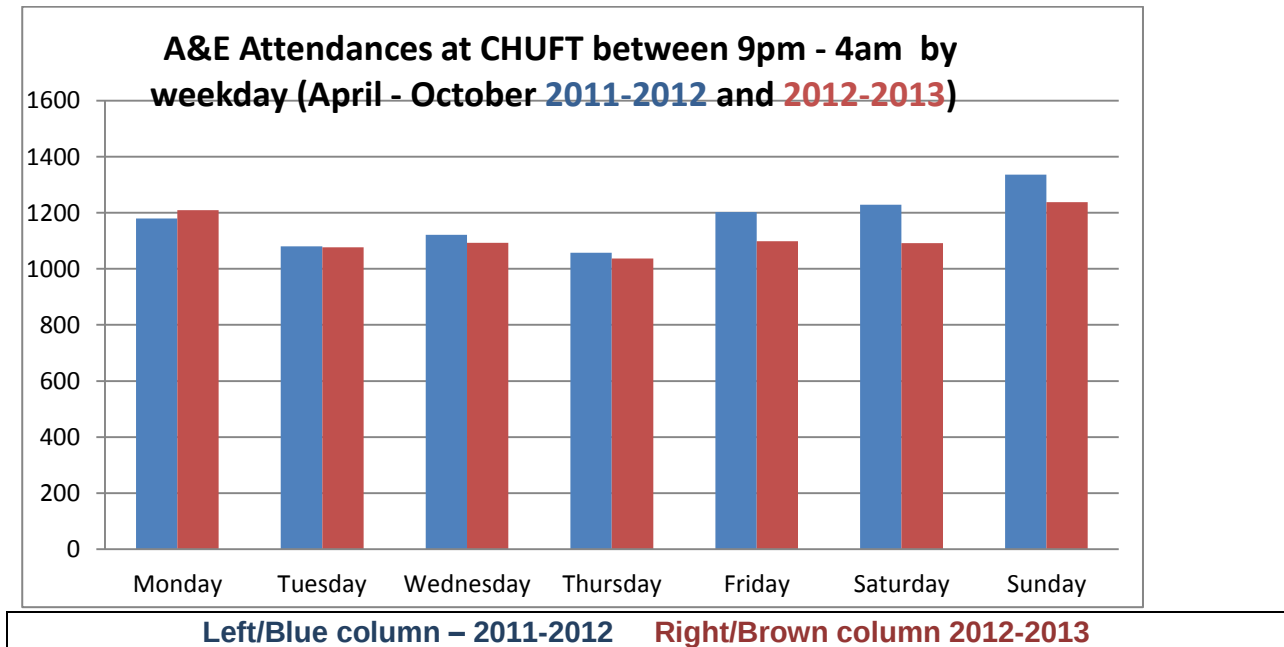


23.3 A&E data

SOS Bus data shows that in the first nine-months 155 cases were treated that would otherwise have required A&E treatment, reducing A&E walk-in costs by an estimated

£8,500. In addition data from CHUFT (Colchester Hospital University Foundation Trust) shows decreasing A&E attendances during SOS Bus operational hours (see below).

It should be noted that there is likely to be some double-counting within these data sets (i.e. the Bus treated someone who may otherwise have called an ambulance)



23.4 Savings

It is estimated that in the first nine month period an investment of £40,500 may have reduced costs by over £100,000, which suggests that savings to the health economy were in the region of £60,000.

24. Inappropriate Urgent Care Usage

It has been widely reported that current demands on Accident and Emergency departments are increasing current A&E capacity, threatening the ability of services to work effectively. This section considers evidence in terms of programmes that reduce inappropriate demand on A&E

24.1 GP within A&E Schemes

Employing GPs in emergency departments has been shown to reduce rates of investigations, referrals and prescriptions.⁽¹⁾ A pilot in York District Hospital A&E where a GP saw 9% of all patients resulted in 73% being discharged home. Patient waiting time was significantly reduced by seeing the GP rather than A&E doctors, and patient satisfaction was high. The study did warn however, that because of high patient satisfaction with the pilot, permanently basing GPs in A&E may actually encourage more patients to attend A&E to see a GP.⁽²⁾

A Cochrane review of three non-randomised studies involving a total of 11,203 patients, 16 General Practitioners (GPs), and 52 Emergency Physicians (EPs), evaluating the effects of introducing GPs to provide care for patients with non-urgent problems in A&E compared to hospital A&E doctors. The review demonstrated that GPs order less blood tests and x-rays and admit fewer patients to hospital and that EPs referred more patients and prescribed more medications than GPs. Two of the three studies showed marginal cost savings of the intervention and provided limited evidence on patients' self-reported health outcomes. The third study found no differences between the two approaches with respect to blood tests, x-rays or hospitalizations. This study involved fewer participants (1878), and used an unstructured triage system which may have led to misclassification of patients into urgent and non-urgent groups.⁽³⁾

24.2 Reducing A&E usage by high frequency users.

A number of studies have sought to describe the clinical and demographic profile of patients that use A&E multiple times a year. High frequency A&E users have found to be more likely to come from lower socio-economic groups and have lower levels of social support.⁽⁴⁾⁽⁵⁾⁽⁶⁾ One large study which analysed 117,000 A&E attendances over one year in a south-east London teaching hospital concluded that patients that were high intensity users (defined as >4 visits in a year) were more likely to be older, male and have more serious health conditions. They were also more likely than other patients to attend out of hours.⁽⁷⁾ A case control study using 457 cases accessing A&E at Basildon hospital in the late 1990s found that of 457 patients who attended A&E appropriately matched with 457 controls on age, sex, socioeconomic status, distance from A&E and registered GP practice in south Essex found that inappropriate attenders had twice as many GP appointments and ten times as many out of hours advice calls as non-attenders. Markers of anxiety and depression strongly significantly correlated with A&E attendance but was no significant difference between inappropriate attenders and non-attenders in terms of chronic morbidity, suggesting general clinical need was not a factor

Overall inappropriate attendance ratio was 16.8% of all attendances.⁽⁸⁾

There is evidence that implementing multi-disciplinary team care planning on discharge from A&E of high intensity users reduces future use. A study that analysed the A&E

usage of 32 patients that accounted for 858 A&E visits and 209 hospital admissions found that in the 12 months after the introduction of care plans (incorporating information from the patient's GP, social care needs, mental health needs, drug/alcohol needs, etc), A&E attendances fell to 517 with only 77 admissions. The study concluded that individual care planning can reduce attendance by 50%, although absolute numbers may be small.⁽⁹⁾ A study examining a cohort of 57 patients with very high usage of A&E >10 times in a year found that implementing multi-disciplinary case management/care plans reduced usage by 31%. High usage patients often had complex multi-factoral health and social needs, especially social isolation, and case management was effective at addressing them. However an alternative explanation may be regression towards the mean – i.e. patients who are initial outliers in A&E use are likely to normalise use over time. Alcohol misuse was the most common problem amongst the cohort, followed by mental health problems.⁽¹⁰⁾ A further study found that intervention by a multi-disciplinary team consisting of a social worker and nurse care manager improved the clinical management of patients regarding medical and psycho-social care across the healthcare continuum, improved effectiveness by linking patients with community resources and decreased the use of A&E as a primary care provider.⁽¹¹⁾

24.3 Hospital Based Alcohol Harm Reduction/Treatment Referral Programmes.

There is a large body of evidence that a significant number of A&E attendances have alcohol as an underlying cause.⁽¹²⁾⁽¹³⁾⁽¹⁴⁾ Introducing alcohol screening using a FAST or AUDIT tool, and providing appropriate brief intervention or referral to extended intervention is highlighted in the Department of Health Commissioning Guidance on Alcohol⁽¹⁵⁾ as one of the high impact changes that can reduce A&E revolving door patients. Similarly, commissioning Alcohol Nurse Liaison Services (ALNS) within secondary care to identify dependent drinkers admitted for health problems directly attributable to alcohol misuse (e.g. liver and gastroenteritis) and developing a case management approach to address their alcohol dependency in association with drug/alcohol services has been shown to be highly cost effective.⁽¹⁶⁾ There is no evidence that:

- Out of hours walk in services reduce A&E attendance
- NHS direct reduces A&E attendances

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25 Education and Self-Management

Definition: According to Purdy et al.⁽¹⁾ review, self-management is a term applied to any formalized patient education programme aimed at teaching skills needed to carry out medical regimens specific to the disease, guide health behaviour change, and provide emotional support for patients to control their disease and live functional lives.

25.1 Asthma

There have been four and three recent Cochrane reviews in children and adults respectively looking at the impact of education and self-management interventions on hospital admissions. A Cochrane review of limited education interventions (information only) included 12 trials 12 RCTs. {Gibson 2008}⁽²⁾ reported that limited asthma education did not reduce hospitalisation for asthma. The same authors (Gibson 2009)⁽³⁾ found however that self-management with education and practitioner review reduced hospitalisations (relative risk 0.64, 95% CI 0.50, 0.82)

Tapp⁽⁴⁾ in 2010 reviewed educational interventions in the accident and emergency department. There was a statistically significant reduction in subsequent hospital admission in the educational intervention groups (RR 0.50; 95% CI 0.27 to 0.91,).

Reviews of action plans⁽⁵⁾ and self-management and educational interventions in children⁽⁶⁾ showed no impact on hospital admissions, review of A/E interventions was equivocal.⁽⁷⁾

25.2 COPD

A Cochrane review of action plans⁽⁸⁾ found no impact on hospital admissions. A review of self-management with education⁽⁹⁾ showed, at follow up times of 3-12mths, a significant reduction in the probability of at least one hospital admission among patients receiving self-management education compared to those receiving usual care (OR 0.64; 95%CI 0.47, 0.89). This translates into a one year NNT ranging from 10 (6 to 35) for patients with a 51% risk of exacerbation, to an NNT of 24 (16 to 80) for patients with a 13% risk of exacerbation.

25.3 Heart Failure

Boyde 2011⁽¹⁰⁾ a total of 2686 patients were included in 19 RCTs. Most of the included studies comprised of an initial educational intervention which was a one-on-one didactic session conducted by nurses supplemented by written materials and multimedia approaches. The RCTs used a variety of outcome measures to evaluate their effectiveness. Of the RCTs reviewed, 15 demonstrated a significant effect from their intervention in at least one of their outcome measures.

25.4 Older People

Parry 2009⁽¹¹⁾ used an RCT to test whether a self-care model for transitional care could improve outcomes in Medicare Advantage and Medicare fee-for-service populations in the US. Intervention patients were less likely to be readmitted to a hospital in general, and for the same condition that prompted their index hospitalization, at 30, 90, and 180 days versus control patients. Application to this country is uncertain.

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GLOSSARY OF TERMS

A & E – Accident and Emergency
ACP – Advanced Care Planning
ACS – Ambulatory Care Sensitive
AMU – Acute Medical Unit
ANLS – Alcohol Nurse Liaison Service
AT – Assistive Technology
AUDIT – Alcohol Use Disorders Identification Test
BNF – British National Formulary
BW – Battered Women
CCG – Clinical Commissioning Group
CGA – Comprehensive Geriatric Assessment
CHF – Congestive Heart Failure
CHUFT – Colchester Hospital University Foundation Trust
CI – Confidence Interval
CPM – Combined Predictive Model
CRHT – Crisis Resolution and Home Treatment
CTT – Cognitive Trauma Therapy
DV – Domestic Violence
ECC – Essex County Council
ECCEP – Evaluating Community Care for Elderly People study
ECG – Electrocardiogram
ED – Emergency Department
EP – Emergency Physician
FAST – Fast Alcohol Screening Tool
HINST – Health Inequalities National Support Team
IBA – Intervention and Brief Advice Services
ICS – Integrated Continence Services
IDVA – Independent Domestic Violence Advisors
LES – Local Enhanced Service
LTC – Long term Condition
MDS – Minimum Data Set Depression rating scale
MDT – Multi-disciplinary Team
NAO – National Audit Office
NICE – National Institute for Health and Clinical Effectiveness
NLU – Nurse Led Unit
NNT – Number Needed to Treat
NSF – National Service Framework
NYHA – New York Heart Association (classification system)
ONS – Office for National Statistics
OR – Odds Ratio
P – p value (probability)
PACE – Post Acute Care Enablement
PARR – Patients at Risk of Re-hospitalisation
PCT – Primary Care Trust (ceased in March 2013)
PEONY – Predicting Emergency Admissions Over the Next Year
POPP – Partnership for Older People Project
PRISM – Predictive Risk Stratification Model

PSSRU – Personal Social Services Research Unit
QALY – Quality Adjusted Life Year
RCT – Randomised Controlled Trial
RRT – Rapid Response Team
SCIE – Social Care Institute for Excellence
SpR – Specialist Registrar
SSRI – Selective Serotonin Re-uptake Inhibitor
TREAT - Triage and Rapid Elderly Assessment Team
UKATT – the UK Alcohol Treatment Trial
UKNSC – UK National Screening Committee
UTI –Urinary Tract Infection